

**WIDOWS CREEK PROPERTY DISPOSAL
ENVIRONMENTAL ASSESSMENT**
Jackson County, Alabama

Prepared by:
TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee

March 2015

To request further information, contact:

Loretta A. McNamee
NEPA Compliance
Tennessee Valley Authority
400 W. Summit Drive
Knoxville, Tennessee 37828
Phone: 865-632-6455
Email: lmcnamee@tva.gov

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Symbols, Acronyms, and Abbreviations

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AADT	Annual Average Daily Traffic
ADEM	Alabama Department of Environmental Management
ALDOT	Alabama Department of Transportation
APE	Area of Potential Effects
BMP	best management practice
CAA	Clean Air Act
CO₂	carbon dioxide
CR	county road
CT	Census tract
CWA	Clean Water Act
dBA	A-weighted decibel
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EO	Executive Order
GS	gypsum stack
GHG	greenhouse gas
LOS	level of service
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLEB	Northern long-eared bat
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PM	Particulate Matter
PM₁₀	Particulate Matter Having a Diameter of Less Than or Equal to 10 Microns
PM_{2.5}	Particulate Matter Having a Diameter of Less Than or Equal to 2.5 Microns
ppb	parts per billion
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Officer
TARCOG	Top of Alabama Regional Council of Governments
TRI	Toxic Release Inventory
TVA	Tennessee Valley Authority
TVARAM	Tennessee Valley Authority Rapid Assessment Method
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish And Wildlife Service
VOC	volatile organic compound
WCF	Widows Creek Fossil Plant

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CHAPTER 1 – PURPOSE AND NEED FOR ACTION

In 2010, Tennessee Valley Authority (TVA) purchased approximately 600 acres immediately adjoining its Widows Creek Fossil Plant (WCF) in Jackson County, Alabama (Figure 1-1). The property was purchased to preserve the ability to convert wet coal combustion residuals at WCF to dry handling systems in the future. Since acquisition of the land, TVA's potential need for this amount of property has changed. Due to the retirement and/or pending retirement of seven of the eight WCF generating units, TVA no longer needs to preserve all of this property for its use. Therefore, TVA proposes to make 360 acres of the property available for light industrial use.

TVA's Economic Development group evaluated the feasibility of the site for potential uses based on location, existing infrastructure, proximity to water, availability of transportation (railroad, barge, road network) and site characterization. After the evaluation, it was determined that the best use of the site would be light industrial use. The property would be made available by selling it at public auction under Section 31 of the TVA Act, or through an easement or license (for ease of use, TVA refers to this as "disposal" or "disposing," although it could still retain fee title to the transferred acreage).

1.1 Background

Prior to TVA's purchase of the property, some of the land was cleared, leveled, and developed with homes and some lots were landscaped with shrubs, flowers, trees, and turf grass (TVA 2013). Following its purchase of the property, TVA removed the buildings and converted the area from low density residential and agricultural use to undeveloped land. The vegetation in the project area includes areas of mixed deciduous forest and herbaceous vegetation.

In February 2014, TVA completed an environmental assessment (EA) for the closure of the WCF Gypsum Stack (GS). To facilitate the closure, TVA is using approximately 60 acres of the purchased property as a soil excavation or borrow area to provide a sufficient quantity of suitable soil for construction of the final GS cover system (TVA 2014). TVA plans to work with future developers of the property to continue to use the property as a soil excavation area for its GS closure project as necessary.

1.2 Decision to be Made

The decision before TVA is whether or not to make the 360-acre property available for light industrial uses.

1.3 Related Environmental Reviews

Previously completed environmental reviews relevant to this EA include:

Widows Creek Fossil Plant Soil Excavation and Gypsum Stack Closure (TVA 2014)

This EA evaluated the closure of the WCF GS and the use of approximately 60 acres of adjacent property as a soil excavation area. The excavated soil would be used to cover the GS. The 60-acre soil excavation area is included in the property proposed for disposal.

Widows Creek Fossil Plant House Demolition (TVA 2013)

This EA evaluated the demolition and debris removal of structures located on the 600-acre property. The demolition allowed TVA to protect human health and safety by removing abandoned structures that could attract vagrants and crime.

1.4 Scope of the Environmental Assessment

TVA has prepared this EA in accordance with the National Environmental Policy Act (NEPA) and implementing regulations. TVA considered the possible environmental effects of the proposed action and determined that potential effects to the environmental resources listed below were relevant to the decision to be made. Thus, potential effects to the following environmental resources were addressed in detail in this EA:

- Air quality
- Surface Water
- Land Use
- Transportation
- Visual resources
- Cultural and historic resources
- Biological resources (vegetation, threatened and endangered species, terrestrial wildlife, and wetlands)
- Noise
- Socioeconomics and Environmental Justice

TVA also considered potential effects related to aquatic ecology; 100-year floodplain; health and safety; groundwater; and natural areas. Potential effects to these resources, however, were found to be absent or minor, and not to require further or only limited consideration.

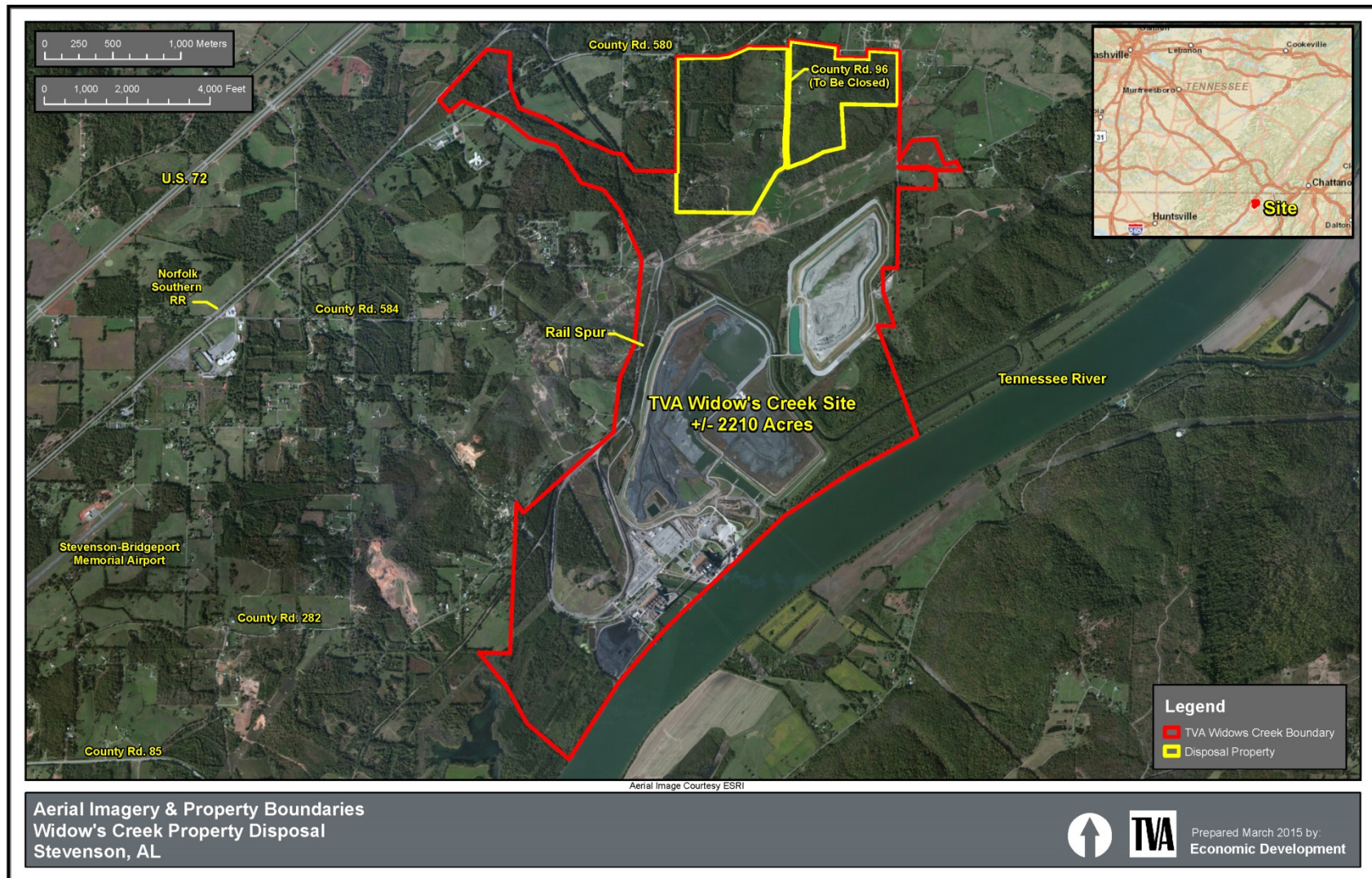


Figure 1-1 Widows Creek Land Disposal Property

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1.5 Public Involvement

TVA posted the draft EA on its website for a 30-day comment period and requested the public to submit comments via mail, email or online comment form. TVA also published a notice requesting comments in the Daily Sentinel and Stevenson North Jackson Progress newspapers on January 23, 2015 and January 26, 2015, respectively. TVA sent the draft document to interested local, state and federal agencies and federally recognized tribes (See Chapter 5). TVA did not receive any comments.

1.6 Potentially Necessary Federal and State Permits or Approvals

The proposed disposal of the property would not require TVA to acquire permits or other federal approvals or authorizations. The list below identifies regulations, programs, permits, approvals, or other authorizations from federal or state authorities that may be required before the property could be developed for specific uses by a developer:

- Approvals from TVA under Section 26a of the TVA Act would be required if a new water intake structure or other water use facilities in the Tennessee River are needed for future development.
- Authorization(s) under Section 404 of the Clean Water Act (CWA) or Section 10 or the Rivers and Harbors Act, administered by the U.S. Army Corps of Engineers (USACE), are required for disposal of dredge or fill material in waters of the U.S. or construction (i.e., water intake structure) with the potential to obstruct navigation.
- Water quality certification under Section 401 of the CWA could be required as part of the process for permitting development in wetlands or waters of the U.S. or the State of Alabama.
- Under the General Permit for Construction Storm Water under Section 1342 of the CWA, an owner registration is required prior to any land-disturbing activity on the project site exceeding 1 acre and up to 5 acres in size in accordance with Alabama Department of Environmental Management (ADEM) guidelines. Individual National Pollutant Discharge Elimination System (NPDES) Permit coverage is required for disturbances of sites equal to or greater than 5 acres.
- An NPDES Permit would be required under Section 402 of the CWA for point source discharge into waters of the U.S. or state of Alabama.
- Certain permits may be required from ADEM's Division of Air Pollution Control Program, which administers the Clean Air Act (CAA) related programs in Alabama..
- Local government agencies or offices may require approval of light industrial uses in compliance with certain regulations, zoning laws, or other applicable ordinances.

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CHAPTER 2 – ALTERNATIVES

Descriptions of the proposed action and its alternatives, a brief comparison of their environmental effects, and TVA's preferred alternative are presented in this chapter.

2.1 Description of Alternatives

This EA documents the evaluation of two alternatives: the No Action and Proposed Action Alternatives. The GS closure activities, including excavation of 60 acres, are currently underway on a portion of the 360 acres proposed for disposal. Therefore, the environmental impacts discussed in TVA's 2014 EA would occur within the project area under both Alternatives.

2.1.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not make the 360-acre property adjoining its WCF facility available for light industrial use. The property would continue to be designated as TVA power property. No environmental changes would occur as a result of the implementation of the No Action Alternative.

2.1.2 Alternative B – The Proposed Action Alternative

Under the Proposed Action Alternative, TVA would make available approximately 360 acres of property adjoining the WCF for light industrial land use. Light industry can be generally defined as a manufacturing activity that uses moderate amounts of partially processed materials to produce items of relatively high value per unit weight. These industries tend to be more consumer-oriented and are less intensive than heavy industry. The goods produced are easy to transport. Examples of light industrial uses include, but are not limited to:

- Call Centers - These centers function to provide telemarketing and customer care through operation by providing real time support through telephone or e-mail. In order to provide the best customer support, many call centers, also known as contact centers, are open 24 hours of the day and 7 days per week. Due to the nature of call centers, these facilities typically have minimal waste and environmental impacts. Most call centers do require some form of power back up, typically a diesel generator. However, this generator is for back up purposes only and is rarely used (Batt et. al 2004);
- Food processing - The Food Processing industry is responsible for taking raw goods (animals and/or plants) and processing these into edible products. The manufacturing of such products can require boilers or steam generating units used for cooking, processing, or sanitation. Site accessibility and transportation of materials is an important component of the food industry. The industry relies on both large trucks (tractor-trailers) or railroad carriers for the transportation of goods both to and from the site. The size and capacity of plants is variable. Depending on the size of the plant and their operations, multiple trucks per hour could arrive at the plant.

