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### RIVERTON DEVELOPMENT SECTION 26A APPROVAL ENVIRONMENTAL ASSESSMENT

Hamilton County, Tennessee

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## Symbols, Acronyms, and Abbreviations

APE	Area of Potential Effect
ARAP	Aquatic Resource Alteration Permit
BFE	Base Flood Elevation
С	Celsius
CAA	Clean Air Act
CEQ	Council on Environmental Quality
со	Carbon Monoxide
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	United States Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbon
ESA	Endangered Species Act of 1973
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FRP	Flood Risk Profile
FONSI	Finding of No Significant Impact
MCL	Maximum Contaminant Level
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>2</sub>	Nitrogen Dioxide
NRHP	National Register of Historic Places
OSHA	US Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCE	Tetrachloroethene
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
RLMP	Reservoir Land Management Plan
ROW	Right-of-Way
SWPPP	Stormwater Pollution Protection Plan
	Tennessee Department of Environment and Conservation
	Tennessee Department of Transportation
	Tennessee Occupational Safety and Health Administration
	I ennessee valley Authority
	United States
	United States Army Corps of Engineers
	United States Code
U3FW3	United States Coolegical Survey
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	Volatile Organic Compound Waters of the United States
WU103	

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## CHAPTER 1 – PURPOSE AND NEED FOR ACTION

#### 1.1 Introduction and Background

Riverton LLC (the Applicant) has applied for a Shoreline Construction Permit under Section 26a of the Tennessee Valley Authority (TVA) Act associated with development of the master-planned, mixed-use Riverton community (Project) on approximately 155 acres of private land (the Project Area). The Project Area is located along the Nickajack Reservoir on the Tennessee River, in Chattanooga, Hamilton County, Tennessee. The proposed Project would include approximately 304 homes, commercial space, roads, utilities, stormwater appurtenances, riprap, and residential floating docks. TVA's action includes the approval of the placement of fill within the 500-year floodplain, the approval of use of portions of a TVA transmission right-of-way (ROW), and approval of residential docks along the shoreline.

The Project Area has approximately 3,400 feet of frontage on the north bank of the Tennessee River on the Nickajack Reservoir between river miles 469.4 and 468.8 (right descending bank). The Project Area has access to adjacent or nearby City of Chattanooga recreational facilities (e.g., Champions Tennis Club, Rivermont Park, Dupont Park). Current land cover and uses in the Project Area include the nine-hole Lupton City Golf Course, dense scrub forest, a network of unimproved trails and roads, a TVA transmission ROW, and City of Chattanooga sewer ROWs.

#### 1.2 Purpose and Need

TVA's purpose of and need for action is to decide whether to issue a Section 26a permit for shoreline construction activities and approve use of portions of a TVA transmission ROW as part of the Applicant's proposed residential and commercial development project along the waterfront of the Nickajack Reservoir. In addition, TVA's interest in this project arises from its commitment to support economic growth within the Tennessee River Valley region. This Proposed Action would accommodate continued population growth in Hamilton County while generating additional property tax revenue for the County and City of Chattanooga. The Applicant's purpose and need is to commercially develop a masterplanned, mixed-use community along the Nickajack Reservoir waterfront in general proximity (an approximately 5-mile radius) to the Chattanooga city-center.

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. 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.

Because the proposed development includes activities that would be located within the 500year floodplain, TVA has Section 26a jurisdiction over portions of the Project Area and must consider whether to approve or deny the Section 26a permit application. TVA must also review and approve the use of a segment of a TVA transmission ROW easement within the Project Area to ensure the use does not affect the function and reliability of its transmission system.

#### **1.3 Description of the Proposed Action**

The Proposed Action is to issue a Section 26a permit allowing the Applicant to (1) place fill within the 100- and 500-year floodplain, (2) use portions of a TVA transmission ROW, and (3) install 75 linear feet of riprap stabilization and 16 residential floating docks along the Nickajack Reservoir shoreline. By allowing these actions, the Section 26a permit would facilitate the development of the proposed 155-acre Project that would include construction of approximately 304 homes, commercial space, roads, utilities, stormwater appurtenances, riprap, and residential docks. Section 2.1.2 describes the Project in more detail. Figure 1 displays the Project Area location.

#### 1.4 Decision to Be Made

The primary decision TVA must make is whether to issue a Section 26a approval for shoreline construction activities as part of the Applicant's proposed mixed-use community and whether to allow use of a TVA transmission ROW easement within the Project Area, subject to General Conditions for actions within the TVA ROW. TVA's Section 26a jurisdiction is implemented through Section 26a regulations (18 CFR 1304) and the 1999 Shoreline Management Policy.

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.

#### 1.5 Related Environmental Reviews

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.

#### Nickajack Reservoir Land Management Plan - Multiple Reservoir Land Management Plans Final Environmental Impact Statement (2017)

The Nickajack Reservoir Land Management Plan (RLMP) was approved by the TVA Board of Directors on August 23, 2017. The Nickajack RLMP addresses the management of TVA-owned public land surrounding Nickajack Reservoir, and it is one of eight RLMPs reviewed by TVA in the Multiple Reservoirs Land Management Plans Final Environmental Impact Statement (FEIS). The Nickajack RLMP is covered under Volume VI of the FEIS.

