

BROWNS FERRY MARINA AT WHEELER RESERVOIR RECREATION EASEMENT AND SECTION 26A APPROVAL ENVIRONMENTAL ASSESSMENT

Final

Limestone County, AL

EAXX-455-00-000-1732181947

Prepared by:
TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee

AUGUST 2026

To request further information, contact:

Jessica Wykoff-Carpenter
NEPA Compliance
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902
E-mail: nepa@tva.gov

FINDING OF NO SIGNIFICANT IMPACT

BROWNS FERRY MARINA AT WHEELER RESERVOIR RECREATION EASEMENT AND SECTION 26A APPROVAL

INTRODUCTION

The Tennessee Valley Authority (TVA) is evaluating a request for Section 26a approval and a 30-year recreation easement associated with the development and operation of a commercial marina on approximately 21.85 acres on Wheeler Reservoir in Limestone County, Alabama (the Project). The 21.85-acre Project Area consists of approximately 0.3 acres of private land within the TVA flowage easement, 0.01 acres of TVA fee property, 17.04 acres of inundated TVA property, and 4.5 acres of private land where proposed activities are considered connected actions under the National Environmental Policy Act (NEPA). The 30-year easement would cover approximately 17.04 acres of inundated TVA property in TVA Tract No. XWR-639RE, all below the 556-foot contour elevation (normal summer pool). The Section 26a approval would apply to the 17.04 acres of flowage easement, TVA fee property, and inundated TVA property.

The Proposed Action is consistent with TVA's Shoreline Management Policy and its Wheeler Reservoir Land Management Plan. The Proposed Action is the subject of an environmental assessment (EA) prepared by TVA, which is incorporated herein by reference.

PURPOSE AND NEED FOR ACTION

The Applicant's purpose and need is to develop a commercial marina and associated facilities along Wheeler Reservoir. TVA's purpose is to decide whether to grant Section 26a approval for shoreline construction activities and whether to approve an easement for commercial recreation use of TVA property as part of the Applicant's proposed commercial marina development project. The need for this project is based on the limited availability of public marinas on Wheeler Reservoir. Currently, only four marinas serve the reservoir.

Section 26a of the TVA Act requires TVA approval prior to the construction, operation, or maintenance of any dam, appurtenant works, or other obstructions affecting navigation, flood control, or public lands or reservations across, along, or in the Tennessee River or its tributaries. Because the proposed development includes activities that would be located on inundated TVA property, TVA fee property, and within a TVA flowage easement, TVA has Section 26a jurisdiction over portions of the Project Area and must consider whether to approve or deny the application.

TVA's Land Policy (2006) governs the management of public lands to maximize public enjoyment, flood control, navigation, power production, and economic growth. Consistent with 40 U.S.C. § 1314, the Land Policy states that TVA shall consider leasing or granting limited easements for the development of commercial recreation facilities or public recreation purposes if the property is so designated in a reservoir land management plan and the site remains suitable for recreational uses and a continued

need exists for such use. Accordingly, as part of the consideration and review of the Proposed Action, TVA must also consider whether to approve or deny an easement for the development and use of a commercial marina on TVA property.

ALTERNATIVES

In the EA, TVA evaluated two alternatives for the Project: Alternative A – The No Action Alternative, and Alternative B – The Proposed Action Alternative.

No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, no proposed facilities would be constructed within the TVA flowage easement or inundated TVA property. This alternative does not meet the Applicant's purpose and need for the Project.

Proposed Action Alternative

Under the Proposed Action Alternative, TVA would grant Section 26a approval for shoreline construction activities and a 30-year easement for operation of the proposed commercial marina. The proposed Project would include various infrastructure components to support recreational boating and shoreline stabilization, such as a concrete boat ramp, fueling docks, a travel lift, ship store, and floating wave attenuators. Approximately 1,500 feet of the shoreline would be stabilized using a combination of riprap, woody/herbaceous riparian planting, stabilization fabric, and an 8-foot-tall retaining wall. In total, 290 boat slips across seven docks would be constructed. The docks would be a mix of covered and uncovered. It is estimated that the Project would take approximately 12 to 18 months to complete. The Proposed Action is described in further detail in section 2.1.2 of the EA.

Alternatives Considered but Eliminated from Further Discussion

The Applicant considered the suitability of an alternative property along Wheeler Reservoir for a development that would meet the Applicant's purpose and need. At this off-site location, approximately 30 minutes west of the Project Area, water depths were determined to be too deep, making it cost-prohibitive to construct necessary wave attenuation and marina structures. Additionally, the land at this location has extreme elevation differences, poorly suited for shoreline and water access. Finally, deep channel depths close to the shoreline might have presented conflicts with commercial navigation. For these reasons, this alternative was not carried forward for detailed consideration.

SUMMARY OF ENVIRONMENTAL IMPACTS

TVA has determined that there would be no significant effects from the creation of solid or hazardous waste, or from the handling or disposal of hazardous materials, with adherence to all applicable local, state, and federal regulations and with the implementation of a Spill Prevention, Control, and Countermeasure (SPCC) plan.

Implementing the Proposed Action would result in minor adverse impacts to geology and groundwater, air quality, vegetation, surface water, floodplains, and terrestrial and aquatic ecology. Implementing the Proposed Action could result in minor adverse impacts to the human environment, including noise and vibration, visual resources, socioeconomics, public health and safety, natural and managed areas, parks and recreation, and transportation. There would also be minor to moderate short-term and long-term beneficial impacts to the local economy.

Following the 2024 Range-Wide Indiana Bat Survey Guidelines (USFWS 2024a), TVA surveyed the Project Area for the presence of potentially suitable habitat for federally listed bats in May 2025. Approximately 0.41 acres of mixed-deciduous hardwood forest comprised primarily of oak, maple, and elm were recorded within the Project Area. Of the 0.41 acres of forested habitat, 0.18 acres were determined to be suitable for use by summer roosting Indiana bat, based on the presence of exfoliating bark, hollows, and/or cracks and crevices. All 0.41 acres of forest are suitable for roosting tricolored bats. Suitable foraging habitat was also identified within the Project Area for gray bat, Indiana bat, and tricolored bat in and around forests, forested edges, and over Wheeler Reservoir. Wheeler Reservoir also provides a source of drinking water for all three bat species. Land-based actions occur on private property and TVA flowage easement property, where TVA does not have control or responsibility over implementation of the Endangered Species Act. Adherence to the conservation measures identified in the TVA Bat Strategy Project Review Form is recommended by TVA for all land-based activities. The Applicant has committed to clearing trees during the winter clearing window (October 1 – March 14). For activities that occur below the 556-foot contour elevation, the Applicant would be required to follow conservation measures developed from TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally listed bats, last updated in 2024. With adherence to these recommendations and requirements, the Proposed Action is not anticipated to significantly affect the gray bat or the Indiana bat. In addition, the Proposed Action would not jeopardize the continued existence of the tricolored bat.

In the fall of 2025, TVA contracted New South Associates, Inc. (New South) to conduct a Phase I archaeological and architectural survey of the Area of Potential Effects (APE). TVA determined the APE to be the Project Area, where physical effects could occur, as well as areas within a one-half-mile radius, where visual effects on historic structures could occur. The architectural survey did not identify any historic structures within the APE. The archaeological survey did not identify any new resources but did revisit two previously recorded sites within the Project Area, 1LI268 and 1LI488. New South recommended 1LI448 ineligible for the National Register of Historic Places (NRHP) based on the degree of disturbance present and lack of integrity. Site 1LI268 was recommended as potentially eligible for the NRHP due to the presence of intact, stratified deposits. Based on the presence of deposits within 1LI268, New South recommended avoidance or mitigation if avoidance is not possible.

TVA reviewed the survey report from New South and agrees with the methodologies and findings. Due to the presence of intact deposits within the Project Area the applicant modified a portion of the design to avoid intrusive disturbance. The redesign

incorporates the use of flagging to place approximately 2,100 cubic yards of engineered fill on the ground surface within 1LI268. Photographs taken before, during, and after the placement of fill will be provided by the applicant. Additionally, no bank shaping would take place when installing riprap stabilization within the harbor limits or marina's retaining wall. Based on these modifications, the proposed project would have no adverse effect on historic properties.

In May 2026, TVA consulted on the survey's findings with the Alabama State Historic Preservation Officer (SHPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA). In a letter dated June 9, 2026, the Alabama SHPO concurred with TVA's finding that the proposed project would have no adverse effect. Pursuant to 36 CFR § 800.3(f)(2) of the regulations of the Advisory Council on Historic Preservation implementing the National Historic Preservation Act, TVA consulted with federally recognized Indian tribes regarding historic properties within the APE that may be of religious and cultural significance to the tribes. TVA received no objections to the proposed project from the associated federally recognized Tribal Nations.

SCOPING AND PUBLIC INVOLVEMENT

TVA completed a 30-day public comment period as part of the Commercial Recreation Easement process. The notice was posted in the Athens News Courier on April 22, 2026, and requested public comments regarding potential impacts on environmental or historic resources and to identify any other issues associated with the proposed Project. No comments were received during this time.

TVA also published a Floodplain Public Notice detailing the impacts of alternatives evaluated, and mitigation measures for the rubble mound breakwaters from April 14, 2026, through April 27, 2026. An additional Floodplain Public Notice was published detailing proposed fill to protect cultural resources from June 23, 2026, through July 6, 2026. No comments were received in response to either floodplain notice.

MITIGATION MEASURES

TVA would require adherence to the routine environmental protection measures listed in the EA. These include, but are not limited to, the standard conditions for granting Section 26a approval and other necessary permits, which include mitigation measures, best management practices (BMPs), and other requirements. Routine mitigation measures are listed in section 2.3.1 of the EA.

The Applicant, or its contractors, is expected to implement non-routine mitigation measures to avoid, minimize, or resolve adverse impacts on the environment, listed below.

The Applicant would be required to obtain a bald eagle incidental take specific permit from the USFWS to comply with the Bald and Golden Eagle Protection Act (BGEPA) because construction would occur within 330 feet of a bald eagle nest within the Project Area. Additionally, to be in compliance with the specific permit, should the tree holding the nest be removed as part of implementing the Proposed Action, it must be done

outside of the breeding season (typically considered to be from October 1 through May 30) when birds, eggs, and young are not present.

Cultural Resources Section 26a Conditions

The Applicant has agreed to avoid adverse effects to archaeological site 1LI268 by using engineered fill and stone to create a fill horizon. The layer of engineered fill would be used to avoid intrusive ground disturbance where intact deposits have been identified and would be at least 40 centimeters thick. In addition to the use of fill within site 1LI268, the Applicant would: use flagging to mark the area where fill would be placed, provide photographs of the flagged area before, during, and after construction, extend the retaining wall further lakeward from the cutbank, and not use bank shaping during the installation of the retaining wall and riprap.

Flood Risk Section 26a Conditions

To ensure that the Proposed Action Alternative would be consistent with the requirements of EO 11988 for floodplain management, the following conditions would be included in the final TVA Section 26a approval and easement documents:

- Shoreline stabilization would be placed, on average, no more than 2.0 feet from the existing shoreline at the June 1 Flood Guide elevation (556.0-foot elevation).
- The marina operator would evaluate and ensure that the connection to utilities would not promote unwise development in the 100-year floodplain.
- For all electrical services permitted, a cutoff would be located at or above the 500-year flood elevation (557.7-foot elevation) that would be accessible during flood conditions.
- Floating facilities would be securely anchored to prevent them from floating free during major flood conditions.
- The Applicant agrees that spoil dredged material would be disposed of and contained on land lying and being above the 500-year flood elevation contour (557.7-foot elevation) and outside of the 500-year floodplain. Every precaution should be taken to prevent the reentry of spoil material into Wheeler Reservoir.
- Any future facilities or equipment subject to flood damage would be located above or floodproofed to 2 vertical feet plus the TVA Flood Risk Profile (559.7-foot elevation).

Flood Risk Recreation Easement Conditions

The recreation easement would contain the following flood risk conditions or covenants, as appropriate:

- Any future development proposed within the limits of the 100-year floodplain (557.3-foot elevation) would be consistent with the requirements of EO 11988.

- All future development would be consistent with the requirements of the TVA Flood Storage Loss Guideline.

TVA retains the right to flood this area, and TVA is not liable for damages occurring from flooding.

CONCLUSION AND FINDINGS

Based on the findings listed above and the analyses in the EA, we conclude that the Proposed Action would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



August 7, 2026

Dawn Booker, Senior Manager
NEPA Compliance
Tennessee Valley Authority

Date Signed

TABLE OF CONTENTS

CHAPTER 1	Purpose and Need for Action	1
1.1	Background.....	1
1.2	Purpose and Need	3
1.3	Decisions to be Made	4
1.4	Related Environmental Reviews	4
1.5	Scoping and Public Involvement.....	5
1.6	Necessary Permits, Licenses, and Consultations	6
CHAPTER 2	Alternatives.....	7
2.1	Description of Alternatives	7
2.1.1	Alternative A – The No Action Alternative.....	7
2.1.2	Alternative B – The Proposed Action Alternative.....	7
2.1.3	Alternatives Considered but Eliminated from Further Discussion	11
2.2	Comparison of Alternatives	11
2.3	Identification of Mitigation Measures.....	13
2.3.1	Standard Practices and Routine Measures.....	13
2.3.2	Non-routine Mitigation Measures	14
CHAPTER 3	Affected Environment and Environmental Consequences	16
3.1	Scope of the Environmental Review	16
3.2	Reasonably Foreseeable Future Actions	17
3.3	Land Use and Prime Farmland	18
3.3.1	Affected Environment.....	18
3.3.2	Environmental Consequences	19
3.4	Geology and Groundwater.....	19
3.4.1	Affected Environment.....	19
3.4.2	Environmental Consequences	20
3.5	Noise and Vibration.....	21
3.5.1	Affected Environment Noise and Vibration	21
3.5.2	Environmental Consequences	22
3.6	Air Quality	23
3.6.1	Affected Environment.....	23
3.6.2	Environmental Consequences	24
3.7	Visual Resources	25
3.7.1	Affected Environment.....	25

3.7.2	Environmental Consequences	25
3.8	Socioeconomics	26
3.8.1	Affected Environment.....	26
3.8.2	Environmental Consequences	27
3.9	Public Health and Safety	28
3.9.1	Affected Environment.....	28
3.9.2	Environmental Consequences	28
3.10	Hazardous Materials and Solid Waste	29
3.10.1	Affected Environment.....	29
3.10.2	Environmental Consequences	30
3.11	Natural and Managed Areas	31
3.11.1	Affected Environment.....	31
3.11.2	Environmental Consequences	32
3.12	Parks and Recreation	32
3.12.1	Affected Environment.....	32
3.12.2	Environmental Consequences	33
3.13	Transportation.....	34
3.13.1	Affected Environment.....	34
3.13.2	Environmental Consequences	34
3.14	Cultural Resources	35
3.14.1	Affected Environment.....	35
3.14.2	Environmental Consequences	37
3.15	Vegetation.....	38
3.15.1	Affected Environment.....	38
3.15.2	Environmental Consequences	40
3.16	Surface Water	41
3.16.1	Affected Environment.....	41
3.16.2	Environmental Consequences	42
3.17	Floodplains.....	43
3.17.1	Affected Environment.....	43
3.17.2	Environmental Consequences	44
3.18	Aquatic Ecology	46
3.18.1	Affected Environment.....	46
3.18.2	Environmental Consequences	47

3.19	Terrestrial Ecology	48
3.19.1	Affected Environment.....	48
3.19.2	Environmental Consequences	52
3.20	Unavoidable Adverse Environmental Impacts.....	55
3.21	Relationship of Short-Term Uses and Long-Term Productivity	55
3.22	Irreversible and Irretrievable Commitments of Resources	56
3.23	NEPA Compliance Certification.....	56
CHAPTER 4	Literature Cited.....	57
Appendix A	– List of Preparers	A-1
Appendix B	– Symbols, Acronyms, and Abbreviations	B-1
Appendix C	– Supplementary Vegetation Survey Information	C-1
Appendix D	– Supplementary Migratory Bird Habitat Information	D-1
Appendix E	– TVA Bat Strategy Project Review Form	E-1
Appendix F	– Agency Consultation and Coordination.....	F-1
	 Figure 1-1. Project Location Map 2	
Figure 2-1.	Overview of the Proposed Project.....	10
Figure 3-1.	Example of Disturbed Vegetation in the Project Area.....	38
Figure 3-2.	Example of Deciduous Forest Vegetation in the Project Area.....	39
Table 3-1.	Landcover within the Project Area and within a 1-mile Buffer. 18	
Table 3-2.	Average Noise Levels from Construction Equipment and a Typical Twin-Engine Motorboat.	22
Table 3-3.	Population, Income, and Employment in the State and County	26
Table 3-4.	Poverty and Minority Status by Census Tract Where the Project Area is Located.	27
Table 3-5.	Managed and Natural Areas Within a 3-mile Radius of the Project Area. 32	
Table 3-6.	2024 Annual Average Daily Traffic.	34
Table 3-7.	Watercourses in the Project Area.	41
Table 3-8.	Records of Federally and State-Listed Aquatic Species.	46
Table 3-9.	Federally Listed Terrestrial Animal Species Reported from Limestone County, Alabama, and Other Species of Conservation Concern Documented within 3 Miles of the Project Area.	49

CHAPTER 1 PURPOSE AND NEED FOR ACTION

1.1 BACKGROUND

Browns Ferry Marina, LLC (the Applicant) has applied for a Shoreline Construction Permit under Section 26a of the Tennessee Valley Authority (TVA) Act and a 30-year commercial recreation easement under 40 U.S.C. § 1314 for the development and operation of a commercial marina and associated infrastructure (the Project). The Project Area would include the following: approximately 21.85 acres comprised of private property, land within the TVA flowage easement, TVA fee property, and inundated TVA property. The Project Area is characterized by herbaceous vegetation with a thin strip of trees along the shoreline, and is located along the right descending bank of Wheeler Reservoir on the Tennessee River at river mile 296, approximately 9 miles southwest of Athens in Limestone County, Alabama. The proposed Project would include approximately 290 public boat slips, a boat ramp, a marina store, fuel docks, a wave break, utilities to service boat slips, dry storage, and associated infrastructure. TVA's action includes approval of the construction of proposed facilities within TVA's flowage easement, TVA fee property, and inundated TVA property, as well as approval of a 30-year easement for operation of the commercial marina.

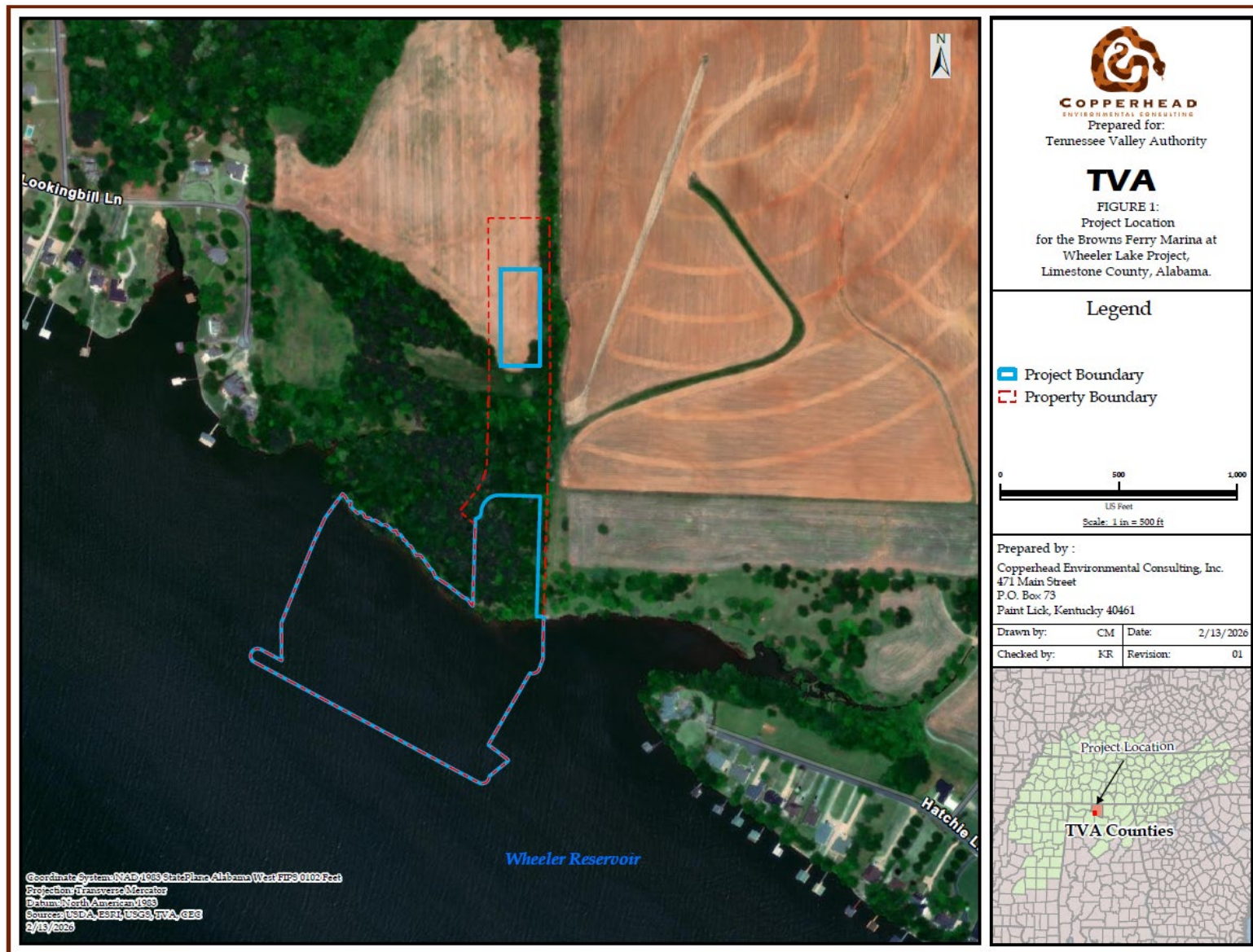


Figure 1-1. Project Location Map

1.2 PURPOSE AND NEED

The Applicant's purpose and need is to develop a commercial marina and associated facilities along Wheeler Reservoir. TVA's purpose is to decide whether to grant a Section 26a approval for shoreline construction activities and whether to approve an easement for commercial recreation use of TVA property as part of the Applicant's proposed commercial marina development project on Wheeler Reservoir. The need for this project is based on the limited availability of public marinas on Wheeler Reservoir. Currently, only four marinas serve the reservoir. All four are smaller than the proposed Project's marina and are located more than 5 river miles from the Project Area.

Section 26a of the TVA Act requires TVA approval prior to the construction, operation, or maintenance of any dam, appurtenant works, or other obstructions affecting navigation, flood control, or public lands or reservations across, along, or in the Tennessee River or its tributaries. The aforementioned approval ensures that proposed activities comply with TVA regulations, prevent obstructions to navigation, and minimize environmental impacts. The Section 26a approval process involves submitting an application that includes detailed project plans, site location, environmental considerations, and potential impacts on water quality, aquatic life, and shoreline stability. TVA reviews the application in coordination with other regulatory agencies, such as the U.S. Army Corps of Engineers (USACE) and state environmental agencies, to ensure compliance with federal and state requirements. USACE and TVA have a Memorandum of Understanding (MOU) that designates TVA as the Lead Federal Agency for conducting environmental reviews under the National Environmental Policy Act (NEPA) and other applicable federal laws and regulations for proposed work that may occur on property that is under TVA custody or control.

TVA's Section 26a jurisdiction extends to the limits of the Tennessee River watershed. On TVA reservoirs, that jurisdiction typically applies to the limits of the 500-year floodplain or to the upper limits of TVA's flowage rights, whichever is higher. Flowage rights refer to certain rights, usually in the form of an easement over a certain area, purchased by TVA from landowners that grant TVA the right to flood or submerge land within the easement area for a prescribed period of time. Such easements are typically associated with the land around reservoirs. Within the Project Area, TVA's jurisdiction corresponds to its flowage rights, which extend up to the 560-foot contour elevation. Because the proposed development includes activities that would be located on TVA property and within a TVA flowage easement, TVA has Section 26a jurisdiction over portions of the Project Area and must consider whether to approve or deny the Section 26a application.

TVA's Land Policy (2006) governs the management of public lands to maximize public enjoyment, flood control, navigation, power production and economic growth. Consistent with 40 U.S.C. § 1314, the Land Policy states that TVA shall consider leasing or granting limited easements for the development of commercial recreation facilities or public recreation purposes if the property is so designated in a reservoir land management plan and the site remains suitable for recreational uses and a continued need exists for such use. Accordingly, as part of the consideration and review of the

Proposed Action, TVA must also consider whether to approve or deny an easement for the development and use of a commercial marina on TVA property.

1.3 DECISIONS TO BE MADE

The primary decisions TVA must make are whether to grant Section 26a approval for shoreline construction activities and a 30-year easement that would allow the Applicant to operate a commercial marina. TVA's Section 26a jurisdiction is implemented through Section 26a regulations [18 CFR (Code of Federal Regulations) 1304] and the 1999 Shoreline Management Policy. Public Law 40 U.S.C. § 1314 allows TVA to grant easements for various uses, including recreation.

This Environmental Assessment (EA) was prepared to inform TVA decision makers and the public about the environmental consequences of implementing the Proposed Action. TVA will use this EA to support the decision-making process and to determine whether an Environmental Impact Statement (EIS) should be prepared or whether a Finding of No Significant Impact (FONSI) may be issued.

1.4 RELATED ENVIRONMENTAL REVIEWS

During the preparation of this EA, TVA consulted with several federal and state agencies.

In October 2025, TVA contracted New South to conduct a Phase I archaeological and architectural survey of the APE. In May 2026, TVA consulted on the survey's findings with the Alabama SHPO in compliance with Section 106 of the National Historic Preservation Act (NHPA). In a letter dated June 9, 2026, the Alabama SHPO concurred with TVA's finding that the proposed project would have no adverse effect. Pursuant to 36 CFR § 800.3(f)(2) of the regulations of the Advisory Council on Historic Preservation implementing the NHPA, TVA consulted with federally recognized Indian tribes regarding historic properties within the APE that may be of religious and cultural significance to the tribes, and received no objections to the Project. Additional detail is provided in Section 3.14.

TVA completed programmatic consultation with the U.S. Fish and Wildlife Service (USFWS) focused on routine actions and federally listed bats in accordance with Section 7(a)(2) of the Endangered Species Act (ESA). Consultation was completed in April 2018 and updated in 2023 and 2024. Land-based actions occur on private property and TVA flowage easement property, where TVA does not have control or responsibility over implementation of the ESA. Adherence to the conservation measures identified in the TVA Bat Strategy Project Review Form is recommended by TVA for all land-based activities. For activities that occur below the 556-foot contour elevation, the Applicant would be required to follow conservation measures developed from TVA's programmatic consultation. Conservation measures are identified in the TVA Bat Strategy Project Review Form (Appendix E). See Section 3.19 for species-specific details.

TVA identified the following environmental reviews that are related to the Proposed Action. The contents of these related reviews help describe the affected property and are incorporated by reference as appropriate.

Wheeler Reservoir Final Reservoir Land Management Plan – Multiple Reservoir Land Management Plans Final Environmental Impact Statement (2017)

Wheeler Reservoir is one of eight reservoirs included in the Multiple Reservoir Land Management Plans (RLMPs) project, which was approved by the TVA Board of Directors in August 2017. The Wheeler Reservoir RLMP addresses the management of TVA-owned public land surrounding Wheeler Reservoir.

In the Multiple RLMPs Final EIS, TVA applies the Single Use Parcel Allocation methodology of land use allocation zones that has been used in TVA land plans since 1999. On September 12, 2017, TVA posted in the Federal Register (Volume 82, Number 175) that it was adopting the proposed multiple reservoir land management plans.

Shoreline Management Policy Final Environmental Impact Statement (1999)

TVA's Shoreline Management Policy Final Environmental Impact Statement (FEIS) was released in November 1998 and was approved by the TVA Board of Directors on April 21, 1999. The Record of Decision for the FEIS was published in the Federal Register on June 4, 1999. The Shoreline Management Policy establishes a Valleywide policy to improve the protection of shoreline and aquatic resources while allowing reasonable access to the water.

In the Shoreline Management Policy FEIS, TVA considered seven alternatives for managing residential shoreline development impacts in the Tennessee Valley. The TVA Board adopted a modified Blended Alternative, in which TVA seeks to balance residential shoreline development, recreation use, and resource conservation needs in a way that maintains the quality of life and other important values provided by its reservoir system. The Record of Decision was published in the Federal Register on June 4, 1999 (Volume 64, Number 107). The Proposed Action is consistent with this policy.

1.5 SCOPING AND PUBLIC INVOLVEMENT

TVA Public Land Management completed a 30-day public comment period as part of the Commercial Recreation Easement process. The notice was posted in the Athens News Courier on April 22, 2026, and requested public comments regarding potential impacts on environmental or historic resources and to identify any other issues associated with the proposed Project. No comments were received during this time.

TVA also published a Floodplain Public Notice detailing the impacts of alternatives evaluated, and mitigation measures for the rubble mound breakwaters from April 14, 2026, through April 27, 2026. An additional Floodplain Public Notice was published

detailing proposed fill to protect cultural resources from June 23, 2026, through July 6, 2026. No comments were received in response to either floodplain notice.