The boilers required for food processing utilize fossil fuels. The combustion of these fuels produces various emissions, including sulfur oxides, nitrogen oxides and particulates. In addition, the food processing industry also relies on refrigeration to preserve food. Depending on the type of refrigeration system used, ammonia and

Chlorofluorocarbons may be used. Ammonia is not subject to Title V CAA, however, ammonia is considered a volatile chemical. Facilities use chemicals that are listed in the Toxic Release Inventory (TRI) and regulated by the U.S. Environmental Protection Agency (USEPA) (USEPA 2014a);

- Data Centers - Facilities that centralize Information Technology (IT) equipment, such as servers, to store data and IT operations. Data centers require a large amount of electricity to operate. In addition to the main power source, data centers also require a redundant power supply, typically diesel or natural gas generators. While in operation, IT equipment generates large amounts of heat and require a cooling system, which may include cooling towers. Data centers require around the clock employment and high security;
- Fabricated metal products industry – These facilities process metals into either an intermediate or end use product through the shaping or finishing of received metals. Molten metals are cut or formed into specific shapes, this process is completed through physical manipulation or with the aid of cutting oils (ethylene glycol). Finishing of metals is accomplished through blasting, acid washes or other chemical washes. Both shaping and finishing a metal product results in both metal chip waste and solvent or acid waste. These process wastes are regulated under Resource Conservation and Recovery Act (RCRA) and industry-specific regulations under the CAA and CWA. Depending on the size of the end product, these facilities require reliable roads or railway system for transportation to and from the plant. (USEPA 1995a and 2014b);
- Recycling facilities – Recycling is the process of collection and processing materials that would otherwise be thrown away as trash and turning them into new products. The industry relies on large trucks (dump trucks) for the transportation of materials both to and from the site. The size and capacity of the facilities are variable. These facilities often have multiple deliveries per day during operational hours.
- Storage facilities include structures to store goods (perishable and nonperishable, construction materials, automobiles, etc.). Due to the nature of storage facilities, these facilities typically have minimal waste and environmental impacts;
- Printing, publishing and allied industries - These facilities are composed of printing, platemaking and bookbinding that serve regional or local markets. Printing typically consists of lithography, letterpress, flexography, and screen printing processes. The applicability of many federal regulations is determined by the chemicals being used at a facility. Federal environmental requirements under the CAA, CWA, RCRA, and Toxic Substance Control Act apply to printing and publishing facilities. Air emissions of Volatile Organic Compounds (VOCs) are the most prevalent emission at these facilities. Emission of VOCs is regulated by the CAA and permits are required (i.e., Title V, etc.) for new point sources to minimize emissions. Facilities use chemicals that are listed in the TRI and regulated by the U.S. Environmental Protection Agency (USEPA 1995b);
- Mineral Processing Facility (Stone, Clay, Glass and Concrete Sector) – This sector includes the manufacturing of a broad array of products, primarily through physical modification of mined materials and includes establishments that manufacture flat glass and other glass products, cement, structural clay products, pottery concrete

and gypsum products, cut stone, and other products. The processes used to create these products primarily involve physical conversion of earthen materials by sorting, mixing, grinding, heating, and cooling. These facilities do not include the mining of raw materials. The pollution outputs for this industry are generally limited to particulate emissions, solid waste, and waste water (cooling water needed for heating processes). The process wastes can be regulated under RCRA, and there are industry-specific regulations under the CAA and CWA. Dependable roads and/or railway system for transportation to and from the plant would be required based on the size of the facilities (USEPA 2014c);

It is highly unlikely that the future light-industrial development would disturb (grading, vegetation removal, etc.) the entire project area. However, the amount of land actually used or required by future development could vary from a few acres to the entire property. For this impact analysis, TVA assumes disturbance of the entire property for a conservative approach. Disturbed areas would likely be graded and reseeded with native or nonnative, noninvasive species. Also, due to safety/security reasons, there would be physical barriers (i.e. fencing), vegetation screens, and other types of barriers between the adjacent residential properties and future development.

Future development of the site could include the construction of multiple buildings and parking lots. Depending on the extent of on-site development, expansion of existing utility infrastructure (i.e., electric, water, fiber optics, sewer, gas and roads) could be necessary. Developers may want to utilize existing infrastructure at the WCF. However, specific site design and how the future development would access such infrastructure is unknown; therefore, the impacts of its use will not be assessed as part of this EA. Also, if a new water intake structure in the Tennessee River is needed, the future owner would need to obtain approval under Section 26a of the TVA Act. TVA would evaluate the use of existing facilities and any proposed water intake structure in a separate environmental review process that tiers from this EA if this is proposed in the future.

2.2 Comparison of Alternatives

Table 2-1 comparatively summarizes the potential effects that would occur under the two alternatives that were considered in detail.

Table 2-1 Summary and Comparison of Alternatives by Resource Area

Resource Area	Impacts from Alternative	
	A	B
Air quality	None	Minor, temporary increase in fugitive dust and vehicular emissions Overall, no significant impacts
Surface Water	None	No significant impacts
Terrestrial Ecology - Vegetation	None	Long-term insignificant impacts
Terrestrial Ecology - Wildlife	None	Long-term insignificant impacts

Resource Area	Impacts from Alternative	
	A	B
Threatened and Endangered Species	None	No effect to plant and aquatic listed species. May effect, but are not likely to adversely affect gray bat and Indiana bat, nor would the actions jeopardize the continued existence of the northern long-eared bat
Wetlands	None	No significant impacts
Cultural and historic resources	None	No significant impacts
Visual resources	None	Minor, temporary short-term impacts during construction of future facilities. Minor adverse impacts during operation of future facilities.
Land use	None	Minor impacts to prime farmland No significant impacts
Socioeconomics and Environmental Justice	None	Minor, temporary impacts during future construction Minor long-term beneficial impacts
Transportation	None	Minor short-term impacts during construction Long-term insignificant impacts
Noise	None	Temporary increase in noise from construction equipment. Long-term insignificant impacts

2.3 Identification of Mitigation Measures

Mitigation measures are actions taken to avoid, minimize, rectify, reduce, compensate, or mitigate for adverse impacts to the environment. The following measures would be taken to reduce the potential for adverse effects under the Proposed Action Alternative. Depending upon the specific developments, their location on the property, and supporting activities following transfer of the property, some mitigation would likely be required by other federal, state, and local authorities in order to acquire necessary permits and other authorizations (See Section 1.5).

Future owners would utilize appropriate best management practices (BMPs) during construction and operation of the property in order to comply with necessary permits and authorizations. These BMPs may include the following measures:

- Construction BMPs would be used to control air emissions from open construction areas and unpaved roads. Roadways would be sprayed with water as needed to reduce fugitive dust emissions.
- Appropriate construction BMPs would be used to reduce storm water runoff.

TVA would comply with the following applicable laws, regulations, and executive orders (EO).

- Consistent with the Endangered Species Act, TVA would require the deed, transfer, or other conveyance documents to include a covenant limiting tree clearing to between October 15 and March 31, unless the future owner either (i) demonstrates that there is no summer roosting habitat for the Indiana and northern long-eared bats prior to any tree clearing or (ii) obtains U.S. Fish and Wildlife Service (USFWS) concurrence that no impact to these species could occur at any time of year. This would remove any potential for direct, indirect, or cumulative effects to either species.
- Consistent with TVA implementation procedures for EO 11990, TVA would include specific language in the deed, transfer, or other conveyance documents for the property describing existing wetlands present on the site and the need to obtain approval and appropriate permitting from USACE regarding wetland impacts. TVA would require a developer to avoid impacting wetlands if practicable and if not practicable, to submit a no practicable alternatives analysis to TVA.

2.4 The Preferred Alternative

TVA's Preferred Alternative is Alternative B, the Proposed Action Alternative.

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CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the nature, extent, and importance of environmental resources in their existing setting on the project area. It provides a baseline for the assessment of potential effects of the alternatives described in Chapter 2. This chapter also presents the anticipated environmental consequences that would occur to the various resources from the adoption of Alternative A—No Action and Alternative B—Proposed Action. This information is summarized in Section 2.2 and in Table 2-1.

In the environmental analysis, some environmental resources were determined to require no further or only limited consideration. The proposed property is not located within a 100-year floodplain (See Figure 1-1) and future development of the site would not have any direct, indirect or cumulative effects on floodplains. Because no designated Wild and Scenic Rivers or their tributaries occur at or adjacent to the project area, the proposed action is not anticipated to affect these designated waters. The project area is located approximately 1.4 miles from a natural area (Raccoon Creek State Wildlife Management Area). Because of this physical separation, the proposed action would not affect the natural area.

Geology and soils information was discussed in Chapter 3.2 of the Soil Excavation and GS Closure EA. As discussed in Section 1.5, future owners of the property would submit a notice of intent to ADEM for coverage under the NPDES General Permit for future development. As part of this application, a Construction Best Management Practice Plan would be developed and implemented to control and confine sediment to the project area. Therefore, no significant indirect or direct geological resource impacts would occur under Alternative B. Groundwater information is discussed in Chapter 3.3 of the Soil Excavation and GS Closure EA. Considering the current conditions of the watercourses within the project area, the proposed land use, and adherence to state and local permit requirements, impacts to the aquatic ecology within the project area are expected to be minor and insignificant. No federally or state-listed endangered or threatened aquatic species, or habitats suitable for these species, occur in the project area. Therefore, no direct or indirect impacts to endangered or threatened aquatic species would occur.

Future light industrial use of the property would be subject to a number of environmental regulations and permitting processes depending on the type of the development. Since 1970, thousands of requirements that protect the environment have been established under federal, state, and local authorities. Many of these requirements limit emissions and discharges and other potential environmental impacts from industrial facilities. These include regulatory and permitting programs established under the CAA, the CWA, RCRA, the Solid Waste Disposal Act, the Emergency Planning & Community Right-To-Know Act, Safe Drinking Water Act, the Noise Control Act, and the Federal Insecticide, Fungicide & Rodenticide Act. Most of these programs and permitting processes include multiple opportunities for public involvement. Most allow citizens to bring lawsuits to enforce compliance with requirements and provide comprehensive enforcement schemes, including civil and criminal sanctions. Although this protective web of environmental laws and regulations does not eliminate all risk of environmental impacts, it substantially reduces such risks and collectively helps ensure that potential impacts are not significant.

3.1 Air Quality

3.1.1 Affected Environment

Through its passage of the CAA, Congress mandated the protection and enhancement of our nation's air quality resources. National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants have been set to protect the public health and welfare:

- sulfur dioxide
- ozone
- nitrogen dioxide
- particulate matter whose particles are less than or equal to 10 micrometers (PM₁₀)
- particulate matter whose particles are less than or equal to 2.5 micrometers (PM_{2.5})
- carbon monoxide
- lead

The primary NAAQS were promulgated to protect the public health, and the secondary NAAQS were promulgated to protect the public welfare (basically the environment) from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas in violation of the NAAQS are designated as nonattainment areas. New sources to be located in or near these areas may be subject to more stringent air permitting requirements. A listing of the NAAQS is presented in Table 3-1. These ambient standards, other than annual standards, are not to be exceeded more than once per year (except where noted).

Table 3-1 National Ambient Air Quality Standards

Pollutant	Primary and Secondary Standards	Averaging Time	Level	Form
Carbon Monoxide	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead	Primary and secondary	Rolling 3 month average	0.15 µg/m ³ ⁽¹⁾	Not to be exceeded
Nitrogen Dioxide	Primary	1-hour	100 ppb	98th Percentile, averaged over 3 years
	Primary and secondary	Annual	53 ppb ⁽²⁾	Annual mean
Ozone	Primary and secondary	8-hour	0.075 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter (PM _{2.5})	Primary	Annual	12 µg/m ³	Annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m ³	Annual mean, averaged over 3 years
	Primary and secondary	24-hour	35 µg/m ³	98th Percentile, averaged over 3 years
Particulate Matter (PM ₁₀)	Primary and secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years

Pollutant	Primary and Secondary Standards	Averaging Time	Level	Form
Sulfur Dioxide	Primary	1-hour	75 ppb ⁽⁴⁾	99th Percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year on average over 3 years

Source: USEPA 2011

Abbreviations: PM = particulate matter, ppb = parts per billion, ppm = parts per million, $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

Notes:

⁽¹⁾ Final rule signed on October 15, 2008. The 1978 lead standard (1.5 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$] as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

⁽²⁾ The official level of the annual nitrogen dioxide standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

⁽³⁾ Final rule signed on March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, the United States Environmental Protection Agency revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

⁽⁴⁾ Final rule signed on June 2, 2010. The 1971 annual and 24-hour sulfur dioxide standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Based on available monitoring, the ambient air quality near the project area is good. On December 22, 2014, the USEPA re-designated Jackson County as in attainment for $\text{PM}_{2.5}$. Air quality in the project area now is in attainment for all criteria pollutants.

Climate change refers to any substantive change in measures of climate, such as temperature, precipitation, or wind. It is thought that certain substances present in the atmosphere act like the glass in a greenhouse to retain a portion of the heat that is radiated from the surface of the earth. The primary greenhouse gas (GHG) emitted by human activity is Carbon Dioxide (CO_2) produced by the combustion of coal and other fossil fuels. Coal- and gas-fired electric power plants and automobiles are major sources of CO_2 emissions in the U.S. (U.S. Energy Information Administration 2009). Other important sources include gas combustion used for heating buildings. Forests and other vegetated landforms represent sinks of CO_2 . GHG emissions are also affected by development activities associated with land or forest clearing and land use changes; construction activities involving use of fossil-fuel powered equipment; change in traffic flow; or incorporation of parks or recreational areas. In 2012, emission sources in Alabama emitted approximately 123 million metric tons of CO_2 , which includes approximately 21 million metric tons of CO_2 from industrial uses. The 2013 GHG emissions per sector in Jackson County are shown in Table 3-2. These emissions are related to large facilities, which would be more intensive than the proposed light industrial development. There are no chemical production facilities, food processing facilities, manufacturing facilities, or petroleum and

natural gas systems in the county. There are approximately four food processing facilities in Alabama with GHG emissions ranging from 4,000 to 82,000 metric tons of CO₂.