In the Multiple RLMPs FEIS, TVA considered two alternatives for managing land around the Nickajack Reservoir. Under Alternative A, or the No Action Alternative, TVA would have continued to use previous land use plans which used older methods of land use planning. Under Alternative B, the Land Use Plan Alternative, TVA would apply 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 reservoir land management plans for the eight reservoirs, including the Nickajack Reservoir.



Figure 1. Project Location.

#### Shoreline Management Policy Final Environmental Impact Statement (1998)

TVA's Shoreline Management Policy FEIS was released in November 1998 and was approved by the TVA Board of Directors on April 21, 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 would be consistent with this policy.

#### 1.6 Scope of the Environmental Assessment

TVA is considering whether to approve or deny the Applicant's request to obtain a Section 26a permit allowing the placement of fill within the 100- and 500-year floodplain, use of portions of a TVA transmission ROW, and installation of 75 linear feet of riprap stabilization and 16 residential floating docks along the Nickajack Reservoir shoreline. To ensure that the potential effects of the Project are properly analyzed, the EA will address resources present within the entire 155-acre Project Area, although TVA's permitting authority applies to the approximately 88 acres within the 500-year floodplain and the TVA transmission ROW.

TVA prepared this EA to comply with the National Environmental Policy Act (NEPA), regulations of the Council on Environmental Quality (CEQ) at 40 CFR part 1500 (as amended in 2020 and 2022), and TVA's procedures for implementing NEPA at 18 CFR part 1318. TVA reviewed the Proposed Action and Section 26a permit application and identified the following issues to be evaluated in detail in the EA:

- Aquatics
- Botany
- Terrestrial Zoology
- Wetlands
- Managed and Natural Areas
- Archaeology
- Historical Architecture
- Floodplains
- Surface Water
- Navigation
- Parks and Recreation

- Transportation
- Land Use
- Visual Resources
- Solid and Hazardous Waste and Hazardous Materials
- Socioeconomics and Environmental Justice
- Public Health and Safety
- Noise
- Geology and Groundwater
- Air Quality

#### 1.7 Necessary Permits or Licenses

All necessary permits, permit modifications, licenses, and approvals would be obtained by the Applicant for activities it implements within the 155-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:

- An aquatic resource alteration permit (ARAP), which serves as a Section 401 Water Quality Certification in Tennessee, and a Section 404 permit from the US Army Corps of Engineers (USACE), are required for activities that involve point source discharges of dredge or fill into Waters of the US (WOTUS) or Waters of the State of Tennessee. The applicant obtained an ARAP from the Tennessee Department of Environment & Conservation (TDEC) in May 2023 and has applied for a USACE Section 404 Individual Permit. The USACE public notice for the Individual Permit was published in January 2023. Per USACE guidelines, the USACE would issue the Individual Permit after the TVA Section 26a permit is issued.
- A National Pollutant Discharge Elimination System (NPDES) general permit is required under Section 402 of the Clean Water Act for discharge of pollutants found in stormwater runoff associated with construction activities that disturb greater than one acre into WOTUS or Waters of the State of Tennessee. The development and approval of a Stormwater Pollution Prevention Plan (SWPPP) is a component of this permit. Construction Best Management Practices (BMPs) to minimize impacts to water quality would be outlined in the SWPPP. An NPDES permit was obtained in August 2022.
- Approval from TVA, USACE, and the U.S. Coast Guard (USCG) regarding the proposed lakeward extension of facilities along the Tennessee River.
- Department of the Army Permit pursuant to Section 10 of the Rivers and Harbors Act of 1899, issued by the USACE.
- Rezoning applications to support commercial and high-density residential uses at the subject property have been approved by local authorities.
- A City Storm Water Variance is required because fill material would be placed within the City-mandated 60-foot water quality buffer adjacent to approximately 100 linear feet of stream S-1. The Applicant submitted a Water Quality Buffer Plan to the City in April 2022 and the Storm Water Variance was approved in June 2022. A revised Water Quality Buffer Plan and associated variance request will be submitted to the City based on the most recent site grading plans.
- A City Land Disturbance Permit would be applied for before the commencement of grading or clearing activities.
- Approval that the portion of the Project located within the 100-year floodplain is compliant with the City of Chattanooga Flood Ordinance for Residential Construction (Sec. 38-365) was obtained in March 2023.

• Final building permits would be applied for by property owners/builders upon completion of site grading, installation of road and utility infrastructure, and upon final plat approval.

#### 1.8 Public and Agency Outreach

Prior to submitting its Section 26a permit application, the Applicant engaged in public and agency outreach regarding the proposed Project. This outreach included coordination with TDEC, the City of Chattanooga, and the USACE regarding resource surveys and associated permitting. Representatives of the Applicant also met in person with the Lupton City Homeowners Association on multiple occasions and engaged in 12 public meetings of the Chattanooga City Council and the Planning Commission.

During the preparation of this EA, TVA consulted with several federal and state agencies. In April 2021, TVA initiated consultation with the Tennessee Historical Commission and 13 federally recognized tribes in compliance with Section 106 of the National Historic Preservation Act (NHPA) to address potential adverse effects to cultural resources. As part of the consultation process, a Memorandum of Agreement (MOA) was developed to mitigate adverse impacts on sensitive archaeological resources (see Appendix A). Additional detail is provided in Section 3.5.1.