1.6 NECESSARY PERMITS, LICENSES, AND CONSULTATIONS

All necessary permits, permit modifications, licenses, and approvals would be obtained by the Applicant for activities it implements within the 21.85-acre Project Area. The list below identifies additional regulations, programs, permits, approvals, or other authorizations from federal, state, or local authorities that may be required before the Project Area could be developed for specific uses by the Applicant:

- A TVA Section 26a approval is required for shoreline construction activities, such as those related to docks, marinas, and shoreline stabilization.
- A Section 401 Individual Water Quality Certification (WQC) issued by the Alabama Department of Environmental Management (ADEM) for work in Waters of the State of Alabama and a Section 404 Individual Permit from the U.S. Army Corps of Engineers (USACE) are required for activities that involve point source discharges of dredge or fill into Waters of the U.S. (WOTUS) or Waters of the State of Alabama. Per USACE guidelines, the USACE would issue the Individual Permit after the TVA Section 26a approval is issued.
- A National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) for Stormwater Discharges Associated with construction activity is required under Section 402 of the Clean Water Act. A CGP is required for discharge of pollutants found in stormwater runoff associated with construction activities that disturb one or more acres into WOTUS. The development and approval of a Stormwater Pollution Prevention Plan (SWPPP) is a component of this permit.
- ADEM Aboveground Storage Tanks (ASTs) used for fueling areas or hazardous materials storage.
- A No Exposure Certification under the Clean Water Act (CWA) for ongoing operations of the marina post-construction, which would exempt the project from further NPDES stormwater permitting requirements.
- The Applicant would work with USFWS to obtain a Bald Eagle Incidental Take Specific Permit for construction within 330 feet of a documented active bald eagle nest that occurs above the 556.3-foot contour, but below the 560-foot contour on retained TVA flowage easement where TVA does not have control or responsibility over implementation of the ESA or the Bald and Golden Eagle Protection Act (BGEPA), but is required to inform the Applicant of their responsibilities under the BGEPA.

CHAPTER 2 ALTERNATIVES

Two alternatives are under consideration: Alternative A – the No Action Alternative; and Alternative B – the Proposed Action Alternative. Below are descriptions of both alternatives, a table comparing the alternatives, and the identified Preferred Alternative.

2.1 DESCRIPTION OF ALTERNATIVES

2.1.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, no proposed facilities would be constructed within the TVA flowage easement, TVA fee property, or inundated TVA property. This alternative does not meet the Applicant's purpose and need for the Project. However, it does provide a benchmark for comparing the environmental impacts of the implementation of the Proposed Action Alternative.

2.1.2 Alternative B – The Proposed Action Alternative

Under the Proposed Action Alternative, TVA would grant Section 26a approval for shoreline construction activities and a 30-year easement for operation of the proposed commercial marina. The proposed Project would be constructed on approximately 21.85 acres along Wheeler Reservoir in Limestone County, Alabama (see Figure 2-1), and would include various infrastructure components to support recreational boating and shoreline stabilization. The Project Area consists of approximately 17.04 acres of inundated TVA property, and 4.5 acres of private land where proposed activities are considered connected actions under NEPA. The 30-year easement would cover approximately 17.04 acres of inundated TVA property in TVA Tract No. XWR-639RE, all below the 556-foot contour elevation (normal summer pool). The Section 26a approval would apply to the 17.04 acres inundated TVA property. Design features on private property are considered connected actions and are evaluated in the EA.

Figure 2-1 displays the preliminary master plan for the proposed development within the Project Area. The proposed project would achieve the Applicant's purpose of developing a commercial marina and associated facilities along Wheeler Reservoir. The Project Area would be accessed via a county-owned public road extending from Nuclear Plant Road to the Project Area.

It is currently estimated that the Project would take approximately 12 to 18 months to complete.

The following construction activities would be carried out as part of the Proposed Action:

- The Project would include 290 boat slips across seven docks, including a fuel service pier, 250 seasonal slips (210 covered docks, 40 broadside docks) and 40 transient slips (28 uncovered docks, 12 broadside docks). Additionally, approximately 1,598 linear feet of broadside mooring would be constructed.

- Covered docks would be constructed with metal framing and would include floating platforms, telescoping pipes, piles driven into substrate, underwater trusses, steel pipe piles, and concrete retaining walls.
- A single rubble mound breakwater designed to shield the boat slips from wave action and provide a safe harbor for seasonal and transient boaters during adverse weather conditions or emergencies would be constructed. This breakwater would be approximately 1,135 feet in length and run roughly parallel with the shoreline. The total estimated volume of riprap required for the construction of the breakwater is approximately 29,250 cubic yards (CY).
- Two smaller rubble mound breakwaters would be constructed on either side of the marina, perpendicular to the shoreline, and would extend, at maximum, approximately 145 feet into Wheeler Reservoir. The estimated volume of riprap for the construction of both breakwaters is approximately 4,600 CY.
- Three floating wave attenuators would be installed along the sides of the marina, extending from the shoreline to the rubble mound breakwater at the edge of the harbor limits. Wave attenuators would reduce wave action while allowing water flow underneath.
- A travel lift and loading docks would be constructed.
- An aboveground storage tank for fuel would be located near the travel lift and an underground fuel line would extend from the tank to the fuel service pier.
- Approximately 1,500 feet of the shoreline would be stabilized using a combination of riprap, woody/herbaceous riparian planting, stabilization fabric, and an 8-foot-tall retaining wall. The shoreline retaining wall would incorporate approximately 341 CY of fill material and would be constructed with reinforced concrete, including footings, protective riprap, and embedded steel reinforcements.
- An 8-foot-wide sidewalk would be installed parallel to the stabilization area, extending from the boat launch ramp to a 60-foot by 8-foot gangway.
- A boat-launching ramp would extend approximately 75 feet in length and 16 feet in width. It would be 6 inches thick with a 12 percent grade. The ramp would include rock riprap on either side to ensure stability, as well as approximately 45 CY of fill to achieve elevation needs.
- To achieve the necessary depth and contours for the marina, dredging would be conducted in the travel lift area, affecting approximately 44,700 square feet and removing an estimated 6,600 CY of material. Excavation would be performed using track hoes.
- Removal of mixed hardwood and pine trees along the shoreline, which would total approximately 0.41 acres of mixed-ownership land.

Activities on private property that are considered connected actions include:

- The construction of a parking area, dry storage facility, and a public ship store. Utilities would include electric, water, natural gas, and sewage infrastructure, which would be placed in a trench and connected to the infrastructure of local utilities. No upgrades to the surrounding transmission system would be necessary for this project.

- Dredged material from the travel lift area would be transported by truck to a designated spoil site within the Project Area located 0.25 miles from the dredge location. This spoil site would be used exclusively for materials excavated from the marina footprint and would not accommodate any other landfill waste.
- Removal of mixed hardwood and pine trees along the shoreline, which would total approximately 0.41 acre of mixed-ownership land.

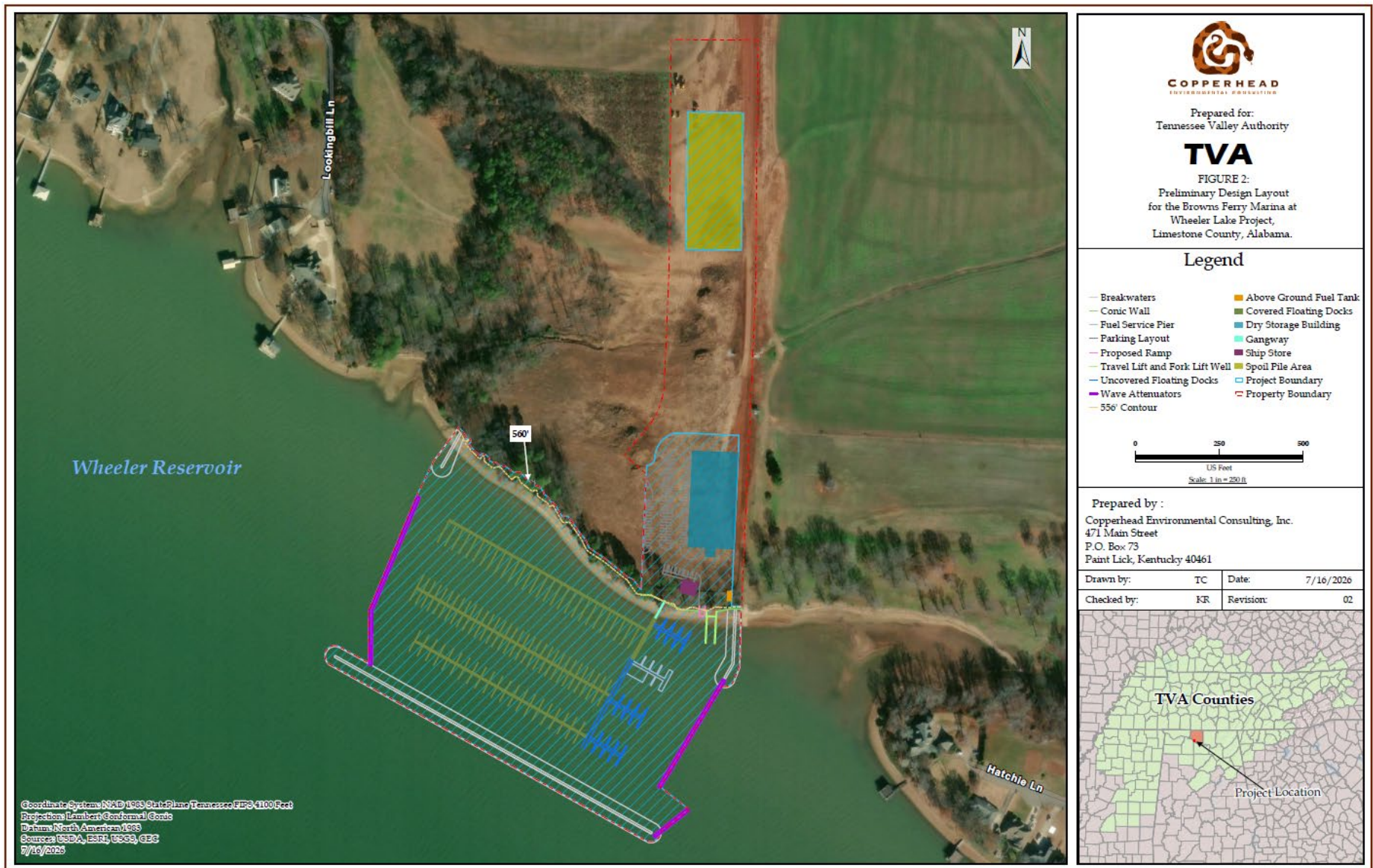


Figure 2-1. Overview of the Proposed Project

2.1.3 Alternatives Considered but Eliminated from Further Discussion

The Applicant considered the suitability of an alternative property along Wheeler Reservoir for a development that would meet the Applicant's purpose and need. At this off-site location, approximately 30 minutes west of the Project Area, water depths were determined to be too deep, making it cost-prohibitive to construct necessary wave attenuation and marina structures. Additionally, the land at this location has extreme elevation differences, poorly suited for shoreline and water access. Finally, deep channel depths close to the shoreline might have presented conflicts with commercial navigation. For these reasons, this alternative was not carried forward for detailed consideration.

2.2 COMPARISON OF ALTERNATIVES

Impacts evaluated may be beneficial or adverse and may apply to the full range of natural, aesthetic, historic, cultural, and socioeconomic resources within the Project Areas of each alternative and within the surrounding areas. Impact severity is dependent on their relative magnitude and intensity, and resource sensitivity. In this document, four descriptors are used to characterize the level of impacts in a manner that is consistent with TVA's current practice. Those descriptors are:

- No Impact – resource not present or affected by project alternatives under consideration.
- Minor (or Small) – environmental effects are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource.
- Moderate – environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
- Large – environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

A comparison of the environmental consequences associated with each alternative is presented in Table 2-1.

Resource Area	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative
Land Use and Prime Farmland	No impacts.	Minor adverse long-term impacts on land use; permanent conversion of Prime Farmland but minor impacts because of the relatively small acreage (<2 acres).
Geology and Groundwater	No impacts.	Minor adverse impacts with BMPs to minimize potential for spills, contamination, and erosion.
Noise and Vibration	No impacts.	Minor temporary impacts from construction noise. Minor to moderate impacts during operation from increased boat use.

Resource Area	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative
Air Quality	No impacts.	Minor adverse impacts during construction and operation from vehicle, equipment, and boat emissions.
Visual Resources	No impacts.	Minor adverse impacts from conversion of Project Area from mostly forested to a developed condition.
Socioeconomics	No impacts.	Moderate short-term and long-term benefits to the local economy from increase in construction and operation employment and tax revenue.
Public Health and Safety	No impacts.	Negligible to minor short- and long-term impacts with adherence to OSHA and Toxic Substances Control Act (TSCA) requirements and Alabama Fire Codes.
Hazardous Materials and Solid Waste	No impacts.	No adverse impacts with implementation of SPCC and adherence to local and state regulations/requirements.
Natural and Managed Areas	No Impacts.	Overall, temporary and minor effects from construction and operation. The construction and operation of the proposed marina would not impact the overall management objectives of these areas.
Parks and Recreation	Available recreation facilities and opportunities would remain the same, resulting in unmet need.	Minor short-term impacts from construction activities; minor long-term impacts from operation of the marina; moderate long-term beneficial impacts from increased boating opportunities.
Transportation	No impacts.	Minor impacts during construction and intermittent minor to moderate impacts during operation from increased traffic.
Cultural Resources	No impacts.	No project related impacts to archaeological site 1LI448 as this resource is ineligible for listing in the NRHP. With the avoidance of direct impacts to potentially eligible archaeological site 1LI268 there would be no adverse effect.
Vegetation	No impacts.	Minor impacts from 0.41 acres of tree clearing. No impacts on rare plant communities or threatened or endangered species.
Surface Water	No impacts.	With adherence to requirements in the Section 26a approval, a SWPPP, a Spill Prevention, Control, and Countermeasure (SPCC) plan, CGP, and CWA permits, there would be minor short- and long-term impacts on surface water.
Floodplains	No impacts.	Minor impacts from the construction of proposed infrastructure within the 100-year and 500-year floodplains. Impacts minimized by adhering to Section 26a approval and easement conditions.

Resource Area	Impacts of the No Action Alternative	Impacts of the Proposed Action Alternative
Aquatic Ecology	No impacts.	Minor temporary impacts during construction. Long-term minor impacts during operation.
Terrestrial Ecology	No impacts.	Minor impacts from construction. No significant adverse impacts to threatened or endangered species with adherence to the recommended winter clearing window and construction BMPs, as well as the BGEPA incidental take specific permit.

IDENTIFICATION OF MITIGATION MEASURES

Specific measures, precautions, or safeguards that would avoid, eliminate, or reduce potential effects and can be environmental commitments are identified in this section.

2.3.1 Standard Practices and Routine Measures

Through the Project planning and permitting process, numerous design modifications have been incorporated into the Proposed Action Alternative that avoid or minimize impacts to sensitive resources identified within the Project Area.

In addition to the standard conditions for granting Section 26a approval and other necessary permits, which include mitigation measures, best management practices (BMPs), and other requirements, TVA would require implementation of the following mitigation measures to avoid, minimize, or resolve adverse impacts on the environment:

- The Applicant and its contractors would adhere to requirements in Alabama Administrative Code (AAC) rule 335-3-4-02 to minimize fugitive dust.
- In accordance with the Spill Prevention, Control, and Countermeasure (SPCC) plan, the SWPPP, CGP, and CWA permits, Project activities would be conducted in a manner to ensure that waste materials are contained and the introduction of pollution materials to receiving waters would be minimized.
- The Applicant and its contractors would adhere to Occupational Safety and Health Administration (OSHA) requirements to minimize safety risks.
- The Applicant would be required to adhere to Alabama Fire Code Chapter 36 (3601.1-3605.1), which addresses fire protection and prevention requirements for marinas.
- Structures would conform to applicable building code and floodplain development requirements.
- To minimize impacts from stormwater runoff, sedimentation, and erosion, erosion prevention and sediment control measures would be installed in upland areas. An SWPPP would be developed and implemented consistent with the requirements of the ADEM General NPDES Permit for Discharges of Stormwater Associated with Construction Activities.

- Construction BMPs, such as those outlined in the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites (ASWCC 2022), would be implemented to reduce turbidity and siltation in Wheeler Reservoir.
- An SPCC plan would be required due to the aggregate capacity (12,000 gallons) of the ASTs containing gasoline and diesel fuel. The purpose of this plan would be to defend against petroleum pollution. If the threshold requirement for an SPCC plan were met, an SPCC plan would be prepared and would apply to all locations in the marina where fuel or oil is stored or transferred. The SPCC plan would clearly explain spill emergency procedures, including those concerning health and safety, notification, and spill containment and control measures.
- All solid waste generated during construction (i.e., organic material, building material) and operation would be managed and disposed of in accordance with applicable local, state, and federal regulations, and disposed of at an off-site landfill. The designated spoil pile location within the Project Area would be used exclusively for materials excavated from the marina and would not accommodate any other landfill waste.
- Organic material would not be burned on site.
- Permanent restroom facilities would be properly sized, permitted, and installed per state and local requirements. The Applicant would follow all standard water and sewer specifications and design criteria outlined in the Limestone County Water and Sewer Authority (LCWSA) Policies and Procedures for Development.

2.3.2 Non-routine Mitigation Measures

The Applicant would be required to obtain a bald eagle incidental take specific permit from the USFWS to comply with the BGEPA because construction would occur within 330 feet of a bald eagle nest within the Project Area. Additionally, to be in compliance with the specific permit, should the tree holding the nest be removed as part of implementing the Proposed Action, it must be done outside of the breeding season (typically considered to be from October 1 through May 30) when birds, eggs, and young are not present.

Cultural Resources Section 26a Conditions

The Applicant has agreed to avoid adverse effects to archaeological site 1LI268 by using engineered fill and stone to create a fill horizon. This would involve the placement of approximately 2,100 cubic yards of engineered fill and stone to create a new surface for construction and avoid intrusive disturbance of Site 1LI268 (see Section 3.14). The layer of engineered fill would be used to avoid intrusive ground disturbance where intact deposits have been identified and would be at least 40 centimeters thick. In addition to the use of fill within site 1LI268, the Applicant would: use flagging to mark the area where fill would be placed, provide photographs of the flagged area before, during, and after construction, extend the retaining wall further lakeward from the cutbank, and not use bank shaping during the installation of the retaining wall and riprap.

Flood Risk Section 26a Conditions

To ensure that the Proposed Action Alternative would be consistent with the requirements of EO 11988 for floodplain management, the following conditions would be included in the final TVA Section 26a approval and easement documents:

- Shoreline stabilization would be placed, on average, no more than 2.0 feet from the existing shoreline at the June 1 Flood Guide elevation (556.0-foot elevation).
- The Applicant would evaluate and ensure that the connection to utilities would not promote unwise development in the 100-year floodplain.
- For all electrical services permitted, a cutoff would be located at or above the 500-year flood elevation (557.7-foot elevation) that would be accessible during flood conditions.
- Floating facilities would be securely anchored to prevent them from floating free during major flood conditions.
- The Applicant agrees that dredged material would be disposed of and contained on land lying and being above the 500-year flood elevation contour (557.7-foot elevation) and outside of the 500-year floodplain. Every precaution should be taken to prevent the reentry of spoil material into Wheeler Reservoir.
- Any future facilities or equipment subject to flood damage would be located above or floodproofed to 2 vertical feet plus the TVA Flood Risk Profile (559.7-foot elevation).

Flood Risk Recreation Easement Conditions

The recreation easement would contain the following flood risk conditions or covenants, as appropriate:

- Any future development proposed within the limits of the 100-year floodplain (557.3-foot elevation) would be consistent with the requirements of EO 11988.
- TVA retains the right to flood this area, and TVA is not liable for damages occurring from flooding.
- All future development would be consistent with the requirements of the TVA Flood Storage Loss Guideline.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the baseline environmental conditions (affected environment) of environmental resources in the Project Area and the anticipated environmental consequences (or impacts) that would occur from implementation of the alternatives described in Chapter 2. Within this chapter, the environmental impacts analyzed may be beneficial or adverse. Impact severity is dependent on the relative magnitude and intensity and resource sensitivity. In this document, four descriptors are used to characterize the level of impacts: no impact, minor (or small), moderate, and large. These descriptors are defined in Section 2.2. For historic and cultural resources, TVA has adopted effects determinations in accordance with the NHPA. For federally protected species, TVA has used effects determinations developed in accordance with the ESA Section 7 guidance in assessing the significance of impacts.

3.1 SCOPE OF THE ENVIRONMENTAL REVIEW

TVA has prepared this EA to comply with NEPA and regulations promulgated by TVA to implement NEPA. The EA investigates the potential effects of the proposed construction, operation, and maintenance of the proposed commercial marina project. To ensure that the potential impacts of the Project are properly analyzed, the EA will address resources present within the entire 21.85-acre Project Area, although TVA's permitting authority applies to the approximately 17.3 acres of flowage easement, TVA fee property, and inundated TVA property. While TVA does not have jurisdiction over the remaining 4.5 land-based acres, activities in those areas are considered connected actions under NEPA and are addressed in this EA.

TVA prepared this EA to comply with NEPA and TVA's procedures for implementing it at 18 CFR part 1318. TVA reviewed the Proposed Action and Section 26a application and identified the following issues to be evaluated in detail in the EA:

- Land Use and Prime Farmland
- Geology and Groundwater
- Noise and Vibration
- Air Quality
- Visual Resources
- Socioeconomics
- Public Health and Safety
- Hazardous Materials and Solid Waste
- Natural and Managed Areas
- Parks and Recreation
- Transportation
- Cultural and Historic Resources
- Vegetation
- Wetlands
- Surface Water
- Floodplains
- Aquatic Ecology
- Terrestrial Zoology

The following resources were considered but ultimately dismissed from further analysis in the EA:

- Global Climate Change: Potential effects related to global climate change were considered and determined to be negligible because of the nature of the action.
- Navigation: TVA Navigation contacted USACE, and it was determined that there would be no impacts to the navigation industry. Standard conditions related to navigation would be included in the Section 26a approval. No coordination with the U.S. Coast Guard is needed.
- Utilities and Service Systems: Potential effects related to utilities and service systems were considered and determined to be negligible because the Applicant received a letter of support from Athens Utilities (electric, gas, and water services), as well as confirmation of water service availability from LCWSA.
- Wetlands: A stream and wetland delineation conducted in September 2025 did not identify any wetlands within the Project Area. Therefore, there would be no impacts on wetlands.

3.2 REASONABLY FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable environmental trends and planned actions are considered sufficiently likely to occur. These actions and trends may be taken by Federal and non-Federal agencies, state or local governments, or other groups or individuals.

The geographic scope of analysis for reasonably foreseeable impacts includes the Project Area and a 1-mile buffer. Current land cover and uses in the Project Area include forest, pasture, and cultivated crops. Land cover within the 1-mile buffer is similar to the Project Area, with the addition of areas considered developed, wetlands, or barren/undeveloped land.

The reasonably foreseeable environmental trends and planned actions identified within the geographic scope of analysis include the following:

- Continued use of Wheeler Reservoir for recreational purposes, including operation of nearby marinas and public boat launch sites, as well as private boat docks.
- It is reasonable to assume that local roadways would continue to require maintenance and possibly upgrades (e.g., widening).
- Continued operation of Browns Ferry Nuclear Plant.
- Increased residential development.

In combination with the implementation of the Proposed Action, these actions would contribute to continued development within Limestone County, Alabama, and its recreational opportunities. There would be minor adverse impacts on wildlife, vegetation, and water quality from increased development and public use. It is assumed

that development would be subject to applicable local, state, and federal permitting requirements to minimize impacts.

3.3 LAND USE AND PRIME FARMLAND

3.3.1 Affected Environment

Consistent with the Wheeler Reservoir RLMP, TVA manages public land on Wheeler Reservoir to protect and enhance natural resources and to improve the quality of life in the Tennessee Valley. TVA public land is used for commercial and public recreation, industrial development, natural resource management, and a variety of other community needs.

The Project Area is in an unincorporated portion of Limestone County without zoning regulations.

Aside from open water, land cover within 1 mile of the Project Area is primarily a mix of forest and cultivated crops (Table 3-1). The Project Area itself is characterized by herbaceous vegetation with a thin strip of trees along the shoreline.

Table 3-1. Landcover within the Project Area and within a 1-mile Buffer.

Landcover Class	Project Area Acres	Percent of the Project Area	Project Area and 1-mile Buffer Acres	Percent of Project Area and 1-mile Buffer
Barren Land	-	-	0.44	<0.1
Cultivated Crops	1.36	5.46	733.68	26.9
Deciduous Forest	0.73	2.92	114.82	4.2
Developed, High Intensity	-	-	0.34	<0.1
Developed, Medium Intensity	-	-	9.56	0.4
Developed, Low Intensity	-	-	49.65	1.8
Developed, Open Space	-	-	55.19	2.0
Emergent Herbaceous Wetlands	-	-	5.11	0.2
Evergreen Forest	1.82	7.29	54.07	2.0
Hay/Pasture	0.21	0.84	241.73	8.9
Herbaceous	-	-	14.62	0.5
Mixed Forest	2.02	8.10	47.02	1.7
Open Water	18.79	75.38	1,317.14	48.3
Shrub/Scrub	-	-	18.03	0.7
Woody Wetlands	-	-	68.29	2.5

Data source: USGS 2024

Soils in the Project Area are comprised of 12 percent Cumberland silty clay loam severely eroded rolling phase, 6.4 percent Cumberland silty clay loam eroded undulating phase, and less than 1 percent Abernathy-Emory silt loams, 0 to 2 percent slopes. The remainder of the Project Area is water. The erosion factor K for these soils ranges from 0.28 to 0.43. Factor K indicates the susceptibility of a soil to sheet and rill erosion by water, and, in general, the greater the value, the more susceptible the soil is to sheet and rill erosion by water (USDA-NRCS 2024).

Prime farmland is land most suitable for economically producing sustained high yields of food, feed, fiber, forage, and oilseed crops. Prime farmlands are available for agricultural use (i.e., not water or developed land) and have the best combination of soil type, growing season, and moisture supply. The Farmland Protection Policy Act (7 U.S.C. § 4201 et seq.) requires federal agencies to consider the adverse effects of their actions on prime or unique farmlands. The purpose of the Act is “to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses.” These soil types that are considered prime farmland—Abernathy-Emory silt loams, 0 to 2 percent slopes and Cumberland silty clay loam eroded undulating phase soil types—make up about 6.5 percent of the Project Area.

3.3.2 Environmental Consequences

3.3.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no construction and no change in land use or prime farmland in the Project Area.

3.3.2.2 Alternative B – Proposed Action Alternative

As a result of the proposed construction and operation activities, land cover and use would change, with a long-term decrease in open fields and forested land and an increase in developed land. Because the Project Area is in a location without land use zoning, there would be no conflicts with local land use regulations. Overall, impacts on land use would be long-term and minor.

The erosion factor for the predominant soil types found in the Project Area is relatively low (0.28); therefore, it is anticipated that the risk of erosion from the Project would be minor. Soils classified as prime farmland, around 6.5 percent of the Project Area, would be impacted by proposed construction and development. These impacts are anticipated to be long-term and could be considered permanent. A Farmland Conversion Impact Rating form (USDA form AD-1006) was completed for the Project to evaluate the Proposed Action on those soils identified as farmland of local importance by the NRCS. The resulting score was less than 160. As a result, USDA recommended that the Project Area need not be given further consideration for protection and no further evaluation is needed (7 CFR 658.4(c)) (Appendix F). While impacts to prime farmland would be permanent as a result of Project implementation, the adverse impacts on prime farmland as a result of the Project within the larger context of Limestone County would be minor.

3.4 GEOLOGY AND GROUNDWATER

3.4.1 Affected Environment

The Project Area is within Limestone County, Alabama, which is in the northernmost part of the state. Limestone County is part of the Highland Rim section of the Interior Low Plateaus physiographic province (USDA 1953). The landscape consists of a

prominent east-west-trending ridge separating the two valleys. Elevations reach about 900 feet along the Alabama-Tennessee border and drop to about 420 feet where the Tennessee River flows back into Tennessee. The landforms found in the Highland Rim are the result of differential erosion of the underlying rocks. These rocks consist of middle- to upper-Paleozoic sedimentary rocks (490 to 323 million years before the present), most of which formed during the Mississippian period (353 to 323 million years before the present). The main ridge-forming rock is known as the Hartselle Sandstone, and the valleys cut through the Bangor Limestone and Tuscumbia Limestone Formations.

Groundwater depth in the Highland Rim region varies depending on location and aquifer. The Project Area is within the Fort Payne-Tuscumbia aquifer (Geological Survey of Alabama 1998). According to the *Assessment of Groundwater Resources in Alabama, 2010-16* (Geological Survey of Alabama 2018), the depth to water in wells screened within the aquifer ranges from around 9 to 103.9 feet below ground surface. The shallowest water levels in the aquifer occur in an area near the northern updip limit of the aquifer, north of the Project Area, while deeper water levels are encountered near Wheeler Reservoir. In general, groundwater in the Fort Payne-Tuscumbia aquifer flows toward the Tennessee River. A review of the Geological Survey of Alabama sinkhole data and maps (Geological Survey of Alabama 2011) shows no known sinkholes in the Project Area.

3.4.2 Environmental Consequences

3.4.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no change to the existing geological conditions.

3.4.2.2 Alternative B – Proposed Action Alternative

Construction of the proposed marina and associated infrastructure would involve dredging approximately 6,600 CY of material and placing it in the designated spoil area located about 0.25 miles north of the shoreline. With the implementation of a SWPPP as described below, dredging is not anticipated to adversely affect geology or groundwater.

The Project Area would be graded, resulting in ground disturbance at shallow to moderate depths, along with approximately 0.41 acres of tree clearing. Excavation for foundations, piping, pilings, and utility connections would result in ground disturbance at greater depths. It is anticipated that these activities would not occur at depths that would intersect public groundwater supplies or result in significant impacts to groundwater resources because depth to water in the Fort Payne-Tuscumbia aquifer is typically greater near the Tennessee River (Geological Survey of Alabama 2018).

Shallow aquifers could sustain minor impacts from changes to overland water flow and recharge caused by clearing, grading, and construction within the Project Area. Water infiltration, which is normally enhanced by vegetation, would be temporarily reduced until vegetation is re-established. In addition, near-surface soil compaction caused by

heavy construction vehicles and the transport of dredged material could reduce the ability of soil to absorb water. These minor impacts would be temporary and would not significantly affect geologic resources or groundwater resources.