Table 3-2 Jackson County 2013 Greenhouse Gas Emissions from Large Facilities

Sector	Power Plants	Waste ^a	Metals ^b	Mineral ^c	Pulp and Paper	Total
2013 Greenhouse gas emissions (Metric Tons CO ₂ e)	4,041,136	95,633	158,932	36,472	104,343	4,436,516
Number of reporting facilities	1 ^d	2	1	1	1	6

Source: USEPA 2014d

^a – includes industrial landfills, municipal landfills, wastewater treatment plants and solid waste combustion

^b – includes various metal (zinc, iron, etc) production

^c – includes cement, glass, and other mineral production

^d - Widows Creek Fossil Plant. Please note that seven of the eight generating units at WCF are currently retired or pending retirement

3.1.2 Environmental Consequences

Alternative A

Under Alternative A, TVA would not make the property available. Environmental conditions in the project area would not change and no direct, indirect or cumulative impacts to air quality would occur.

Alternative B

Implementation of Alternative B would lead to the potential development of light industry on the property being made available. There would be transient air pollutant emissions during the construction of future facilities. Construction-related air quality impacts are primarily related to land clearing, site preparation, and the operation of internal combustion engines.

Fugitive emissions from construction of future facilities would produce particles that would be deposited primarily in the project area. Ninety-five percent (by weight) of fugitive emissions from vehicular traffic over paved roads would be deposited beyond the property boundaries or roadway rights-of-way. In contrast, a large fraction of fugitive emissions from vehicle traffic in unpaved areas would be deposited near the unpaved areas. If necessary, emissions from open disturbed areas, paved roads, and unpaved roads would be mitigated using wet suppression. Wet suppression can reduce fugitive dust emissions by as much as 95 percent from roadways and unpaved roads.

Combustion of gasoline and diesel fuels by internal combustion engines (construction equipment and trucks) would generate local emissions of PM, nitrogen oxides, carbon monoxide, volatile organic compounds, and sulfur dioxide. Gasoline and diesel emissions, from personal vehicles and construction equipment, would be controlled to meet current regulatory requirements such as those found in USEPA 40 CFR Part 80 (USEPA 2011), which provides regulations concerning fossil fuel and fuel additives. The total amount of

these emissions would be small and would result in minimal off-site impacts. Air quality impacts from construction activities would be temporary and dependent on both man-made factors (e.g., intensity of activity, control measures) and natural factors (e.g., wind speed, wind direction, soil moisture). Even under unusually adverse conditions, these emissions would have, at most, minor, temporary on- and off-site air quality impacts and would not cause exceedance of the applicable NAAQS.

The emissions from various potential light industrial uses range from major sources (e.g., cement, clay, glass and stone products manufacturing facilities; food processing facilities) that have the potential to emit regulated pollutants greater than 100 tons per year to minor sources that do not have the physical or operational capacity to emit major amounts of regulated pollutants (i.e., storage facilities). Alabama and federal regulations establish safeguards to protect and improve air quality.

Implementation of Alternative B would facilitate construction of light industrial development, which during its operational lifetime would generate additional power demand and vehicular traffic, resulting in increased CO₂ emissions. Removal of vegetation cover for buildings, parking lots, roads, and other open areas would reduce the CO₂ sink offered by the lost vegetation and contribute a globally imperceptible amount to higher CO₂ levels in the atmosphere. The relative contribution to generation of GHGs associated with this alternative has a broad range, dependent upon the type of light industry that could develop. Emissions could be as low as 4,000 metric tons of CO₂ to as high as approximately 600,000 metric tons of CO₂. These emissions would increase Alabama and Jackson County's overall GHG emissions by up to 2.8 percent and 13 percent, respectively. The future GHG emissions from potential light industrial development would have a minor to negligible contribution to local and regional climate change.

Depending on the type of industry, various requirements would have to be met and construction and operating permitting processes would ensure that applicable requirements are set and monitored. Air emissions identified from proposed industrial development associated with the proposed alternative would be reviewed by the state to determine if they need to be mitigated by control technology, emission-reduction strategies, or avoidance. These regulatory and permitting programs would help ensure that potential impacts on air quality are insignificant. Consequently, the direct, indirect and cumulative air quality impacts under Alternative B would not be significant (would not affect regional air quality).

3.2 Surface Water

3.2.1 Affected Environment

The Tennessee River is the primary surface water drainage feature in Jackson County and northeastern Alabama. Locally, natural flow of the Tennessee River is to the southwest. Guntersville Dam, located approximately 49 miles southwest of the project area, has dammed the Tennessee River to form the 76-mile long Guntersville Reservoir. The WCF site is adjacent to Guntersville Reservoir at the mouth of Widows Creek.

One perennial, three intermittent, four ephemeral, and three ponds occur within the project area (Figure 3-1). Two of the streams in the northwest corner of the property are unnamed tributaries to Widows Creek. Widows Creek, which is the primary drainage feature near the project area, is a first-order tributary of the Tennessee River (URS 2011). The confluence between Widows Creek and the Tennessee River is approximately 1.5 miles south of the

project area. Before reaching the Tennessee River, Widows Creek flows through an artificial channel, which reduces flow velocity before discharging to the river.

The westernmost portion of the project area drains west towards an unnamed tributary of Widows Creek. The southern portion of the project area drains south towards CR70; however, surface flow is expected to infiltrate to groundwater prior to reaching Widows Creek. According to the 1983 U.S. Geological Survey Topographic map, the unnamed tributary of Widows Creek is a blue line stream. However, a field survey of the project area indicated that the unnamed tributary flows only during and immediately after precipitation, has no defined channel, and lacks evidence of aquatic life. In 2014, USACE determined that because the unnamed tributary to Widows Creek was intermittent and lacked aquatic life, it was not waters of the United States and would not be subject to a Section 404 permit (TVA 2014).

Major surface water bodies near the project area have impaired water quality that does not support designated beneficial uses (e.g., swimming, public water supply, aquatic habitat) (ADEM 2012). Widows Creek and Guntersville Reservoir (Lake Guntersville) are both listed as impaired because of elevated mercury levels. Widows Creek is considered impaired from its confluence with the Tennessee River to 5 miles upstream; this includes the stretch of Widows Creek adjacent to the project area. Guntersville Reservoir is considered impaired over an approximately 2,700-acre area between Pump Spring Branch (approximately 4 miles downstream from the project area) and the Alabama-Tennessee state line (approximately 8 miles upstream of the project area).

Both listings are a result of a fish consumption advisory issued by Alabama Department of Public Health in 2010. In both cases, the presence of elevated concentrations of mercury is attributed to atmospheric deposition. Widows Creek and Guntersville Reservoir were listed on the 2012 Alabama Final 303(d) list, but total maximum daily levels for mercury have not been established for either water body (ADEM 2012).

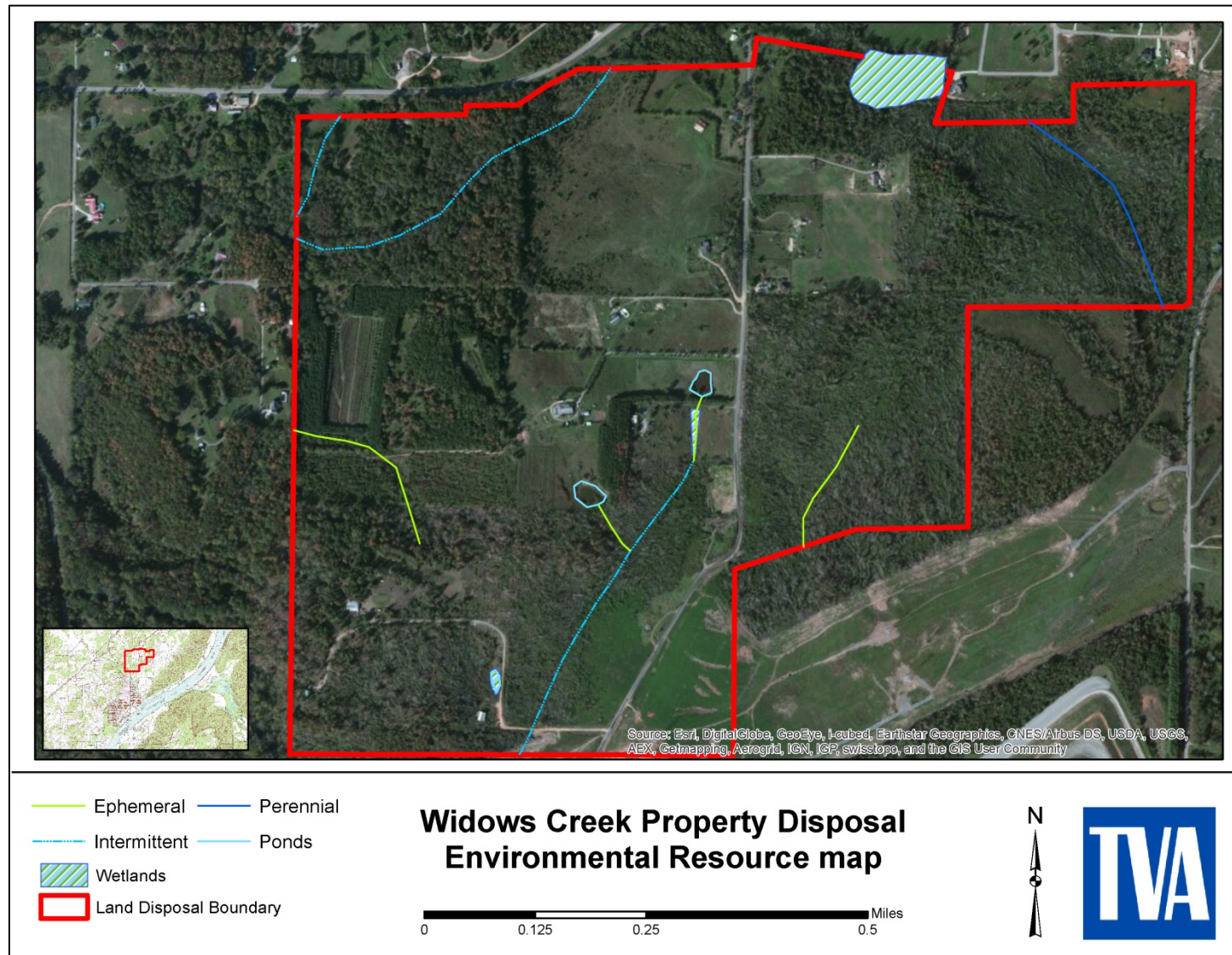


Figure 3-1 Stream and Wetland Map

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3.2.2 Environmental Consequences

Alternative A

Under Alternative A, existing resource trends would continue. No significant changes to surface water availability or quality are anticipated. Widows Creek and Guntersville Reservoir are anticipated to remain impaired because of mercury. Limited amounts of sediment would continue to be transported to Widows Creek from current sources of erosion. No additional direct, indirect or cumulative impacts to surface water are anticipated under Alternative A.

Alternative B

Implementation of Alternative B would facilitate industrial development and the potential exists for increased rates of erosion within the project area. The potential for those eroded sediments to be transported to surface waters, such as Widows Creek and its tributaries, is low because proper BMPs (as part of the permitting process) would be implemented prior to and during any disturbance activities. Operation of construction equipment could lead to minor leaks of fuel, lubricating, or hydraulic liquids in areas adjacent to surface waters. Leaks of these types, however, are not expected, and are unlikely to reach surface waters even if one were to occur. Consequently, direct impacts to the various surface waters within the project site are anticipated to be negligible to minor.

Future development of the site would increase impervious surfaces and would therefore increase the potential for surface water runoff. Standard construction practices would incorporate and employ appropriate BMPs to minimize potential impacts and federal or state regulations also would require the use of such BMPs.

Depending on the extent of on-site development and the type of use, expansion of existing utility infrastructure (i.e., electric, water, fiber optics, sewer, gas and roads) could be necessary. If a new water intake structure on the Tennessee River is needed, the future owner would need to apply for a 26a permit from TVA and a Section 404/10 permit from the USACE. TVA would evaluate the proposed water intake structure in a separate environmental review process that tiers from this EA if this is proposed in the future. This subsequent review process would address potential impacts to Guntersville Reservoir from the new intake structure and identify appropriate measures to avoid or reduce such impacts.

Existing resource trends in Widows Creek and Guntersville Reservoir would continue and these surface water bodies are anticipated to remain impaired under Alternative B. Various light industries require the use of water for processing and cooling. Therefore, there would be discharges associated with future light industrial development. However, there would be no direct discharge to Widows Creek or Guntersville Reservoir without the necessary permits as a result of the implementation of Alternative B. The proposed disposal of property and future light industrial activities would not result in additional mercury contributions to Widows Creek or Guntersville Reservoir which are listed on the 303(d) list for mercury impairment.

As discussed in Section 1.5, the future land owners would need to submit a notice of intent to ADEM for coverage under the General NPDES Permit for Discharges of Storm Water Associated with Construction Activities prior to any ground disturbance activities. As part of this application, a pollution abatement plan would be developed and implemented to control and confine sediment to the project area. With proper implementation of BMPs and

additional measures outlined in the pollution abatement plan, there would be minor to negligible direct, indirect and cumulative impacts to surface waters.

3.3 Terrestrial Ecology—Vegetation

3.3.1 Affected Environment

The project area lies within the Sequatchie Valley, a subregion of the Southwestern Appalachian ecoregion. The Sequatchie Valley extends from the Tennessee border nearly 100 miles southwest into Alabama. The Tennessee River flows through the Sequatchie Valley, until it turns west near Guntersville and leaves the valley. This is an agriculturally productive region, with areas of pasture, hay, soybeans, small grain, corn, and tobacco (Griffith et al. 2001). The project area occurs in a landscape disturbed and shaped by development practices, including residential buildings, outbuildings, and roadways. In addition, the project area is adjacent to WCF, a large power-generating facility.