Because the Project is partially located within the 100-year floodplain, the Applicant is required to meet the requirements of the National Flood Insurance Program and the City of Chattanooga's floodplain management ordinance. To satisfy these requirements, the City reviewed the Project grading plans to ensure that the lowest floor of any building would be at or above elevation 660.5 feet, which would be one foot above the 100-year flood elevation, and that no fill material would be placed within either the Tennessee River floodway or the floodway of an unnamed tributary to the Tennessee River. The Applicant received City of Chattanooga flood review approval in March 2023.

TVA initiated consultation with the USFWS in August 2021 in compliance with Section 7 of the Endangered Species Act. In their response on August 24, 2021, the USFWS concurred with TVA's "not likely to adversely affect" findings for certain federally listed species and acknowledged TVA's "no effect" findings for other federally listed species. See Section 3.2 for species-specific details.

TVA consulted with the USACE regarding the Applicant's permit requirements and with the USCG to discuss whether the proposal would affect navigation on the Tennessee River. See Section 3.8, Navigation for additional details.

Agency consultation and correspondence documentation is provided in Appendix A.

The draft EA was made available for a 30-day public review period, starting on June 1, 2023. The availability of the draft EA was announced in a media release in the Chattanooga Times Free Press and the draft EA was posted on TVA's website. No comments were received.

### CHAPTER 2 – ALTERNATIVES

Two alternatives are under consideration: the No Action Alternative – Alternative A, and the Proposed Action Alternative – Alternative B. 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 – No Action Alternative

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. To move forward, the proposed Riverton development would need to be redesigned such that no shoreline construction activities (e.g., placement of riprap and installation of private boat docks) would occur, no fill would be placed in the 100- and 500-year floodplains, and the TVA transmission ROW easement would not be used.

This alternative does not meet the Applicant's purpose and need. However, it does provide a benchmark for comparing the environmental impacts of the implementation of the Action Alternative.

#### 2.1.2 Alternative B – Proposed Action Alternative

Under the Proposed Action Alternative, TVA would issue a Section 26a permit allowing the Applicant to place fill within the 100- and 500-year floodplain, use portions of a TVA transmission ROW, and install 75 linear feet of riprap stabilization and 16 residential floating docks along the Nickajack Reservoir shoreline. Figure 2 displays the preliminary master plan for the proposed development, as well as the TVA transmission ROW along the northern edge of the Project Area proposed for use. The proposed Project would achieve the Applicant's purpose of developing a master-planned, mixed-use residential community along the Tennessee River waterfront in general proximity (an approximately 5-mile radius) to the Chattanooga city-center.

If the Section 26a permit is issued, construction is anticipated to begin in late 2023 and would last a minimum of 24 months.

The proposed Project would be constructed on approximately 155 acres of private land along the Nickajack Reservoir in Chattanooga, Tennessee (see Figure 2). At full build-out, the development would include the following facilities:

- 236 single-family home sites
- 38 townhomes and 30 live/work units
- Amenities such as community trails, a linear park with restrooms and access to the existing greenway, a dog park, and a pool
- A Village Center consisting of 21,617 square feet of commercial space that would tentatively include a fitness center, retail opportunities within the live/work units, designated space for a restaurant, and green space for community gatherings

Infrastructure including roads, utilities, stormwater appurtenances, and 16 residential floating docks

Construction activities would include site grading (including placement of onsite fill material within the 100-year and 500-year floodplains), installation of roads and utilities, and construction of proposed facilities (e.g., residential units, commercial space, residential docks). The proposed Project's fill requirements entail placement of 413,800 cubic yards within the 100-year floodplain and placement of 489,900 cubic yards between the 500-year floodplain and the 100-year floodplain. Accordingly, total fill placement below the 500-year floodplain will comprise 903,700 cubic yards. Grading in the Project Area would be "balanced," meaning all required fill would be sourced from on-site and no fill would be disposed of off-site. During the application process, the Applicant eliminated encroachment into the floodway of the unnamed tributary to the Tennessee River. Appendix B displays the grading and drainage plans for the proposed Project.

A Section 26a permit would also allow the Applicant to place riprap along approximately 75 linear feet (0.15 acres) of the Tennessee River (at river mile 469) and to install floating docks adjacent to 16 residential riverfront lots (see Figure 3). As described in Section 3.8, TVA, USACE, and the USCG have reviewed and approved general design parameters for the floating docks. After the residential lots are sold, each private landowner would need to submit a Section 26a application to TVA for a permit to construct the floating dock on their lot.

Grading and development of road, utility, and landscape infrastructure would be conducted to support the Project. Various grading and construction equipment of the type typically associated with land development and installation of infrastructure would be used (e.g., excavators, bulldozers, skid steer loaders, motor graders, trenchers, scrapers, etc.).

Much of the Project Area would be graded to raise the ground above the 100-year flood elevation, which would result in unavoidable impacts to several aquatic features. These include: alterations to 376 linear feet of the S-9 ephemeral channel to accommodate home sites, roadways, a stormwater detention basin, and development infrastructure; placement of fill material within the City-mandated 60-foot water quality buffer adjacent to approximately 100 linear feet of stream S-1 (this fill material would not be placed within the channel of S-1, nor would it encroach upon TDEC's 30-foot water quality buffer (see Section 3.7)); and unavoidable alterations to all or portions of three on-site wetlands (0.50 acres, see Section 3.2.3.1).

Water, sewer, gas, and electrical services entering the interior of the Project Area would be installed underground with sufficient protective cover. No connection to existing on-site transmission lines, nor use of existing transmission structures, is planned.