Implementation of an SWPPP would minimize potential impacts from erosion and sedimentation. After construction, all disturbed areas not covered by roads, parking, or structures would be restored and vegetated, or other stabilization measures would be installed. Any impacts resulting from construction activities involving chemical or fuel storage or resupply and equipment and vehicle services, such as spills and leaks that could contaminate groundwater, would be minimized by implementation of the SPCC plan for construction and operation of the proposed marina. Installation of the utilities and fueling infrastructure would be conducted following applicable permits and regulatory requirements to minimize the potential for leakage or spillage.

Through compliance with applicable permits and regulatory requirements, it is anticipated that the construction and operation of the proposed marina would have minor impacts on geologic and groundwater resources.

3.5 NOISE AND VIBRATION

3.5.1 Affected Environment Noise and Vibration

Noise refers to unwanted or disruptive sound perceived as unpleasant, loud, or intrusive. For this analysis, this definition is focused on sound added to the undeveloped Project Area through human activities. These levels can vary with time of day, weather, vegetation, and human activity. Although perception of noise is subjective, its intensity is measured using a logarithmic scale in decibels (dB). To better reflect human hearing sensitivity, noise levels are adjusted using A-weighted decibels (dBA). A change of 3 dBA is barely perceptible to most people; 5 dBA is clearly noticeable, and a 10 dBA change is generally perceived as a doubling or halving of loudness.

The proposed marina is located on the shore of Wheeler Reservoir, bordered by undeveloped land to the north and private residences to the east and west. Typical noise levels in rural areas range from 35 to 50 dBA, and residential areas range from about 50 dBA (a quiet suburb) to about 65 dBA (moderately noisy residential area) (US EPA 1974). Limestone County does not have a noise ordinance (K. Rhodes, personal communication, November 14, 2025). To the west, the nearest residential home is approximately 0.25 miles from the Project Area. About 2 miles farther west, the Browns Ferry Nuclear Plant contributes to the ambient soundscape through regular operations, including monthly emergency siren tests and periodic maintenance. The nearest residence to the east is approximately 0.11 miles from the Project Area. Approximately 1 mile to the east of the Project Area is Cowford Campground, which is designated by TVA as Zone 6 (Developed Recreation) in the Wheeler RLMP (TVA 2017). The Campground caters exclusively to RVs and enforces quiet hours from 11:00 PM to 7:00 AM. Although the Campground does not have a dock, there are two publicly accessible boat ramps, and the sites and parking can accommodate boats. Nearly all of the waterfront properties east and west of the Project Area have a private dock.

The primary existing source of noise near the proposed marina comes from recreational boating, with most twin-engine motorboats reaching sound levels of approximately 79 dBA at 50 feet (National Marine Manufacturers Association 2000). Alabama law prohibits operating any vessel that exceeds 86 dBA when measured at a distance of 50 feet (AAC Rule 220.6-.23).

3.5.2 Environmental Consequences

3.5.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, noise levels in the Project Area would remain unchanged, and existing noise from recreational boating and surrounding land uses would continue at current levels.

3.5.2.2 Alternative B – Proposed Action Alternative

There would be short-term and long-term increases in noise levels associated with construction and operations. Construction, expected to last 12 to 18 months, would generate noise from heavy equipment such as excavators, bulldozers, dump trucks, and power tools. Additional noise would result from vehicles used for worker commutes and material deliveries. At any given time, there are expected to be 5-25 workers on site, resulting in approximately 10 to 50 commuting trips daily.

Construction noise would be temporary and intermittent. Noise would be generated from the operation of construction equipment on site and the movement of construction-related vehicles (i.e., worker trips and material and equipment trips) into the Project Area and on surrounding roadways.

Table 3-2 displays the average noise levels produced by typical construction equipment and the typical noise level associated with a twin-engine motorboat. Twin-engine boats include pontoon boats, yachts, wakeboard boats, and others.

Table 3-2. Average Noise Levels from Construction Equipment and a Typical Twin-Engine Motorboat.

Noise Source	Average Measured Sound Level at 50 feet
Impact Pile Driver	101
Auger Drill Rig	84
Dozer	82
Concrete Pump Truck	81
Excavator	81
Twin-engine Motorboat	79
Front-end Loader	79
Concrete Mixer Truck	79
Backhoe	78
Dump Truck	76
Flatbed Truck	74

Data source: Federal Highway Administration 2017, National Marine Manufacturers Association 2000

The nearest sensitive noise receptors are residences on Lookingbill Lane, approximately 0.1 miles west of the Project Area, residences on Hatchie Lane, approximately 0.15 miles east of the Project Area, and visitors at Cowford Campground, approximately 1 mile east of the Project Area. Distance, vegetation, built structures, and terrain would influence sound levels at these receptors. These factors may dampen noise, but it is anticipated that nearby receptors would experience increased sound detection. For example, noise associated with an impact pile driver, the loudest typical construction equipment, would be up to 80.53 dBA at a distance of 0.1 miles. This noise level would be temporary and intermittent, occurring only during daylight hours when ambient noise levels are often higher, and when most individuals are less sensitive to noise. For these reasons, noise impacts during construction would be minor to moderate.

After construction, increased recreational boating activity would contribute to elevated noise levels. For this type of recreation, noise is expected to peak during summer weekends and holidays, with lower levels on summer weekdays and the recreation off-season. However, as mentioned in the recreation section (Section 3.12.2.2), because this area is already used for this type of recreation, impacts from recreational boat use associated with the marina would be minor. Operators of watercraft would be required to adhere to AAC Rule 220-6-.23, which prohibits the operation of any watercraft that exceeds 86 dBA when measured at a distance of 50 feet. Additional sources of new noise that would occur during operation of the marina would include increased vehicle traffic, site maintenance, and general visitor activity.

3.6 AIR QUALITY

3.6.1 Affected Environment

Federal and state regulations protect ambient air quality. With authority granted by the Clean Air Act (CAA) 42 U.S.C. 7401 et seq. as amended in 1977 and 1990, the U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) to protect human health and public welfare. The EPA codified NAAQS in 40 CFR Part 50 for the following “criteria pollutants”: nitrogen dioxide, carbon monoxide, ozone, sulfur dioxide, lead, and particulate matter (PM) with an aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}). The NAAQS reflects the relationship between pollutant concentrations and health and welfare impacts. Primary standards protect human health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including visibility, animals, crops, vegetation, and buildings. These standards, which reflect the latest scientific knowledge, have an adequate margin of safety intended to address uncertainties and provide a reasonable degree of protection.

The EPA classifies geographic areas as being “attainment” areas or “nonattainment” areas. A geographic area with air concentrations at or less than the NAAQS is referred to as an “attainment” area. An area with air concentrations that exceed these standards is referred to as a “nonattainment” area. The air quality in Limestone County, Alabama, is currently in attainment for all NAAQS (US EPA 2025).

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

Fugitive dust is a source of respirable airborne PM, including PM₁₀ and PM_{2.5}, which can result from ground disturbances such as grading, excavation, and travel on unpaved roads. The amount of dust generated is a function of the activity, silt and moisture content of the soil, wind speed, frequency of precipitation, vehicle traffic and types, and roadway characteristics. The ADEM Air Pollution Control Program (ADEM Admin. Code rule 335-3-4-02) requires reasonable precautions to prevent PM from becoming airborne, including the use, where possible, of asphalt, water, or suitable chemicals to limit its creation. Proposed construction and operation activities would be subject to both federal and state (ADEM Air Pollution Control Program) regulations. These regulations impose permitting requirements and specific standards for expected air emissions.

3.6.2 Environmental Consequences

3.6.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no construction or operation activities and no changes to existing air quality conditions.

3.6.2.2 Alternative B – Proposed Action Alternative

Transient air pollutant emissions would occur during construction activities, which are anticipated to last for 12 to 18 months. Air quality impacts would result primarily from the staging of construction vehicles, equipment, and supplies; the operation of construction vehicles and equipment; and workers' personal vehicles.

During the construction and operation phases, combustion of gasoline and diesel fuels by internal combustion engines (boats, vehicles, generators, construction equipment, etc.) would generate local emissions of PM, nitrogen oxides, carbon monoxide, volatile organic compounds, and SO₂. However, modern emission control technologies and new fuel mixtures have significantly reduced vehicle and equipment emissions.

Fugitive dust from site development (grading, construction, etc.) would be minimized during the construction period through adherence to requirements in AAC rule 335-3-4-02.

Generally, these temporary impacts on air quality during construction and operation would be similar to other medium-scale construction and development projects. The quantity and duration of construction-related emissions would vary and be spread over the entire construction period, further minimizing the intensity of short-term impacts on

air quality. Air emissions are dependent on both man-made factors (e.g., intensity of activity, control measures) and natural factors (e.g., wind speed, wind direction, soil moisture). However, even under unusually adverse conditions, emissions during construction and operation would have, at most, a minor transient impact on off-site air quality and would be well within or below the thresholds of applicable ambient air quality standards.

3.7 VISUAL RESOURCES

3.7.1 Affected Environment

Visual resources within a landscape are evaluated based on several factors that include scenic attractiveness, integrity, and visibility. Scenic attractiveness is a measure of scenic quality based on human perceptions of intrinsic beauty as expressed in the forms, colors, textures, and visual composition of each landscape. Scenic integrity is a measure of scenic importance based on the degree of visual unity and wholeness of the natural landscape character. The varied combinations of natural features and human alterations both shape landscape character and help define their scenic importance. The subjective perceptions of a landscape's aesthetic quality and sense of place are dependent on where and how it is viewed. For this analysis, the affected environment is the Project Area, as well as the physical and natural features of the landscape around it.

Undeveloped portions of the Project Area offer a moderate degree of scenic attractiveness, particularly the Project Area interior and shoreline, which is characterized by a mix of forested areas and fields, and areas of disturbance, including an unpaved access road and utility easement. The view from the Project Area across Wheeler Reservoir is currently a mix of forested, residential, and industrial land uses. Additionally, existing homes and dock structures extending into the Reservoir are found along the shoreline east and west of the Project Area.

3.7.2 Environmental Consequences

3.7.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. There would be no change to visual resources in the Project Area and no impacts on scenic attractiveness, integrity, or visibility.

3.7.2.2 Alternative B – Proposed Action Alternative

The scenic attractiveness, integrity, and visibility of the Project Area would be altered by the construction and operation of the marina and associated facilities. Residences on adjacent parcels would likely experience minor visual impacts, which would be minimized by the presence of trees between those residences and the Project Area. There would be moderate impacts from the change in visual character resulting from the development of the proposed Project. However, these changes would be similar to the character of several nearby parcels in the viewshed, which include a mix of residential, commercial, and open space lands. Development along the Project Area shoreline would be seen from across Wheeler Reservoir, but the forested areas between the

shoreline and residential areas would minimize direct changes to the scenic qualities and visibility of the Project Area, which is nearly 2 miles from the opposite bank. In general, the proposed development would be similar to existing adjacent areas, and the overall viewshed would not have discernable change. As a result, adverse impacts on visual resources would be minor.

3.8 SOCIOECONOMICS

3.8.1 Affected Environment

The Project Area is in Limestone County, Alabama, and the nearest city is Athens, the county seat. Publicly available statistics generated by the United States Census Bureau to characterize socioeconomic conditions in the state and county are presented in Table 3-3. Limestone County is the 10th most populous county in the state.

Table 3-3. Population, Income, and Employment in the State and County

Socioeconomic Metric	Limestone County	Alabama
Population¹		
Total Population (2020)	103,570	5,024,279
Most Recent Population Estimate (2024)	111,233	5,086,768
Population Percent Change: 2020 to 2024	7%	1%
Income and Employment		
Median Household Income (2024\$)	\$83,629	\$63,999
Per Capita Income (2024\$)	\$36,087	\$40,982
Unemployment rate	3.3%	4.7%
Top Employment Industries (2024)	Manufacturing (24%); Trade, transport, & utilities (23%); Local government (12%)	Trade, transport, & utilities (19%); Manufacturing (14%); Professional & business services (13%); Education & health services (12%)

¹ Source: U.S. Census Bureau, 2020 Decennial Census; U.S. Census Bureau 2024 American Community Survey 5-year Estimates; U.S. Department of Commerce, Bureau of Economic Analysis via Headwaters Economics

The earnings average in Limestone County is about 10 percent lower than the statewide earnings, but per capita income is about 6 percent higher than the state per capita income. The primary industries providing employment are manufacturing, trade/transportation/utilities, and local government. Manufacturing facilities in the area providing employment include automotive, off-road vehicles, aerospace, and furniture. Major companies, including Amazon and Target, have distribution facilities in the county (LCEDA 2025).

The 2024 unemployment rate for Limestone County was 3.3 percent, lower than the state unemployment rate. Data from the 2023 American Community Survey (ACS) indicate that approximately 11 percent of households in Limestone County have income below the federal poverty level, which is lower than at the state level (16 percent) (U.S. Census Bureau 2023). Table 3-4 contains poverty and minority information for the

census tract where the Project Area is located. Residents of the Project Area and vicinity are predominantly white with a relatively low number of individuals below the poverty level.

Table 3-4. Poverty and Minority Status by Census Tract Where the Project Area is Located.

Socioeconomic Metric¹	Census Tract 211.01, Limestone County, AL
Estimated Population	4,021
Total Population for Whom Poverty Status is Determined	431 (11%)
Race	
White alone, Not Hispanic or Latino	1,688
Black or African American alone, Not Hispanic or Latino	1,285
Two or More Races, Not Hispanic or Latino	241
Two or More Races, Hispanic or Latino	296

¹ Data source: U.S. Census Bureau 2024 American Community Survey, 5-year estimates

3.8.2 Environmental Consequences

3.8.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. There would be no change to employment levels, tax revenue, or property values.

3.8.2.2 Alternative B – Proposed Action Alternative

According to the Applicant's Section 26a application, the Project would provide an estimated 40 jobs during construction and up to six long-term jobs for operation, with construction taking an estimated 12-18 months to complete. On November 20, 2023, the Limestone County Commission passed a resolution in support of the development.

The proposed Project would contribute to the local economy by providing jobs and increasing tax revenue through sales and property taxes. There would be additional short- and long-term economic benefits derived from the employment income of site contractors, sales tax revenues for building materials and supplies, and heavy-equipment rental for site preparation. The Project would provide additional public boating infrastructure to improve public access and recreational use, which would contribute to the local economy through revenue from tourism and other support services. The proposed marina would enhance public use of the reservoir and improve regional recreational amenities.

Overall, the proposed Project would provide employment opportunities, sales revenues to local businesses, and tax revenue to Limestone County. Although the estimated sales and tax revenues are not quantified at this time, based on other large development projects, it is reasonable to anticipate that there would be minor to moderate economic benefits to the local economy.

3.9 PUBLIC HEALTH AND SAFETY

3.9.1 Affected Environment

OSHA, a division of the U.S. Department of Labor, is responsible for ensuring safe and healthful working conditions for employees by establishing and enforcing standards, as well as providing training, outreach, education, and assistance. In Alabama, federal OSHA standards apply to all private-sector employers and workers, and to certain public-sector employers. The Alabama Department of Labor, through its OSHA Division, enforces these federal standards and regulations and also offers training and educational resources.

The Project Area is currently not accessible to the public. An access road and utility and drainage (U&D) easement along the eastern edge of the larger property in which the Project Area is located are actively under construction.

Safety risks associated with the construction and operation of the proposed marina include worker safety concerns, potential structure fires, and public safety issues related to access roads and floating boat slips. In Alabama, the Alabama Law Enforcement Agency's (ALEA) Marine Patrol Division is responsible for enforcing all boating regulations (i.e., speed limits, safety equipment, etc.) on public waterways and oversees all boating registration and licensing. Recreational boating, boating safety, and volume are not managed, tracked, or enforced by TVA.

Construction activities can generate waste that poses potential health and safety hazards. Exposure to these wastes may occur among individuals working on or accessing (including trespassing) the site, as well as those living or working adjacent to it. At present, solid, hazardous, and liquid waste discharges, along with air emissions, are managed in compliance with applicable federal, state, and local laws, regulations, and permit requirements. See Section 3.10 for additional information.

3.9.2 Environmental Consequences

3.9.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no change in public health and safety conditions within the Project Area.

3.9.2.2 Alternative B – Proposed Action Alternative

During the construction of the proposed marina, the Applicant and its contractors would adhere to OSHA requirements to minimize safety risks. This would include compliance with key OSHA requirements such as fall protection, use of Personal Protective Equipment, electrical safety, and hazard communication training. As a result, short-term impacts during construction would be minor.

During the operation phase, the Applicant would comply with Alabama Fire Code Chapter 23 (2301-2311) and Chapter 36 (3601.1-3605.1), which includes specific requirements for fuel dispensing, repair garages, and marinas. Examples include

reporting combustible liquid spills, installing standpipes with hose connections so that no point on the marina or float system exceeds 150 feet, and ensuring all standpipes are flagged for visibility and equipped with a fire extinguisher. Appropriate speed limits would also be established on Project Area roads. Adherence to these measures would result in negligible to minor impacts on public health and safety during operation.

The U.S. Coast Guard reported 3,887 boating incidents in the U.S. in 2024, during which the top five primary contributing factors were operator inattention, improper lookout, operator inexperience, machinery failure, and navigation rules (USCG 2024). The potential for increased boat traffic as a result of the proposed marina could lead to a higher number of incidents on Wheeler Reservoir. However, in Alabama, the ALEA Marina Patrol Division is responsible for the enforcement of all boating regulations, even on TVA-managed reservoirs.

3.10 HAZARDOUS MATERIALS AND SOLID WASTE

3.10.1 Affected Environment

Solid waste is defined by the Resource Conservation and Recovery Act (RCRA) as any garbage, sludge, or any other discarded material from industrial, commercial, mining, agricultural operations, and community activities. Solid waste is any material that has been discarded by being abandoned, inherently waste-like, a discarded military munition, or recycled in certain ways, as defined in 40 CFR 261.2(a)(1). The EPA regulates solid waste under Subtitle D of the RCRA, which bans the open dumping of waste and sets minimum federal criteria for the operation of municipal waste and industrial waste landfills, including design criteria, location restrictions, financial assurance, corrective action, and closure requirements. In Alabama, ADEM operates under the authority of the Alabama Environmental Management Act, Ala. Code §§22-22A-1 to 22-22A-16 and various other Acts and implements RCRA Subtitle D at the state level.

Hazardous waste materials may include any solid waste or combination of solid waste that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment (40 CFR Part 261). To be classified as a hazardous waste, a solid waste must meet one or more of the EPA-established characteristic properties (ignitability, corrosivity, reactivity, and toxicity) or be specifically listed as a known hazardous waste (US EPA 2021). EPA regulates hazardous wastes under RCRA. In addition to the EPA, hazardous materials are regulated in the United States by laws and regulations administered by OSHA and the U.S. Department of Transportation. In Alabama, ADEM Waste Management and Remediation implements RCRA Subtitle C at the state level.

ADEM also establishes requirements for aboveground storage tanks (ASTs) used for fueling areas or hazardous material storage, including overseeing their design, installation, operation, and maintenance. All ASTs must have a secondary containment system capable of holding 100 percent of the largest tank's contents, plus an additional

10 percent if exposed to precipitation. Furthermore, facilities storing oils in ASTs may be subject to the EPA's SPCC regulation (40 CFR Part 112).

A Phase I Environmental Site Assessment of the Project Area has not been conducted as of the time of writing. No solid and/or hazardous wastes are known to be present. A search of the ADEM e-maps portal did not identify any USTs in the Project Area (ADEM 2025).

3.10.2 Environmental Consequences

3.10.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no change in solid or hazardous waste conditions in the Project Area.

3.10.2.2 Alternative B – Proposed Action Alternative

The construction and operation of the proposed development and facilities would generate solid waste. Wastes associated with construction would primarily consist of organic material, building material waste, and excess debris associated with land clearing, excavation, and grading. All solid waste generated during construction and operation would be managed and disposed of in accordance with applicable local, state, and federal regulations, and disposed of at an off-site landfill. Burning of organic material would not occur on site.

Dredging would be conducted in the travel lift area, affecting approximately 44,700 square feet and removing an estimated 6,600 CY of material. Excavation would be performed using track hoes, and the dredged material would be transported by truck to a designated spoil site located 0.25 miles from the dredge location. This spoil site would be used exclusively for materials excavated from the marina footprint and would not accommodate any other landfill waste. The implementation of an SWPPP would reduce the likelihood that any dredged material would run off into Wheeler Reservoir.

Solid waste would be generated during Project construction and operation, and would be handled and disposed of in accordance with local, state, and federal regulations. Construction activities would generate solid waste consisting of construction debris and general trash. No waste would be disposed of in the Project Area.

Construction activities would involve the use of machinery (e.g., backhoes, generators, pile drivers, and flatbed trucks) fueled by petroleum products. Fueling of construction-related equipment and vehicles would occur in designated areas. Other mobile equipment would return to the on-site laydown areas for refueling. Construction contractors would be responsible for preventing spills by implementing the SPCC, including proper storage and handling procedures. The SPCC would include special procedures to minimize the potential for fuel spills, and spill control kits would be carried on all refueling vehicles for activities such as refueling, vehicle or equipment maintenance, waste removal, and tank clean-out.

During operations, solid waste from the marina shop and boaters would be collected and managed. The Project would also include a dry storage area. Any waste generated during storage and maintenance activities would follow federal and state regulations for storage and management. Operational waste generated would be sent to permitted waste management facilities.

Project operation would involve the storage and use of gasoline. The fueling area would be positioned near the travel lift, with an underground fuel line extending from the tank to the fuel storage site, which would contain a combined aggregate AST of 12,000 gallons. This would be split between two 6,000-gallon tanks, one containing diesel fuel and one containing gasoline. The Applicant would adhere to all ADEM requirements for ASTs. Additionally, because the total aggregate aboveground storage would be greater than 1,320 gallons of oil, an SPCC plan would be required in accordance with 40 CFR 223. This plan would be developed for all locations in the marina where fuel or oil is stored or transferred, and it would clearly explain spill emergency procedures, including health and safety, notification, and spill containment and control measures.

Other essential utilities, such as sewer, would be connected to the local infrastructure. The Applicant would follow all standard water and sewer specifications and design criteria outlined in the Limestone County Water and Sewer Authority Policies and Procedures for Development (LCWSA 2015).

With implementation of the SPCC plan and adherence to state and local regulations, no adverse impacts related to solid and hazardous waste and hazardous materials are anticipated.

3.11 NATURAL AND MANAGED AREAS

3.11.1 Affected Environment

Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, U.S. Department of Agriculture, U.S. Forest Service, state agencies) to protect and maintain certain ecological and/or recreational features. Natural areas include ecologically significant sites; federal, state, or local park lands; national or state forests; wilderness areas; scenic areas; wildlife management areas; recreational areas; greenways; trails; Nationwide Rivers Inventory streams; and wild and scenic rivers. Ecologically significant sites are either tracts of privately owned land that are recognized by resource biologists as having significant environmental resources or identified tracts on TVA lands that are ecologically significant but not specifically managed by TVA's Natural Areas program. A review of the TVA Natural Heritage Database identified two managed or natural areas within 3 miles of the Project Area. Table 3-5 summarizes these resources.

Table 3-5. Managed and Natural Areas Within a 3-mile Radius of the Project Area.

Managed and Natural Areas	Acres	Distance to the Project Area	Land Manager	Description
Mallard-Fox Creek Wildlife Management Area	3,908	1.7 miles southwest	Alabama Dept. of Conservation and Natural Resources	Located in Limestone County near Decatur. Provides waterfowl and small game hunting opportunities.
Swan Creek State Wildlife Management Area	9,516	2.5 miles east	Alabama Dept. of Conservation and Natural Resources	Located in Limestone County near Decatur. Provides waterfowl and small game hunting opportunities.

3.11.2 Environmental Consequences

3.11.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no changes in the management or accessibility of managed and natural areas near the Project Area.

3.11.2.2 Alternative B – Proposed Action Alternative

Under the Proposed Action Alternative, construction and operation of the marina would not directly impact the identified managed or natural areas. Indirect impacts, such as temporary increases in noise during construction and operational increases in boating activity, may slightly affect the viewshed and ambient noise levels. However, these effects are expected to be minor because of the distance between the proposed marina and the identified natural and managed areas. The proposed Project is not anticipated to have adverse effects on the management or accessibility of these areas.

3.12 PARKS AND RECREATION

3.12.1 Affected Environment

Popular recreational activities near the Project Area include boating and fishing on Wheeler Reservoir and camping at Cowford Campground. Nearby parcels include primarily private land, TVA-managed lands, and the Browns Ferry Nuclear Plant. The Cowford Campground, part of the Round Island Recreation Area, is 1 mile east of the Project Area. It is classified in the Wheeler RLMP as Zone 6 – Developed Recreation. This campground offers 52 campsites, swimming, fishing, and boating, and it features a public boat launch with a floating pier. The campground is managed by Limestone County and the City of Athens.

Fishing is a common activity on Wheeler Reservoir, as the Reservoir is home to quality fishing for a variety of species, with bass fishing the most popular, especially for tournaments.

3.12.2 Environmental Consequences

3.12.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no change in the availability of recreation facilities or opportunities, and the need for additional public marina facilities on Wheeler Reservoir would not be met.

3.12.2.2 Alternative B – Proposed Action Alternative

Under the Proposed Action Alternative, there may be short-term impacts on boating experiences during dredging and installation of the docks and a wave break as a result of in-water machinery. These impacts would occur during a portion of the 12- to 18-month construction period.

At the nearby Cowford Campground, it is anticipated that impacts from construction, including sights and sounds, would be temporary and minor. Existing vegetation and structures (residences) between the Project Area and the Campground would reduce the sight and sound of construction. Construction noise may detract from nearby recreational experiences, including fishing, causing anglers to temporarily go elsewhere for fishing opportunities. These impacts are expected to be minor and would occur over the short term.

During operation, the proposed marina would provide moderate beneficial impacts from improved public access to water-based recreation opportunities. Operation of the proposed marina is not expected to adversely affect land-based recreation opportunities on nearby properties. In addition to the public boat ramp at the Cowford Campground, there are many private docks within the vicinity of the Project Area. There is the potential that user conflict could arise from the addition of boat traffic on Wheeler Reservoir; however, it is likely that these impacts would be minimal because of the size of the Reservoir and the distance that boats can travel. Boat noise and traffic, and noise from other recreational activities on Wheeler Reservoir are common in proximity to the Project Area. Depending on the day and the season, it is anticipated that impacts on recreation from the proposed marina would be minor.

Overall, the proposed Project would provide moderate long-term beneficial impacts to recreation as there are only four other marinas that serve Wheeler Reservoir, all of which are smaller than the proposed facility and are located more than 5 river miles from the Project Area. It is anticipated that the proposed marina would address the growing demand for additional public boating infrastructure and enhance the public use of the reservoir, aligning with TVA's goal of supporting sustainable and responsible outdoor recreation in the Tennessee Valley.

3.13 TRANSPORTATION

3.13.1 Affected Environment

Limestone County is constructing a new public road through the larger private parcel in which the Project Area is located. This road would provide public access to the Project Area. The road would connect to Nuclear Plant Road north of the Project Area, which in turn is accessed via Browns Ferry Road and Shaw Road. Alabama Department of Transportation (ALDOT) 24-hour traffic data for annual average daily traffic on existing roadways is provided in Table 3-6.

Table 3-6. 2024 Annual Average Daily Traffic.

Roadway	2024 Annual Average Daily Traffic
Nuclear Plant Road (NW of Project Area)	2,217
Nuclear Plant Road (NE of Project Area)	1,754
Browns Ferry Road (N of Nuclear Plant Road)	1,158
Shaw Road (N of Nuclear Plant Road)	2,462

Source: ALDOT 2024.

3.13.2 Environmental Consequences

3.13.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no impact on transportation access or traffic volume near the Project Area.

3.13.2.2 Alternative B – Proposed Action Alternative

Under the Proposed Action Alternative, it is anticipated that traffic along nearby roadways would increase during the construction period because of materials deliveries and workers accessing the Project Area. However, this increase would be relatively minor because it is anticipated that there would be a small crew of approximately 5 to 25 workers present daily during construction. Worker commutes and material deliveries are not anticipated to adversely affect public access or traffic volume.

Riprap would be sourced from a local quarry, Rogers Group Inc., in Tanner, Alabama, and transported approximately 11 miles to the Project Area. Approximately 2,100 CY of fill material needed to create a fill horizon that would avoid intrusive disturbance of site 1LI268 (see Section 3.13.2) would be delivered from an offsite source. As with rip-rap delivery, impacts from increased truck traffic would be temporary, during material deliveries. The Applicant has obtained a pre-approval letter of support from Limestone County confirming that existing infrastructure can accommodate the delivery of riprap material. It is anticipated that, similarly, the existing infrastructure would be able to accommodate the delivery of fill material. The Applicant would obtain any necessary local permits and authorizations.

Over the long term, there would be greater increases in traffic during operation as the public uses commercial facilities within the Project Area. This increase would likely be more noticeable during weekends and may result in localized, intermittent delays on holiday weekends or other times of high use. Overall, these long-term impacts would be minor to moderate.

3.14 CULTURAL RESOURCES

3.14.1 Affected Environment

Cultural resources are properties and places that illustrate aspects of precontact or historic times or have long-standing cultural associations with established communities and/or social groups. Cultural resources may include archaeological sites, unmodified landscapes and discrete natural features, modified landscapes, human-made objects, structures such as bridges or buildings, and groups of any of these resources, sometimes referred to as districts.

Section 106 of the NHPA, as amended (54 USC § 300101 et seq.), addresses the effects of federal and federally funded projects on properties of historic value. Once identified, these resources are evaluated for inclusion in the NRHP maintained by the National Park Service. Cultural resources may qualify for inclusion in the NRHP if they are 50 years of age or older (unless in exceptional cases) and if found to embody one or more of four different values, or criteria, in accordance with 36 CFR § 60.4, as listed below:

Criterion A: association with events that have made a significant contribution to the broad patterns of our history. Such events may include a specific occurrence or pattern of occurrences, cultural traditions, or historic trends important at a local, regional, or national level. To be considered in association with a cultural resource, events must be important within the particular context being assessed.