Vegetation in the project area includes areas of mixed deciduous forest and herbaceous vegetation. Herbaceous vegetation found in mowed areas of the acquired properties is common in the region. Common species found include Bermuda grass, blackberries, butterfly weed, chicory, daisy fleabane, Johnson grass, narrow-leaf plantain, perennial ryegrass, orchard grass, Queen Anne's lace, smooth brome grass, tall fescue, yellow sweet clover, and white sweet clover.

Executive Order (EO) 13112 defines an invasive species as any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem and whose introduction does or is likely to cause economic or environmental harm or harm to human health. They occur as trees, shrubs, vines, grasses, ferns, and forbs. These robust plants have few natural predatory insects or diseases, such as those that tend to keep native plants in natural balance.

Invasive plants are common in and near the project area. They include autumn olive, bush honeysuckle, Chinese privet, crown vetch, Japanese honeysuckle, Japanese stilt grass, Johnson grass, mimosa, multiflora rose, and sericea lespedeza. All of these species have the potential to affect the native plant communities adversely because of their ability to spread rapidly and displace native vegetation.

3.3.2 Environmental Consequences

Alternative A

Under Alternative A, TVA would not make the proposed property available for development. Vegetation and plant communities would not be affected by any project-related actions. The TVA property proposed for disposal has little conservation value and adoption of Alternative A would not change that situation; the property would remain in its current condition and no work would occur. Any changes occurring in the vegetation on-site would be the result of other natural or anthropogenic factors or from TVA's borrow activities for its GS project and would not be the result of adoption of Alternative A. Therefore, there would be no direct, indirect or cumulative impacts to terrestrial plant communities under Alternative A.

Alternative B

Under Alternative B, TVA would dispose of the proposed property for light industrial uses, which could result in disturbance of vegetation across the entire parcel. Much of the property is heavily disturbed and contains early successional herbaceous vegetation, but approximately 146 acres of forest remains on the site. Even if a potential light industrial

developer chose to clear the entirety of forest cover remaining on the site, impacts to forest resources would be negligible. As of 2012, more than 1,638,000 acres of forest occur in Jackson and the adjacent counties in Alabama, Georgia, and Tennessee (USFS 2014).

Development would have long-term direct, indirect, and cumulative impacts on the plant communities found on site. However, the effects would be small and insignificant at the local, regional, or state-level because plant communities located there are common and possess little conservation value.

3.4 Terrestrial Ecology—Wildlife

3.4.1 Affected Environment

The landscape surrounding the project area consists of rural residential homes, fields and pastures, forest fragments, the TVA WCF, and the Guntersville Reservoir. Much of this area has been previously disturbed by natural causes as well as human modification. Approximately 60 acres (17 percent) of the project area is currently being used as an excavation/borrow area and haul roads for use in closing the gypsum pond at WCF. Much of the area was cleared of trees and all residential buildings were removed in 2014. Prior to this modification, a tornado passed through this area in 2011. The tornado damaged parts of the project area by flattening sections of contiguous forest and broke the tops off of trees in adjacent areas.

Currently the project area includes patches of early successional grass, brush, patches of standing trees, remnants of mature forest remaining after logging activities, and damaged forest in various stages of regrowth. Remaining forest cover is approximately 146 acres. Areas of forest regrowth typically have very open canopies, a high number of snags, and an extremely dense understory due to unrestricted growth by invasive species since the tornados. Ponds and wetlands surrounded by a mixture of emergent vegetation and trees, as well as several streams are present within the project area. Several roads used for past residential development also exist in the project area.

Common terrestrial animal species that utilize these disturbed forest fragments and edge habitat include birds such as Carolina chickadee, Carolina wren, eastern tufted titmouse, northern cardinal, northern flicker, and northern mockingbird. Mammals found in these habitats include common raccoon, eastern gray squirrel, hispid cotton rat, nine-banded armadillo, and Virginia opossum. Open fields in the project area are comprised of early successional habitat including grasses and forbs. Birds found in this habitat include, field sparrow, indigo bunting, white-eyed vireo and yellow-breasted chat. Mammals such as bobcat, golden mouse, northern short-tailed shrew, and white-tailed deer also are likely to utilize this area. The ponds and wetlands found across the proposed project area are relatively small in size and depth. Surrounding vegetation ranges from old field to emergent reeds and rushes, to saplings such as black willow, cottonwood, red cedar, sweet gum, and water oak. Despite their small size, the ponds provide suitable habitat for amphibian and reptilian species. Amphibians likely to use the area include American bullfrog, eastern red-spotted newt, northern cricket frog, southern leopard frog, and upland chorus frog. Reptiles utilizing these wet areas, streams, and the surrounding habitat include garter, northern water, rat and ring-necked snakes.

Bat surveys performed across the project site between August 06 and 10, 2013 found that several common bat species are also utilizing these areas over the ponds (TVA 2014). Species reported via acoustic monitors and mist net captures were big brown, hoary,

tricolored, and silver-haired bats. One federally endangered bat species, gray bat, was captured in mist nets and recorded on acoustic devices during these surveys. Acoustic results also provided evidence that the federally endangered Indiana bat also may use this habitat occasionally.

Review of the TVA Regional Natural Heritage Database in December of 2014 indicates that nine caves are reported within 3.0 miles of the project area. The nearest cave is 2.0 miles from the project area. Two records of colonial wading bird colonies also exist within 3.0 miles of the project area. One colony is no longer in existence. The remaining record is a small great blue heron rookery on the support beams of a transmission line structure set in the middle of an ash settling pond at WCF. This heronry is 0.9 mile from the project site. No unique terrestrial habitats were observed on these tracts during field investigations.

3.4.2 Environmental Consequences

Alternative A

Under Alternative A, TVA would not make the property available for light industrial use. Tree clearing, earth moving, and building construction would not occur in association with this project. Therefore, there would be no direct, indirect or cumulative impacts to wildlife under Alternative A.

Alternative B

Under the Proposed Action Alternative, TVA would make the project area available for light industrial use. It is likely that the light industrial use would not require disturbance of the entire project footprint. However the degree to which tree clearing, grading and vegetation removal would occur cannot be anticipated with certainty, thus such impacts were evaluated over the entire project footprint.

The industrial development of part or all of the project area would permanently remove wildlife habitat. This would result in the displacement of any wildlife (primarily common, habituated species) currently using the area. Direct effects (death or injury) 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 seasons. During habitat removal, mobile wildlife would likely disperse into surrounding areas in an attempt to find new food sources, shelter sources and to reestablish territories, potentially resulting in added stress. Some displaced animals would perish, and any resulting increase in animal populations in adjacent habitats would only be short-term. Populations of common wildlife species likely would not be impacted by the proposed actions. There would be long-term direct, indirect, and cumulative impacts on wildlife found on site. However, the effects would be insignificant at the local, regional, or state-level because similar habitat is available for wildlife in surrounding areas.

3.5 Threatened and Endangered Species

3.5.1 Affected Environment

The Endangered Species Act requires federal agencies to conserve listed species and to determine the effects of their proposed actions on endangered and threatened species and their critical habitats. Endangered species are those determined to be in danger of extinction throughout all or a significant portion of their range. Threatened species are those determined to likely become endangered within the foreseeable future. Section 7 of the Endangered Species Act requires federal agencies to consult with the USFWS when

their proposed actions may affect endangered or threatened species and their critical habitats.

Plants

A December 2014 review of the TVA Regional Heritage Database identified no documented occurrences of federally listed species and documented occurrences of twelve state-listed species within five miles of the project area (Table 3-3). Alabama does not confer a particular status to state-listed species, but instead provides rankings. Occurrences of four federally listed plants and one candidate for federal listing have been documented in Jackson County, Alabama and they were included in this analysis.

Table 3-3 Listed plants in the Vicinity of the Project Area

Common Name	Scientific Name	Federal Status	State Rank ¹
American columbo	<i>Frasera caroliniensis</i>	--	S2
*American Hart's-tongue Fern	<i>Asplenium scolopendrium</i> var. <i>americanum</i>	LT	S1
American Spikenard	<i>Aralia racemosa</i>	-	S1
Bog goldenrod	<i>Solidago uliginosa</i>	--	SH
Cumberland Rosinweed	<i>Silphium brachiatum</i>	-	S2
Dutchman's breeches	<i>Dicentra cucullaria</i>	--	S2
Great Yellow Wood-sorrel	<i>Oxalis grandis</i>	-	S1
*Green pitcher plant	<i>Sarracenia oreophila</i>	LE	S2
Longleaf Sunflower	<i>Helianthus longifolius</i>	-	S1S2
Mohr's Rosin-weed	<i>Silphium mohrii</i>	-	S1
*Monkey-face orchid	<i>Platanthera integrilabia</i>	C	S2
*Morefield's Leather-flower	<i>Clematis morefieldii</i>	END	S1S2
*Price's potato bean	<i>Apios priceana</i>	LT	S2
Pussy willow	<i>Salix humilis</i>	--	S2S3
Wall-rue Spleenwort	<i>Asplenium ruta-muraria</i>	-	SLNS(S2)
Wister Coral-root	<i>Corallorhiza wisteriana</i>	-	SLNS(S2)
Yellow giant-hyssop	<i>Agastache nepetoides</i>	--	S1

* known from the county but not from within five miles of the project area

¹ Alabama does not give status to state listed species

Federal status abbreviations: C=Candidate for listing as threatened or endangered, LT=Listed threatened, LE=Listed Endangered

State rank abbreviations: S1 – critically imperiled often with 5 or fewer occurrences, S2 – Imperiled often with <20 occurrences, S3 – rare or uncommon often with <80 occurrences, S4--apparently secure in the state with many occurrences; H=historical record

Aerial photos, site photos, topographic maps, knowledge of rare plant habitats, and field surveys of portions of the area proposed for disposal indicate that federally listed and candidate plant species do not occur on the site. All plants known from Jackson County that possess federal status require specialized habitats not found within the proposed project area. The majority of the parcel has been previously disturbed, including previous clearing of forested habitat for residential development, and is unlikely to support state-listed plants. No designated critical habitat for plant species occurs in the project area.

Terrestrial Animals

A December 2014 review of the TVA Regional Heritage Database identified two Alabama state-listed terrestrial animal species and documented occurrences of one federally protected terrestrial animal species (the bald eagle) within 3.0 miles of the proposed project area. Occurrences of two additional federally endangered (gray bat and Indiana bat) and on federally proposed endangered (northern long-eared bat) species have been documented in Jackson County, Alabama (Table 3-4).

Table 3-4 Listed Terrestrial Animals in the Vicinity of the Project Area¹

Common Name	Scientific Name	State Status ² (Rank ³)	Federal Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	PROT (S3)	DM
Cave obligate spider	<i>Nesticus barri</i>	TRKD (S3)	--
Gray bat	<i>Myotis grisescens</i>	PROT (S2)	LE
Green Salamander	<i>Aneides aeneus</i>	PROT (S3)	--
Indiana bat ⁴	<i>Myotis sodalis</i>	PROT (S1)	LE
Northern long-eared bat ⁴	<i>Myotis septentrionalis</i>	PROT(S2)	PE

¹TVA Regional Heritage Database, December 2014.

²Status abbreviations: Federal Rank: LE=Listed Endangered, PE = Proposed Endangered, DM= Downlisted, in need of management. Alabama State Rank; PROT= Protected by state of Alabama; TRKD = Tracked in State of Alabama.

³State Rank abbreviations: S1 = Extremely imperiled; S2 = imperiled; S3 = rare or uncommon

⁴Federally-listed species that occur within the county where work would occur, but not within 3 miles of the project area.

Green salamanders are found in damp areas, including rocky outcrops and ledges, beneath loose bark or cracks of trees, and under logs. Eggs are laid in similarly moist, dark places. The nearest record of this species documents an observation on a rock ledge approximately 2.4 miles from the project area. Suitable habitat for green salamander likely exists in the proposed project area near wetlands and streams with forested riparian zones.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (USFWS 2013a). This species is associated with larger mature trees capable of supporting its massive nests. These are usually found near larger waterways where the eagles forage (USFWS 2007). The nearest nesting record is 2.6 miles from the project area; however, the nest no longer exists in this location. No new nesting records exist within 3.0 miles of the project area, although 16 other records for this species exist within Jackson County. Relatively recent tornado activity through the project site has damaged many large trees that would have otherwise been capable of supporting nests of this species. Additionally many other trees have been cleared from the project site. Suitable habitat does not likely exist in the project footprint for bald eagle and no nests or resident pairs are known from the immediate vicinity.

A cave obligate spider is reported from a cave approximately 2.9 miles from the project footprint. This spider is restricted to subterranean habitat found in caves (NatureServe 2014). No caves are known from the project footprint and the nearest cave is approximately 2.0 miles from the project. Suitable habitat for this species does not exist in the proposed project footprint.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Brady et al. 1982, Tuttle 1976). Bats disperse over bodies of water at dusk where they forage for insects emerging from the surface of the water (Harvy 1992). Eight gray bat hibernacula have been reported from Jackson County, Alabama. The closest gray bat hibernacula are approximately 4.3 and 8.5 miles away from the project site. Two caves listed as Priority Caves in the Gray Bat Recovery Plan (Brady et al. 1982) are approximately 30 and 36 miles from the project area. As previously discussed, no caves are known from the project footprint, and nearest record of a cave is 2.0 miles from the project footprint. Several ponds, streams, and wetlands in the project footprint area offer suitable foraging habitat for gray bat.