Construction activities and infrastructure within the TVA transmission ROW would include grading, landscaping, hardscaping (e.g., retaining walls), roads, and lighted parking areas. Per coordination with the TVA Transmission Group, two access roads would be constructed to provide access to two towers within the TVA transmission ROW. No residential or commercial structures would be located within the TVA transmission ROW.



Figure 2. Overview of Proposed Riverton Project.



Figure 3. Location of Proposed Riprap and Floating Docks.

#### 2.2 Alternatives Considered but Eliminated from Further Consideration

The Applicant considered three other offsite alternatives to determine their suitability for a development that would meet the Applicant's purpose and need and determine if there were other practicable alternatives that would allow for the construction of a development what would avoid the placement of fill below the 100-year floodplain.

#### 2.2.1 Alternative Site 1: Carter Farms Property

This 160-acre property is at a favorable location and aligns with the Applicant's objective to be along the river, but the property is not for sale and is encumbered by irregular boundaries, adjacent occupied parcels, greenbelts, and existing dwellings. Moreover, much of the otherwise developable area is at elevations below the 100-year floodplain (66 acres). A prospective development at Alternative Site 1 would require alterations to portions of the estimated 7,000 feet of streams and 3 acres of wetlands located on the property and would not avoid the placement of fill below the 100-year floodplain; impacts at Alternative Site 1 appear to be similar to those that are proposed at the Riverton Project Area. Lack of availability of Alternative Site 1 forced the Applicant to eliminate this option in favor of the preferred Project Area, which has distinct advantages of more developable acreage and adjacency to community parks and recreation that eliminates the needs for including certain amenities, such as community tennis courts.

#### 2.2.2 Alternative Site 2: Former Rarity Club

This property, formerly known as Rarity Club and comprising approximately 400 acres, was in foreclosure when the Applicant considered it as an alternative development site. On Alternative Site 2, alterations of areas below the 100-year floodplain (1 acre) would be substantially less than those proposed for the preferred Project Area, as would be the projected alterations to the 1,600 feet of streams (no mapped wetlands have been reported on this property). However, during the due diligence process, the Applicant encountered many insurmountable obstacles, including the cost to acquire the property, incomplete infrastructure, inadequate existing amenities, capital requirements to improve lots that already had been sold, and a limited inventory of lots that had not yet been sold. Moreover, the location of Alternative Site 2 in Marion County, rather than Hamilton County, did not achieve the Applicant's purposes.

#### 2.2.3 Alternative Site 3: Snow Hill Road Property

Alternative Site 3, comprising 197 acres, was considered as an alternative development site by the Applicant. Alternative Site 3 has approximately 56 acres within the 100-year floodplain, approximately 4,700 feet of potential jurisdictional streams, and potential wetlands, which is similar to the preferred Project Area. However, though developable and near a popular location in the Ooltewah area, Alternative Site 3 did not have waterfront or proximity to downtown Chattanooga. Accordingly, the selection of Alternative Site 3 would not achieve the Applicant's purposes and would not avoid the placement of fill below the 100-year floodplain.

#### 2.3 Comparison of Alternatives

Table 2-1 provides a summary of the environmental impacts of the alternatives derived from the analyses provided in Chapter 3 and assumes that the Applicant would fully implement standard operating procedures, BMPs, and mitigation measures identified in Section 2.5, below. Generally, environmental impacts associated with Alternative B would be negligible to moderate, and there would be no environmental impacts associated with Alternative A.

	Impacts from No Action	
Resource Area	Alternative	Impacts from Proposed Action Alternative
Aquatic Ecology	No impacts	Negligible to minor adverse impacts during construction and operation
Botany	No impacts	Long-term, insignificant adverse impacts from development of Project Area
Wildlife	No impacts	Negligible to minor impacts during construction and operation
Threatened and Endangered Species	No impacts	Up to 60 acres of forest would be cleared; no significant adverse impacts with adherence to best management practices identified during Section 7 consultation with USFWS
Wetlands	No impacts	Minor direct adverse impacts from 0.5 acres of wetland fill; the Applicant has applied for state and federal permits and purchased compensatory mitigation to offset impacts
Managed and Natural Areas	No impacts	Negligible adverse impacts during construction and operation
Cultural Resources	No impacts	No direct or indirect adverse impacts to significant archaeological or historic resources with implementation of MOA
Floodplains	No impacts	Minor impacts within 100- and 500-year floodplains; negligible impacts on loss of power storage on Nickajack Reservoir. Applicant would comply with Chattanooga floodplain regulations and the National Flood Insurance Program, and the project would be consistent with EO 11988.
Surface Water	No impacts	Minor adverse impacts from 376 feet of alterations to one jurisdictional ephemeral channel and implementation of SWPPP and BMPs to minimize runoff; the Applicant has applied for state and federal permits and purchased compensatory mitigation to offset impacts
Navigation	No impacts	Minor adverse impacts; floating dock design including lakeward extension would be consistent with TVA, USACE, and USCG requirements

 Table 2-1. Summary and comparison of alternatives by resource area.