Criterion B: association with the lives of persons significant in our past. People considered may be important locally, regionally, or nationally, and the cultural resources considered are limited to properties illustrating a person's achievements rather than commemorating them.

Criterion C: embodiment of the distinctive characteristics of a type, period, or method of construction; representative of the work of a master; possessing high artistic values; or representative of a significant and distinguishable entity whose components may lack individual distinction. Cultural resources generally considered include architectural resources such as buildings, objects, districts, and designed landscapes.

Criterion D: cultural resources that have yielded, or may be likely to yield, information important in prehistory or history. Considered cultural resources typically include archaeological sites but may also include buildings, structures, and objects if they are the principal source of important information not contained elsewhere.

Cultural resources that are listed or considered eligible for listing in the NRHP are called “historic properties.” Federal agencies are required by the NHPA to consider the possible effects of their undertakings on historic properties and take measures to avoid, minimize, or mitigate any adverse effects.

Agencies are required to consult with the appropriate SHPO(s), federally recognized Tribes that have an interest in the undertaking, and any other party with a vested interest in the undertaking. Through various regulations and guidelines, federal agencies are encouraged to coordinate Section 106 and NEPA reviews to improve efficiency and allow for more informed decisions. Under NEPA, impacts to cultural resources that are part of the affected human environment but not necessarily eligible for the NRHP must also be considered by federal agencies. Generally, these considerations, as well as those of NRHP-eligible traditional cultural resources (also called traditional cultural properties), are accomplished through consultation with parties having a vested interest in the undertaking, as described above.

Cultural Resource Surveys and Findings

Archaeological and architectural surveys were conducted within the area of potential effects (APE) for the Project to determine the presence of precontact and historic cultural resources that are listed or potentially eligible for the NRHP. TVA determined the APE to be the Project Area, where physical direct effects could occur, and all areas within a half-mile radius of the Project Area that would be visible from the proposed structures, where visual (indirect) effects to above ground resources could occur.

TVA contracted New South Associates, Inc. (New South) to conduct a Phase I terrestrial survey, in addition to an architectural survey to assess potential effects within the APE. Prior to the survey, New South performed archival and historical research on the APE. Background research included the review of historic maps, aerial imagery, cultural resource data, and the creation of a viewshed model based on the Project design.

New South’s architectural survey consisted of developing a viewshed model using geospatial software to identify areas with potential visual exposure to the proposed undertaking. A field survey to evaluate the areas that would be visible was conducted. No historic properties, standing structures, or other historic-age resources were identified during archival review or the field survey. Based on these findings, the proposed undertaking is not expected to result in visual effects on historic properties.

New South’s archaeological background research indicated that two previously recorded sites, 1LI268 and 1LI448, lie within the Project Area. Site 1LI268 was first identified during a cultural resources inventory of Wheeler Reservoir and documented at that time as a moderate-density precontact artifact scatter extending both above and below the modern shoreline. Additional investigation identified a shell component and recommended further study. Site 1LI448 consists of an Archaic-period lithic scatter of varying density. This resource was previously recommended as not eligible for inclusion on the NRHP due to disturbance and lack of intact deposits.

The survey did not identify any previously unrecorded archaeological sites within the Project Area. The revisit to the portion of site 1LI448 within the Project Area resulted in an assessment consistent with previous recommendations. The portion of site 1LI448 within the Project Area is not recommended as eligible for the NRHP as it exhibits extensive disturbance and lacks integrity. New South's investigation of the portion of site 1LI268 within the Project Area resulted in the identification of intact buried cultural horizons within a stable floodplain. As such, New South recommends additional investigation into this portion to determine NRHP eligibility. The inundated harbor limits have been impacted by erosion from the seasonal fluctuations of Wheeler Reservoir in addition to wave action from vessel traffic.

3.14.2 Environmental Consequences

3.14.2.1 Alternative A – The No Action Alternative

Under the No Action alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, no proposed facilities would be constructed within the Project Area, and there would be no effects on historic properties.

3.14.2.2 Alternative B – Proposed Action Alternative

Under the Proposed Action Alternative, TVA would grant Section 26a approval for shoreline construction activities and a commercial recreation easement to operate the proposed marina. Construction would involve ground-disturbing activities and the installation of above-ground structures.

The Phase I architectural survey did not identify any resources within the APE. As such, the Proposed Action has no potential to affect above-ground historic properties. The Phase I terrestrial archaeological survey did not identify any unrecorded archaeological sites within the Project Area and revisited two previously recorded sites, 1LI268 and 1LI448. Based on the extensive disturbance and lack of integrity from the recent investigation, coupled with previous documentation, New South recommended that the portion of site 1LI448 in the Project Area not be eligible for the NRHP and that the proposed action would have no effect. Due to the presence of intact deposits within site 1LI268, New South recommends additional evaluation to support NRHP eligibility determination if avoidance is not possible.

Based on the recommendation, the Applicant developed and TVA reviewed a change in the design to avoid effects within site 1LI268. TVA initiated consultation with the Alabama SHPO on May 12, 2026. In a letter dated June 9, 2026, the Alabama SHPO concurred with TVA's finding that the proposed project would have no adverse effect. Pursuant to 36 CFR § 800.3(f)(2) of the regulations of the Advisory Council on Historic Preservation implementing the National Historic Preservation Act, TVA consulted with federally recognized Indian tribes regarding historic properties within the APE that may be of religious and cultural significance to the tribes, and received no objections to the Project. Details are provided in Appendix F.

Should previously undiscovered cultural resources be identified during construction or operations, TVA would consult with all parties before any further action is taken.

3.15 VEGETATION

3.15.1 Affected Environment

A vegetation field survey of the Project Area, conducted in September 2025, focused on documenting plant communities, invasive species, and possible federally and state-listed threatened or endangered plant populations. Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types observed during the field survey were categorized as herbaceous vegetation and deciduous forest. The herbaceous vegetation was heavily disturbed and degraded, with signs of recent deforestation and disturbance throughout the Project Area (Figure 3-1). The forested areas did not have structural characteristics indicative of old-growth forest stands, such as snags, mixed age classes, and large, old trees (Leverett 1996) (Figure 3-2). All plant communities observed within the Project Area are common and well represented across Alabama. An April 14, 2026, query of the TVA Heritage database indicates no federally listed plant species and no state-listed plant species are known from within five miles of the proposed Project Area, and no federally listed plant species are known from Limestone County, Alabama, where the Project Area is located.



Figure 3-1. Example of Disturbed Vegetation in the Project Area



Figure 3-2. Example of Deciduous Forest Vegetation in the Project Area

Forest edges, disturbed agricultural fields, and regions along roads accounted for the vast majority of herbaceous vegetation within the Project Area. Much of this vegetation is heavily disturbed and dominated by early successional species and non-native invasive plants. The remainder of the Project Area is comprised of herbaceous vegetation and deciduous forests.

Herbaceous vegetation is defined as areas where graminoid or herbaceous vegetation comprises greater than 80 percent of total vegetation (USGS 2024). Additionally, these areas are not subject to management (i.e., tilling) but can be used for grazing. Examples of common herbaceous species identified during the survey include yellow bristlegrass, Johnson grass, and common pokeweed.

Deciduous forests are defined as areas dominated by trees, generally greater than 5 meters tall, accounting for more than 20 percent of total vegetation cover (USGS 2024), at least 75 percent of which are considered deciduous species (USGS 2024). Within the Project Area, these forests were dominated by young trees ranging from 6 to 12 inches in diameter at breast height (dbh). Older trees, which ranged from approximately 12 to 20 inches dbh, were found in select areas along the Wheeler Reservoir shoreline. Examples of common canopy trees identified include red maple and black cherry. The understory comprised non-native invasive shrubs such as Chinese privet and common privet, mixed with native shrubs such as flowering dogwood, eastern redbud, and pawpaw. The herbaceous layer was comprised of both native and invasive species.

Woody vines, such as poison ivy, common greenbrier, and Virginia creeper, were found throughout the canopy and midstory.

A full list of common species observed in the Project Area is provided in Appendix C.

3.15.2 Environmental Consequences

3.15.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, the Project Area would remain in its current condition, and there would be no impact on vegetation.

3.15.2.2 Alternative B – Proposed Action Alternative

Under the Proposed Action Alternative, existing vegetation within the Project Area would be disturbed. Approximately 0.41 acres of trees would be cleared along the shoreline within portions of the deciduous forest, and ground disturbance would occur amid the construction of structures associated with the proposed marina and amenities.

Executive Order (EO) 13751 (Invasive Species) requires federal agencies to coordinate and strengthen efforts to prevent the introduction, spread, and impact of invasive species. While construction and property maintenance under the Proposed Action could reduce the abundance of invasive plant species within the Project Area, the majority of the Project Area has been recently cleared, and formerly forested land is now vegetated with ruderal herbs and young woody species. Additional tree clearing could increase light penetration in some areas, but the majority of hardwood forests within the proposed project area exist as a narrow interface between disturbed herbaceous vegetation and the shoreline of Wheeler Reservoir. Consequently, aggressive native and invasive species have already colonized the understory of deciduous forests, and additional clearing would not be likely to contribute to further encroachment of non-native invasive plants or aggressive native species. Because of the relatively small area of deciduous forest that would be removed as a result of the Proposed Action and the existing levels of invasive species, changes to vegetation would be minor.

There would be no loss of rare or unique plant communities because none are present. Herbaceous species within the Project Area are primarily weedy native species or non-native invasive species. Under the Proposed Action, the extent or abundance of these species found at the local, regional, or state level would not be significantly affected. The Proposed Action is not anticipated to affect federally or state-listed plant species or their habitats, as field surveys indicated suitable habitat does not occur within the Project Area. Development and regular maintenance of the Project Area over the long term may reduce the abundance of current invasive species on-site and could improve the overall quality of vegetation present.

Submerged aquatic vegetation may be affected by the installation of docks. However, many of these species are free-floating and thus impacts are expected to be minor. The physical presence of the docks may also alter natural light regimes and water

circulation; however, some shading may also have a beneficial effect by suppressing algal growth and cooling surface waters in the immediate area. The operation and use of the docks could also lead to the possible introduction of invasive aquatic vegetation.

3.16 SURFACE WATER

3.16.1 Affected Environment

The Project Area drains to Wheeler Reservoir within the 10-digit hydrologic unit code (HUC) Upper Wheeler Lake (0603000211) watershed. A September 2025 stream and wetland delineation did not identify any watercourses in the Project Area, except the Wheeler Reservoir embayment of the Tennessee River (Table 3-7).

Table 3-7. Watercourses in the Project Area.

Drainage Name	Type of Resource	Jurisdictional Status	Total Length (feet)
L001 (Wheeler Reservoir)	Lacustrine	Jurisdictional	1,112.11

Linear watercourses were evaluated using methodologies derived from the Tennessee Department of Environment and Conservation (TDEC) Guidance for Making Hydrologic Determinations (Barbour et al. 1999; TDEC 2020) to determine whether each feature would be considered a stream and to determine flow duration. Features meeting the definition of streams were assessed for their flow regime (i.e., ephemeral, intermittent, or perennial) and listed according to their Cowardin (1979) classification. A Tennessee Qualified Hydrologic Professional (QHP) conducted hydrological determinations per TVA requirements to determine whether each feature would be considered a stream and to determine flow duration. Since Alabama does not have a comparable surface water classification protocol, the TDEC hydrologic determination form and scores were used to comply with TVA's guidelines for conducting biological and cultural surveys. Linear watercourses were classified as wet weather conveyances (WWC)/ephemeral drainages or streams. WWCs are "man-made or natural watercourses, including natural watercourses that have been modified by channelization: (a) that flow only in direct response to precipitation runoff in their immediate locality; (b) whose channels are at all times above the ground water table; (c) that are not suitable for drinking water supplies; (d) and in which hydrological and biological analysis indicate that, under normal weather conditions, due to naturally occurring ephemeral or low flow there is not sufficient water to support fish, or multiple populations of obligate lotic aquatic organisms whose life cycle includes an aquatic phase of at least two months" [TN Rule 1200—3.04(25)]. Streams are defined by the 2020 TDEC Division of Water Pollution Guidance for Making Hydrologic Determinations as "a surface water that is not a wet-weather conveyance" [TN Rule 0400-4-3-.04(20)]. No linear watercourses were identified in the Project Area.

The CWA requires that states identify all waters where required pollution controls are not sufficient to attain or maintain applicable water quality standards and to establish priorities for the development of limits based on the severity of the pollution and the sensitivity of the established uses of those waters. The term "303(d) list" refers to the list of impaired and threatened streams and waterbodies identified by the state. Wheeler

Reservoir (AL06030002-1107-103) is listed on Alabama's 2024 303(d) list as impaired due to nutrients from agricultural sources and perfluorooctane sulfonate (PFOS) from industrial sources (ADEM 2024).

3.16.2 Environmental Consequences

3.16.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, surface waters would remain in their current condition, and there would be no impact on surface waters located in the Project Area.

3.16.2.2 Alternative B – Proposed Action Alternative

The Proposed Action would result in minor impacts to Wheeler Reservoir during the construction and operation phases of the Proposed Action.

Construction could result in long-term impacts on water quality. Impervious surfaces and infrastructure prevent rain from percolating through the soil, which results in additional runoff of water and pollutants into storm drains, ditches, and streams. Construction of the marina facilities would be expected to increase impervious cover and is therefore likely to increase the concentrated stormwater flow from the Project Area. Adhering to the Project's SWPPP would reduce the potential for these impacts. Additionally, the Applicant would be required to comply with applicable state and federal permit requirements, including the CGP for disturbances greater than 1 acre. Erosion and sediment control measures would minimize or avoid sedimentation of waterways, as required by the NPDES permit requirements. The Applicant would obtain a Section 401 Individual WQC issued by ADEM and a USACE Individual 404 Permit for work in Wheeler Reservoir. With proper implementation of controls, only minor, temporary impacts to local surface waters are expected during construction. Potential for fuel or contaminants from construction equipment would be minimized through implementation of the SPCC, as required by permit guidelines.

It is expected that portable toilets would be provided for the construction workforce. These toilets would be pumped out regularly, and the sewage would be transported by tanker truck to a publicly owned wastewater treatment plant that accepts pump-out. Permanent restroom facilities would be properly sized, permitted, and installed per state and local requirements. During operation, the proposed marina facilities would be connected to the surrounding local utilities.

TVA's analysis of potential surface water effects associated with the proposed Project showed no effect on the Browns Ferry Nuclear Plant, which is downstream from the Project Area.

Day-to-day operation could affect water quality. Potential impacts could include the introduction of oils, lubricants, and/or fuels to surface waters from fueling practices and parking lots; solid waste introduction from trash and debris not properly stored or disposed of; and black or gray water discharges to surface waters. In the long term,

nonpoint source pollutants may accumulate from these sources, as well as from the marina itself. Continuing to adhere to the SPCC during operation would reduce the likelihood and severity of impacts to surface waters.

A No Exposure Certification under the CWA for ongoing operations of the marina post-construction would exempt the project from further NPDES stormwater permitting. The marina would be eligible if the site were to have no industrial materials or activities exposed to stormwater. A storm-resistant shelter includes structures with only a top cover, but no side coverings, provided material under the structure is not otherwise subject to any run-on and subsequent runoff of stormwater. The Certification must be resubmitted every five years if eligibility continues. Should the site become ineligible for the No Exposure Certification, appropriate stormwater permitting would be obtained. Obtaining a No Exposure Certification would result in improved pollution prevention measures and stormwater awareness, improved housekeeping, and a reduction in paperwork and permitting costs.

With implementation of the measures described above, only minor short- and long-term impacts on surface water are anticipated as a result of the Proposed Action.

3.17 FLOODPLAINS

3.17.1 Affected Environment

A floodplain is the relatively level land area along a stream or river that is subject to periodic flooding. The area subject to a one-percent chance of flooding in any given year is normally called the 100-year floodplain. The area subject to a 0.2-percent chance of flooding in any given year is normally called the 500-year floodplain. It is necessary to evaluate development in the floodplain to ensure that the project is consistent with the requirements of EO 11988 (Floodplain Management).

TVA reservoirs have either power storage or flood storage or both. Power Storage is allocated to a range of elevations called the Power Storage Zone, and water occupying space in that zone is used to generate electric power through a dam's hydroturbines. Flood Storage is allocated to a range of elevations called the Flood Storage Zone, and water occupying space within that zone is used to store flood water during a flood or high-flow rain event. To avoid, to the maximum extent possible, the loss of flood storage on TVA reservoirs, TVA reviews potential development within the Flood Storage Zone in accordance with its Flood Storage Loss Guideline.

Some of TVA's dams are also able to be surcharged. Surcharge is the ability to raise the water level behind the dam above the top-of-gates elevation. Surcharge can be sustained only for a short period of time during a flood when inflows are highest. To control flood-damageable development on TVA lands, TVA uses a concept known as the Flood Risk Profile (FRP). The FRP is the elevation of the 500-year flood that has been adjusted for surcharge at the dam. On Wheeler Reservoir, the FRP elevation is equal to the 500-year flood elevation.

The project would be located at about Tennessee River Mile 296.0, right descending bank, on Wheeler Reservoir, in Limestone County, Alabama. At this location, the 100-year flood and TVA FRP elevations would be 557.3 and 557.7 feet, respectively. The Power Storage Zone would extend from elevations 550.5 to 556.0, and the Flood Storage Zone would extend from elevations 550.5 to 557.7.

3.17.2 Environmental Consequences

3.17.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no impact on the floodplain or its beneficial uses.

3.17.2.2 Alternative B – Proposed Action Alternative

TVA adheres to the requirements of EO 11988. The objective of EO 11988 is “...to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative” (EO 11988, Floodplain Management). The EO is not intended to prohibit floodplain development in all cases, but rather to create a consistent government policy against such development under most circumstances (U.S. Water Resources Council, 1978). The EO requires that agencies avoid the 100-year floodplain unless there is no practicable alternative.

There would be no adverse impacts from the construction and operation of a parking area, dry storage facilities, ship store, and fuel tank outside the 500-year floodplain. This is consistent with EO 11988 and the TVA Flood Storage Loss Guideline.

A boat launching ramp, approximately 290 floating covered and uncovered boat slips, shoreline stabilization consisting of a combination of riprap, fabric, plantings and an 8-ft retaining wall, electricity, water, natural gas, and sewer utilities, a land-based sidewalk from the boat launch ramp to a 60-foot by 8-foot gangway, floating fuel dock, gangway, boat lift, the marina dredging, and boat loading docks would be located partially or completely within the 100-year floodplain. Consistent with EO 11988, these are considered repetitive actions that should result in only minor impacts (TVA 1981). The excavated material would be spoiled outside of the floodplain and flood storage zone. Section 26a approval conditions 1 through 6 would minimize adverse impacts.

The project also includes a fixed rubble mound breakwater for marine protection, totaling about 17 acre-feet (27,000 CY) of material in the 100-year floodplain. Under EO 11988, a fixed breakwater is not considered a repetitive action in the 100-year floodplain. There is no practicable alternative to construction of the fixed breakwater because it is needed to reduce wave impacts within the marina. The Applicant has designed the breakwater with the least amount of rubble while still achieving project objectives.

The breakwater would result in the loss of about 5.1 acre-feet of power storage and 6.0 acre-feet of flood storage. TVA believes the amount of lost flood storage has been

minimized while achieving the project objective. The riprap shoreline stabilization would result in less than one acre-foot of lost power and flood storage. TVA published a Floodplain Public Notice detailing the impacts, alternatives evaluated, and mitigation measures for the rubble mound breakwaters from April 14, 2026, through April 27, 2026. An additional Floodplain Public Notice was published detailing proposed fill to protect cultural resources from June 23, 2026, through July 6, 2026. No comments were received in response to either floodplain notice. Therefore, the project would comply with EO 11988 and the TVA Flood Storage Loss Guideline.

To construct and operate the marina, the Applicant would also need a commercial recreation easement over TVA land. The Applicant would be required to adhere to the following conditions for Section 26a approval and the easement:

Section 26a Conditions

- Shoreline stabilization would be placed, on average, no more than 2.0 feet from the existing shoreline at June 1 Flood Guide elevation (556.0-foot elevation).
- The Applicant would evaluate utility connections to ensure that the utilities would not promote unwise development in the 100-year floodplain.
- For all electrical services permitted, a cutoff would be located at or above the 500-year flood elevation (557.7-foot contour) that is accessible during flooding.
- Floating facilities would be securely anchored to prevent them from floating free during major floods.
- The Applicant agrees that spoil material would be disposed of and contained on land lying and being above the 500-year flood elevation (557.7-foot contour) and outside the 500-year floodplain. Every precaution would be made to prevent the reentry of the spoil material into the reservoir.
- Any future facilities or equipment subject to flood damage would be located above or floodproofed to 2 vertical feet plus the TVA Flood Risk Profile (559.7-foot elevation)

Recreation Easement Conditions

- Any future development proposed within the limits of the 100-year floodplain (557.3-foot elevation) would be consistent with the requirements of EO 11988.
- TVA retains the right to flood this area, and TVA is not liable for damages occurring from flooding.
- All future development would be consistent with the requirements of the TVA Flood Storage Loss Guideline.

By implementing the Section 26a and easement conditions above, the project would be consistent with EO 11988 and the TVA Flood Storage Loss Guideline and have no significant impact on floodplains and their natural and beneficial values.

3.18 AQUATIC ECOLOGY

3.18.1 Affected Environment

The Project Area drains to Wheeler Reservoir within the Upper Wheeler Lake (HUC 0603000211) watershed. The only aquatic feature within the Project Area is Wheeler Reservoir.

Threatened and Endangered Aquatic Species

The ESA requires federal agencies to conserve endangered and threatened species and to determine the impacts of proposed actions on endangered and threatened species and Designated Critical Habitat. 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 ESA requires federal agencies to consult with USFWS when proposed actions may affect endangered or threatened species or Designated Critical Habitat.

A query of the TVA Natural Heritage Database and the USFWS Information for Planning and Consultation (IPaC) tool indicated three federally listed mussel species as occurring within the HUC-10 watersheds overlapping the Project Area. All species in Table 3-8 are extirpated or historical.

Table 3-8. Records of Federally and State-Listed Aquatic Species.

Common Name	Scientific Name	Element Occurrence (rank ¹)	Federal Status ²	State Rank ³
FISH				
Stripetail darter	<i>Etheostoma kennicotti</i>	H?	-	S3
Flame chub	<i>Hemitremia flammea</i>	H?	-	S3
Slender madtom	<i>Noturus exilis</i>	H?	-	S3
Spring pygmy sunfish	<i>Elassoma alabamae</i>	E	T	S1
Slackwater darter	<i>Etheostoma boschungii</i>	E	T	S1
MUSSELS				
Dromedary pearlymussel	<i>Dromus dromas</i>	X	E, XN	SX
Tubercled blossom	<i>Epioblasma torulosa</i>	X	DL	SX
Pearlymussel	<i>torulosa</i>			
White heelsplitter	<i>Lasmigona complanata</i>	H	-	S2
Hickorynut	<i>Obovaria olivaria</i>	H	-	SX
Ring pink	<i>Obovaria retusa</i>	H	E, XN	SX
Orange-foot pimpleback	<i>Plethobasus cooperianus</i>	H	E, XN	SX
Ohio pigtoe	<i>Pleurobema cordatum</i>	H	-	S2
Kidneyshell	<i>Ptychobranthus fasciolaris</i>	H	-	S2
Painted creekshell	<i>Villosa taeniata</i>	H	-	S2
Spectaclecase	<i>Cumberlandia monodonta</i>	E	E	S1
Pink mucket	<i>Lampsilis abrupta</i>	E	E	S1

Common Name	Scientific Name	Element		
		Occurrence (rank ¹)	Federal Status ²	State Rank ³
Sheepnose	<i>Plethobasus cyphus</i>	E	E	S1
Rough pigtoe	<i>Pleurobema plenum</i>	E	E, XN	S1
Tennessee pigtoe	<i>Pleurobema batesianum</i>	E	PE	S1
INVERTEBRATES				
White spring cave crayfish	<i>Cambarus veitchorum</i>	H?	-	S1
Slender campeloma	<i>Campeloma decampi</i>	E	E	S1

Source: TVA Natural Heritage Database, queried on 4/11/2025

¹ Heritage Element Occurrence Rank: H = historical record ≥ 25 years old; H? = possibly historical; X = extirpated; E = verified extant

² Federal Status Codes: E = Listed Endangered; XN = Non-essential experimental population; DL = delisted due to extinction; PE = Proposed Endangered

³ State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; SX = Presumed extirpated

3.18.2 Environmental Consequences

3.18.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, aquatic species and their habitat would remain under their current condition, and there would be no impact on aquatic ecology located within the Project Area.

3.18.2.2 Alternative B – Proposed Action Alternative

During project planning, a mussel survey was conducted by Dinkins Biological Consulting, Inc., from October 13-16, 2025. Biologists surveyed an area of approximately 18 hectares along the right descending bank of the Tennessee River, where the proposed marina would be located. In total, 11 species of live mussels were identified. However, no federally or state-listed mussel species were documented in the survey. Therefore, there would be no impact on federally or state-listed species.

There would be short-term adverse impacts on aquatic ecology during construction. Direct effects would occur during dredging, when track hoes would dredge approximately 6,600 CY of material for the travel lift area. This would temporarily increase turbidity, which can affect the quality of aquatic habitat. It would also result in long-term disturbance of aquatic habitat; however, it is anticipated that this habitat would rebound over time, and species would repopulate the area.

Indirect effects could result from erosion and sedimentation into Wheeler Reservoir. Soil would be disturbed during the installation of utilities, construction of parking areas and structures, and the development of a boat ramp. These activities could introduce siltation, which has a detrimental effect on many aquatic animals adapted to riverine environments. Turbidity caused by suspended sediment can negatively impact the spawning and feeding success of fish and mussel species (Brim Box and Mossa 1999; Sutherland 2001). To minimize impacts on water quality and aquatic species, the Applicant would be responsible for adhering to state and local guidelines regarding

sediment control during every phase of construction. As a result, impacts from turbidity and sedimentation would be temporary and minor.

Operation and use of the docks could lead to the possible introduction of aquatic invasive species from other waterways. Several species of both flora and fauna have been recorded as being transported across waterbodies and have proven detrimental to the ecosystems into which they are introduced. However, there could be long-term beneficial impacts as well. For example, the docks may provide habitat for benthic macroinvertebrates and offer cover and foraging areas for fish species.

3.19 TERRESTRIAL ECOLOGY

3.19.1 Affected Environment

The Project Area is composed of a recently cleared area characterized by minimal vegetation and an existing drainage feature. A U&D easement along the eastern boundary of the property and outside of the Project Area is actively under construction. A narrow, linear strip of forested habitat comprised of mixed hardwoods and pines occupies approximately 0.41 acres along the shoreline, spanning both TVA- flowage easement property and privately owned property. Features surrounding the Project Area consist of pasture, cropland, and developed residential areas. Field surveys of the Project Area were conducted on May 12, 2025, by TVA terrestrial zoologists and again on June 5, 2025, by TVA land management.

Early successional, herbaceous habitat (i.e., field and scrub-shrub) comprises the majority of the Project Area. Common avian inhabitants of early-successional habitat include American crow, American robin, brown-headed cowbird, common grackle, eastern bluebird, northern cardinal, and red-tailed hawk, among others (National Geographic 2006). Mammalian species likely present in this habitat include eastern cottontail, hispid cotton rat, red fox, striped skunk, and white-tailed deer (Whitaker 1996). Early successional areas also provide habitat for additional common species, such as common raccoon and nine-banded armadillo, which were observed during field survey of the Project Area. Common amphibian and reptile species of this habitat include Fowler's toad, upland chorus frog, and North American racer (Powell et al. 2016). Where this habitat is bordered by forest, a more diverse array of common wildlife species can be found using edge habitat.

Approximately 0.41 acres of the Project Area are currently forested and include mixed deciduous evergreen forest and pine-dominant forest in varying stages of stand development. Deciduous tree species provide habitat for common birds such as Carolina chickadee, Carolina wren, chipping sparrow, eastern bluebird, eastern towhee, northern cardinal, northern mockingbird, red tailed hawk, song sparrow, tufted titmouse, and white-throated sparrow (National Geographic 2006). Mammals found in these habitats include common raccoon, eastern gray squirrel, white-tailed deer, and Virginia opossum (Whitaker 1996). Common reptile species likely found in this habitat include American toad, eastern box turtle, eastern garter snake, and Fowler's toad (Powell et al. 2016). Pine-dominant forests provide habitat for avian species such as pine warbler, summer tanager, and chipping sparrow (National Geographic 2006). Common

amphibian and reptile species in this habitat include corn snake, eastern copperhead, and green tree frog (Powell et al. 2016). Mammalian species known to use this habitat type include common raccoon, coyote, and gray fox (Whitaker 1996).

Review of the TVA Natural Heritage Database in April 2025 did not identify records for any known wading bird colonies within 3 miles of the Project Area. A review of the USFWS IPaC tool identified 14 migratory bird species of conservation concern having the potential to occur in the Project Area: bald eagle, bobolink, brown-headed nuthatch, chimney swift, field sparrow, grasshopper sparrow, Kentucky warbler, lesser yellowlegs, prairie warbler, prothonotary warbler, red-headed woodpecker, rusty blackbird, semipalmated sandpiper, and wood thrush (USFWS 2026). See the Threatened and Endangered Species section for a discussion of potential impacts to bald eagles. See Appendix D for a full description of migratory bird habitat. The Project Area does not fall within the breeding range of bobolink, brown-headed nuthatch, lesser yellowlegs, rusty blackbird, or semipalmated sandpiper. Additionally, suitable nesting habitat does not exist within the Project Area for chimney swift or Kentucky warbler. Suitable nesting habitat for prairie warbler, prothonotary warbler, red-headed woodpecker, and wood thrush is available in the forested areas, and for field sparrow and grasshopper sparrow in the early successional fields within the Project Area.