Indiana bats hibernate in caves in winter and use areas around them for swarming (mating) in the fall and staging in the spring, prior to migration back to summer habitat. During the summer, Indiana bats roost under the exfoliating bark of dead snags and living trees in mature forests with an open understory and a nearby source of water (Pruitt and TeWinkel 2007, Kurta et al. 2002). Indiana bats are known to change roost trees frequently throughout the season, while still maintaining site fidelity, returning to the same summer roosting areas in subsequent years (Pruitt and TeWinkel 2007). No known caves exist on the project footprint. The closest extant Indiana bat hibernacula are approximately 14.3 and 30 miles away from the project footprint. Historical records of Indiana bats exist in closer caves approximately 8.5 and 11.6 miles away. The forested areas across the project site offer suitable foraging habitat for this species. Several ponds, wetlands and streams in the project footprint offer nearby sources of water. Due to the presence of a large number of snags in the damaged forested areas, remaining forested areas found across the project site provide moderately suitable summer roosting habitat for Indiana bats.

In October 2013, the Northern long-eared bat (NLEB) was proposed for listing as federally endangered (USFWS 2013b). In winter, this species roosts in caves or cave-like structures (such as buildings and mines), while summer roosts are typically in cave-like structures as well as live and dead trees with exfoliating bark and crevices. Northern long-eared bats tend to forage within the mid-story and canopy of upland forests on hillsides and ridges (USFWS 2014). There are no known records of NLEB winter hibernacula from Jackson County, Alabama. However, one NLEB was captured in autumn at the entrance of a cave approximately 15 miles away from the project site in Jackson County, Alabama. No known caves exist on the project footprint. Trees and shrubs across the project site offer suitable roosting and foraging habitat for this species. Several ponds, wetlands and streams in the project area offer nearby sources of water.

Phase 1 Habitat Assessments and Phase 2 Presence/Absence Surveys for Indiana bat (USFWS 2013c) were conducted on 154 acres (43 percent) of the 360-acre project area in August 2013 during an evaluation conducted for TVA's GS EA. No Indiana bats or NLEB were captured in mist nets. One gray bat was captured along with big brown, eastern red and tricolored bats. Analysis of acoustic surveys resulted in one call sequence likely to be from an Indiana bat, no NLEB calls, and several calls identified as gray bat calls.

3.5.2 Environmental Consequences

Alternative A

Under Alternative A, TVA would not dispose of the property for light industrial use. Environmental conditions would remain the same within the project area. Therefore, no direct, indirect, or cumulative impacts to terrestrial threatened and endangered species would occur.

Alternative B

Plants

No known occurrences of federally or state-listed plant species or habitats to support these species are known on or immediately adjacent to the proposed project area. Consequently, no direct, indirect or cumulative impacts to listed plant species are expected to occur under Alternative B.

Animals

Under the Alternative B, TVA would make the project area available for light industrial use. It is likely that the light industrial use would not require disturbance of the entire project footprint. However, the degree to which tree clearing, grading, vegetation removal, and development would occur cannot be anticipated with certainty, thus such impacts were evaluated over the entire project footprint.

Five terrestrial animal species were assessed based on documented presence within 3.0 miles of the project area. Of these, one state-listed (green salamander), two federally listed (gray bat and Indiana bat) and one species proposed for federal listing (northern long-eared bat) have the potential to utilize the project area. Bald eagles and cave obligate spiders would not be impacted by the proposed actions as suitable habitat for these species would not be impacted by actions associated with Alternative B.

Green salamander may exist on the project footprint in wet areas with enough riparian vegetation to maintain damp, shady areas. Modification or removal of these wet areas may directly or indirectly affect green salamander. However, potential presence of this species is restricted to small areas of habitat at the outer edges of the project area. Populations of green salamander are not expected to be impacted by actions proposed under Alternative B.

Suitable summer roosting habitat for both Indiana bat and NLEB is likely present within the project area due to the high number of snags in forested portions (approximately 146 acres) of the project area. Thus, TVA would require the deed, transfer, or other conveyance documents to include a covenant to limit tree clearing to October 15 to March 31, unless the future owners either (i) demonstrates that there is no summer roosting habitat for the Indiana and northern long-eared bats prior to any tree clearing or (ii) obtains USFWS concurrence that no impact to these species could occur at any time of year. This would remove any potential for direct effects to Indiana bat and NLEB, and ensure that indirect effects from potential loss of habitat are discountable. Presence of gray bats in the proposed project area was confirmed during mist net surveys in 2013 (TVA 2014). Due to the abundance of similar suitable summer roosting habitat in the surrounding area and avoidance of tree clearing during summer roosting, TVA has determined that any indirect or cumulative effects to Indiana bats resulting from this action would be discountable.

TVA has determined that disposal of the proposed area for light industrial use along with the covenant to limit tree clearing to October 15 - March 31 may effect, but is not likely to adversely affect gray bat and Indiana bat, nor would the actions jeopardize the continued existence of the northern long-eared bat. In a letter dated January 12, 2015, the USFWS concurred with TVA's determination (Appendix A).

3.6 Wetlands

3.6.1 Affected Environment

Wetlands are those areas inundated by surface or groundwater such that vegetation adapted to saturated soil conditions is prevalent. Examples include swamps, marshes, bogs, and wet meadows. Wetland fringe areas are also found along the edges of most watercourses and impounded waters (both natural and man-made). Wetland habitat provides valuable public benefits including flood/erosion control, water quality improvement, wildlife habitat, and recreation opportunities.

The proposed project area is located within the Southwestern Appalachian ecoregion where wetlands are relatively uncommon. Within this ecoregion, wetlands comprise less than one percent of the overall land use/land cover (Sohl, 2000). Wetlands are primarily associated with low-lying, poorly drained areas, floodplains, and riparian zones.

In August 2013, the project area was surveyed for wetlands. This survey located and delineated three wetlands (Figure 3-1). Wetland 1 (W001), located in the southernmost portion of the site, is a 0.14-acre emergent wetland. Wetland 2 (W002) is a 0.22-acre emergent wetland near County Road 96 that appears to be hydrologically connected to the farm pond located just north of the wetland. Wetland 3 (W003) is a larger, 3.54-acre forested wetland in the northeast corner of the site, adjacent to a residential subdivision. This wetland is composed of mature trees and at the time of the survey had standing water approximately 18 inches in depth. After a February 2014 site visit, the USACE determined that W001 was a farm pond and not a jurisdictional wetland. Therefore, there are only two jurisdictional wetlands located within the project area.

The TVA Rapid Assessment Method (TVARAM) was used to assess the wetland condition and identify wetlands with potential ecological significance (Mack 2001). Using TVARAM, wetlands may be classified into three categories. Category 1 wetlands are considered “limited quality waters” and represent degraded aquatic resources that have limited potential for restoration and such low functionality that lower standards for avoidance, minimization, and mitigation can be applied. Category 2 includes wetlands of moderate quality and wetlands that are degraded but could be restored. Avoidance and minimization are the first lines of mitigation for Category 2 wetlands. Category 3 generally includes wetlands of very high quality or of regional/statewide concern, such as wetlands that provide habitat for threatened or endangered species. The TVARAM determined that W002 is a Category 1 wetland and W003 is a Category 3 wetland.

3.6.2 Environmental Consequences

Wetlands are protected under Sections 404 of the Clean Water Act and are addressed in EO 11990. In order to conduct specific activities in wetlands, authorization under a Section 404 permit from the USACE may be required depending on the wetland’s size and hydrologic connectivity to a navigable waterway. EO 11990 requires all federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities. In accordance with TVA procedures for implementing EO 11990 in *Instruction IX, Environmental Review* (TVA 1983), TVA must also determine whether there is a practicable alternative that will avoid affecting wetlands.

Alternative A

Under Alternative A, TVA would not dispose of the proposed property. Environmental conditions in the project area would not change and no direct, indirect, or cumulative impacts to wetlands would occur.

Alternative B

Under this alternative, a maximum of 3.9 acres of wetlands could be impacted; this would include impacts to 3.76-acres of jurisdictional wetlands, and 0.14-acres of non-jurisdictional wetlands.

In accordance with EO 11990, TVA would include specific language in the deed, transfer, or other conveyance documents for the property describing existing wetlands present on the site and the need to obtain approval and appropriate permitting from USACE regarding wetland impacts. TVA is unable to determine a no practicable alternative for potential wetland impacts at this time as the footprint of future facilities is unknown. However, prior to site development, TVA would require the future developer/site owner to avoid impacting wetlands if there is a practicable alternative. Alternatively, the future developer/site owner would conduct a no practicable alternative analysis and submit it to TVA for approval before taking action that would impact these wetlands.

Permitting requirements would require mitigation to offset jurisdictional wetland impacts. Mitigation is typically at a 2:1 ratio, involving purchase of mitigation credits at a mitigation bank within the service area as required by USACE. This level of mitigation is sufficient to offset wetland impacts associated with development of this site. Overall direct, indirect, and cumulative wetland impacts associated with this project are expected to be insignificant.

3.7 Cultural and Historic Resources

Cultural resources include, but are not limited to, prehistoric and historic archaeological sites, historic structures, and historic sites at which important events occurred. Cultural resources are finite, non-renewable, and often fragile. They are frequently threatened by industrial, commercial, and residential development, as well as construction of roads and other infrastructure. TVA is mandated by the National Historic Preservation Act of 1966 (NHPA) to protect significant cultural resources (i.e., archaeological sites and historic structures) located on TVA lands or such resources that would be affected by TVA undertakings. The NHPA addresses the preservation of “historic properties,” which is defined under the Act as any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Two broad categories of cultural resources are archaeological resources and historic architecture. Some examples of archaeological resources are earthworks, weapons and projectiles, human remains, rock carvings, and remains of subsurface structures such as domestic fire pits. Historic architecture consists of standing structures that are usually at least 50 years old. Consistent with Section 106 of NHPA, such structures, as well as archaeological resources, must meet certain criteria to qualify for inclusion on the NRHP.

3.7.1 Affected Environment

A Phase I archaeological and architectural survey was conducted on the entire 360 acres of purchased property in 2011 (Hockersmith et al. 2011). One previously recorded archaeological site (Site 1JA1125, determined, in consultation in 2010, to be ineligible for the NRHP), two previously recorded architectural resources (071-0001 and 07-00002) and one newly identified architectural resource (HS-1) were identified within the property

boundary. Previously recorded properties 071-00001 and 071-00002 were destroyed by tornadoes in the spring of 2011. In 2011, TVA determined architectural resource (HS-1) ineligible for the NRHP.

In 2011 and 2013, TVA consulted with the Alabama State Historic Preservation Officer (SHPO) regarding two separate undertakings (geophysical testing associated with the proposed landfill and soil excavation) located within the area of potential effect (APE). In letters dated December 13, 2011 and December 2, 2013, the Alabama SHPO concurred with TVA's findings and recommendations based on the results of the Phase I report. In summary, the APE contains no archaeological or architectural properties listed in, or eligible for inclusion in, the NRHP

3.7.2 Environmental Consequences

Alternative A

Implementing Alternative A would require no ground disturbance activities. Therefore, no direct, indirect, or cumulative impacts to cultural resources would occur under Alternative A.

Alternative B

The APE contains no archaeological or architectural properties listed in, or eligible for inclusion in, the NRHP. Therefore, TVA finds that no historic properties would be affected by the proposed disposal of the project area. In a letter dated December 30, 2014, the Alabama Historical Commission concurred with TVA's no effect determination (Appendix B).

3.8 Land Use

3.8.1 Affected Environment

The proposed land would be used for future light industrial uses; the extent of the development is unknown. Jackson County does not have land use zoning throughout the county and the project area is currently not zoned. Most of the area is characterized by residual clay soils covered by grass, scrub, pasture, and mixed forests. The ridgeline that forms the southern boundary of the property is densely forested. Prior to TVA's purchase of the property, some of the land was cleared, leveled, and developed with homes and some lots were landscaped with shrubs, flowers, trees, and turf grass. Following its purchase of the property, TVA removed the buildings and converted the area from low density residential and agricultural use to undeveloped land.

Approximately 20 percent (72 acres) of the project area is considered prime farmland and 36 percent (128 acres) is considered farmland of statewide importance (U.S. Department of Agriculture [USDA] 2014a) (Appendix C). The land in the project area is not actively being used for agriculture.

3.8.2 Environmental Consequences

Alternative A

Under the No Action Alternative, TVA would not proceed with the disposal of the proposed property. Environmental conditions would remain unchanged. Implementation of Alternative A would result in no indirect, direct, or cumulative impact on land use.

Alternative B

Implementation of this alternative would lead to the likely future development of the site for light industrial use, a major change from its present undeveloped land use. The proposed

property provides a medium size (360 acres) site within close proximity to existing infrastructure. Given that the property is adjoining the WCF, future light industrial use would not be an incompatible use. Future light industrial uses would not be incompatible with any presently known local, regional, or state agency plans.