Resource Area	Impacts from No Action Alternative	Impacts from Proposed Action Alternative
Parks & Recreation	No impacts	Minor adverse impacts on water-based recreation from installation of private floating docks; beneficial impacts from construction of greenway
Transportation	No impacts	Negligible to minor adverse impacts on traffic volume on arterial roads and highways, moderate impacts on Lupton Drive especially during peak construction periods
Land Use	No impacts	Minor adverse impacts on land use because Project would be consistent with other properties in the vicinity where mixed residential and commercial development are common
Visual Resources	No impacts	Minor adverse impacts on visual resources from conversion of Project Area from mostly forested to a developed condition
Solid & Hazardous Waste & Hazardous Materials	No impacts	Negligible adverse impacts with adherence to Soil Management Plan and other BMPs to manage unauthorized access and minimize sediment and dust
Socioeconomics/ Environmental Justice	No impacts	Minor short-term beneficial impacts from increased employment during construction, long-term benefits from increased property and sales tax revenue. Minor long-term adverse impacts on nearby residents from increased property taxes. No adverse impacts on environmental justice.
Public Health and Safety	No impacts	Minor direct adverse impacts to workers during construction
Noise	No impacts	Minor to moderate adverse impacts during construction
Geology and Groundwater	No impacts	No impacts on geology; negligible adverse impacts on groundwater
Air Quality	No impacts	Minor adverse impacts during construction and negligible impacts during operation

#### 2.4 The Preferred Alternative

TVA's preferred alternative is Alternative B, the Proposed Action Alternative. Under this alternative, TVA would issue Section 26a approval for development of the Riverton project and approval for use of the TVA transmission ROW easement.

#### 2.5 Identification of Mitigation 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 a Section 26a permit and other necessary permits, which include mitigation measures, BMPs and other requirements, TVA would require implementation of the following mitigation measures to avoid, minimize, or resolve adverse impacts on the environment:

- Adherence to the following National Register of Historic Places (NRHP) Section 106 MOA stipulations (Appendix A):
  - Avoid two NRHP-eligible sites (40HA73 and 40HA115).
  - Allow Tribal access to sites 40HA73 and 40HA115.
  - Conduct data recovery excavations at site 40HA538.
  - Include culture histories provided by Tribes in the full technical report on 40HA538.
  - $\circ~$  Adhere to the Human Burial Treatment Plan included as Appendix F of the MOA.
  - Train onsite construction personnel and the Riverton Homeowner's Association on the importance of preserving archaeological resources.
- Activities occurring within the TVA transmission ROW would be subject to TVA's General Conditions such as adhering to US Occupational Safety and Health Administration (OSHA) requirements, preventing future soil erosion, and prohibiting the stockpiling of soils within the ROW.
- 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.
- To offset impacts to aquatic resources, the Applicant has purchased 1 wetland mitigation credit from the Sequatchie Valley Wetland Mitigation Bank and 150.4 stream mitigation credits from Smokey Run Mitigation Bank. The Applicant has provided TVA with verification that these credits have been purchased.
- To minimize the potential for the introduction of sediment into jurisdictional aquatic resources, erosion prevention and sediment control measures would be installed in upland areas. The proposed erosion prevention and sediment control measures would comply with the TDEC General NPDES Permit for Discharges of Stormwater Associated with Construction Activities.
- A Soil Management Plan would be implemented to minimize impacts from the movement of Project Area soils (see Appendix C).
- To minimize impacts from stormwater runoff, a SWPPP would be developed and implemented during construction.

- The floating docks would be securely anchored to prevent them from floating free during major floods.
- The lowest floor of any building would be at or above elevation 660.5 feet.
- No fill material, including riprap bank stabilization, would be located within the Tennessee River floodway.
- The riprap would be placed no more than two feet from the existing shoreline at the top of Nickajack Reservoir's operating range (elevation 634.5).
- As described in Section 3.8, Navigation, the proposed floating docks would be reviewed and approved individually through a separate 26A permit process. At that time, TVA, the USACE, and USCG may require the following additional conditions, depending on the dock facility:
  - Floating docks would extend no further than 100 feet into the Nickajack Reservoir, thereby minimizing concerns regarding navigation and safety.
  - The floor elevation of any fixed dock should be a minimum of 1.5 feet above the normal summer pool elevation 634.0 feet.
  - The 100-year flood elevation at this site is estimated to be 659.4 feet mean sea level. As a minimum, any fixed facilities should be designed to prevent damage to stored boats by forcing them against the roof during a 100-year flood event.
  - The Applicant is to be advised in writing that the facilities will be on a commercial navigation channel or marked recreational channel and may be vulnerable to wave wash and possible collision damage from passing vessels.
  - All floating structures must be firmly anchored to prevent them from floating free in a high flow or flood event.
  - The USCG may require lighting on the docks for visibility by commercial navigation traffic during overnight transiting of the area.

### CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing environmental, social, and economic conditions of the Project Area and the surrounding areas and the anticipated potential effects of implementing the No Action Alternative and the Proposed Action Alternative for each resource. The No Action Alternative is analyzed in the EA to establish a baseline for analyzing the environmental impacts of the Proposed Action Alternative in accordance with NEPA regulations.

To ensure that the potential effects of the Project are properly analyzed, this EA addresses resources present within the entire 155-acre Project Area, although TVA's permitting authority applies to the approximately 88 acres within the 500-year floodplain and the TVA transmission ROW. Figure 4 displays a representative view of current conditions within the TVA transmission ROW.