Threatened and Endangered Terrestrial Species

A review of terrestrial animal species in the TVA Regional Natural Heritage Database on April 15, 2025, did not identify records for known caves, but did generate records for one state-listed species (osprey) within 3 miles of the Project Area. Records for one federally protected species (bald eagle), one federally listed species (gray bat), and two species proposed for federal listing (eastern hellbender and tricolored bat) were identified within Limestone County, AL. The USFWS IPaC tool queried on April 21, 2026, determined that two additional federally listed species (Indiana bat and whooping crane) and one species proposed for federal listing (monarch butterfly) have the potential to occur in the Project Area (Table 3-9). Habitat suitability and potential impacts to these species are addressed below.

Table 3-9. Federally Listed Terrestrial Animal Species Reported from Limestone County, Alabama, and Other Species of Conservation Concern Documented within 3 Miles of the Project Area.

Common Name	Scientific Name	Federal Status ¹	State Status (Rank ^{2, 3})
Amphibians			
Eastern hellbender ⁴	<i>Cryptobranchus alleganiensis</i>	PE	E(S1)
Birds			
Bald eagle ⁵	<i>Haliaeetus leucocephalus</i>	DM	SP(S4B)
Osprey	<i>Pandion haliaetus</i>	-	SP(S4)
Whooping crane ⁴	<i>Grus americana</i>	LE, XN	SP(S1N1)
Invertebrates			
Monarch butterfly ⁴	<i>Danaus Plexippus</i>	PT	-(S5)
Mammals			
Gray bat	<i>Myotis grisescens</i>	E	SP(S2)
Indiana bat ⁴	<i>Myotis sodalis</i>	E	SP(S2)

Common Name	Scientific Name	Federal Status ¹	State Status (Rank ^{2, 3})
Tricolored bat	<i>Perimyotis subflavus</i>	PE	-(S3)

Source: TVA Regional Natural Heritage Database and USFWS Ecological Conservation Online System (<http://ecos.fws.gov/ecos/home.action>) extracted April 14, 2025, and April 21, 2026.

¹ Status Codes: DM = Delisted and Being Monitored; PE = Proposed Endangered; LE = Listed Endangered; XN = Experimental Populations, Nonessential; PT = Proposed Threatened; E = Endangered

² State Status: E = Endangered; SP = State Protected

³ State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; S5 = Secure; S#B = Rank of Breeding Populations; S#N = Rank of Non-breeding Population

⁴ Federally listed or protected species that have not been documented within three miles of the Project Area or within Limestone County, Alabama; USFWS has determined these species have the potential to occur within the Project Area

⁵ Species that have been documented within Limestone County, Alabama, but not within three miles of the Project Area.

Eastern hellbenders are found in larger, fast-flowing streams and rivers with large shelter rocks where temperatures are at or below approximately 20°C. Eggs are laid in depressions created beneath large rocks or submerged logs (Petranka 1998). One eastern hellbender record has been documented within Limestone County, approximately 17.5 miles from the Project Area. Since water temperatures within Wheeler Reservoir are too warm, and flow is too slow to support eastern hellbender, no suitable habitat for hellbender exists in the Project Area.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA, 16 U.S.C. 668- 668d). This species is associated with large mature trees capable of supporting their nests, which can weigh several hundred pounds and are typically built near larger waterways where they forage primarily for fish (USFWS 2007). Four bald eagle nest records have been documented within Limestone County, the closest of which occurs in a group of pine trees along the shoreline within the Project Area. This nest was observed to be inactive during a field survey in May 2025 and in a subsequent survey in June 2025; however, an adult bald eagle was observed perched on another pine within the Project Area in February and May of 2025. This bald eagle nest is on a tree that occurs above the 556.3-foot contour, but below the 560-foot contour on retained TVA flowage easement where TVA does not have control or responsibility over implementation of the ESA or the BGEPA. Suitable foraging and nesting habitat exist within the Project Area for bald eagles.

Osprey are medium-sized raptors that are typically associated with water, where they forage exclusively for fish (Bierregaard et al. 2020). Osprey build nests in trees or man-made structures (e.g., transmission structures) near or over water. Three osprey nest records are known to occur within 3 miles of the Project Area, the closest of which occurs approximately 1 mile from the Project Area. No osprey or osprey nests were observed during field reviews of the Project Area in May or June of 2025. Suitable foraging and nesting habitat exists for osprey throughout forested portions of the Project Area.

Whooping cranes migrate through Alabama twice per year in small flocks of three to five birds. During migration, they stop to feed and rest in wetland complexes, marshes, ponds, lakes, rivers, and agricultural fields (USFWS 2024). The whooping crane is listed

as Endangered in the Southwest U.S. (USFWS Region 2). Outside of this region, including in Alabama, the whooping crane is categorized as a non-essential experimental population. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (requiring consultation under Section 7(a)(2) of the ESA) and as a proposed species on private land (no consultation requirements, but federal agencies must not jeopardize their existence (Section 7(a)(4))) (USFWS 2023). Migratory stopover habitat does not exist within the Project Area, and no records of whooping cranes are known from the Project Area or Limestone County.

The monarch butterfly is a highly migratory species, with eastern U.S. populations overwintering in Mexico. Monarch populations typically return to the eastern U.S. in April (Davis and Howard 2005). Summer breeding habitat requires milkweed species, on which adults exclusively lay eggs and where larvae develop and feed. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (Schweitzer and Jepsen 2014). Though this species has not been historically tracked by state or federal heritage programs, the USFWS IPaC tool determined that this species could occur within the Project Area. Some flowering plants were observed in early successional habitats within the Project Area; however, no milkweeds were observed during field surveys in May and June 2025.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Brady et al. 1982, Tuttle 1976). Gray bats have also been documented roosting in man-made structures, such as on bridges and in abandoned buildings. Summer caves are typically located close to rivers or lakes. Bats disperse over bodies of water at dusk, where they forage for insects emerging from the surface of the water (Harvey et al. 2011). The closest known gray bat was historically documented from a hibernaculum approximately 10.7 miles from the Project Area. No caves are known within the Project Area or were observed during field surveys. Aquatic foraging habitat for this species exists in the Project Area over Wheeler Reservoir.

Indiana bats hibernate in caves in winter and use areas around them in fall and spring (for swarming and staging), prior to migration back to their summer habitat. During summer, Indiana bats roost under the exfoliating bark of dead and living trees in mature forests with an open understory, often near sources of water. Indiana bats are known to change roost trees frequently throughout the season, yet still maintain site fidelity, returning to the same summer roosting areas in subsequent years. This species forages over forest canopies, along forest edges and tree lines, and occasionally over bodies of water (Kurta et al. 2002; USFWS 2007a; USFWS 2024a). While the USFWS has determined that Indiana bats have the potential to occur within the Project Area, no documented occurrence of the species is known from Limestone County. Foraging habitat for this species exists in the Project Area over Wheeler Reservoir, and over and around forested habitat. Suitable summer roosting habitat is present within 0.18 acres of forest within the Project Area.

Tricolored bats have been proposed for federal listing and are generally solitary or found in small groups. The closest known tricolored bat was documented from a

hibernaculum approximately 14.7 miles from the Project Area. This species is associated with forested landscapes where they forage near trees and along waterways, especially riparian areas. Summer roosts are primarily in live and dead leaf clusters of live or recently dead deciduous hardwood trees, Spanish moss, and beard lichen. However, this species has also been documented roosting in artificial structures such as bridges and culverts, and occasionally in barns during the summer months. In winter, this species is most commonly found in caves and mines but may also use culverts, abandoned wells, tree cavities, and rock shelters (USFWS 2021). There are no known caves within 3 miles of the Project Area. Foraging habitat for this species exists over Wheeler Reservoir and over and around trees within the Project Area. Suitable summer roosting habitat is present within the forested acreage of the Project Area.

Following the 2024 Range-Wide Indiana Bat Survey Guidelines (USFWS 2024a), TVA surveyed the project footprint for the presence of potentially suitable habitat for federally listed bats in May 2025. Approximately 0.41 acres of mixed-deciduous hardwood forest comprised primarily of oak, maple, and elm were recorded within the Project Area. Of the 0.41 acres of forested habitat, 0.18 acres were determined to be suitable for use by summer roosting Indiana bat, based on the presence of trees with exfoliating bark, hollows, and/or cracks and crevices. All 0.41 acres of forest are suitable for roosting tricolored bats. Suitable foraging habitat was also identified within the Project Area for gray bat, Indiana bat, and tricolored bat in and around forests, forested edges, and over Wheeler Reservoir. Wheeler Reservoir also provides a source of drinking water for all three bat species.

3.19.2 Environmental Consequences

3.19.2.1 Alternative A – The No Action Alternative

Under the No Action Alternative, TVA would not grant Section 26a approval for shoreline construction activities or an easement to operate the proposed marina. As a result, there would be no development, and terrestrial animals and their habitats, including threatened and endangered species, would not be affected.

3.19.2.2 Alternative B – Proposed Action Alternative

The Proposed Action Alternative could result in the displacement of wildlife (primarily common, habituated species) currently using the Project Area. Direct effects to some individuals could occur if those individuals are immobile during the time of habitat removal (e.g., during breeding, nesting, or hibernation seasons). Habitat removal may disperse mobile wildlife into surrounding areas in attempts to find new food sources, shelter, and to reestablish territories. Due to the extent of previous disturbance within the Project Area and the availability of similarly suitable habitat in areas throughout the surrounding landscape, impacts to populations of common wildlife species as a result of the Proposed Action are expected to be minor.

Suitable nesting habitat is available in the forested areas for prairie warbler, prothonotary warbler, red-headed woodpecker and wood thrush, and for field sparrow and grasshopper sparrow in the early successional fields of the Project Area. The Proposed Action may destroy nests, eggs, or juveniles of these species if construction

activities occur within the Project Area while nests are active. Vegetation removal is currently proposed to take place during winter (October 15 – March 14) to avoid impacting federally listed bats. This conservation measure could also be beneficial to migratory birds that may be present within the project footprint. Nevertheless, given the abundance of similar or superior habitat surrounding the Project Area, impacts to populations of migratory birds of conservation concern as a result of the Proposed Action are expected to be minor.

Threatened and Endangered Terrestrial Species

Based on a review of the TVA Natural Heritage Database in April 2025, review of the IPaC tool in April 2026, and field surveys performed in May and June 2025, no suitable habitat exists in the Project Area for eastern hellbender or whooping crane. The Proposed Action Alternative would not jeopardize the continued existence of eastern hellbender or whooping crane.

Construction and operation of the marina could temporarily increase turbidity and siltation in Wheeler Reservoir, which may impact bald eagle and osprey foraging habitat. Adherence to construction BMPs—such as those outlined in the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites (ASWCC 2022)—would minimize these impacts.

Construction could result in the take of a bald eagle nest located on private property within the Project Area, where TVA does not have control or responsibility over implementation of the ESA or the Bald and Golden Eagle Protection Act. TVA has communicated with the Applicant, USFWS, and the Alabama Department of Conservation and Natural Resources (ALDCNR) on the location and status of the nest. Granting Section 26a approval is conditional on the Applicant obtaining a bald eagle incidental take specific permit from USFWS for construction within 330 feet of the nest. Additionally, if the tree holding the nest is removed as part of the Proposed Action Alternative, it must be done so outside of the breeding season (October 1 through May 30) when birds, eggs, and young are not present to be in compliance with the conditions of the specific permit.

No osprey nests are known within the Project Area, and none were observed during field surveys; as such, no direct impacts on ospreys or their nests are anticipated as a result of the Proposed Action Alternative.

Vegetation removal and grading across the Project Area could impact monarch butterfly foraging habitat. However, no milkweeds were observed within the Project Area during field review in May 2025; as such, breeding habitat for this species would not be impacted. The Proposed Action Alternative would not jeopardize the continued existence of the monarch butterfly.

No caves or other hibernacula for gray bat, Indiana bat, or tricolored bat have been documented within 3 miles of the Project Area, and none were observed during field surveys. Caves and karst habitat would not be affected by the Proposed Action.

Approximately 0.18 acres of suitable summer roosting habitat for the Indiana bat and 0.41 acres of suitable summer roosting habitat for the tricolored bat could be removed under the Proposed Action. Direct adverse impacts on bats could occur if tree removal were to take place during pup season, when bat pups are unable to fly, between May 15 to July 31 in Alabama (USFWS 2024a). Direct adverse impacts could also occur to individuals roosting within the Project Area during the non-winter season (March 15 to September 30); however, outside of pup season, bats are expected to be mobile and able to flush to nearby suitable habitat if disturbed. The Applicant has committed to clearing trees during the winter clearing window (October 1 – March 14), as detailed in the TVA Bat Strategy Project Review Form (Appendix E). Increased turbidity and siltation in Wheeler Reservoir within the Project Area could impact gray bat, Indiana bat, and tricolored bat foraging habitat and drinking water. Construction BMPs would be implemented to minimize impacts to water quality to the extent practicable.

Several activities associated with the Proposed Action were addressed in TVA's programmatic consultation with the USFWS on routine actions for federally listed bats in accordance with ESA Section 7(a)(2), completed in April 2018 and revised in 2023 and 2024. For those activities with the potential to affect bats, TVA committed to implementing specific conservation measures, which are detailed in the TVA Bat Strategy Project Review Form (Appendix E). For activities occurring below the 556-foot elevation contour, these conservation measures are required. For land-based activities occurring above the 556-foot elevation contour, TVA can only inform the Applicant of their responsibilities under the ESA and BGEPA. On flowage easement and private property, adherence to federal laws and guidelines is the responsibility of the Applicant. Although not required, TVA recommends the implementation of conservation measures from the Bat Strategy Project Review Form (Appendix E) would further reduce impacts.

- Noise would be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
- Operations involving chemical/fuel storage or resupply and vehicle servicing would be handled outside of riparian zones (streamside management zones) in a manner to prevent these items from reaching a watercourse. Earthen berms or other effective means are installed to protect the stream channel from direct surface runoff. Servicing would be done with care to avoid leakage, spillage, and subsequent stream, wetland, or ground water contamination. Oil waste, filters, and other litter would be collected and disposed of properly. Equipment servicing and chemical/fuel storage would be limited to locations greater than 300 feet from sinkholes, fissures, or areas draining into known sinkholes, fissures, or other karst features.
- Section 26a approvals and contracts associated with solar projects, economic development projects, or land use projects include standards and conditions that include standard BMPs for sediment and contaminants, as well as measures to avoid or minimize impacts to sensitive species or other resources consistent with applicable laws and Executive Orders.

- TVA recommends directing temporary lighting away from suitable habitat during the active season (March 15 through September 30).
- TVA recommends that the Applicant evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

Since the Applicant has agreed to tree removal during the winter clearing window and would implement construction BMPs, the Proposed Action Alternative is not expected to significantly affect the gray bat or the Indiana bat. In addition, the Proposed Action would not jeopardize the continued existence of the tricolored bat.

The Proposed Action Alternative would not significantly impact wildlife, threatened and endangered terrestrial species, or their habitat.

3.20 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

This section describes the principal unavoidable adverse environmental impacts associated with the implementation of the Proposed Action Alternative, for which mitigation measures are considered either impracticable, do not exist, or cannot eliminate the impact. Under the Proposed Action, the construction and operation of a commercial marina would render the land occupied by the recreational facility unavailable over the duration of the operation.

3.21 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA requires a discussion of the relationship between short-term uses of the environment and maintenance and enhancement of long-term productivity. This EA analyzes the potential environmental impacts of constructing and operating the proposed full-service commercial marina. Construction and operation activities would include conversion of forested areas to a more developed setting consisting of a mix of buildings, infrastructure (e.g., roads and parking lots), and outdoor facilities. Short-term uses are those during the construction period. Long-term productivity is the lifespan of the Project operation.

Short-term use of the environment to achieve the results of the proposed Project requires the use of land and construction materials, the use of existing roadways, and correlative, but temporary increases in emissions from transportation vehicles, as well as increased noise and vibration from construction equipment. Most of the environmental impacts from construction activities would be relatively short-term and would be addressed by mitigation measures. Construction activities would also have a limited, yet favorable short-term impact on the local economy through the creation of construction and support jobs and revenue.

Operation of the proposed facilities would affect long-term productivity through the conversion of forested areas to other uses. Physical alterations to Wheeler Reservoir

and its shoreline would alter sediment structure, light availability, and habitat surrounding the marina. Pollutants and excess nutrients resulting from the operation of the marina could impact aquatic organisms. Boat wakes and changes in currents may cause shoaling and shoreline erosion. Impacts from project-related activities that would alter the Project Area landscape and aquatic environment may be considered permanent.

3.22 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

This section describes anticipated irreversible and irretrievable commitments of environmental resources associated with TVA's decision to approve the request to develop a full-service commercial marina. For this analysis, the term "irreversible" applies to the commitment of environmental resources to their former state. The term "irretrievable" applies to the commitment of material resources that, once used, cannot by practical means be recycled or restored for other uses.

TVA's decision to approve the request to develop a commercial marina on Wheeler Reservoir would result in the irreversible conversion of land under the proposed facilities and the irretrievable resources used in that conversion and in the subsequent operation of the marina. Uses of the land for purposes other than those of Project-related activities would be irreversibly and irretrievably lost because of the long-term operation of the facility. Additionally, there would be an irreversible and irretrievable use of resources for the construction of the Project facilities and the use of fossil fuels for the transport of construction materials and the operation of vehicles and equipment during construction.

Overall, the commercial marina would add new recreation amenities for the surrounding community and tourism. Therefore, the Project would result in a long-term increase in recreational opportunities and would support TVA's goal of providing recreational opportunities in the Tennessee Valley region.

3.23 NEPA COMPLIANCE CERTIFICATION

Consistent with 18 CFR 1318.106(e) and 1318.301(f), TVA certifies that this document represents TVA's good-faith effort to fulfill the requirements of NEPA within the Congressional timeline established at NEPA Section 107(g) and according to page limits established at NEPA Section 107(e) and that the NEPA process is substantially complete. In this document, TVA prioritizes documentation of the most important considerations required by NEPA within the Congressionally mandated page limits based on its expert judgment. Any considerations addressed briefly or unaddressed are, in TVA's judgment, comparatively not of a substantive nature that meaningfully inform the consideration of environmental effects and the resulting decision on how to proceed. In TVA's expert opinion, the factors mandated by NEPA have been thoroughly considered, and in TVA's judgment, the analysis contained in this document is adequate to inform and reasonably explain TVA's final decision regarding the proposed federal action.

CHAPTER 4 LITERATURE CITED

- Alabama Department of Environmental Management (ADEM). UST Regulatory Sites – e-maps portal. Available at:
<https://aldem.maps.arcgis.com/apps/webappviewer/index.html?id=b281b56f4e944192be8ce0396df46cec>. Accessed November 2025.
- ADEM. 2024. 2024 Alabama §303(d) List. Available online at:
<https://adem.alabama.gov/water/water-quality/303d-information-and-map>.
- Alabama Department of Transportation (ALDOT). 2024. Alabama Traffic Data Viewer – Average Annual Daily Traffic Counts. Available online at:
<https://aldotgis.dot.state.al.us/TDMPublic/>. Accessed November 2025.
- Alabama Soil and Water Conservation Committee (ASWCC). 2022. Alabama Handbook for Erosion Control, Sedimental Control and Stormwater Management on Construction Sites and Urban Areas. Available at:
https://alabamasoilandwater.gov/wp-content/uploads/2022/07/2022_HandBook_Vol_2.pdf. Accessed October 2025.
- Avery, M. L. 2020. Rusty Blackbird (*Euphagus carolinus*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.rusbla.01>. Retrieved from <https://birdsoftheworld.org/bow/species/rusbla/1.0/introduction>. Accessed June 2024.
- Barbour, M.T., J. Gerristen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.
- Bierregaard, R. O., A. F. Poole, M. S. Martell, P. Pyle, and M. A. Patten (2020). Osprey (*Pandion haliaetus*), version 1.0. In Birds of the World (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.osprey.01>
- Box, J. B., & Mossa, J. 1999. Sediment, Land Use, and Freshwater Mussels: Prospects and Problems. *Journal of the North American Benthological Society*, 18(1), 99–117. <https://doi.org/10.2307/1468011>.
- Brady, J., Kunz, T., Tuttle, M. D., Wilson, D. 1982. The Gray Bat Recovery Plan. U.S. Fish and Wildlife Publication. Available online:
https://ecos.fws.gov/docs/recovery_plan/820701.pdf. (Accessed April 2025).
- Carey, M., D. E. Burhans, and D. A. Nelson (2020). Field Sparrow (*Spizella pusilla*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.fiespa.01>

- Davis, A. and Howard, E. 2005. Spring recolonization rate of monarch butterflies in eastern North America: New estimates from citizen-science data. *Journal of the Lepidopterists' Society*. 59(1): 1-5. Retrieved from [https://images.peabody.yale.edu/lepsoc/jls/2000s/2005/2005\(1\)1-Davis.pdf](https://images.peabody.yale.edu/lepsoc/jls/2000s/2005/2005(1)1-Davis.pdf). Accessed November 2023.
- Evans, M., E. Gow, R. R. Roth, M. S. Johnson, and T. J. Underwood (2020). Wood Thrush (*Hylocichla mustelina*), version 1.0. In *Birds of the World* (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.woothr.01>
- Executive Order 11988, Floodplain Management, Federal Register Vol. 42, No. 101, May 25, 1977. pp. 26951-26957. <https://www.archives.gov/federal-register/codification/executive-order/11988.html>
- Federal Highway Administration (FHWA). 2017. Construction Noise Handbook: Construction Equipment Noise Levels and Ranges. US Department of Transportation. Washington, DC.
- Frei, B., K. G. Smith, J. H. Withgott, P. G. Rodewald, P. Pyle, and M. A. Patten (2020). Red-headed Woodpecker (*Melanerpes erythrocephalus*), version 1.0. In *Birds of the World* (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.rehwoo.01>
- Geological Survey of Alabama. 1998. Aquifer Recharge Areas – Special Map 231. Available at <https://www.gsa.state.al.us/downloads/sgap/ABC%203340%20GSA%20Graphics/Alabama%20Aquifer%20Recharge%20Area%20Map.pdf>. Accessed November 2025.
- Geological Survey of Alabama. 2011. Available at: Sinkhole Data and Maps. <https://www.gsa.state.al.us/gsa/geologic/hazards/sinkholes#sinkholeALMap> Accessed November 2025.
- Geological Survey of Alabama. 2018. Assessment of Groundwater Resources in Alabama, 2010-16. Available at <https://ogb.alabama.gov/img/Groundwater/docs/assessment/Bulletin186.pdf>. Accessed November 2025.
- Grossman, D. H., D. Faber-Langendoen, A.S. Weakley, M. Anderson, P. Bourgeron, R. Crawford, K. Goodin, S. Landaal, K. Metzler, K.D. Patterson, M., Pyne, M., Reid, and L. Sneddon. 1998. International classification of ecological communities: terrestrial vegetation of the United States. Volume I. The National Vegetation Classification system: development, status, and applications. The Nature Conservancy, Arlington, Virginia. 139pp.
- Harvey, M. J., Altenback, J. S, and T. L. Best. 2011. Bats of the United States and Canada. The Johns Hopkins University Press. Baltimore, Maryland. 202 pp

- Headwaters Economics. 2025. A Profile of Socioeconomic Trends, Limestone County, AL. Available at: headwaterseconomics.org.
- Hicklin, P. and C. L. Gratto-Trevor. 2020. Semipalmated Sandpiper (*Calidris pusilla*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.semsan.01>. Retrieved from <https://birdsoftheworld.org/bow/species/semsan/cur/introduction>. Accessed April 2025.
- Kurta, A., S. W. Murray, and D. H. Miller. 2002. Roost selection and movements across the summer landscape. A. Kurta and J. Kennedy, editors. The Indiana Bat: Biology and Management of an Endangered Species. Bat Conservation International, Austin, Texas.
- Leverett, R. 1996. Definitions and History in Eastern Old-growth Forests: Prospects for Rediscovery and Recovery. Edited by Mary Byrd Davis. Island Press, Washington, D.C., and Covelo, California.
- Limestone County Economic Development Association (LCEDA). 2025. Major Employers. Available at: <https://lceda.com/employers-workforce/major-employers/>. Accessed November 2025.
- Limestone County Water and Sewer Authority (LCWSA). 2015. Policies and Procedures for Development: Standard Water and Sewer Specifications and Design Criteria. Available at: https://limestonecountywater.com/wp-content/uploads/2024/10/StandardSpecs2023_update.pdf. Accessed November 2025.
- McDonald, M.V. 2020. Kentucky Warbler (*Geothlypis formosa*), version 1.0. In Birds of the World (A.F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.kenwar.01>
- National Geographic. 2006. Field Guide to the Birds of North America (Fifth Edition). National Geographic Society, Washington D.C. 503 pp. Available at: https://archive.org/details/nationalgeograph0000unse_z1a7. Accessed September 2025.
- National Marine Manufacturers Association. 2000. Pleasure Motorboat Model Noise Act. Available at: https://www.nmma.org/assets/cabinets/Cabinet520/Model_Noise_Act_History_Status_etc.doc. Accessed November 2025.
- Nolan Jr, V., E. D. Ketterson, and C. A. Buerkle (2020). Prairie Warbler (*Setophaga discolor*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.prawar.01>

- Petit, L. J. (2020). Prothonotary Warbler (*Protonotaria citrea*), version 1.0. In Birds of the World (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.prowar.01>
- Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press. Washington, D. C. pp. 587.
- Powell, R., Conant, R., and J. T. Collins. 2016. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. 4th edition. Houghton Mifflin, Boston, MA.
- Renfrew, R., A. M. Strong, N. G. Perlut, S. G. Martin, and T. A. Gavin (2020). Bobolink (*Dolichonyx oryzivorus*), version 1.0. In Birds of the World (P.G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.boboli.01>.
- Schweitzer, D.F. and S. Jepsen. 2014. Monarch: *Danaus plexippus*. NatureServe Explorer [web application]. NatureServe, Arlington, VA. Retrieved from https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.108245/Danaus_plexippus. Accessed June 2025.
- Slater, G. L., J. D. Lloyd, J. H. Withgott, and K. G. Smith. 2021. Brown-headed Nuthatch (*Sitta pusilla*), version 1.1. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.bnhnut.01.1> Retrieved from <https://birdsoftheworld.org/bow/species/bnhnut/cur/introduction>. Accessed April 2025.
- Steeves, T. K., S. B. Kearney-McGee, M. A. Rubega, C. L. Cink, and C. T. Collins. 2020. Chimney Swift (*Chaetura pelagica*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.chiswi.01> Retrieved from <https://birdsoftheworld.org/bow/species/chiswi/1.0/habitat>. Accessed June 2024.
- Sutherland, A. B. 2001. Effects of Land Cover on Sediment Regime and Fish Assemblage Structure in Four Southern Appalachian Streams. *Freshwater Biology*, 47(9), 1791-1805. https://www.researchgate.net/publication/227789807_Effects_of_Land_Cover_on_Sediment_Regime_and_Fish_Assemblage_Structure_in_Four_Southern_Appalachian_Streams.
- Tibbitts, T. L. and W. Moskoff. 2020. Lesser Yellowlegs (*Tringa flavipes*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.lesyel.01>. Retrieved from <https://birdsoftheworld.org/bow/species/lesyel/cur/introduction>. Accessed April 2025.

- Tennessee Department of Environment and Conservation (TDEC), Division of Water Resources (DWR). 2020. Guidance for Making Hydrologic Determinations.
- Tennessee Valley Authority (TVA). 1981. Class Review of Repetitive Actions in the 100-Year Floodplain, Federal Register Vol. 46, No. 76, April 21, 1981. pp. 22845-22846. <https://www.govinfo.gov/content/pkg/FR-1981-04-21/pdf/FR-1981-04-21.pdf>
- _____. 1999. Shoreline Management Initiative: An Assessment of Residential Shoreline Development Impacts in the Tennessee Valley. Retrieved from <https://www.tva.com/environment/shoreline-construction-permits/shoreline-management-policy>. Accessed September 2025.
- _____. 2017. Multiple Reservoirs Land Management Plan (Wheeler Reservoir). Retrieved from <https://www.tva.com/environment/environmental-stewardship/land-management/reservoir-land-management-plans/wheeler-reservoir-land-management-plan>. Accessed September 2025.
- Tuttle, M. D. 1976. Population ecology of the gray bat (*Myotis grisescens*): philopatry, timing, and patterns of movement, weight loss during migration, and seasonal adaptive strategies. Occasional Papers of the Museum of Natural History, University of Kansas, 54:1-38. Retrieved from <https://www.merlintuttle.org/wp-content/uploads/2018/04/Population-Ecology-of-the-Gray-Bat-Myotis-grisescens-Philopatry-Timing-and-Patterns-of-Movement-Weight-Loss-During-Migration-and-Seasonal-Adaptive-Strategies.-1976.-By-Merlin-D.-Tuttle.pdf>. Accessed June 2025.
- U.S. Census Bureau. 2020. Decennial Census. Table DP1 – Profile of General Population and Housing Characteristics. Available at data.census.gov. Accessed June 2026.
- U.S. Census Bureau. 2024. American Community Survey 5-year estimates. Table B01001 – Sex by Age. Available at data.census.gov. Accessed June 2026.
- U.S. Census Bureau. 2024. American Community Survey 5-year estimates. Table S1701 – Poverty Status in the Past 12 Months. Available at data.census.gov. Accessed June 2026.
- U.S. Census Bureau. 2024. American Community Survey 5-year estimates. Table DP03 – Selected Economic Characteristics. Available at data.census.gov. Accessed June 2026.
- U.S. Census Bureau. 2024. American Community Survey 5-year estimates. Table B02001 – Race. Available at data.census.gov. Accessed June 2026.
- U.S. Coast Guard (USCG). 2024. 2024 Recreational Boating Statistics. COMDTPUB P16754.38. Available at: <https://www.uscgboating.org/library/accident-statistics/Recreational-Boating-Statistics-2024.pdf>. Accessed January 2026.