Prime farmland, as defined by the USDA, “is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). The soils are of the highest quality and can economically produce sustained high yields of crops when treated and managed according to acceptable farming methods” (USDA 2014b). The Natural Resources Conservation Service (NRCS) uses a land evaluation and site assessment system to establish a farmland conversion impact rating score. Future industrial development would represent a minor direct impact to land use within the project area because this area likely would no longer be suitable for farming. According to the USDA-Soil Conservation Service, 1941, Soil Survey of Jackson County, Alabama prime farmland covers 168,241 acres of Jackson County, Alabama. The conversion of the TVA property proposed here represents less than 0.12 percent of the total available farmland in the county. Future development would potentially impact and/or convert prime farmland. In accordance with the Farmland Protection Policy Act, TVA coordinated with the local office of the NRCS and determined the total points for farmland conversion associated with the proposed action is 115. A score of 160 or higher implies that the land’s value for farming is high enough to recommend that it not be converted to nonfarm use. Therefore, direct and indirect effects on prime farmland under Alternative B would be minor.

After the land is made available, the project area could be cleared, graded and developed for light industrial uses. Any cleared land not used for facilities would likely be reseeded with native or nonnative, noninvasive species. This could allow for portions of the property to return to its current vegetative state. TVA has determined that no significant adverse direct, indirect and cumulative land use impacts are anticipated with the implementation of Alternative B.

3.9 Visual Resources

3.9.1 Affected Environment

The physical, biological, and cultural features of an area combine to make the visual landscape character both identifiable and unique. Scenic integrity indicates the degree of unity or wholeness of the visual character. Scenic attractiveness is the evaluation of outstanding or unique natural features, scenic variety, seasonal change, and strategic location. Where and how the landscape is viewed affect the more subjective perceptions of its aesthetic quality and sense of place.

Views of a landscape are described in terms of what is seen in foreground, middleground, and background distances. In the foreground, an area within 0.5 mile of the observer, details of objects are easily distinguished in the landscape. In the middleground, normally between 1 and 4 miles from the observer, objects may be distinguishable but their details are weak and they tend to merge into larger patterns. Details and colors of objects in the background, the distant part of the landscape, are not normally discernible unless they are especially large and standing alone. The impressions of an area’s visual character can have a substantial influence on how it is appreciated, protected, and used. The general landscape character of the study area is described in this section.

Currently the project area includes patches of early successional grass, brush, patches of standing trees, remnants of mature forest remaining after logging activities, and damaged forest in various stages of regrowth. Remaining forest cover is approximately 146 acres. The proposed project area is adjacent to residential property and the WCF. There are a few residences that are directly adjacent to the north, west, and northeast boundaries of the project area (See Figure 1-2). From the center of the project area, the residences are approximately 0.4 mile away. Views of the project area would likely be up to distances in the foreground (0 feet to 0.5 mile) from local roads and other nearby residential areas. Scenic attractiveness of the portion of the project area adjacent to WCF is common, and scenic integrity is low because of land disturbance resulting from residential development, transmission lines, and damage from recent tornadoes.

3.9.2 Environmental Consequences

Visual consequences are examined in terms of visual changes between the existing landscape and proposed actions, sensitivity of viewing points available to the public, their viewing distances, and visibility of proposed changes. These measures help identify changes in visual character based on commonly held perceptions of landscape beauty and the aesthetic sense of place.

Alternative A

Under Alternative A, TVA would not proceed with the disposal of the property and the environmental conditions would remain unchanged. Therefore, no indirect, direct, or cumulative visual impacts would occur under Alternative A.

Alternative B

Industrial development of all or a portion of the site under this alternative would result in effects to existing scenic resources within the project area. Removal of existing trees and site grading and surfacing would affect the scenic integrity of portions of the proposed property having a rural or naturally appearing landscape character. Discharges, emissions, noise, and/or waste light could also be generated, depending on the size and kind of the light industry located on the project area.

Under this alternative, there would be a minor visual change in the landscape because of future light industrial development. Based on criteria developed by the U.S. Bureau of Land Management (1986) to rate scenic quality, overall scenic values of the project area are low because of the relatively low relief, lack of significant visual features, and the similarity to surrounding areas. There may be some moderate visual impacts during construction and operation of light industrial facilities.

Light can cause pollution when it becomes a nuisance to adjacent properties. Light pollution/light trespass is best described as artificial light that is allowed to illuminate, or intrude upon, areas not intended to be lit. There are options available for future development to reduce the impacts of glare, light trespass and light pollution. Some of these options include designing outdoor lighting fixtures to be shielded, aimed, located and maintained to prevent light trespass onto adjacent properties and roadways; have cut-off fixtures; or light fixture poles in parking lots that do not exceed a certain height.

The scenic nature of the project area would be impacted by the construction of light industrial facilities, including parking lots, buildings and other structures. Light industrial facilities tend to incorporate natural elements and landscape in its developments. Even though most of the area could be disturbed during construction, disturbed areas would be

graded and reseeded with native or nonnative, noninvasive species. Also, due to safety/security reasons, there would be physical barriers (i.e. fencing), vegetation screens, and other types of barriers between the adjacent residential properties and future development. With these barriers, re-vegetation of disturbed areas, rural nature of project area, and proximity to WCF there would be minor adverse direct, indirect and cumulative visual impacts anticipated from the implementation of Alternative B.

3.10 Socioeconomics and Environmental Justice

3.10.1 Affected Environment

The proposed property is located in Census Tract (CT) 9503 in Jackson County, Alabama and is directly adjacent to CT 9502. As of the 2010 United States Census of Population, the population of CT 9503 was 5,897 and CT 9502 was 3,516 (United States Census Bureau 2011). Total population of Jackson County in 2010 was 53,227.

Total employment in Jackson County in 2010 was 23,355 (United States Department of Commerce 2010). The November 2014 unemployment rate for Jackson County was 5.4 percent, similar to the state unemployment rate of 5.5 percent. Since November 2013, these unemployment rates have decreased by 0.1 and 0.3 percent respectively (U.S. Bureau of Labor Statistics 2014). In 2010, more than 21 percent of total jobs in Jackson County were in manufacturing—a substantially higher proportion than the state level of 9.7 percent and the national level of 6.9 percent. Jackson County also had fewer jobs in the professional, scientific, and technical services at 2.8 percent compared to 5.5 percent at the state and 6.8 percent at the national levels.

According to the Census Bureau, per capita personal income in CT 9503 is \$19,185, in CT 9502 is \$18,889 and in Jackson County it is \$19,770, which are about 68.7, 67.6, and 70.8 percent of the national average of \$27,915, respectively. Statewide, per capita personal income was \$23,483, 84 percent of the national level (United States Census Bureau 2011).

Minority populations of about 16.7 percent in CT 9503 and 14.5 percent in CT 9502 are greater than the county minority population of 9.9 percent. In contrast, the state and national minority populations of 32.7 and 35.8 percent are substantially higher (United States Census Bureau 2011).

The poverty levels in CT 9503 and 9502 are 19.5 and 16.5 percent and 17.1 percent in Jackson County. The state and national levels are 17.6 and 14.3 percent, respectively. CT 9503 is higher than the state, county, and national poverty levels (United States Census Bureau 2011).

3.10.2 Environmental Consequences

Alternative A

Under the No Action Alternative, TVA would not proceed with making the project area available for light industrial development. No future jobs would be created by implementation of Alternative A. Therefore, there would be no direct or indirect socioeconomic impacts and no disproportionate negative impacts to disadvantaged populations would occur under Alternative A.

Alternative B

Construction of light manufacturing facilities likely would provide employment to some members of the local work force and this would result in personal and local economic benefits during the construction period. The number and kind of jobs required for construction would depend on the type of facility constructed. In addition, any new industrial development would require a workforce to operate and manage the development. The number of jobs and kind of skills needed would depend on the nature of the development, but typically would range from 5 to 250 employees (Table 3-5). TVA expects that these would be well-paying jobs and likely would on the average exceed average per capita income levels for Jackson County and the State of Alabama. This would result in personal, local, and regional economic benefits, including increased tax revenue.

Table 3-5 Typical Operational Employment per Light Industrial Use

Example Light Industrial Use	Range of Employment During Operation
Call Center	120 - 200 employees
Food Processing	10-19 (small plant) to 100 or more (large plant)
Data Center	10 – 50 employees
Recycling Facility	10 – 50 employees
Storage Facility	5 – 20 employees
Printing, publishing and allied Industry	5 to 100 (or more)
Mineral Processing - Stone, Clay, Glass and Concrete	20 to 250 employees

Sources: USEPA 1995a, USEPA 1995b, USEPA 2014a, USEPA 2014b, USEPA 2014c

There is a potential impact from construction activities (e.g., small increases in traffic, dust, noise, and minor visual impacts) on minority and disadvantaged populations that reside in census tracts near and adjacent to the property proposed for development. However, these impacts are expected to be minor and temporary. Operational impacts are expected to be insignificant in part because TVA would restrict use of the property to light industrial uses and because of the system of environmental regulatory and permitting safeguards. Therefore, the implementation of Alternative B would result in no disproportionate negative impacts to disadvantaged populations.

3.11 Transportation

3.11.1 Affected Environment

The project area is mainly served by roads, but could be served by rail and barge if future owners utilize existing infrastructure at WCF or construct such infrastructure. The description of the affected environment was framed by usage of local roads surrounding the project site during construction and operation of future light industrial development.

County Road (CR) 96 bisects the project site, Alabama Route 277 is partially the northern boundary, and CR 255 is partially the eastern boundary (Figure 1-2). Traffic for future light industrial facilities likely would use Interstate 24 (I-24), US highway 72, Route 277, CR 96 and other constructed roads (on project site) for access.

The project area is located within 10 miles of I-24, located northeast of the project area in Tennessee. Jackson County's primary transportation route is U.S. Highway 72, which is a 4-lane highway between Huntsville, Alabama and Chattanooga, Tennessee. Alabama Route 277 is an approximate 9-mile rural minor arterial highway and CR 255 is a rural minor collector that serves local residences. Jackson County has closed CR 96 to thru traffic as TVA proceeds with its GS closure project. CR 96 is now only used by TVA employees and vendors.

Light Industrial development would likely require daily or weekly shipments depending on the type of industry. Most truck traffic would utilize US72 via I-24 to access the site.

The Transportation Research board (2000) provides a qualitative method to measure traffic flow and motorists perceptions of traffic flow, identified as the level of service (LOS). Six LOS are defined and given letter designations from A to F, with LOS A representing the best conditions (free flow) and LOS F representing the poorest conditions (severe congestion). Typically, LOS E and LOS F are defined as undesirable and indicate the need for transportation improvements. According to conversations with staff at the Alabama Department of Transportation (ALDOT), both Route 277 and US72 currently are designated at a LOS B, minimum delay/stable traffic flow.

3.11.2 Environmental Consequences

Alternative A

Under Alternative A, TVA would not make the property available for light industrial land use. No traffic would be generated by the implementation of Alternative A. Therefore, no indirect or direct transportation impacts would occur.

Alternative B

US 72 and Route 277 are the main roadways adjacent to the project area and would be utilized during construction and operation. Since CR 96 bisects the project area, the future land owners could request the road be permanently closed or, at least, control of the road for safety reasons and to utilize in its on-site road network. Impacts associated with the closure of CR 96 are discussed in the WCF GS EA (TVA 2014). Table 3-6 presents the 2013 Average Annual Daily Traffic (AADT) counts for key roadways that serve the project area. Figure 3-3 shows the location of the traffic stations. Even though there is no traffic data for CR 96, TVA estimated that 150 vehicles per day used CR 96 (TVA 2014).

Table 3-6 Potential Increase in traffic during construction and operation of future light industrial Facilities

Roadway	Current Average Daily Vehicle Use (AADT) - 2013	Potential Increase during peak construction (percentage)	Potential Increase during operation (percentage)
US 72 south of CR75 (Station 828)	8780	4.5	6.6
AL277 west of CR255 (Station 564)	2900	13.8	20
AL277 northeast of CR 69 (Station 563)	2600	15.4	22
US72 at Tennessee State Line (Station 534)	10600	3.8	5.5
AL277 and US72 intersection (Station 562)	4000	10	14.5
I-24 east of US72 exit (Station 059)	38699	1.0	1.5