Figure 4. View of TVA transmission line ROW within the Project Area

#### 3.1 Vegetation, Aquatic Ecology, and Wildlife

#### 3.1.1 Vegetation

Field surveys of the Project Area were conducted on May 25, 2021, and focused on documenting plant communities, invasive plants, and possible threatened and endangered plant populations. Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types observed during field surveys can be categorized as a combination

of deciduous forest and herbaceous vegetation. No forested areas in the Project Area had structural characteristics indicative of old growth forest stands (Leverett 1996). All plant communities observed within the Project Area are common and well represented across Tennessee.

Herbaceous vegetation is characterized by greater than 75 percent cover of forbs and grasses and less than 25 percent cover of other types of vegetation. Mowed transmission and sewer line ROWs, a golf course, forest openings, and unmowed fields account for the herbaceous vegetation in the Project Area. While much of the area is populated with native and non-native species indicative of early successional weedy habitats, some areas do support populations of native grassland species. Common herbaceous species include annual ragweed (Ambrosia artemisiifolia), beaked panic grass (Panicum anceps), broomsedge (Andropogon virginicus), brome grass (Bromus sp.), fescue (Schedonorus sp.), Carolina horsenettle (Solanum carolinense), purpletop tridens (Tridens flavus), white clover (Trifolium repens), black medick (Medicago lupulina), sericea lespedeza (Lespedeza cuneata), tall goldenrod (Solidago altissima), wingstem (Verbesina alternifolia), and yellow bristle grass (Setaria glauca). Common native woody species in these areas include blackberry (Rubus argutus), poison ivy (Toxicodendron radicans), and common greenbrier (Smilax rotundifolia). Non-native invasive woody species such as autumn olive (Elaeagnus umbellata), Chinese privet (Ligustrum sinense), Amur honeysuckle (Lonicera maackii), and Japanese honeysuckle (L. japonica) are scattered throughout these areas.

Deciduous forests (stands where deciduous tree species account for more than 75 percent of the canopy cover) occur on approximately 65 percent of the Project Area. Much of the forested area within the Project Area is populated with mature trees ranging from 6 to 30 inches diameter at breast height. Common canopy trees include white oak (Quercus alba). water oak (Q. nigra), southern red oak (Q. falcata), chinkapin oak (Q. muehlenbergii), Carolina hickory (Carva carolinae-septentrionalis), pignut hickory (C. glabra), red maple (Acer rubrum), sassafras (Sassafras albidum), southern hackberry (Celtis laevigata), sweetgum (Liquidambar styraciflua), tulip poplar (Liriodendron tulipifera), persimmon (Diospyros virginiana), and winged elm (Ulmus alata). A few scattered loblolly pines (Pinus taeda) occur in these areas. The understory supports saplings of canopy species mentioned above as well as flowering dogwood (Cornus florida) and Eastern redbud (Cercis canadensis). Thick stands of the non-native invasive shrubs such as Amur honeysuckle and Chinese privet are prevalent throughout the understory of the forested areas. The forest floor in many areas is covered entirely with non-native invasive species such as English ivy (Hedera helix), Japanese honeysuckle, winter creeper (Euonymus fortunei), and Japanese stiltgrass (Microstegium vimineum).

#### 3.1.1.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no impact to vegetation located within the Project Area. As a result, on-site vegetation would remain in its current condition.

#### 3.1.1.2 Alternative B

Under the Proposed Action Alternative, the vegetation of the region would not be significantly affected because all forest habitats found within the Project Area are common and well represented throughout the region. The potential conversion of nearly all forested land for future development would be long-term but insignificant: up to approximately 60 acres of forest would be cleared, but currently there are over 105,000 acres of forest within

10 miles of the Project Area (US Forest Service 2023). Therefore, conversion of forest to other land use would be negligible when considered at a regional level. Herbaceous habitat present on-site is largely weedy, with few native grassland species and little conservation value. Therefore, impacts to herbaceous plant communities would be long-term, but insignificant.

#### 3.1.2 Aquatic Ecology

The Project Area is in the Tennessee River-Nickajack Lake Upper HUC 12 Watershed (060200011202) and is on the north bank of the Tennessee River between river miles 469.4 and 468.8, downstream of the Chickamauga Lake impoundment. The Project Area is contained within the Ridge and Valley physiographic province. This extensive drainage area is formed by numerous streams that converge to create the mainstem of the Tennessee River.

Multiple and iterative stream and wetland delineations were conducted during project planning. These delineations culminated in an Individual Permit Supplemental Information Package submitted by the Applicant to the USACE on November 1, 2022, identifying five wetlands (1.49 acres), 10 streams (10,822 linear feet), and one pond (0.10 acres) in the Project Area. These aquatic features are displayed in Figure 6 and described in more detail in Sections 3.3 and 3.7.

#### 3.1.2.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, the Project Area would likely remain largely forested and the intermittent and ephemeral streams present on the property would continue to serve the function of draining varying volumes of water during storm events.

#### 3.1.2.2 Alternative B

Under the Proposed Action Alternative, granting a Section 26a permit would result in direct, adverse impacts to aquatic habitat present on the Project Area. Some impacts may be temporary or minor in nature, but the proposed Project would result in unavoidable impacts to 376 linear feet of the S-9 ephemeral channel and 0.50 acres of parts or all of three wetlands to accommodate home sites, roadways, a stormwater detention basin, and development infrastructure. To offset these impacts and produce no net loss of resource value, the Applicant has purchased 150.4 stream mitigation credits from the Smokey Run Mitigation Bank and 1 wetland mitigation credit from the Sequatchie Valley Wetland Mitigation Bank.