- U.S. Department of Agriculture (USDA). 1953. Soil Survey Limestone County Alabama.
- U.S. Environmental Protection Agency (US EPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Available at:
<https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF>. Accessed November 2025.
- _____. 2025. Greenbook. Alabama Nonattainment/Maintenance Status for Each County by Year for all Criteria Pollutants. Accessed April 2025.
- U.S. Fish and Wildlife Service (USFWS). 1982. Gray Bat Recovery Plan. Minneapolis, MN. 26pp. Retrieved from <https://www.nrc.gov/docs/ML1214/ML12146A326.pdf>. Accessed September 2025.
- _____. 2007. National bald eagle management guidelines. Arlington (VA): U.S. Fish and Wildlife Service, Division of Migratory Bird Management. 23 p. Retrieved from https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf. Accessed December 2023.
- _____. 2007a. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp. Available at: <https://ecos.fws.gov/ServCat/DownloadFile/45796?Reference=44940>. Accessed September 2022.
- _____. 2021. Species Status Assessment Report for the Tricolored Bat (*Perimyotis subflavus*), Version 1.1. December 2021. Hadley, MA. Retrieved from <https://ecos.fws.gov/ServCat/DownloadFile/221212>. Accessed June 2025.
- _____. 2024. Environmental Conservation Online System: Whooping Crane (*Grus americana*) Species Profile. Retrieved from <https://ecos.fws.gov/ecp/species/758>. Accessed September 2025.
- _____. 2024a. *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. U.S. Fish and Wildlife Service, Region 3, Bloomington, Minnesota. Available online: Microsoft Word - FINAL USFWS_Range-wide_IBat_&_NLEB_Survey_Guidelines_2024.3.21.docx. Accessed June 2025.
- _____. 2026. Information for Planning and Conservation (IPaC). Available at: <https://ecos.fws.gov/ipac/>. Accessed April 2026.
- U.S. Geological Survey (USGS), 2024, Annual NLCD Collection 1 Science Products: U.S. Geological Survey data release, <https://doi.org/10.5066/P94UXNTS>
- U.S. Water Resources Council. 1978. Guidelines for Implementing Executive Order 11988, Floodplain Management. Federal Register Vol. 43, No. 29, February 10, 1978. pp. 6030-6054. <https://www.govinfo.gov/content/pkg/FR-1978-02-10/pdf/FR-1978-02-10.pdf>

- Vickery, P. D. 2020. Grasshopper Sparrow (*Ammodramus savannarum*), version 1.0. In Birds of the World (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.graspa.01>. Retrieved from <https://birdsoftheworld.org/bow/species/graspa/cur/introduction>. Accessed 2025.
- Whitaker, J. O. 1996. Field guide to North American Mammals. National Audubon Society. Alfred A. Knopf, New York, 937p.

Appendix A – List of Preparers

Appendix A – List of Preparers

NEPA PROJECT MANAGEMENT

Jessica Wykoff-Carpenter (TVA)

Education: B.S., Geography/Environmental Studies
Project Role: NEPA Project Manager
Experience: 7 years experience in TVA land management and NEPA compliance

Dana Nelson (TVA)

Education: B.S., Environmental Science
Project Role: Environmental Program Manager
Experience: 18 years of environmental compliance; 7 years of preparation of environmental review documents

Brittany Kunkle (TVA)

Education: B.S., Environmental and Soil Science
Project Role: NEPA Project Manager
Experience: 7 years in Project Management, managing and performing NEPA analyses

Derek South (TVA)

Education: B.S., Professional Geography
Project Role: Project Lead
Experience: 18 years of experience in Land Management and Recreation

Drew Vankat (Copperhead Environmental Consulting, Inc.)

Education: M.S., Environmental Policy and Planning
Project Role: Project Manager, NEPA Coordinator
Experience: 19 years in NEPA compliance and environmental planning

Kim Rhodes (Copperhead Environmental Consulting, Inc.)

Education: B.S., Environmental Management and Policy
Project Role: Assistant Project Manager, Air Quality and Recreation Resource Specialist
Experience: 9 years of experience with environmental policy, including NEPA analysis and documentation

OTHER CONTRIBUTORS

Sara McLaughlin-Johnson (TVA)

Education: B.S., Wildlife & Fisheries Science
Project Role: Terrestrial Zoology, Threatened and Endangered Species
Experience: 12 years in Biological Compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals. 18 years in biological field studies.

Laura Vining (TVA)

Education: B.S., Wildlife & Fisheries Science
Project Role: Terrestrial Zoology, Threatened and Endangered Species
Experience: 10 years of experience with threatened and endangered species; 2 years experience with NEPA compliance for T&E Species

Tyler Parrott (TVA)

Education: B.S. Anthropology
Project Role: Cultural Resources
Experience: 16 years of experience in archaeological and cultural resource management

Chloe Sweda (TVA)

Education: B.S., Earth and Environmental Science
Project Role: Managed and Natural Areas
Experience: 7 years of experience in Natural Resource Management

Todd Amacker (TVA)

Education: M.S. Wildlife and Fisheries Science and B.S., Environmental Science
Project Role: Aquatic Ecology and Threatened and Endangered Species
Experience: 14 years working with terrestrial and aquatic endangered species, aquatic ecology, and fisheries research and management.

Carrie C. Williamson, P.E. (TN), CFM (TVA)

Education: M.S. Civil Engineering; B.S. Civil Engineering; Professional Engineer, Certified Floodplain Manager
Project Role: Floodplains and Flood Risk
Experience: 12 years in Floodplains and Flood Risk; 3 years in River Forecasting; 11 years in Compliance Monitoring.

Guy Thomas “Tom” Zimmerman, P.E. (TN) (TVA)

Education: M.S. Civil Engineering; B.S. Civil Engineering; Professional Engineer,
Project Role: Floodplains and Flood Risk
Experience: 18 years in water resources, civil, and environmental engineering, including 13 years River Management and 0.5 years Floodplains and Flood Risk

Callan Pierson (TVA)

Education: B.S., Civil Engineering
Project Role: Surface Water Quality
Experience: 7 years of experience in surface water regulatory compliance

David Nestor (TVA)

Education: M.S. Botany, B.S. Aquaculture, Fisheries, and Wildlife Biology
Project Role: Vegetation, Threatened and Endangered Plant Species
Experience: 26 years in Floristic Surveys; 21 years in ESA & NEPA Compliance.

Kelsie Eshler (Copperhead Environmental Consulting, Inc.)

Education: B.A., Environmental Earth Science
Project Role: Public Health and Safety and Solid/Hazardous Waste Resource Specialist
Experience: 7 years of experience performing environmental assessments and field surveys

Marty Marchaterre, JD (Copperhead Environmental Consulting, Inc.)

Education: J.D., Law; B.A., History and Political Science
Project Role: Geology Resource Specialist
Experience: 35 years of experience with environmental policy, including NEPA document preparation

Kari Buck, PhD (Copperhead Environmental Consulting, Inc.)

Education: Ph.D., Interdisciplinary Ecology
Project Role: Visual Resources and Socioeconomics Resource Specialist
Experience: 10 years of experience in NEPA analysis and documentation

Will Seiter (Copperhead Environmental Consulting, Inc.)

Education: B.S., Wildlife Management
Project Role: Land Use and Prime Farmland, Transportation and Navigation Resource Specialist
Experience: 10 years of experience performing environmental assessments and field surveys

Dakota Hunter, PWS, TN-QHP (Copperhead Environmental Consulting, Inc.)

Education: M.S., Biology
Project Role: Wetlands, Surface Water, Vegetation
Experience: 9 years of experience performing environmental assessments, field surveys, and compliance

Grace Garrity (Copperhead Environmental Consulting, Inc.)

Education: Master of Environment and Natural Resources (MENR)
Project Role: Natural and Managed Areas/ Noise and Vibration Resource Specialist
Experience: Early-career environmental planner with an educational specialization in environmental assessment

Chris McNeas (Copperhead Environmental Consulting, Inc.)

Education: B.S., Environmental Studies
Project Role: GIS
Experience: 19 years of experience with environmental policy, including NEPA document preparation

Barbara Dinkins (Dinkins Biological Consulting, LLC)

Education: M.S., Marine Biology; B.S., Biology
Project Role: Mussel Survey Project Manager – Mussel Survey and Report
Experience: 35 years of experience project management and mussel surveys

Appendix B – Symbols, Acronyms, and Abbreviations

AAC	Alabama Administrative Code
ACS	American Community Survey
ADEM	Alabama Department of Environmental Management
ALDCNR	Alabama Department of Conservation and Natural Resources
ALDOT	Alabama Department of Transportation
ALEA	Alabama Law Enforcement Agency
AST	Aboveground Storage Tank
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
CAA	Clean Air Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CWA	Clean Water Act
CY	Cubic Yards
dBA	A-weighted Decibels
dbh	Diameter at Breast Height
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FRP	Flood Risk Profile
FONSI	Finding of No Significant Impact
HAPs	Hazardous Air Pollutants
HUC	Hydrologic Unit Code

IPaC	Information for Planning and Consultation
LCWSA	Limestone County Water and Sewage Authority
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
PFOS	Perfluorooctane sulfonate
PM	Particulate Matter
QHP	Qualified Hydrologic Professional
RCRA	Resource Conservation and Recovery Act
RLMP	Reservoir Land Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SPCC	Spill Prevention, Control, and Countermeasure
TDEC	Tennessee Department of Environment and Conservation
TSCA	Toxic Substances Control Act
TVA	Tennessee Valley Authority
U&D	Utility and Drainage
UIC	Underground Injection Control
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
WOTUS	Waters of the U.S.
WWC	Wet Weather Conveyance
WQC	Water Quality Certification

Appendix C – Supplementary Vegetation Survey Information

Table C-1. Species Observed in Emergent Habitat Type.

Stratum	Scientific Name	Common Name	Habitat Type
Herb	<i>Acalypha rhomboidea</i>	Common three-seeded mercury	Emergent
Herb	<i>Amaranthus spinosus</i>	Spiny amaranth	Emergent
Herb	<i>Ambrosia psilostachya</i>	Perennial ragweed	Emergent
Herb	<i>Ambrosia trifida</i>	Giant ragweed	Emergent
Herb	<i>Andropogon hirsutior</i>	Hairy bluestem	Emergent
Herb	<i>Bidens bipinnata</i>	Spanish needles	Emergent
Herb	<i>Cardiospermum halicacabum</i>	Balloon vine	Emergent
Herb	<i>Chamaecrista nictitans</i> var. <i>nictitans</i>	Wild sensitive plant; sensitive partridge-pea	Emergent
Herb	<i>Chenopodium album</i>	Lamb's-quarters; pigweed	Emergent
Herb	<i>Clematis terniflora</i>	Sweet autumn clematis; Japanese clematis	Emergent
Herb	<i>Coleataenia anceps</i> ssp. <i>anceps</i>	Beaked panic grass	Emergent
Herb	<i>Conoclinium coelestinum</i>	Mistflower; ageratum	Emergent
Herb	<i>Croton glandulosus</i> var. <i>septentrionalis</i>	Tropic croton; tooth-leaved croton; sand croton	Emergent
Herb	<i>Datura stramonium</i>	Jimson-weed	Emergent
Herb	<i>Digitaria ciliaris</i>	Southern crabgrass	Emergent
Herb	<i>Echinochloa crusgalli</i> var. <i>crusgalli</i>	Barnyardgrass	Emergent
Herb	<i>Elymus canadensis</i> var. <i>canadensis</i>	Nodding wild rye	Emergent
Herb	<i>Erechtites hieraciifolius</i>	Fireweed; pilewort; American burnweed	Emergent
Herb	<i>Eupatorium serotinum</i>	Late thoroughwort	Emergent
Herb	<i>Ipomoea lacunosa</i>	Small white morning glory	Emergent
Herb	<i>Ipomoea purpurea</i>	Common morning glory	Emergent
Herb	<i>Jacquemontia tamnifolia</i>	Common Jacquemontia	Emergent
Herb	<i>Kummerowia stipulacea</i>	Korean-clover	Emergent
Herb	<i>Lamium amplexicaule</i>	Henbit; henbit dead-nettle	Emergent
Herb	<i>Lespedeza cuneata</i>	Sericea lespedeza	Emergent
Herb	<i>Liriodendron tulipifera</i>	Tulip-tree; tulip-poplar; yellow poplar	Emergent
Herb	<i>Ludwigia alternifolia</i>	Seedbox; alternate-leaved seedbox	Emergent

Stratum	Scientific Name	Common Name	Habitat Type
Herb	<i>Melanthera nivea</i>	Snow squarestem	Emergent
Herb	<i>Oxalis stricta</i>	Common yellow wood-sorrel	Emergent
Herb	<i>Panicum dichotomiflorum</i> var. <i>dichotomiflorum</i>	Spreading panic grass; fall panic grass	Emergent
Herb	<i>Passiflora incarnata</i>	Purple passionflower; maypop	Emergent
Herb	<i>Perilla frutescens</i>	Perilla; beefsteak plant	Emergent
Herb	<i>Persicaria lapathifolia</i>	Dock-leaf smartweed; pale smartweed	Emergent
Herb	<i>Persicaria longiseta</i>	Long-bristled smartweed; bristly lady's-thumb	Emergent
Herb	<i>Persicaria maculosa</i>	Lady's-thumb; spotted lady's-thumb	Emergent
Herb	<i>Persicaria pensylvanica</i>	Pennsylvania smartweed; pinkweed	Emergent
Herb	<i>Persicaria virginiana</i>	Virginia knotweed	Emergent
Herb	<i>Physalis angulata</i> var. <i>angulata</i>	Cut-leaf ground-cherry	Emergent
Herb	<i>Phytolacca americana</i> var. <i>americana</i>	Common pokeweed	Emergent
Herb	<i>Platanus occidentalis</i>	Sycamore; American sycamore	Emergent
Herb	<i>Senna obtusifolia</i>	Sicklepod; coffeeweed	Emergent
Herb	<i>Setaria parviflora</i>	Knotroot bristlegrass; knotroot foxtail	Emergent
Herb	<i>Sida spinosa</i>	Prickly sida; prickly mallow	Emergent
Herb	<i>Solidago altissima</i> var. <i>altissima</i>	Tall goldenrod	Emergent
Herb	<i>Sorghum halepense</i>	Johnson grass	Emergent
Herb	<i>Trifolium pratense</i>	Red clover	Emergent
Herb	<i>Verbena brasiliensis</i>	Brazilian vervain	Emergent
Herb	<i>Verbesina alternifolia</i>	Wingstem	Emergent
Herb	<i>Verbesina virginica</i> var. <i>virginica</i>	White crownbeard; frostweed	Emergent
Sapling/shrub	<i>Aralia spinosa</i>	Devil's walking-stick	Emergent
Sapling/shrub	<i>Carya cordiformis</i>	Bitternut hickory	Emergent
Sapling/shrub	<i>Hexasepalum teres</i>	Common buttonweed	Emergent
Sapling/shrub	<i>Pyrus calleryana</i>	Callery pear	Emergent
Sapling/shrub	<i>Rhus glabra</i>	Smooth sumac	Emergent
Sapling/shrub	<i>Robinia pseudoacacia</i>	Black locust	Emergent

Stratum	Scientific Name	Common Name	Habitat Type
Sapling/shrub	<i>Salix nigra</i>	Black willow	Emergent
Sapling/shrub	<i>Sambucus canadensis</i>	Common elderberry	Emergent
Sapling/shrub	<i>Sassafras albidum</i>	Sassafras	Emergent
Sapling/shrub	<i>Ulmus alata</i>	Winged elm	Emergent
Woody vine	<i>Muscadinia rotundifolia</i> var. <i>rotundifolia</i>	Muscadine grape; scuppernong	Emergent
Woody vine	<i>Rubus pensilvanicus</i>	Pennsylvania blackberry	Emergent

Table C-2. Species Observed in Forested/Scrub-Shrub Habitat Type.

Stratum	Scientific Name	Common Name	Habitat Type
Herb	<i>Asplenium platyneuron</i>	Ebony spleenwort	Forested/scrub-shrub
Herb	<i>Bidens aristosa</i>	Tickseed sunflower	Forested/scrub-shrub
Herb	<i>Bidens comosa</i>	Three-lobed beggar-ticks	Forested/scrub-shrub
Herb	<i>Boehmeria cylindrica</i>	False nettle	Forested/scrub-shrub
Herb	<i>Chasmanthium laxum</i>	Slender spikegrass	Forested/scrub-shrub
Herb	<i>Clematis terniflora</i>	Sweet autumn clematis; Japanese clematis	Forested/scrub-shrub
Herb	<i>Commelina communis</i>	Asiatic dayflower; common dayflower	Forested/scrub-shrub
Herb	<i>Commelina virginica</i>	Virginia dayflower	Forested/scrub-shrub
Herb	<i>Dichanthelium dichotomum</i> var. <i>dichotomum</i>	Small-fruited panic grass	Forested/scrub-shrub
Herb	<i>Eclipta prostrata</i>	False daisy	Forested/scrub-shrub
Herb	<i>Elymus virginicus</i> var. <i>virginicus</i>	Virginia wild rye	Forested/scrub-shrub
Herb	<i>Erechtites hieracifolius</i>	Fireweed	Forested/scrub-shrub
Herb	<i>Lycopus americanus</i>	American bugleweed	Forested/scrub-shrub
Herb	<i>Microstegium vimineum</i>	Japanese stiltgrass	Forested/scrub-shrub
Herb	<i>Perilla frutescens</i>	Perilla	Forested/scrub-shrub
Herb	<i>Persicaria maculosa</i>	Lady's-thumb; spotted lady's-thumb	Forested/scrub-shrub
Herb	<i>Persicaria virginiana</i>	Virginia knotweed; jumpseed	Forested/scrub-shrub
Herb	<i>Phytolacca americana</i> var. <i>americana</i>	Common pokeweed	Forested/scrub-shrub
Herb	<i>Setaria pumila</i> ssp. <i>pumila</i>	Yellow bristlegrass; yellow foxtail	Forested/scrub-shrub

Stratum	Scientific Name	Common Name	Habitat Type
Herb	<i>Sida spinosa</i>	Prickly sida	Forested/scrub-shrub
Herb	<i>Silphium asteriscus</i>	Rosin weed	Forested/scrub-shrub
Herb	<i>Smallanthus uvedalia</i>	Hairy leafcup	Forested/scrub-shrub
Herb	<i>Verbesina virginica</i> var. <i>virginica</i>	White crownbeard; frostweed	Forested/scrub-shrub
Sapling/shrub	<i>Aralia spinosa</i>	Devil's walking-stick	Forested/scrub-shrub
Sapling/shrub	<i>Asimina triloba</i>	Pawpaw	Forested/scrub-shrub
Sapling/shrub	<i>Celtis occidentalis</i>	Common hackberry	Forested/scrub-shrub
Sapling/shrub	<i>Cercis canadensis</i> var. <i>canadensis</i>	Eastern redbud	Forested/scrub-shrub
Sapling/shrub	<i>Cornus florida</i>	Flowering dogwood	Forested/scrub-shrub
Sapling/shrub	<i>Ilex vomitoria</i>	Yaupon	Forested/scrub-shrub
Sapling/shrub	<i>Juniperus virginiana</i>	Eastern redcedar	Forested/scrub-shrub
Sapling/shrub	<i>Ligustrum sinense</i>	Chinese privet	Forested/scrub-shrub
Sapling/shrub	<i>Ligustrum vulgare</i>	Common privet	Forested/scrub-shrub
Sapling/shrub	<i>Pyrus calleryana</i>	Callery pear; Bradford pear	Forested/scrub-shrub
Sapling/shrub	<i>Quercus falcata</i>	Southern red oak	Forested/scrub-shrub
Sapling/shrub	<i>Rhus copallinum</i> var. <i>copallinum</i>	Winged sumac	Forested/scrub-shrub
Sapling/shrub	<i>Robinia pseudoacacia</i>	Black locust	Forested/scrub-shrub
Sapling/shrub	<i>Rosa bracteata</i>	McCartney rose	Forested/scrub-shrub
Sapling/shrub	<i>Sassafras albidum</i>	Sassafras	Forested/scrub-shrub
Tree	<i>Acer negundo</i> var. <i>negundo</i>	Eastern boxelder	Forested/scrub-shrub
Tree	<i>Acer rubrum</i>	Red maple	Forested/scrub-shrub
Tree	<i>Acer saccharinum</i>	Silver maple	Forested/scrub-shrub
Tree	<i>Aesculus flava</i>	Yellow buckeye	Forested/scrub-shrub
Tree	<i>Carya cordiformis</i>	Bitternut hickory	Forested/scrub-shrub
Tree	<i>Carya tomentosa</i>	Mockernut hickory	Forested/scrub-shrub
Tree	<i>Celtis occidentalis</i>	Common hackberry	Forested/scrub-shrub
Tree	<i>Cercis canadensis</i> var. <i>canadensis</i>	Eastern redbud	Forested/scrub-shrub
Tree	<i>Fraxinus americana</i>	White ash	Forested/scrub-shrub
Tree	<i>Gleditsia triacanthos</i>	Honey locust	Forested/scrub-shrub
Tree	<i>Juglans nigra</i>	Black walnut	Forested/scrub-shrub

Stratum	Scientific Name	Common Name	Habitat Type
Tree	<i>Liriodendron tulipifera</i>	Tulip-tree	Forested/scrub-shrub
Tree	<i>Nyssa sylvatica</i>	Black gum	Forested/scrub-shrub
Tree	<i>Pinus taeda</i>	Loblolly pine	Forested/Scrub-shrub
Tree	<i>Prunus serotina</i> var. <i>serotina</i>	Black cherry	Forested/scrub-shrub
Tree	<i>Quercus nigra</i>	Water oak	Forested/scrub-shrub
Woody vine	<i>Berchemia scandens</i>	Supplejack	Forested/scrub-shrub
Woody vine	<i>Campsis radicans</i>	Trumpet-creeper	Forested/scrub-shrub
Woody vine	<i>Lonicera japonica</i>	Japanese honeysuckle	Forested/scrub-shrub
Woody vine	<i>Muscadinia rotundifolia</i> var. <i>rotundifolia</i>	Muscadine grape; scuppernong	Forested/scrub-shrub
Woody vine	<i>Parthenocissus quinquefolia</i>	Virginia-creeper	Forested/scrub-shrub
Woody vine	<i>Rubus pensilvanicus</i>	Pennsylvania blackberry	Forested/scrub-shrub
Woody vine	<i>Smilax bona-nox</i> var. <i>bona-nox</i>	Catbrier	Forested/scrub-shrub
Woody vine	<i>Smilax rotundifolia</i>	Common greenbrier; bullbrier; horsebrier	Forested/scrub-shrub
Woody vine	<i>Toxicodendron radicans</i> var. <i>negundo</i>	Poison ivy; midwestern poison ivy	Forested/scrub-shrub
Woody vine	<i>Toxicodendron radicans</i> var. <i>radicans</i>	Poison ivy	Forested/scrub-shrub

Appendix D – Supplementary Migratory Bird Habitat Information

Bobolink breeds in southern Canada, the northern midwest, and the northeastern United States (U.S.) It is typically found in lush grasslands or fields of clover, wheat, and alfalfa, and migrates through Alabama (Renfrew et al. 2020). Though nesting habitat is not available, suitable foraging habitat for bobolink is available within the Project Area.

Brown-headed nuthatch is found year-round through the southernmost portions of the Project Area. This species inhabits mature pine forests in the southeastern United States. They nest in tree cavities, often reusing old woodpecker holes or excavating their own nests in dead trees and may also use bark crevices or nest boxes in areas with limited natural sites (Slater et al. 2021). Suitable foraging and nesting habitat for brown-headed nuthatch does not occur in the Project Area.

Chimney swift can be found in the power service area during breeding season. This species is associated with human settlement and primarily uses chimneys as nesting habitat; when chimneys are unavailable, swifts may utilize tree cavities and other human-made structures, such as barns, silos, and vents made out of porous materials such as brick, stone, or mortar (Steeves et al. 2020). They forage over a variety of habitats, including open terrain, forests, and residential areas (Steeves et al. 2020). Suitable foraging habitat for chimney swift is available within the Project Area, while suitable nesting habitat is not available within the Project Area.

Field sparrows are found year-round in Alabama in brushy fields and forest edges. In spring, nests are often built on the ground in a clump of grass or at the base of a shrub, where they're less visible. Once grasses grow taller and bushes and trees begin to leaf out, field sparrows build subsequent nests a foot to as much as 10 feet off the ground. This species forages on grass seeds and insects (Carey et al. 2020). Suitable foraging and nesting habitat for field sparrow is present within the Project Area.

Grasshopper sparrow breeds throughout portions of the southeast, northeast, and midwestern U.S. This species inhabits undisturbed grasslands, prairies, and hayfields. They nest on the ground, weaving grassy domes hidden in dense vegetation, and forage for insects and seeds in shortgrass habitats (Vickery 2020). Suitable foraging and nesting habitat are present within the Project Area.

Kentucky warbler breeds in Alabama between mid-April and late August. During this period, Kentucky warblers use lowland hardwood forest, often near streams with a dense understory. Large tracts of forest habitat are required for nesting (over 1,200 acres), though gaps such as treefall gaps, trails, or small roads are important for creating a patchwork of shaded and well-lit areas. This species mostly forages along forest floors, though they will also feed on insects in the understory and lower parts of trees (McDonald 2020). Suitable foraging and nesting habitat are not present within the Project Area

Lesser yellowlegs breeds in Alaska and Canada. They migrate through Alabama using wet muddy areas and areas of shallow open water as stopover sites (Tibbitts and Moskoff 2020). Suitable foraging habitat for lesser yellowlegs is available within the

Project Area along the shoreline, while suitable nesting habitat does not exist in the Project Area.

Prairie warbler migrates to the southeastern U.S. to breed from May through July in shrubby habitats with open canopies, ranging from pine forests, scrub oak barrens, regenerating forests, and borders of forest and prairie (Nolan et al. 2020). This species places its nests in tangled parts of trees and shrubs, 3–7 feet from the ground. This species forages for insects, spiders, and snails in shrubby habitats. The Project Area is suitable for nesting and foraging prairie warblers.

Prothonotary warbler breeds and forages throughout most of the southeastern U.S. in bottomland forests, wooded swamps, and forests near lakes and streams between April and July. Nests are placed in holes created by woodpeckers and chickadees, in natural holes in standing dead trees, and in nest boxes (Petit 2020). Suitable nesting and foraging habitats are present in the Project Area.

Red-headed woodpeckers are present within the Project Area year-round. This species is a cavity nester of deciduous woodlands with oak or beech, groves of dead or dying trees, river bottoms, recent clearings, grasslands with scattered trees, forest edges, and roadsides. Foraging for insects and fruit occurs within that same deciduous habitat and breeding occurs from mid-May through mid-September (Frei et al. 2020). Suitable nesting and foraging habitat are present throughout the Project Area.

Rusty blackbird breeds in Alaska, Canada, and the northeastern U.S. Within their wintering range this species may use flooded woods, edges of ponds and streams, and adjacent fields (Avery 2020). No perennial streams or pond boundaries are present within the Project Area. The Project Area may contain marginally suitable winter habitat for rusty blackbird in wooded areas along the Reservoir.

Semipalmated sandpiper nests in coastal Arctic tundra, creating shallow scrapes lined with vegetation. They migrate along coastlines, gathering in vast flocks on mudflats and sandy beaches to forage (Hicklin and Gratto-Trevor 2020). Suitable nesting and foraging habitat is not present in the Project Area.

Wood thrush breeds throughout much of the southeastern U.S. This species can be found in mature deciduous and mixed forests, though breeding may also occur – somewhat less successfully, in fragmented forests and suburban parks. Ideal habitat includes trees over 50 feet tall, a moderate understory of saplings and shrubs, and an open forest floor with moist soil and decaying leaf litter with water nearby. In Alabama, nesting occurs from early May through late August and nests are placed in saplings or shrubs. Foraging occurs primarily on leaf-litter invertebrates and shrub fruits (Evans et al. 2020). Suitable nesting and foraging habitat are present in the Project Area.

Appendix E – TVA Bat Strategy Project Review Form

Project Review Form - TVA Bat Strategy (04/2025)

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

Project Name: Browns Ferry Marina 26a Permit Date: 7/2/2025
 Contact(s): Amanda Pagels/Jessica Wykoff-Carpenter CEC#: Project ID: 46360
 Project Location (City, County, State): Wheeler Reservoir, Limestone County, Alabama

Project Description:

TVA is considering granting a 30-year commercial recreation easement and issuing a Section 26a permit to the applicant to construct and operate the proposed Browns Ferry Marina and associated amenities. The marina itself would be 16 acres and house approximately 290 boat slips. The onshore activities would include a dry storage facility, ship store and parking area. Land-based activities occur on TVA flowage easement and private property, while water-based activities occur on TVA owned land.

SECTION 1: PROJECT INFORMATION - ACTION AND ACTIVITIES

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

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

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

TABLE 1. Activities with no effect to bats. Conservation measures & completion of bat strategy project review form NOT required.		
☐ 1. Loans and/or grant awards	☐ 8. Sale of TVA property	☐ 19. Site-specific enhancements in streams and reservoirs for aquatic animals
☐ 2. Purchase of property	☐ 9. Lease of TVA property	☐ 20. Nesting platforms
☐ 3. Purchase of equipment for industrial facilities	☐ 10. Deed modification associated with TVA rights or TVA property	☐ 41. Minor water-based structures (this does not include boat docks, boat slips or piers)
☐ 4. Environmental education	☐ 11. Abandonment of TVA retained rights	☐ 42. Internal renovation or internal expansion of an existing facility
☐ 5. Transfer of ROW easement and/or ROW equipment	☐ 12. Sufferance agreement	☐ 43. Replacement or removal of TL poles
☐ 6. Property and/or equipment transfer	☐ 13. Engineering or environmental planning or studies	☐ 44. Conductor and overhead ground wire installation and replacement
☐ 7. Easement on TVA property	☒ 14. Harbor limits delineation	☐ 49. Non-navigable houseboats

Project Review Form - TVA Bat Strategy (04/2025)

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

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

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

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

STEP 3) Project includes one or more activities in Table 3?