Source: ALDOT 2014

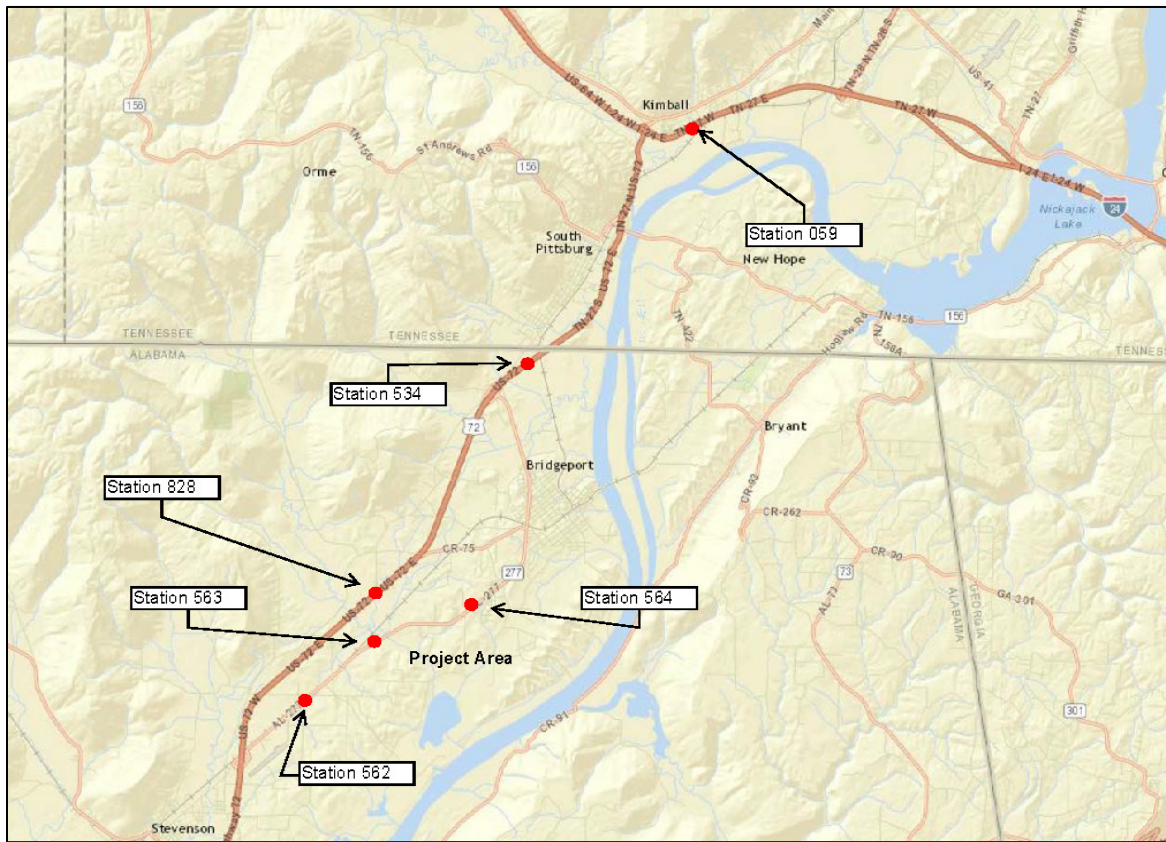


Figure 3-2 Location of Alabama Traffic Stations

Transportation of construction materials and workforce would temporarily increase traffic on local roadways near the project area. At peak construction, it is estimated that up to 200 workers may be employed to work on the project, which would consist of 400 daily trips (assuming no carpooling). The workers would most likely utilize Route 277 and US 72 during construction. Table 3-6 shows the potential increase in traffic during construction. Route 277 would experience the highest increase in traffic (13 to 15 percent). Route 277 currently has a LOS of B. The additional traffic would most likely change the LOS for this roadway; however, it is unlikely the LOS would change to E or F (undesirable and recommends improvements). This increase would be minor and short term while peak construction is taking place. Additional truck traffic would occur on the public roadways during construction for deliveries of construction material to the site. Truck traffic would be intermittent and infrequent throughout the construction period. There would likely be one to five additional trucks per day depending on the type of industry. Construction-related truck traffic would result in minimal effects on public roads near the project site. This conclusion is based on the determination that the road network has sufficient capacity to absorb one to five additional trucks per day. The project area is adjacent to the WCF, at which seven of the eight generating units are retired or soon will be, which has reduced use of area roadways.

Operation of future industrial facilities would lead to an increase in on-site and off-site traffic. The potential light industrial facilities could employ a wide range of workers (Table 3-5) and would require multiple daily or weekly deliveries of materials and transportation of finished goods from the project area. This analysis used the most conservative work force estimate of 250 (Mineral Processing - Stone, Clay, Glass and Concrete) and delivery/shipment of up to 5 per hour (food processing) to determine the potential impacts associated with the future operation of a light industrial facility. Based on an 8-hour work day, the shipments/deliveries could be approximately 40 per day (80 round trip). Therefore, shipments and workforce could increase traffic on the nearby local roadway network by 580 per day.

The Transportation Research Board (2000) outlines methods for evaluating the operational conditions within a traffic stream. Vehicle traffic during operation would increase traffic on local roadways near the project area. Table 3-6 identifies the potential increase in traffic during the operation of future industrial facilities. Route 277 would experience the highest increase in traffic (14.5 to 22 percent), while US72 and I-24 experienced a minor increase in traffic (less than 10 percent). As noted in Section 3.11.1, Route 277 currently has a LOS of B. The additional traffic would most likely change the LOS for this roadway; however, it is unlikely the LOS would change to E or F (undesirable and recommends improvements). Additionally, reduced operation of WCF has reduced or will reduce plant-related traffic on these roadways.

In 2013, the Top of Alabama Regional Council of Governments (TARCOG) developed a Long Range Transportation Needs Study addressing the years 2014 to 2019. In anticipation of increased development along the US72 corridor in Jackson County, the plan identifies a long-term project that would improve traffic on US72 (TARCOG 2013). Future owners of the project area would likely consult with the Alabama Department of Transportation, TARCOG, and Jackson County to identify any measures to minimize traffic impacts of the potential development of light industrial facilities. The operation transportation impacts would be minor direct, indirect and cumulative transportation impacts from the implementation of Alternative B.

3.12 Noise

3.12.1 Affected Environment

Sound is most commonly measured in decibels on the A-weighted decibel (dBA), which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal and state agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Noise, defined herein as undesirable sound, is regulated by the Noise Control Act of 1972. Although the Noise Control Act gives the USEPA authority to prepare guidelines for acceptable levels of ambient noise, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards. USEPA guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dBA DNL are “normally unacceptable” for noise-sensitive land uses, such as residences, schools, and hospitals. Jackson County does not have local ordinances; however, nearby noise ordinances (City of Scottsboro) have established noise standards for industrial facilities where noise levels should not exceed 85 dBA in daytime (7am – 9pm) or 80dBA in nighttime (9pm-7am). Construction activities that occur in daylight are typically exempt from these standards.

The project area is in a semi-rural area with broadly distributed man-made structures. During the summer of 2013, TVA demolished and removed structures in the project area (TVA 2013). Portions of the project are currently being used as a soil excavation area in order to close the WCF GS (TVA 2014). The primary affected environments from the noise of potential construction and operation of light industrial facilities include the workers and residents who live adjacent to the site.

3.12.2 Environmental Consequences

Noise pollution (or environmental noise) is displeasing human-, animal- or machine-created sound that disrupts the activity or balance of human or animal life. The source of most human-produced outdoor noise worldwide is transportation systems, stationary sources, and construction equipment and operations (Cowan 1994).

Industrial construction and industrial plant operations are processes that produce noise. Typical noise sources related to industrial development and operation include construction activities, equipment operation, and vehicular traffic. The amount of noise at a particular location can be reduced by the use of strategically placed physical barriers, vegetation screens, separation of the source and the receptor by distance, and enclosing the noise source. The noise effects on a particular receptor are a function of the location (i.e., perspective) of the noise source, both of which can be subject to change. The project area is located in a rural environmental with low number of receptors. The closest residential noise receptor is located approximately 0.4 mile from the center of the project area.

Alternative A

Under the No Action Alternative, TVA would not make the proposed property available for development. Environmental conditions in the project area would not change. Therefore, no direct, indirect, or cumulative noise impacts would occur under Alternative A.

Alternative B

The implementation of Alternative B would facilitate light industrial development on the project site. Heavy construction equipment needed for development would include (but may not be limited to) stationary equipment (generators, and compressors), bulldozers, backhoes, excavators, water trucks, and articulated dump trucks. The construction may create temporary or intermittent short-term annoyance for the local community, which would cease after the completion of construction.

Short-term maximum noise levels generated by heavy construction equipment can possibly range from approximately 68 dBA to in excess of 100 dBA when measured at 50 feet. These types of noise levels would diminish with distance from the construction site at a rate of approximately 6 dBA per each doubling of distance. There are residents located directly adjacent to the project site. However, it is unlikely the future development would be constructed less than 100 feet from these residences. Also, construction would likely be completed during day light hours, which would minimize the impacts to the adjacent residences.

Noise level increases of 5 to 20 dBA DNL are conceivable during industrial operations, depending on the type of light industrial development ultimately locating on the site. Any future light industrial developments would need to comply with operational permits, as to minimize its impact on the local community. If operational noise results in complaints, the industrial facility could implement noise abatement measures including construction of buffers (fence/wall or planting of trees) between incompatible land uses (i.e., light industrial and residential) and/or add acoustically absorbent material to the facility. The project site is also located adjacent to TVA's WCF, which produces industrial level noise during operation. The project site contains several potential development locations bordered by deciduous forests. If these forested areas were left intact and if the light industrial development were located with noise abatement in mind, these forests and strips of vegetation would reduce the noise anticipated under Alternative B.

Future construction activities would cause minor, temporary insignificant noise impacts because these activities would be short in duration and would likely occur during daylight hours. Due to the nature of the site, and the potential for noise abatement, minor direct, indirect, and cumulative impacts during the operation of potential light industrial developments are anticipated under Alternative B.

3.13 Cumulative Impacts

Cumulative effects of the proposed Action Alternative would be limited to the project site and its surroundings. Allowing the project area to be used for light industrial uses would involve legally conveying rights permitting such uses to a prospective developer. The conveying of lands would essentially require paperwork with no direct impacts on the environment. However, the proposed action would facilitate the future development of light industrial facilities. Therefore, development of light industrial facilities would be a reasonable foreseeable future action and is analyzed in this EA. As appropriate, TVA has addressed the cumulative effects for each resource that could be affected cumulatively by the future construction and operation of light industrial facilities in the respective sections.

3.14 Unavoidable Adverse Environmental Impacts

The proposed activities could cause some unavoidable adverse environmental effects. Specifically, construction activities would generate fugitive dust. The future development of the project area would increase noise and traffic in the general area and may permanently

remove wildlife habitat. With the application of appropriate and standard environmental safeguards such as use of BMPs, these unavoidable adverse effects are expected to be minor.

3.15 Relationship of Short-Term Uses and Long-Term Productivity

Short-term uses are those that generally occur on a year-to-year basis. Examples are wildlife use of forage, timber management, recreation, and uses of water resources. Long-term productivity is the capability of the land to provide resources, both market and non-market, for future generations.

In this context, long-term impacts to site productivity would be those that last beyond the life of the project. The proposed action would affect long-term productivity by developing light industrial facilities within the project area. These actions would remove vegetation and cover portions of the site with impervious surfaces. Portions of the site would likely remain vegetated and productive. Development of the project area would cause a long-term loss of forest productivity and wildlife habitat. But over time, these would be relatively minor considering the availability of similar land in the area.

3.16 Irreversible and Irretrievable Commitments of Resources

An irreversible or irretrievable commitment of resources would occur when resources would be consumed, committed, or lost because of the project. The commitment of resources would be irreversible if the project started a process (chemical, biological, or physical) that could not be stopped. Similarly, commitment of a resource would be considered irretrievable when the project would directly eliminate the resource, its productivity, or its utility for the life of the project and possibly beyond.

Once the land is made available, it is expected that it would be developed. Construction and operation activities on this land would result in an irretrievable and irreversible commitment of natural and physical resources. The adoption of Alternative B would involve irreversible commitment of fuel, energy, and building materials. The amount of these materials would depend on the nature and extent of development. Light industrial development tends to use less raw and manufactured materials and incorporates more conservation of renewable natural resources on the site. Implementation of Alternative would also involve the irretrievable commitment of prime farmland within the project area for the life of the light industrial facilities.

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CHAPTER 4 – LIST OF PREPARERS

4.1 NEPA Project Management

Loretta McNamee

Position: Staff Environmental Scientist
 Education: B.S., Biology
 Experience: 7 years in NEPA Compliance
 Involvement: Project Management, NEPA Compliance, Document Preparation

Erica Wadl

Position: Program Manager Environmental Support
 Education: M.S., Forestry, B.S., Biology
 Experience: 10 years in Natural Resources and Environmental Compliance
 Involvement: Project Management

4.2 Other Contributors

Adam Datillo

Position: Biologist/Botanist
 Education: M.S., Forestry
 Experience: 10 years botany, restoration ecology, threatened and endangered plant monitoring/surveys, invasive species control, as well as NEPA and ESA compliance.
 Involvement: Terrestrial Ecology (Vegetation) and Threatened and Endangered Species

Kim Pilarski-Hall

Position: Senior Wetlands Biologist
 Education: M.S., Geography, Minor Ecology
 Experience: 18 years in Wetlands Assessment and Delineation
 Involvement: Wetlands

Elizabeth C. Burton Hamrick

Position: Biologist/Zoologist
 Education: M.S., Wildlife and Fisheries Science, B.A. Biology and Anthropology
 Experience: 13 years; 4 years endangered species studies, and NEPA Compliance
 Involvement: Terrestrial Ecology and Threatened and Endangered Species

Michaelyn Harle

Position: Archaeologist
Education: PhD., Anthropology
Experience: 13 years in Archaeology and Cultural Resource Management

Involvement: Cultural and Historic Resources

Andrew Henderson

Position: Aquatic Biologist
Education: M.S. Fisheries (Conservation) and B.S., Fisheries
Experience: 10 years in aquatic monitoring, rare aquatic species surveys
Involvement: Aquatic Ecology and Threatened and Endangered Species

Crag Phillips

Position: Aquatic Biologist
Education: M.S. and B.S., Wildlife and Fisheries Science
Experience: 6 years sampling and hydrologic determination for streams and wet-weather conveyances; 5 years in environmental reviews

Involvement: Aquatic Ecology and Threatened and Endangered Species

CHAPTER 5 – ENVIRONMENTAL ASSESSMENT RECIPIENTS

5.1 Federal Agencies

- Natural Resources Conservation Service, Alabama State Conservationist
- U.S. Army Corps of Engineers, Mobile District
- U.S. Army Corps of Engineers, Nashville District
- U.S. Fish and Wildlife Service, Daphne Field Office
- U.S. Fish and Wildlife Service, Refuge Office

5.2 Federally Recognized Tribes

- Eastern Band of Cherokee Indians
- United Keetoowah Band of Cherokee Indians in Oklahoma
- Cherokee Nation
- Chickasaw Nation
- Muscogee (Creek) Nation of Oklahoma
- Thlopthlocco Tribal Town
- Kialegee Tribal Town
- Alabama-Quassarte Tribal Town
- Alabama-Coushatta Tribe of Texas
- Eastern Shawnee Tribe of Oklahoma
- Shawnee Tribe
- Absentee Shawnee Tribe of Oklahoma
- Seminole Tribe of Florida
- Seminole Nation of Oklahoma
- Poarch Band of Creek Indians

5.3 State Agencies

- Alabama Department of Conservation and Natural Resources
- Alabama Department of Environmental Management
- Alabama Department of Environmental Economic and Community Affairs
- Alabama Department of Transportation
- Alabama Forestry Commission
- Alabama Historical Commission
- Top of Alabama Regional Council of Governments

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Appendix A – U.S. Fish and Wildlife Service Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

IN REPLY REFER TO:
2009-I-0479

JAN 07 2015

Recd. 1-12-15
20

Mr. John T. Baxter, Jr., Manager
Tennessee Valley Authority
Endangered Species Act Compliance
Safety, River Management and Environment
400 West Summit Hill Drive
Knoxville, TN 37902

Dear Mr. Baxter:

Thank you for your letter of December 19, 2014, requesting Endangered Species Act (ESA) Section 7 concurrence on the Tennessee Valley Authority (TVA) effect determination for the proposed disposal of a 360-acre property immediately adjoining the Widows Creek Fossil Plant (WCF) in Jackson County, Alabama. We understand that TVA is considering disposal of the property for light industrial use by either granting a permanent easement, license agreement, or by selling the property at public auction. We also understand that TVA will require the disposal mechanism to incorporate a covenant to limit tree clearing across the site to only occur between October 15 and March 31 in any given year to remove any direct impacts to listed or proposed bats (e.g., endangered gray or Indiana bats, proposed endangered northern long-eared bat).