Because the intermittent and ephemeral streams in the Project Area do not support aquatic organisms, impacts on aquatic ecology would be negligible. To protect potential downstream aquatic habitats, the Applicant would adhere to state and federal permit requirements that would minimize erosion and sedimentation from the proposed construction activities.

Proposed alterations to the Tennessee River include the stabilization of the north bank of the River at its confluence with S-9, securing the fill area and creating a stabilized riprap stormwater outfall. This riprap bank stabilization would result in a decrease in erosional sedimentation of the Tennessee River and a benefit to the aquatic ecological community. Siltation is a significant concern throughout Tennessee and is well known to be detrimental

to aquatic organisms and ecosystems. Installing approximately 75 linear feet of riprap bank stabilization would help to improve the local water quality by reducing sedimentation of the Tennessee River.<sup>1</sup>

Overall, impacts on aquatic habitat in the Tennessee River would be negligible due to implementation of compensatory mitigation and standard construction BMPs to reduce runoff and sedimentation during construction. The placement of riprap bank stabilization would result in long-term benefits to water quality and aquatic habitat by reducing sedimentation compared to current conditions.

#### 3.1.3 Wildlife

Habitat for a variety of terrestrial wildlife species is present in the Project Area. Such habitat is afforded by stands of pine, mixed hardwoods, and scrub forest, as well as open areas resulting from land-clearing and maintenance of golf-course grounds. A desktop review was conducted to identify terrestrial wildlife species likely to utilize the types of habitat within the Project Area. Upon completion of the desktop review, a field survey was completed in 2021 to confirm habitat conditions and document species present within the Project Area.

Common bird species with potential to occur within the Project Area include tufted titmouse, white-throated sparrow, Carolina chickadee, yellow-bellied sapsucker, cedar waxwing, downy woodpecker, eastern whip-poor-will, chuck-wills-widow, scarlet tanager, summer tanager, yellow-billed cuckoo, white-eyed vireo, red-eyed vireo, yellow-throated vireo, yellow-throated warbler, Kentucky warbler, red-bellied woodpecker, pileated woodpecker, wood thrush, wild turkey, red-tailed hawk, red-shouldered hawk, blue jay, and eastern towhee (National Geographic 2002, Sibley 2003).

Common mammal species with potential to occur within the Project Area include the eastern fox squirrel, wild pig, eastern chipmunk, eastern woodrat, gray fox, and white-tailed deer (Kays and Wilson 2002, Whitaker 1996). Portions of the Project Area with a partially open understory also provide foraging and roosting habitat for several bat species, including big brown bat and eastern red bat.

Common reptile and amphibian species with potential to occur within the Project Area include the eastern hognose snake, corn snake, smooth earth snake, copperhead, timber rattlesnake, gray ratsnake, eastern spadefoot, eastern box turtle, ground skink, five-lined skink, broad-headed skink, eastern newt, dusky salamander, northern slimy salamander, Cope's gray treefrog, and upland chorus frog (Bailey et al. 2006, Conant and Collins 1998, Dorcas and Gibbons 2005, Petranka 1998).

Pollinating butterflies such as red-spotted purple, gulf fritillary, great spangled fritillary, and eastern tiger swallowtail may also be observed in this region (Brock and Kaufman 2003).

Field surveys were conducted on March 19, 2021, to document habitat and terrestrial animal species within the Project Area using TVA's *Guidelines for Conducting Biological* 

<sup>&</sup>lt;sup>1</sup> The USACE and Hamilton County are planning a future project to stabilize several thousand feet of the north bank of the Tennessee River which may include shoreline within the Project Area. This stabilization project would reduce erosion and sedimentation and is anticipated to have a positive impact on aquatic ecology.

and Cultural Surveys and Impact Analyses. The field review focused on species and their habitat that were identified during the desktop review as well as general wildlife and wildlife habitat observations. Most species were documented in deciduous forest in the western portion of the Project Area and along the Tennessee River. Wildlife was also documented in wetlands, an open field, and offsite along the Tennessee River. No species were observed within the east-central portion of the Project Area which is dominated by Callery pear (*Pyrus calleryana*). A total of 23 species within the Project Area were documented either by visual observation or by call (see Table 3-1). Two caves are known within 3 miles of the Project Area, the closest of which is approximately 2.8 miles away. No caves were observed in the Project Area boundary during field review.

	Habitat Description				
Common Name	Forest	Field	Wetland	Stream/River	
American robin	Х	Х			
Bald eagle				Х	
Belted kingfisher				Х	
Blue jay	Х				
Brown thrasher	Х				
Brown-headed cowbird	Х				
Carolina chickadee	Х				
Carolina wren	Х				
Downy woodpecker	Х				
Eastern bluebird	Х				
Eastern gray squirrel	Х				
Eastern towhee	Х				
Eastern wood-peewee	Х				
Hairy woodpecker	Х				
Mourning Dove		Х			
Northern cardinal	Х	Х			
Northern flicker	Х	Х			
Northern mockingbird	Х				
Osprey				Х	
Red-bellied woodpecker	Х				
Tufted titmouse	Х				
Upland Chorus Frog			Х		
Yellow-rumped warbler	Х				