☒ YES (Go to Step 4)☐ NO (Go to Step 12)

Project Review Form - TVA Bat Strategy (04/2025)

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

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

STATE	Winter Hibernation	Winter Torpor	Spring Staging, Fall Swarming	Pup Season	Summer Gap	Year
VA, TN, NC	☐ Nov 16 - Mar 31	☒ N/A	☐ Apr 1 - May 14, ☐ Aug 16 - Nov 15	☐ May 15 - Jul 31	☐ Aug 1 - Aug 15	☐
KY	☐ Nov 16 - Mar 31	☒ N/A	☐ Apr 1 - May 14, ☐ Aug 16 - Nov 15	☐ May 15 - Jul 31	☐ Aug 1 - Aug 15	☐
AL, GA	☐ Nov 16 - Mar 14	☒ N/A	☐ Mar 15 - Apr 30, ☐ Sept 1 - Nov 15	☐ May 15 - Jul 31	☐ Aug 1 - Aug 30	☐
MS (Hibernation Range)*	☐	☐	☐	☐	☐	☐
MS (Year-round Range)*	☒ N/A	☐ Dec 15 - Feb 15	☒ N/A	☐ May 1 - Jul 15	☐ Feb 16 - Apr 30, ☐ Jul 16 - Dec 14	☐

*MS (Year-round Range) = Attala, Wintson, Noxubee, Leake, Neshoba, Kemper, Rankin, Scott, and Newton Counties, Mississippi

*MS (Hibernation Range) = All MS counties in the TVA Region excluding those listed above in the Year-round Range

- d) Will the project involve vegetation piling/burning? ☒ NO (SSPC4/SHF7/SHF8 do not apply)
☐ YES (SSPC4/SHF7/SHF8 applies, subject to review of bat records)
- e) If tree removal (activity 33 or 34), estimated amount: ☒ ac ☐ trees ☐ N/A

STATE	Winter Hibernation	Winter Torpor	Spring Staging, Fall Swarming	Pup Season	Summer Gap	Year
VA, TN, NC	☐ Nov 16 - Mar 31	☒ N/A	☐ Apr 1 - May 14, ☐ Aug 16 - Nov 15	☐ May 15 - Jul 31	☐ Aug 1 - Aug 15	☐
KY	☐ Nov 16 - Mar 31	☒ N/A	☐ Apr 1 - May 14, ☐ Aug 16 - Nov 15	☐ May 15 - Jul 31	☐ Aug 1 - Aug 15	☐
AL, GA	☐ Nov 16 - Mar 14	☒ N/A	☐ Mar 15 - Apr 30, ☐ Sept 1 - Nov 15	☐ May 15 - Jul 31	☐ Aug 1 - Aug 30	☐
MS (Hibernation Range)*	☐	☐	☐	☐	☐	☐
MS (Year-round Range)*	☒ N/A	☐ Dec 15 - Feb 15	☒ N/A	☐ May 1 - Jul 15	☐ Feb 16 - Apr 30, ☐ Jul 16 - Dec 14	☐

*MS (Year-round Range) = Attala, Wintson, Noxubee, Leake, Neshoba, Kemper, Rankin, Scott, and Newton Counties, Mississippi

*MS (Hibernation Range) = All MS counties in the TVA Region excluding those listed above in the Year-round Range

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

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

SECTION 2: REVIEW OF BAT RECORDS (applies to projects with activities from Table 3 ONLY)

STEP 5) Review of bat/cave records conducted by Heritage Reviewer? ☐ YES ☒ NO (Go to Step 12)

Info below completed by: ☐ Heritage Reviewer (name) Date

☒ Terrestrial Zoologist (name) Sara McLaughlin-Johnson Date 7/2/25

Species	None	Within a Distance Of:	Cave/Winter Roost	Capture	Summer Roost / Roost Tree	Within the County
Gray Bat	☐	☐ 3 mi	☒	☐	☒ N/A	☒
Indiana Bat	☒	☐ 10 mi	☐	☐	☐	☒
Northern Long-Eared Bat	☒	☐ 5 mi	☐	☐	☐	☐
Tricolored Bat	☐	☐ 3 mi	☒	☒	☐	☒
Virginia Big-Eared Bat	☒	☐ 6 mi	☐	☐	☐	☐

Amount of SUITABLE habitat to be removed/burned (may differ from STEP 4e): 0.18 ☒ ac ☐ trees* ☐ N/A

Project Review Form - TVA Bat Strategy (04/2025)

STEP 6) Provide any additional notes resulting from Heritage Reviewer records review in Notes box below then
 Go to Step 12

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

TVA does not have records of Indiana bat in our Regional Natural Heritage Database within 10 miles of Limestone, however, the IFA report requires consideration of Indiana bat from this location. Tree removal occurs on TVA flowage easement and private property where TVA does not have control or responsibility over EGA compliance. TVA has informed the applicant that to avoid potential direct adverse impacts to listed bats species, tree removal should occur during the extended winter clearing window (outside of swarming habitat) between October 1 and March 14 of any year. TVA does not issue or track take on these land types.

STEPS 7-11 To be Completed by Terrestrial Zoologist (if warranted):

STEP 7) Project will involve removal of suitable trees within documented habitat? ☐ YES ☒ NO

Hibernation Zone	Within Swarming Habitat	Near Post-WNS Captures	Near Post-WNS Summer Roosts
Indiana Bat	< 10 mi	< 5 mi	< 2.5 mi
Northern Long-Eared Bat	< 5 mi	< 1.5 mi	< 0.25 mi
Tricolored Bat	< 3 mi	< 1.5 mi	< 0.25 mi

Year-Round Zone	Near Post-WNS Captures	Near Post-WNS Summer Roost Trees
Northern Long-Eared Bat	< 1.5 mi	< 0.25 mi
Tricolored Bat	< 1.5 mi	< 0.25 mi

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

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

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

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

Species	Total Suitable Habitat to be Removed	Winter Season Removal	Winter Season Take Remaining*	Volant Season Removal	Volant Season Take Remaining*	Pup Season Removal	Pup Season Take Remaining*
Indiana Bat	0.18	0.18	982.94	0	125.74	0	127.77
NLEB	0	0	1106.18	0	128.75	0	111.25
Tricolored Bat	0.41	0.41	N/A	0	N/A	0	N/A

Take Estimates are for TVA Action

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

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

SECTION 3: REQUIRED CONSERVATION MEASURES

STEP 12) Review Conservation Measures in Table 4 and ensure those selected are relevant to the project. If not, manually override and uncheck irrelevant measures, and explain why in ADDITIONAL NOTES below Table 4.

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

☐ NO (Go to Step 13)

☒ YES (STOP HERE; Submit for Terrestrial Zoology Review. Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date", and submit with project information).

Project Review Form - TVA Bat Strategy (04/2025)

Manual Override

Sara McLaughlin-Johnson

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

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

Check If Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description
☒	15, 16, 17, 18, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 45, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96	NV1 - Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
☐	16, 25, 26, 37, 47, 52, 62, 63, 64, 65, 70, 71, 73, 78, 80, 82, 83, 86, 91	NV2 - Drilling, blasting, or any other activity that involves continuous noise (i.e., longer than 24 hours) disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) within a 0.5 mile radius of documented winter and/or summer roosts (caves, trees, unconventional roosts) will be conducted when bats are absent from roost sites.
☐	16, 26, 62	NV3 - Drilling or blasting within a 0.5 mile radius of documented cave (or unconventional) roosts will be conducted in a manner that will not compromise the structural integrity or alter the karst hydrology of the roost site.
☐	16, 26, 62	NV4 - Drilling or blasting within 0.5 miles of a documented roost site (cave, tree, unconventional roost) that needs to occur when bats are present will first involve development of project-specific avoidance or minimization measures in coordination with the USFWS.
☐	15, 26, 92	HP1 - Site-specific cases in which potential impact of human presence is heightened (e.g., conducting environmental or cultural surveys within a roost) will be closely coordinated with staff bat biologists to avoid/minimize impacts below any potential adverse effect. Any take from these activities would be covered by TVA's Section 10 permit.
☐	15, 26, 92	HP2 - Entry into roosts known to be occupied by federally listed bats will be communicated to the USFWS when impacts to bats may occur if not otherwise communicated (i.e., via annual monitoring reports per TVA's Section 10 permit). Any take from these activities would be covered by TVA's section 10 permit.
☐	23	SHF1 - Fire breaks will be used to define and limit burn scope.
☐	17, 23, 34	SHF2 - Site-specific conditions (e.g., acres burned, transport wind speed, mixing heights) will be considered to ensure smoke is limited and adequately dispersed away from caves so that smoke does not enter cave or cave-like structures.
☐	23	SHF3 - Acreage will be divided into smaller units to keep amount of smoke at any one time or location to a minimum and reduce risk for smoke to enter caves.
☐	17, 23, 34	SHF4 - If burns need to be conducted when there is some potential for bats to present on the landscape and more likely to enter torpor due to colder temperatures, burns will only be conducted if the air temperature is 55° or greater, and preferably 60° or greater.
☐	23	SHF5 - Fire breaks will be plowed immediately prior to burning, will be plowed as shallow as possible, and will be kept to minimum to minimize sediment.
☐	23	SHF6 - Tractor-constructed fire lines will be established greater than 200 feet from cave entrances . Existing logging roads and skid trails will be used where feasible to minimize ground disturbance and generation of loose sediment.
☐	17, 22, 23, 32, 33, 34, 35, 36	SHF7 - Burning will only occur if site specific conditions (e.g. acres burned, transport wind speed, mixing heights) can be modified to ensure that smoke is adequately dispersed away from caves or cave-like structures. This applies to prescribed burns and burn piles of woody vegetation.
☐	17, 22, 23, 32, 33, 34, 35, 36	SHF8 - Brush piles will be burned a minimum of 0.25 mile from documented, known, or obvious caves or cave entrances and otherwise in the center of newly established ROW when proximity to caves on private land is unknown.

Project Review Form - TVA Bat Strategy (04/2025)

17, 23, 34	SHF9 - A 0.25 mile buffer of undisturbed forest will be maintained around documented or known gray bat maternity and hibernation colony sites, documented or known Virginia big-eared bat maternity, bachelor, or winter colony sites, Indiana bat hibernation sites, northern long-eared bat hibernation sites, and tricolored bat hibernation sites. Prohibited activities within this buffer include cutting of overstory vegetation, construction of roads, trails or wildlife openings, and prescribed burning. Exceptions may be made for maintenance of existing roads and existing ROW, or where it is determined that the activity is compatible with species conservation and recovery (e.g., removal of invasive species).
33, 34	TR1* - Removal of potentially suitable summer roosting habitat during time of potential occupancy has been quantified and minimized programmatically. TVA will track and document alignment of activities that include tree removal (i.e., hazard trees, mechanical vegetation removal) with the programmatic quantitative cumulative estimate of seasonal removal of potential summer roost trees for Indiana bat and northern long-eared bat. Project will therefore communicate completion of tree removal to appropriate TVA staff.
33, 34	TR2 - Removal of suitable summer roosting habitat within 0.5 mile of Priority 1/Priority 2 Indiana bat hibernacula, 0.25 mile of Priority 3/Priority 4 Indiana bat hibernacula, 0.25 miles of any northern long-eared bat hibernacula, or 0.25 miles of any tricolored bat hibernacula will be prohibited, regardless of season, with very few exceptions (e.g., vegetation maintenance of TL ROW immediately adjacent to a known cave).
33, 34	TR3* - Removal of suitable summer roosting habitat within documented habitat (i.e., within 10 miles, 5 miles, and 3 miles of documented Indiana bat, northern long-eared bat, and tricolored bat hibernacula, respectively; within 5 miles, 1.5 miles, and 1.5 miles of documented post-white-nose syndrome Indiana bat, northern long-eared bat, and tricolored bat capture sites, respectively; and within 2.5 miles, 0.25, and 0.25 miles of documented Indiana bat northern long-eared bat, and tricolored bat post-white-nose syndrome summer roost trees, respectively) will be tracked, documented, and included in annual reporting.
33, 34	TR4* - Removal of suitable summer roosting habitat within potential habitat for Indiana bat, northern long-eared bat, and tricolored bat will be tracked, documented, and included in annual reporting. Project will therefore communicate completion of tree removal to appropriate TVA staff.
33, 34	TR5* - In areas where northern long-eared bat and tricolored bat remain active year-round, continuing to roost in trees, tree removal within documented habitat (1.5 miles of northern long-eared bat and tricolored bat post-white nose syndrome captures sites, and 0.25 miles of northern long-eared bat and tricolored bat post-white-nose syndrome roosts) will be tracked, documented, and included in annual reporting.
33, 34	TR6 - Removal of any trees within 0.25 miles of a documented Indiana bat maternity roost tree, or post-white nose syndrome northern long-eared bat or tricolored bat maternity summer roost tree or the roost tree itself during pup season, will first require a site-specific review and assessment. If pups are present in trees to be removed (determined either by mist netting and assessment of pregnant, lactating, or post lactating adult females, or by visual assessment of trees following evening emergence counts for Indiana bats and northern long-eared bats), TVA will coordinate with the USFWS to determine how to avoid direct and minimize indirect impacts to pups to the extent possible. This may include establishment of artificial roosts before loss of roost tree(s).
33, 34	TR7 - In areas where northern long-eared bat and tricolored bat remain active year-round, continuing to roost in trees, tree removal within 0.25 miles of documented post-white-nose syndrome northern long-eared bat or tricolored bat roosts during winter torpor TVA will coordinate with the USFWS to determine how to avoid direct and minimize indirect impacts to pups to the extent possible.
33, 34	TR8 (Existing Transmission ROW only) - Tree removal within 100 feet of existing transmission ROWs will be limited to hazard trees. On or adjacent to TLs, a hazard tree is a tree that is tall enough to fall within an unsafe distance of TLs under maximum sag and blowout conditions and/or are also dead, diseased, dying, and/or leaning. Hazard tree removal includes removal of trees that 1) currently are tall enough to threaten the integrity of operation and maintenance of a TL or 2) have the ability in the future to threaten the integrity of operation and maintenance of a TL.
33, 34	TR9 (TVA Reservoir Land only) - Requests for removal of hazard trees on or adjacent to TVA reservoir land will be inspected by staff knowledgeable in identifying hazard trees per International Society of Arboriculture and TVA's checklist for hazard trees. Approval will be limited to trees with a defined target.
33, 34	TR10 - If removal of suitable summer roosting habitat occurs when bats are present on the landscape, a funding contribution (based on amount of habitat removed) towards future conservation and recovery efforts for federally listed bats would be carried out. Project can consider seasonal bat presence/absence surveys (mist netting or emergence counts) that allow for positive detections without resulting in increased constraints in cost and project schedule. This will enable TVA to contribute to increased knowledge of bat presence on the landscape while carrying out TVA's broad mission and responsibilities.

Project Review Form - TVA Bat Strategy (04/2025)

	69, 77, 89, 91	AR1 - Projects that involve structural modification or demolition of buildings, bridges, and potentially suitable box culverts, will require assessment to determine if structure has characteristics that make it a potentially suitable unconventional bat roost. If so a survey to determine if bats may be present will be conducted following the USFWS Survey Guidelines. Structural assessment will include: ○ Visual check that includes an exhaustive internal/external inspection of building to look for evidence of bats (e.g., bat droppings, roost entrance/exit holes); this can be done at any time of year, preferably when bats are active. ○ Where accessible and health and safety considerations allow, a survey of roof space for evidence of bats (e.g., droppings, scratch marks, staining, sightings), noting relevant characteristics of internal features that provide potential access points and roosting opportunities. Suitable characteristic may include: gaps between tiles and roof lining, access points via eaves, gaps between timbers or around mortise joints, gaps around top and gable end walls, gaps within roof walling or around tops of chimney breasts, and clean ridge beams. ○ Features with high-medium likelihood of harboring bats but cannot be checked visually include soffits, cavity walls, space between roof covering and roof lining. ○ Applies to culverts that are at least 23 feet in length with one or more of the following characteristics that make the culvert potentially suitable: • Minimum culvert entrance height/diameter 3 feet • Openings protected from high winds • Not susceptible to enough flooding that the remaining unflooded space would be less than 3 feet. • Inner areas relatively dark with roughened walls or ceilings (this may include corrugated metal culverts with rusting walls) • Crevices, weep holes, imperfections, or swallow nests ○ Bridge survey protocols will be adapted from the latest USFWS Survey Guidelines. ○ Bat surveys usually are NOT needed in the following circumstances: • Domestic garages /sheds with no enclosed roof space (with no ceiling) • Modern flat-roofed buildings • Metal framed and roofed buildings • Buildings where roof space is regularly used (e.g., attic space converted to living space, living space open to rafters) or where all roof space is lit from skylights or windows. Large/tall roof spaces may be dark enough at apex to provide roost space
	69, 77, 89, 91	AR2 - Additional bat P/A surveys (e.g., emergence counts) conducted if warranted (i.e., when AR1 indicates that bats may be present).
	91	AR3 - Bridge survey protocols will be implemented, either by permittee (e.g., state DOT biologists) or qualified personnel. If a bridge is determined to be in use as an unconventional roost per the latest USFWS Guidelines, subsequent protocols will be implemented.
	69, 89	AR4 - Removal of buildings with suitable roost characteristics within six miles of known or presumed occupied roosts for Virginia big-eared bat would occur between Nov 16 and Mar 31. Buildings may be removed other times of the year once a bat biologist evaluates a buildings' potential to serve as roosting habitat and determines that this species is not present and/or is not using structure(s).

Project Review Form - TVA Bat Strategy (04/2025)

	16, 17, 18, 21, 22, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 56, 61, 62, 63, 64, 65, 67, 69, 84, 89	SSPC1 (Transmission only) - Transmission actions and activities will continue to Implement A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities. This focuses on control of sediment and pollutants, including herbicides. Following are key measures: ○ BMPs minimize erosion and prevent/control water pollution in accordance with state-specific construction storm water permits. BMPs are designed to keep soil in place and aid in reducing risk of other pollutants reaching surface waters, wetlands and ground water. BMPs will undertake the following principles: • Plan clearing, grading, and construction to minimize area and duration of soil exposure. • Maintain existing vegetation wherever and whenever possible. • Minimize disturbance of natural contours and drains. • As much as practicable, operate on dry soils when they are least susceptible to structural damage and erosion. • Limit vehicular and equipment traffic in disturbed areas. Keep equipment paths dispersed or designate single traffic flow paths with appropriate road BMPs to manage runoff. • Divert runoff away from disturbed areas. • Provide for dispersal of surface flow that carries sediment into undisturbed surface zones with high infiltration capacity and ground cover conditions. • Prepare drainage ways and outlets to handle concentrated/increased runoff. • Minimize length and steepness of slopes. Interrupt long slopes frequently. • Keep runoff velocities low and/or check flows. • Trap sediment on-site. • Inspect/maintain control measures regularly & after significant rain. • Re-vegetate and mulch disturbed areas as soon as practical. ○ Specific guidelines regarding sensitive resources and buffer zones: • Extra precaution (wider buffers) within SMZs is taken to protect stream banks and water quality for streams, springs, sinkholes, and surrounding habitat. • BMPs are implemented to protect and enhance wetlands. Select use of equipment and seasonal clearing is conducted when needed for rare plants; construction activities are restricted in areas with identified rare plants. • Standard requirements exist to avoid adverse impacts to caves, protected animals, unique/important habitat (e.g., cave buffers, restricted herbicide use, seasonal clearing of suitable habitat).
	16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 52, 53, 54, 55, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 70, 71, 73, 76, 77, 78, 80, 81, 82, 83, 86, 87, 88, 89, 90	SSPC2 - Operations involving chemical/fuel storage or resupply and vehicle servicing will be handled outside of riparian zones (streamside management zones) in a manner to prevent these items from reaching a watercourse. Earthen berms or other effective means are installed to protect stream channel from direct surface runoff. Servicing will be done with care to avoid leakage, spillage, and subsequent stream, wetland, or ground water contamination. Oil waste, filters, other litter will be collected and disposed of properly. Equipment servicing and chemical/fuel storage will be limited to locations greater than 300-ft from sinkholes, fissures, or areas draining into known sinkholes, fissures, or other karst features.

Project Review Form - TVA Bat Strategy (04/2025)

16, 17, 18, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 67, 69, 70, 71, 73, 76, 77, 80, 81, 82, 83, 84, 86, 87, 88, 89, 90, 91		SSPC3 (Power Plants only) - Power Plant actions and activities will continue to implement standard environmental practices. These include: ○ Best Management Practices (BMPs) in accordance with regulations: • Ensure proper disposal of waste, ex: used rags, used oil, empty containers, general trash, dependent on plant policy • Maintain every site with well-equipped spill response kits, included in some heavy equipment • Conduct Quarterly Internal Environmental Field Assessments at each sight • Every project must have an approved work package that contains an environmental checklist that is approved by sight Environmental Health & Safety consultant. • When refueling, vehicle is positioned as close to pump as possible to prevent drips, and overfilling of tank. Hose and nozzle are held in a vertical position to prevent spillage ○ Construction Site Protection Methods • Sediment basin for runoff - used to trap sediments and temporarily detain runoff on larger construction sites • Storm drain protection device • Check dam to help slow down silt flow • Silt fencing to reduce sediment movement ○ Storm Water Pollution Prevention (SWPP) Pollution Control Strategies • Minimize storm water contact with disturbed soils at construction site • Protect disturbed soil areas from erosion • Minimize sediment in storm water before discharge • Prevent storm water contact with other pollutants • Construction sites also may be required to have a storm water permit, depending on size of land disturbance (>1ac) ○ Every site has a Spill Prevention and Control Countermeasures (SPCC) Plan and requires training. Several hundred pieces of equipment often managed at the same time on power generation properties. Goal is to • Minimize fuel and chemical use Ensure proper disposal of waste, ex: used rags, used oil, empty containers, general trash, dependent on plant policy • Maintain every site with well-equipped spill response kits, included in some heavy equipment • Conduct Quarterly Internal Environmental Field Assessments at each sight • Every project must have an approved work package that contains an environmental checklist that is approved by sight Environmental Health & Safety consultant. • When refueling, vehicle is positioned as close to pump as possible to prevent drips, and overfilling of tank. Hose and nozzle are held in a vertical position to prevent spillage ○ Construction Site Protection Methods • Sediment basin for runoff - used to trap sediments and temporarily detain runoff on larger construction sites • Storm drain protection device • Check dam to help slow down silt flow • Silt fencing to reduce sediment movement ○ Storm Water Pollution Prevention (SWPP) Pollution Control Strategies • Minimize storm water contact with disturbed soils at construction site • Protect disturbed soil areas from erosion • Minimize sediment in storm water before discharge • Prevent storm water contact with other pollutants • Construction sites also may be required to have a storm water permit, depending on size of land disturbance (>1ac) ○ Every site has a Spill Prevention and Control Countermeasures (SPCC) Plan and requires training. Several hundred pieces of equipment often managed at the same time on power generation properties. Goal is to minimize fuel and chemical use
17, 22, 32, 33, 34, 35, 36		SSPC4 (Transmission only) - Woody vegetation burn piles associated with transmission construction will be placed in the center of newly established ROWs to minimize wash into any nearby undocumented caves that might be on adjacent private property and thus outside the scope of field survey for confirmation. Brush piles will be burned a minimum of 0.25 miles from documented caves and otherwise in the center of newly established ROW when proximity to caves on private land is unknown.

Project Review Form - TVA Bat Strategy (04/2025)

■	17, 18, 21, 22, 24, 25, 26, 30, 31, 33, 34, 35, 36, 40, 46, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 66, 67, 68, 69, 70, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, 91, 93, 95, 96	SSPC5 (26a, Solar, Economic Development only) - Section 26a permits and contracts associated with solar projects, economic development projects or land use projects include standards and conditions that include standard BMPs for sediment and contaminants as well as measures to avoid or minimize impacts to sensitive species or other resources consistent with applicable laws and Executive Orders.
■	21, 54	SSPC6 - Herbicide use will be avoided within 200 ft of portals associated with caves, cave collapse areas, mines and sinkholes are capable of supporting cave-associated species. Herbicides are not applied to surface water or wetlands unless specifically labeled for aquatic use. Filter and buffer strips will conform at least to federal and state regulations and label requirements.
■	17, 21, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 54, 55	SSPC7 - Clearing of vegetation within a 200-ft radius of documented caves will be limited to hand or small machinery clearing only (e.g., chainsaws, bush-hog, mowers). This will protect potential recharge areas of cave streams and other karst features that are connected hydrologically to caves.
■	16, 26, 36, 37, 38, 39, 48, 50, 52, 59, 60, 62, 66, 67, 69, 72, 75, 77, 78, 79, 86	L1 - Direct temporary lighting away from suitable habitat during the active season.
■	16, 26, 36, 37, 38, 39, 48, 50, 52, 59, 60, 62, 66, 67, 69, 72, 75, 77, 78, 79, 86	L2 - Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

¹ Bats addressed in consultation (04/2018) and updates (05/2023 and 10/2024), which includes gray bat (listed in 1976), Indiana bat (listed in 1967), northern long-eared bat (listed in 2015), tricolored bat (anticipated listing in the future), and Virginia big-eared bat (listed in 1979).

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

TVA does not have records of Indiana bat in our Regional Natural Heritage Database within 10 miles of Limestone, however, the IPaC report requires consideration of Indiana bat from this location. Tree removal occurs on TVA flowage easement and private property where TVA does not have control or responsibility over ESA compliance. TVA has informed the applicant that to avoid potential direct adverse impacts to listed bats species, tree removal should occur during the extended winter clearing window (outside of swarming habitat) between October 1 and March 14 of any year. TVA does not issue or track take on flowage easement or private property (above the 556' elevation contour). These conservation measures are recommendations on flowage easement and private property but required on TVA owned land below the 556' elevation contour.

Project Review Form - TVA Bat Strategy (04/2025)

STEP 13) Save completed form (Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date") in project environmental documentation (e.g. CEC, Appendix to EA) AND send a copy of form to batstrategy@tva.gov
Submission of this form indicates that Project Lead/Applicant:

Amanda Pagels/Jessica Wykoff-Carpenter (name) is (or will be made) aware of the requirements below.

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

For Use by Terrestrial Zoologist Only

☐ For projects that require use of Take and/or contribution to TVA's Bat Conservation Fund, Terrestrial Zoologist acknowledges that Project Lead/Contact has been informed that project will result in use of Incidental Take ac ☐ trees and that use of Take will require \$ 0.00 contribution to TVA's Conservation Fund upon completion of activity (amount entered should be \$0 if cleared in winter).

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

Terrestrial Zoologist Acknowledgment. Finalize and Print to Non-Editable PDF

Appendix F – Agency Consultation and Coordination



400 West Summit Hill Drive, Knoxville, Tennessee 37902

May 12, 2026

Ms. Lee Anne Hewett
Deputy State Historic Preservation Officer
Alabama Historical Commission
468 South Perry Street
Montgomery, Alabama 36130-0900

Dear Ms. Hewett:

TENNESSEE VALLEY AUTHORITY (TVA), SECTION 26A PERMIT, BROWNS FERRY MARINA LLC, WHEELER RESERVOIR, LIMESTONE COUNTY, ALABAMA, (34.69262, -87.08755) (TVA TRACKING NUMBER – CRMS 149785802518)

TVA proposes to issue a Section 26a permit and 30-year commercial recreation easement to Browns Ferry Marina LLC (the Applicant) for the construction of a new marina. The proposed project footprint is located south of Nuclear Plant Road in Athens, Alabama on Wheeler Reservoir in Limestone County (Figure 1). The project would be located on the right descending bank of the Tennessee River near river mile 296. The applicant proposes: approximately 290 public boat slips across seven docks, rubble breakwater and wave attenuators for marina protection, retaining wall within land based area of marina, riprap stabilization along the shoreline within the harbor limits, travel lift, loading dock, fueling area, marina store, dry storage facilities, parking lot, and underground utilities (Figure 2). Additionally, the applicant proposes to dredge approximately 6,600 cubic yards of sediment within the proposed harbor limits that would be disposed of on private property approximately 0.25 miles north of the land-based facilities (see Figures 1 and 2). The proposed harbor limits and facilities would be located on TVA-owned land but also include private property under TVA's flowage easement jurisdiction and private property.

TVA finds that the proposed project constitutes an undertaking (as defined at 36 CFR § 800.16 (y)) that has the potential to cause effects to historic properties. TVA recommends the area of potential effects (APE) to be the area of proposed ground disturbance, where physical effects could occur as well as areas within a half mile radius of the project within which the project would be visible, where visual effects on above ground resources could occur.

Background research indicates that TVA conducted an archaeological survey of the project shoreline in 1990 as part of a Section 110 inventory of Wheeler Reservoir (Shaw 2000). Portions of the project footprint and shoreline were surveyed again in 1997 for a proposed linear transportation project (Gage 1997). TVA's shoreline inventory resulted in the identification of archaeological site 1LI268 (see Figure 1). At the time of discovery, the site was described as consisting of a moderate density precontact scatter extending above and below the shoreline. Site LI268 was revisited in 1997 and archaeologists noted shoreline erosion had severely impacted the site. Records also noted the presence of a shell midden approximately one

meter below the ground surface that was visible in the cut bank. Based on the cultural material identified Archaic and Middle Woodland components are present. Due to the presence of the shell midden and potential for intact subsurface deposits site 1LI268 was recommended as potentially eligible for listing in the National Register of Historic Places (NRHP).

The Phase I survey conducted in 1997 for a proposed transportation route resulted in the identification of archaeological site 1LI448 located approximately 110 meters north of the shoreline (see Figure 1). Recorders noted that the site consists of a sparse to moderate density Archaic scatter distributed across an eroded ridgetop. Historic and modern use of the land have resulted in extensive modification and disturbance to site 1LI448. Due to the degree of disturbance and lack of stratigraphic integrity the site was recommended as not eligible for listing in the NRHP.

Alabama's Cultural Resources Online Database (ACROD) and TVA records indicate that there are no additional investigations documented within the project footprint after the survey in 1997. Due to the presence of undetermined archaeological sites within the footprint and the potential for viewshed effects, TVA determined that a Phase I survey was necessary. TVA retained New South Associates (NSA) to conduct a Phase I survey of the APE which included systematic shovel testing of approximately 5-acres of land where direct effects could occur, as well as an architectural survey of above ground resources within a half-mile and visible to the footprint. A detailed discussion of the APE, methods used, and the results of the NSA Phase I survey are provided in a linked report titled, [Phase I Cultural Resources Survey of the Proposed Browns Ferry Marina, Limestone County, Alabama](#).