Our comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Based upon the information provided within your letter and the accompanying report dated December 18, 2014, "Technical Report: Habitat Assessment for Indiana Bat (*Myotis sodalis*) and Northern Long-eared bat (*Myotis septentrionalis*)", and provided that a covenant to limit tree clearing across the site to only between October 15 and March 31 will be applied to any future property transfer, we concur with the TVA's determination that this project will not likely adversely affect the gray or Indiana bats, and will not jeopardize the continued existence of the northern long-eared bat. For further discussion, please contact Mr. Anthony Ford of my staff at (251) 441-5838.

Sincerely,

Dan Everson
Deputy Field Supervisor
Alabama Ecological Services Field Office

PHONE: 251-441-5181

FAX: 251-441-6222

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**Appendix B – Alabama State Historic Preservation Officer
Correspondence**



STATE OF ALABAMA
ALABAMA HISTORICAL COMMISSION
468 SOUTH PERRY STREET
MONTGOMERY, ALABAMA 36130-0900

FRANK W. WHITE
EXECUTIVE DIRECTOR

December 30, 2014

TEL: 334-242-3184
FAX: 334-240-3477

Clint Jones
TVA
400 West Summit Hill Drive
Knoxville, TN 37902

Re: AHC 10-1042
Widows Creek Reservation (360 Acres of property adjoining in Widows Creek)
Jackson County

Dear Mr. Jones:

Upon review of the above referenced project, we have determined that project activities will have no effect on any cultural resources listed on or eligible for the National Register of Historic Places. Therefore, we concur with the proposed project activities.

However, should artifacts or archaeological features be encountered during project activities, work shall cease and our office shall be consulted immediately. Artifacts are objects made, used or modified by humans. They include but are not excluded to arrowheads, broken pieces of pottery or glass, stone implements, metal fasteners or tools, etc. Archaeological features are stains in the soil that indicate disturbance by human activity. Some examples are post holes, building foundations, trash pits and even human burials. **This stipulation shall be placed on the construction plans to insure contractors are aware of it.**

We appreciate your commitment to helping us preserve Alabama's historic archaeological and architectural resources. Should you have any questions, please contact Amanda McBride at 334.230.2692 or Amanda.McBride@preserveala.org. Have the AHC tracking number referenced above available and include it with any future correspondence.

Sincerely,

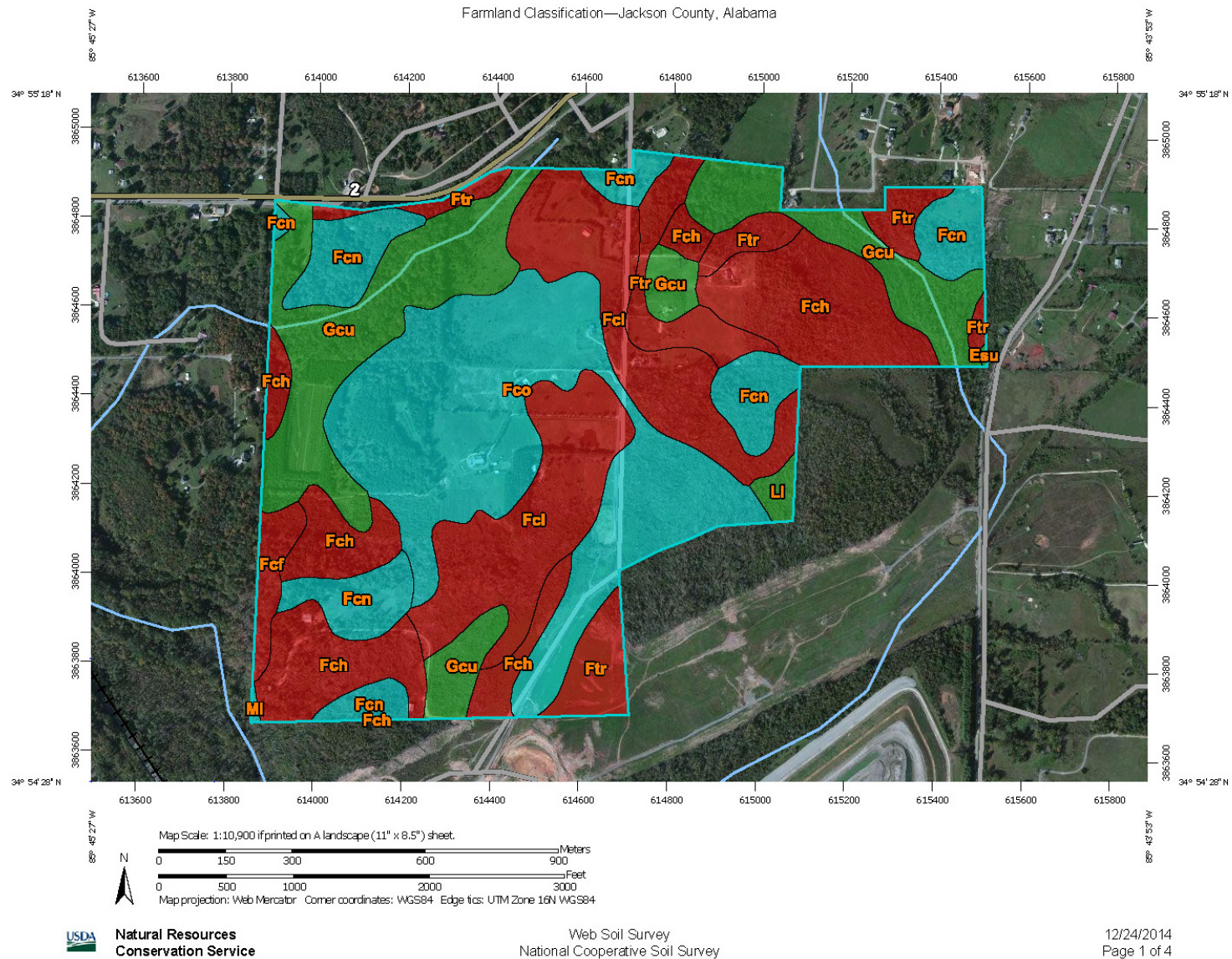
Lee Anne Wofford
Deputy State Historic Preservation Officer

LAW/AMH/amh

THE STATE HISTORIC PRESERVATION OFFICE
www.preserveala.org

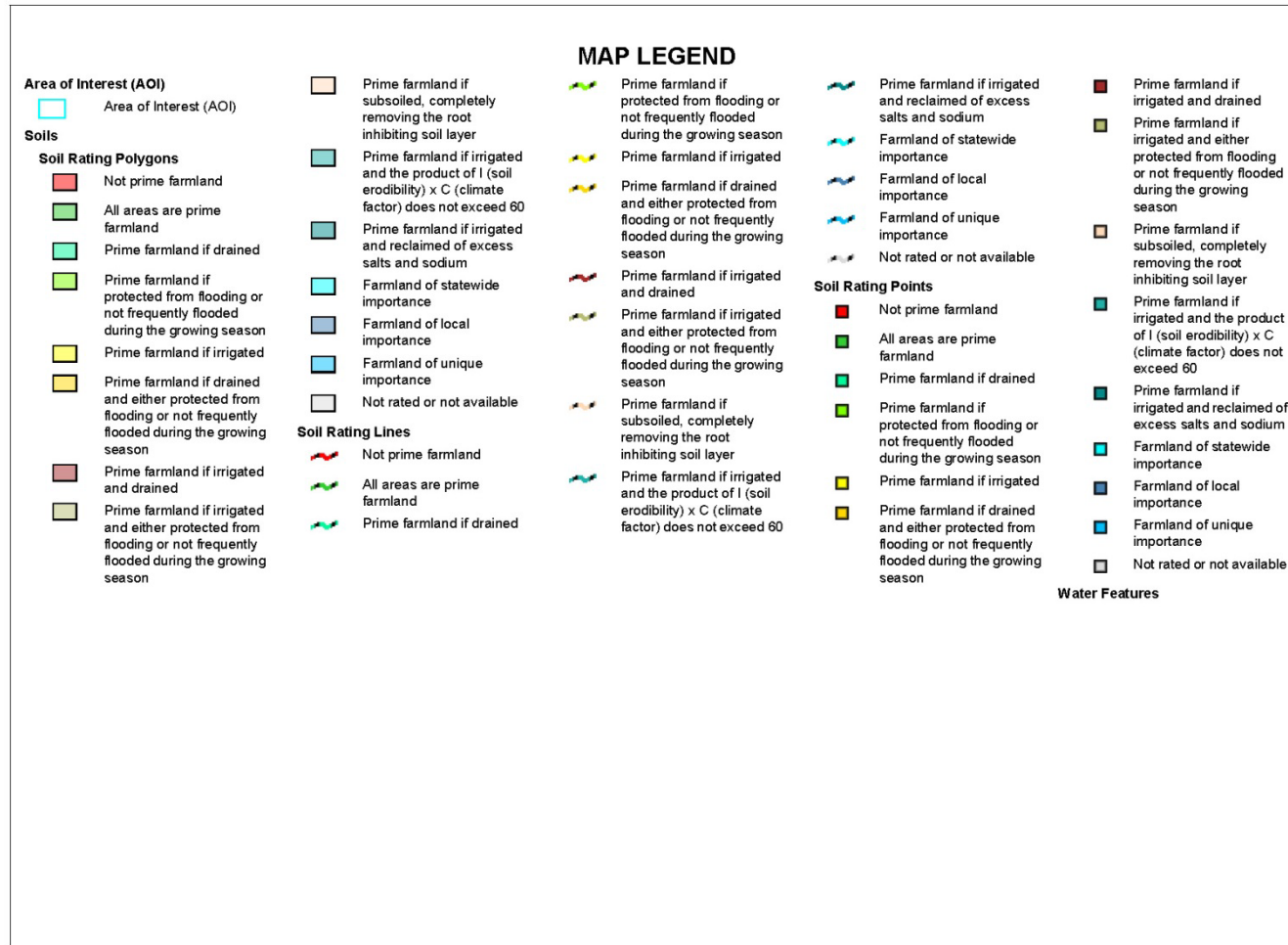
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Appendix C – Prime Farmland Information





Widows Creek Property Disposal

Farmland Classification—Jackson County, Alabama



Farmland Classification—Jackson County, Alabama

MAP INFORMATION

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Jackson County, Alabama
Survey Area Data: Version 6, Sep 16, 2014

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

Date(s) aerial images were photographed: Mar 12, 2011—Jan 4, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Farmland Classification—Jackson County, Alabama

Farmland Classification

Farmland Classification— Summary by Map Unit — Jackson County, Alabama (AL071)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Esu	Etowah silt loam, 2 to 6 percent slopes	All areas are prime farmland	0.2	0.1%
Fcf	Fullerton cherty silt loam, eroded, steep phase	Not prime farmland	5.4	1.5%
Fch	Fullerton cherty silt loam, eroded, hilly phase	Not prime farmland	60.1	16.6%
Fcl	Fullerton gravelly silt loam, 15 to 25 percent slopes	Not prime farmland	65.1	18.0%
Fcn	Fullerton cherty silt loam, eroded, rolling phase	Farmland of statewide importance	39.3	10.9%
Fco	Fullerton gravelly silt loam, 5 to 12 percent slopes	Farmland of statewide importance	88.7	24.6%
Ftr	Fullerton cherty silty clay loam, severely eroded, hilly phase	Not prime farmland	30.4	8.4%
Gcu	Greendale cherty silt loam, undulating phase	All areas are prime farmland	69.6	19.3%
LI	Lindside silt loam	All areas are prime farmland	2.3	0.6%
MI	Melvin silt loam	Farmland of statewide importance	0.3	0.1%
Totals for Area of Interest			361.4	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

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