NSA did not identify any above ground architectural resources within the APE or new archaeological sites within the footprint. Background research on the area of the proposed harbor limits within the reservoir indicates that inundation from the formation of Wheeler Reservoir likely altered the lakebed by a process of erosion, wave action, and redistribution of sediments. Previously recorded archaeological sites 1LI268 and 1LI448 were revisited during the survey. Based on the evidence of extensive disturbance and the lack of stratigraphic integrity in site 1LI448 NSA recommends no additional work and that the site is not eligible for inclusion in the NRHP. Site 1LI268 yielded results indicating that significant erosion has occurred since 1997 but there are still portions above the shoreline that contain intact stratified deposits. NSA's archaeologist excavated eight standard interval tests (30-meters) and six delineations (15-meters) within the vicinity of site 1LI268. Five of the tests excavated were positive for cultural material and located along a terrace within 15 meters of the eroding shoreline. Based on the presence of intact stratified deposits and the limited extent of site 1LI268 within the footprint NSA focused on testing the limits of the site boundary to preserve interior portions of the site. The tests along the rear of the terrace located on a descending backslope were negative. No evidence of the midden noted in 1997 or other features were identified along the shoreline during the survey. Due to the presence of intact stratified deposits NSA has recommended 1LI268 as eligible for inclusion in the NRHP under Criterion D and avoidance if possible. Should impacts to the site not be avoidable then NSA recommends mitigation.

To avoid adverse effects to site 1LI268 the applicant redesigned their plans in the area where intact deposits were identified (Figures 3 and 4). The original design proposed grading within site 1LI268 to achieve the necessary contours for construction and burying utilities underground. Based on NSA's recommendations, the redesigned plans avoid intrusive disturbance by proposing to use engineered fill and stone to create a new surface for construction. To achieve the necessary elevation and have the utilities contained within fill, approximately 2,100 cubic

yards of imported material would be used to create a fill horizon at least 40 centimeters thick (16 inches) (see Figure 4). The fill would be placed on top of the existing A horizon that was likely formed by the historic 1867 flood and is approximately 15 centimeters thick (5.9 inches) (see Figure 3). Together the fill and A horizon would result in over half a meter (22 inches) of cover in the area where intact deposits were identified. Prior to construction flagging would be used to mark the area where fill would be placed. The applicant would provide photographs of the flagged area before, during, and after construction. Due to the redesigned contouring the applicant proposes extending the retaining wall further from the cutbank and would not require bank shaping when filling the space between the wall and bank (see Figure 3). No evidence of artifacts or features were identified along the shoreline or bank within site 1LI268, the applicant would install the proposed riprap in the harbor limits without bank shaping.

TVA has reviewed NSA's report and agrees with their recommendations. TVA finds that the applicant's redesign of actions proposed would result in no adverse effect by avoiding intrusive disturbance to the location where intact deposits are present within site 1LI268. Additionally, TVA finds that the proposed actions within 1LI268 in the areas that did not yield evidence of integrity would result in no adverse effect. TVA finds that the proposed undertaking would have no effect on site 1LI448 as this site is not eligible for listing in the NRHP. Furthermore, the proposed undertaking would have no effect on historic above ground resources. NSA submitted updated site forms to the Alabama State Site File.

Pursuant to 36 CFR Part 800.3(f)(2), TVA is consulting with federally recognized Indian tribes regarding properties within the proposed project's APE that may be of religious and cultural significance to them and eligible for the NRHP.

Pursuant to 36 CFR Part 800.5(c) we are notifying you of TVA's finding of no adverse effect to site 1LI268; providing the documentation specified in § 800.11(e); and inviting you to review the finding. Also, we are seeking your agreement with TVA's eligibility determinations and finding that the undertaking as currently planned will have no adverse effects on historic properties

Please contact Tyler Parrott by email, stparrott@tva.gov, with your comments.

Sincerely,



Michaelyn Harle
Manager, Cultural Project Reviews, Environment and Economic Development and Deputy
Federal Preservation Officer
Cultural Resources

STP:MJF

References Cited:

Gage, Mathew D.

1997 *Phase Ib Archaeological Reconnaissance of Alternates A-1, B-1, and C-1 for the Western Portion of the Proposed Memphis-Huntsville-Atlanta Interstate Corridor, Northwest Alabama*. Office of Archaeological Services, University of Alabama Museums.

Shaw, Steven S.

2000 *Cultural Resources in the Wheeler Reservoir*. Office of Archaeological Services, University of Alabama Museums.

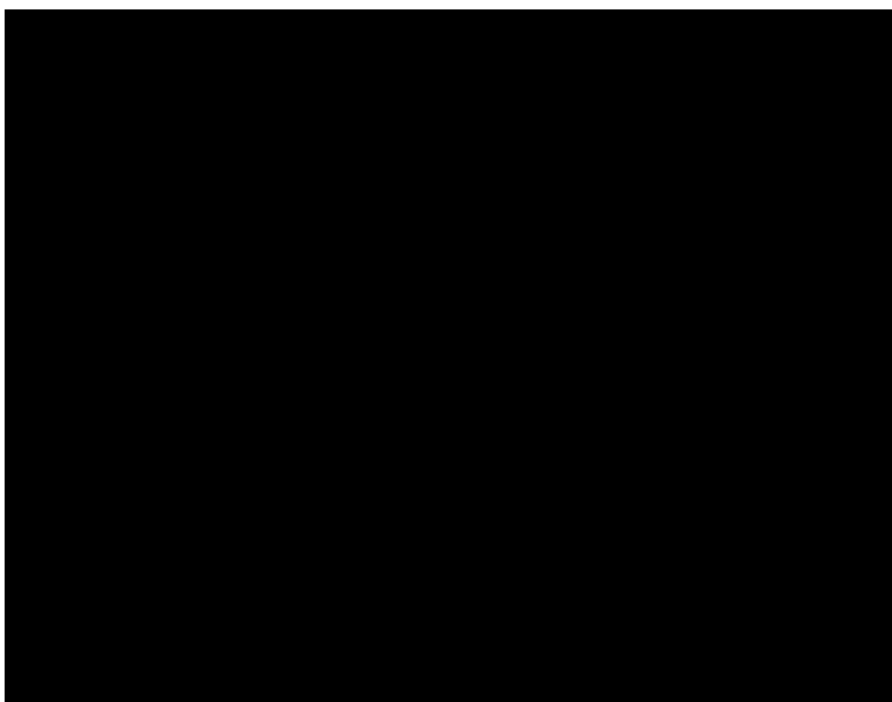


Figure 1. Project footprint and surrounding resources depicted on recent aerial imagery.

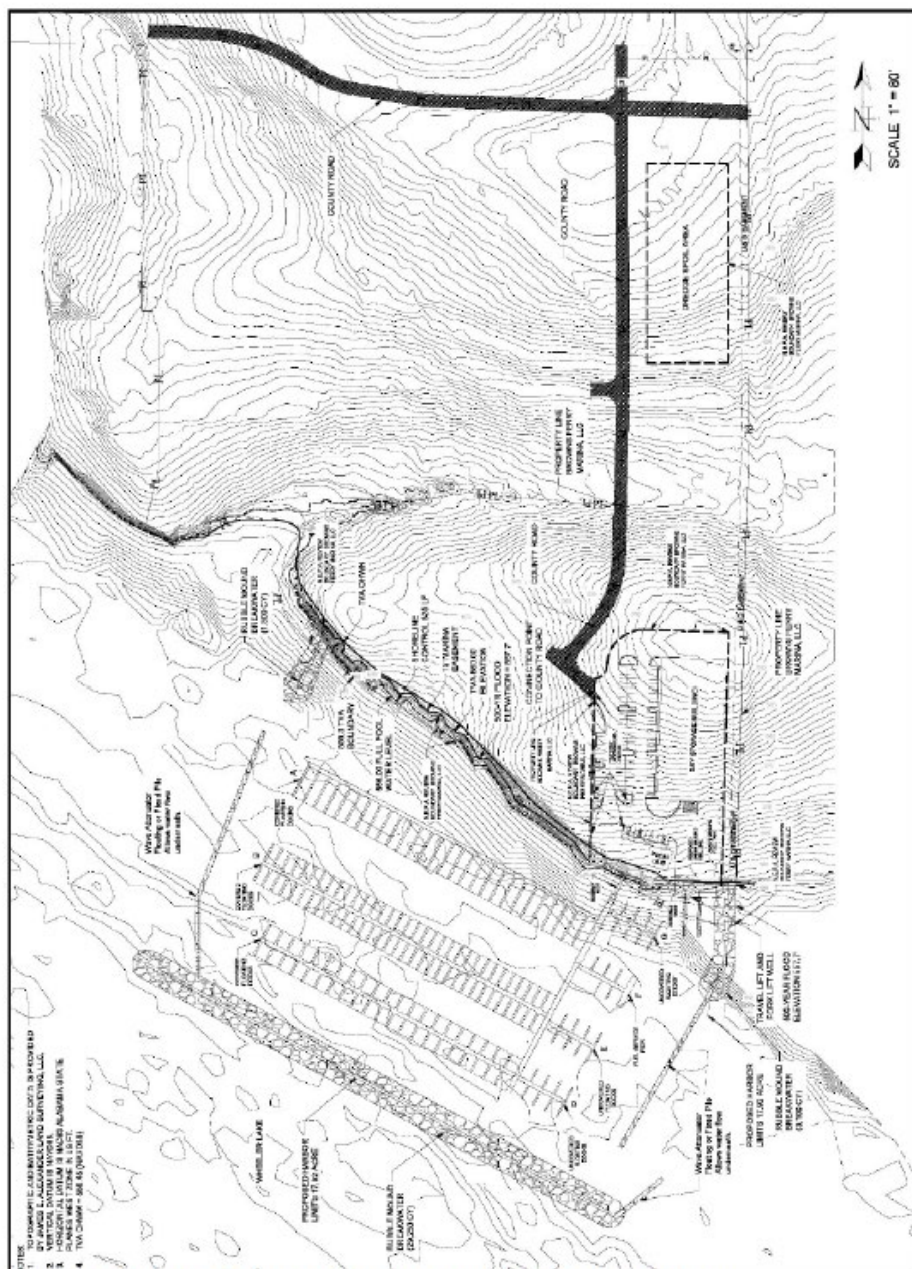


Figure 2. Map provided by applicant depicting proposed facility locations.

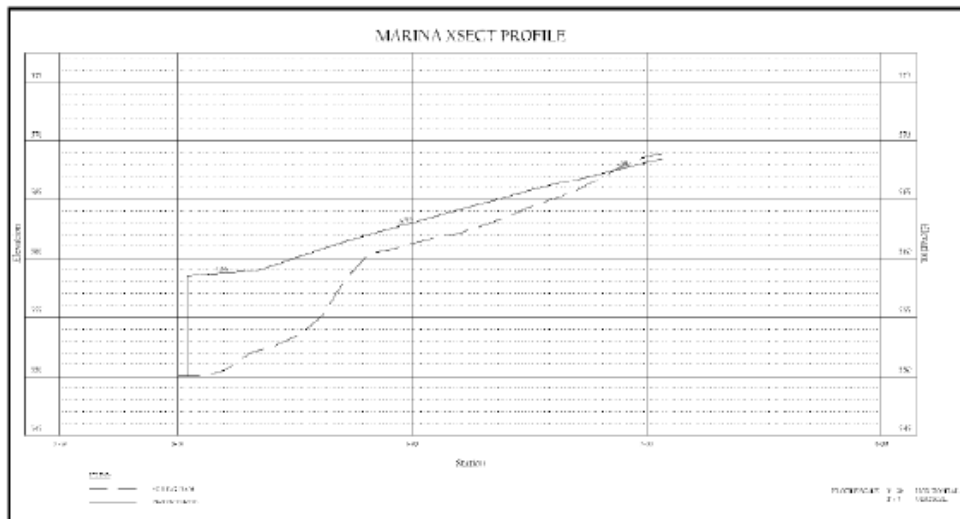


Figure 3. Profile view depicting proposed fill placed on top of existing ground surface.

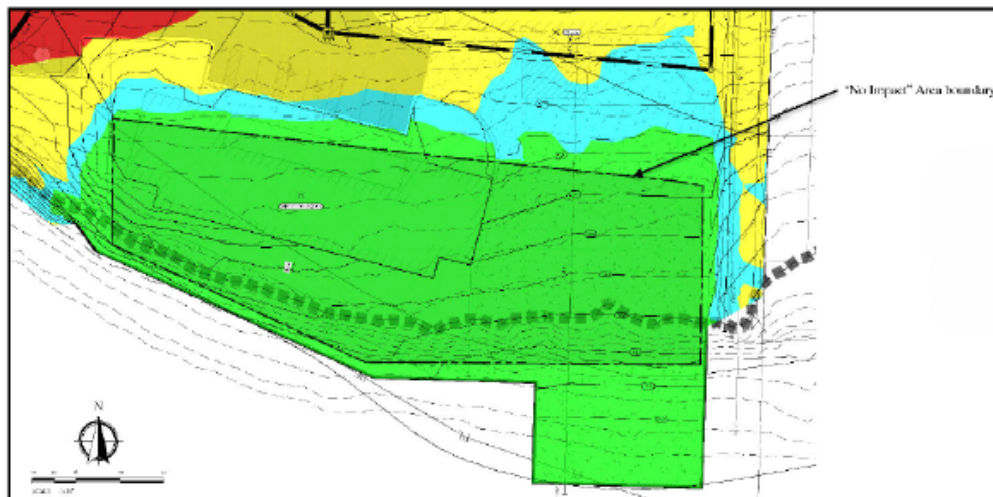


Figure 4. Plan view depicting the area being avoided by placing fill on the existing surface.



ALABAMA HISTORICAL COMMISSION

468 South Perry Street
Montgomery, Alabama 36130-0900

Lisa D. Jones
Executive Director
State Historic Preservation Officer

Tel: 334-242-3184
Fax: 334-242-1083

June 9, 2026

Macy Fuller
1101 Market Street
Chattanooga, TN 37402

Re: AHC 26-0616
BrownsFerryMarina_BradenPreseton_26aPermit-CRMSI49785802518
Limestone County

Dear Ms. Fuller:

Upon review of the cultural resource assessment report submitted to our office for the above referenced project, we agree with the author's findings. Archaeological site 1LI448 is not eligible for listing on the National Register of Historic Places (NRHP). We also agree that archaeological site 1LI268 is eligible for listing on the NRHP. However, we understand that the applicant proposes to avoid intrusive disturbance to archaeological site 1LI268 by using engineered fill and stone to create a new fill horizon to contain the proposed utilities. We understand that this new fill horizon will be at least 40 centimeters thick on top of the existing A horizon that is approximately 15 centimeters thick resulting in a total of over half a meter of cover in the area where intact deposits were identified. Additionally, we understand that the applicant will use flagging to mark the area where fill would be placed, provide photographs of the flagged area before, during, and after construction, extend the retaining wall further from the cutbank, not conduct any bank shaping when filling the space between the wall and bank, and install the proposed riprap in the harbor limits without bank shaping. Given these stipulations, we concur with a determination of No Adverse Effect to Historic Properties.

Consultation with the State Historic Preservation Office does not constitute consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public. If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal, and glass objects. The federal agency or the applicant receiving federal assistance should contact our office immediately. If human remains are encountered, the provisions of the Alabama Burial Act (Code of Alabama 1975, §13A-7-23.1, as amended; Alabama Historical Commission Administrative Code Chapter 460-X-10 Burials) should be followed. This stipulation shall be placed on the construction plans to ensure 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 William Lowe at 334.230.2670 or William.Lowe@ahc.alabama.gov. Have the AHC tracking number referenced above available and include it with any future correspondence.

Sincerely,

Lee Anne Hewett
Deputy State Historic Preservation Officer

LAH/EDS/lah

THE STATE HISTORIC PRESERVATION OFFICE
www.ahc.alabama.gov



Cedric Williams
1795 US HWY 72 E Ste 102
Athens, Alabama 35611

25 March 2026

RE: Prime Farmland Coordination – Proposed Browns Ferry Marina Development

Mr. Williams,

On behalf of the Tennessee Valley Authority (TVA), Copperhead Environmental Consulting submits the attached Form AD-1006 in compliance with the Farmland Protection Policy Act for your review. The subject property is in Limestone County, along Wheeler Reservoir. The Project Area is a smaller area within parcel 15 04 17 0 000 0003.004.

Impacts to prime farmland are being analyzed as part of an environmental review under the National Environmental Policy Act (NEPA). The portion of the Project Area identified by the NRCS Web Soil Survey as prime farmland is approximately 1.6 acres. The Applicant is proposing a commercial marina development on Wheeler Reservoir, subject to TVA approval. The property is not currently being used for agricultural purposes.

A map of the Project Area from the Web Soil Survey is attached, which shows the project boundaries. Should you need any additional information to complete the form, please do not hesitate to contact me.

Sincerely,



Kim Rhodes
Environmental Planner



COPPERHEAD ENVIRONMENTAL CONSULTING, INC.
P.O. BOX 73 ■ 471 MAIN STREET ■ PAINT LICK, KENTUCKY 40461
(859) 925-9012 OFFICE (859) 925-9816 FAX

www.copperheadconsulting.com

U.S. Department of Agriculture					
FARMLAND CONVERSION IMPACT RATING					
PART I (To be completed by Federal Agency)			Date Of Land Evaluation Request		
Name of Project Browns Ferry Marina at Wheeler Reservoir			Federal Agency Involved Tennessee Valley Authority		
Proposed Land Use commercial marina development			County and State Limestone County, Alabama		
PART II (To be completed by NRCS)			Date Request Received By NRCS 03/25/2026		Person Completing Form: Cedric Williams
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)			YES ☒	NO ☐	Acres Irrigated 0
Major Crop(s) Trees			Farmable Land In Govt. Jurisdiction Acres: 0 %		Average Farm Size
Name of Land Evaluation System Used On-Site Web Soil Survey			Name of State or Local Site Assessment System On-Site Web Soil Survey		Date Land Evaluation Returned by NRCS 4/20/2026
PART III (To be completed by Federal Agency)			Alternative Site Rating		
A. Total Acres To Be Converted Directly			Site A	Site B	Site C
B. Total Acres To Be Converted Indirectly			1.6		
C. Total Acres In Site			0		
			21.9		
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland			1.6		
B. Total Acres Statewide Important or Local Important Farmland			0		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted			0		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value			0		
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)			1.6		
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)			Maximum Points	Site A	Site B
1. Area In Non-urban Use			(15)	13	
2. Perimeter In Non-urban Use			(10)	0	
3. Percent Of Site Being Farmed			(20)	0	
4. Protection Provided By State and Local Government			(20)	20	
5. Distance From Urban Built-up Area			(15)	15	
6. Distance To Urban Support Services			(15)	5	
7. Size Of Present Farm Unit Compared To Average			(10)	0	
8. Creation Of Non-farmable Farmland			(10)	10	
9. Availability Of Farm Support Services			(5)	3	
10. On-Farm Investments			(20)	0	
11. Effects Of Conversion On Farm Support Services			(10)	0	
12. Compatibility With Existing Agricultural Use			(10)	3	
TOTAL SITE ASSESSMENT POINTS			160	69	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)			100	1.6	0
Total Site Assessment (From Part VI above or local site assessment)			160	69	0
TOTAL POINTS (Total of above 2 lines)			260	70.6	0
Site Selected: Site A			Date Of Selection 4/21/2026		Was A Local Site Assessment Used? YES ☐ NO ☒
Reason For Selection: Less than 2 acres of soils designated as prime farmland to be converted directly.					
Name of Federal agency representative completing this form: Kim Rhodes					Date: 4/21/2026
(See Instructions on reverse side)					Form AD-1006 (03-02)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, <http://fppa.nrcs.usda.gov/lesa/>.
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM (For Federal Agency)

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

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

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

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

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

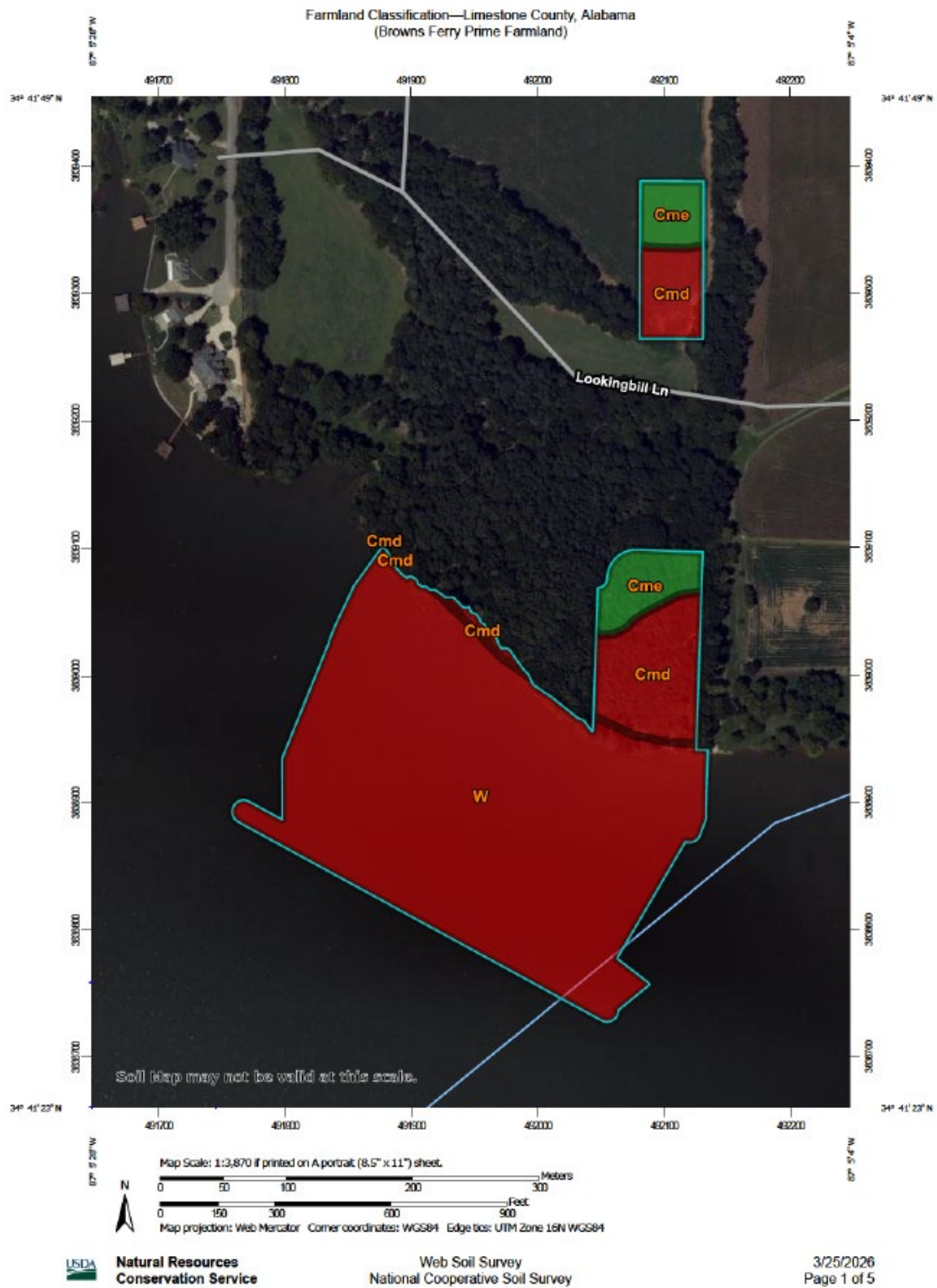
Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.

Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

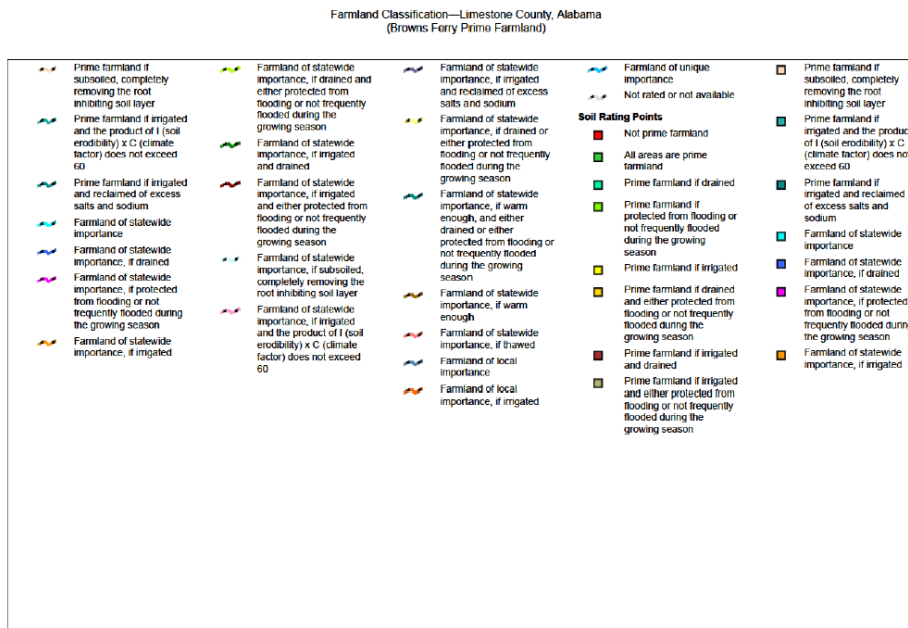
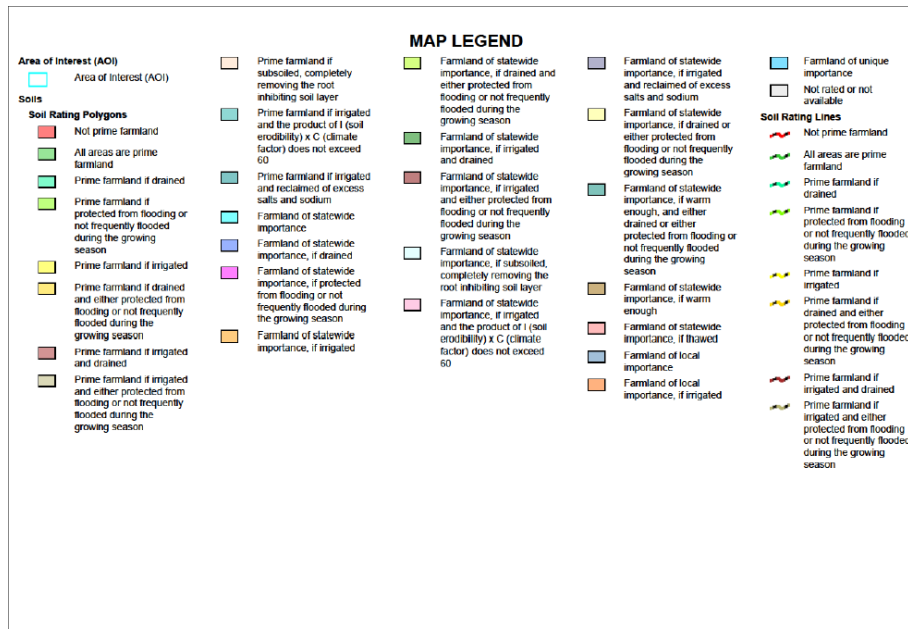
$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$

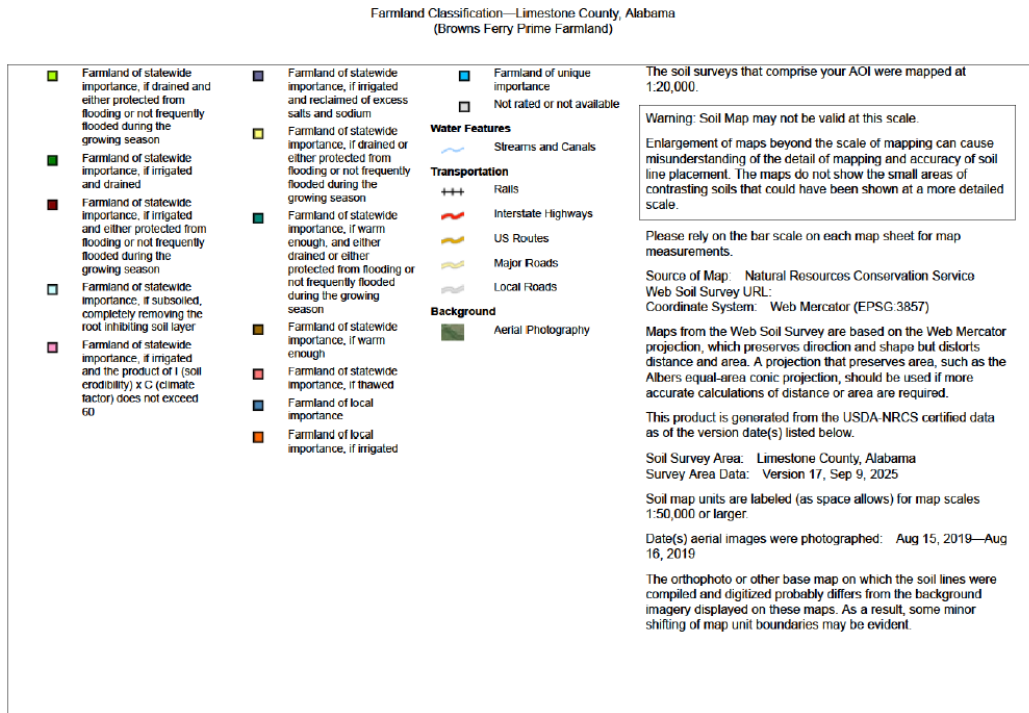
For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

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



Farmland Classification—Limestone County, Alabama
(Browns Ferry Prime Farmland)





Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Cmd	Cumberland silty clay loam severely eroded rolling phase	Not prime farmland	3.0	13.7%
Cme	Cumberland silty clay loam eroded undulating phase	All areas are prime farmland	1.6	7.2%
W	Water	Not prime farmland	17.3	79.1%
Totals for Area of Interest			21.9	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