# Table 3-1. Wildlife Observed During Terrestrial Zoology Survey, Hamilton County,Tennessee.

One heron colony is known from approximately 1.2 miles away. This heronry is comprised of great blue herons and yellow-crowned night herons. A review of the USFWS Information for Planning and Consultation website identified ten species of migratory birds of conservation concern that have the potential to occur in the Project Area (bald eagle, bobolink, Canada warbler, golden-winged warbler, Kentucky warbler, prairie warbler, redheaded woodpecker, rusty blackbird, wood thrush, and yellow-bellied sapsucker). Suitable habitat for all ten species was observed within the Project Area. Deciduous forest along the Tennessee River in the southeastern portion of the Project Area provides suitable habitat for the bald eagle, Canada warbler, Kentucky warbler, red-headed woodpecker, rusty blackbird, wood thrush, and yellow-bellied sapsucker. Shrubby areas along the Tennessee River provide suitable habitat for the golden-winged warbler and prairie warbler. Open fields in the northern portion of the Project Area provide suitable habitat for the bobolink. Two juvenile bald eagles were observed flying over the Tennessee River adjacent to the Project Area. No other species of migratory bird of conservation concern were observed during the field survey.

#### 3.1.3.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no impact to terrestrial wildlife located within the Project Area. As a result, terrestrial wildlife habitat would remain in its current condition.

#### 3.1.3.2 Alternative B

Vegetation removal and ground disturbance would result in direct and indirect impacts on wildlife. These impacts include displacement of any wildlife (primarily common, habituated species) currently using the area. Direct effects to some individuals could also occur if those individuals are immobile during the time of habitat removal (e.g., during breeding/nesting seasons). Habitat removal likely would disperse mobile wildlife into surrounding areas in attempts to find new food resources, shelter, and to reestablish territories. Due to the amount of suitable habitat in areas adjacent to the Project Area, populations of common wildlife species likely would not be impacted by the proposed project actions. Overall, these impacts would be minor because of the presence of nearby suitable habitat and because much of the deciduous forest and shrubby areas along the Tennessee River, along with forested riparian buffer areas adjacent to stream S-1, would remain undisturbed.

Due to their distance from the Project Area, no impacts would occur to the documented heronry approximately 1.2 miles away. Additionally, no great blue heron, and yellow-crowned night heron nests were observed during the field survey.

Similarly, due to their distance from the Project Area (2.8 miles), there would be no impacts to caves known within three miles of the Project Area.

#### 3.2 Threatened and Endangered Species

#### 3.2.1 Plants

A February 2021 query of the TVA Natural Heritage Database provided records for state and federally listed vascular plant species with element occurrence documented within 5 miles of the Project Area (Table 3-2). The USFWS ECOS website was also queried to determine the species that may be present in Hamilton County. These queries identified five federally threatened species, four state endangered species, one state threatened species, one species that is listed by the state as special concern-commercially exploited, and another species that is listed as state special concern. After review of these data and the vegetation communities present within the Project Area, large-flowered skullcap and American ginseng were identified as having potentially suitable habitat in the Project Area. No designated critical habitat for listed vascular plant species occurs within the Project Area. Area.

American Hart's-tongue fern, Cumberland rose gentian, small whorled Pogonia, Virginia spiraea, and white fringeless orchid are not known to occur in the Ridge and Valley Level IV ecoregion, the ecoregion the project area is in, in this part of Tennessee. The Hamilton County occurrences of these species are from the adjacent Cumberland Plateau. The record for the blue-eyed Mary is historic and based on incomplete data, therefore it is unlikely to occur on the Project Area. The creekgrass occurs in open water habitats, which do not occur on the Project Area. The prairie goldenrod, prairie-dock, and Fremont's virgin's-bower are associated with cedar glade grasslands, which also do not occur within the Project Area.

Comprehensive field surveys of the Project Area did not identify populations of any of the above-referenced plant species.

Common Name	Scientific Name	Federal Status <sup>1</sup>	State Status <sup>1</sup>	State Rank <sup>2</sup>
American Hart's-tongue fern <sup>3</sup>	Asplenium scolopendrium var. americanum	THR	END	S1
Fremont's Virgin's-bower	Clematis fremontii		END	S1
Blue-eyed Mary	Collinsia verna		END	S1
Small Whorled Pogonia <sup>3</sup>	Isotria medeoloides	THR	END	S1
American ginseng	Panax quinquefolius		S-CE	S3S4
White Fringeless Orchid	Platanthera integrilabia	THR	END	S2S3
Creekgrass Cumberland Rose	Potamogeton epihydrus		SPCO	S1S2
Gentian	Sabatia capitata		END	S2
Large-flowered Skullcap	Scutellaria montana	THR	THR	S4
Prairie-dock	Silphium pinnatifidum		THR	S2
Prairie Goldenrod	Solidago ptarmicoides		END	S1S2
Virginia Spiraea <sup>3</sup>	Spiraea virginiana	THR	END	S2

# Table 3-2. Plant Species of Conservation Concern Reported from within Five Miles of the Project Area.

Source: TVA and Tennessee Natural Heritage Database, queried February 2021

<sup>1</sup> Status Codes: END = Endangered; SPCO = Special Concern; THR = Threatened, S-CE = Special Concern/Commercially Exploited

<sup>2</sup> State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure

<sup>3</sup> Federally listed species previously reported from within Hamilton County where work would occur, but not within 5 miles of the project area

#### 3.2.1.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the

TVA transmission ROW easement. There would be no impact to vegetation located within the Project Area. As a result, on-site vegetation would remain in its current condition and there would be no adverse effects on federally or state-listed species.

#### 3.2.1.2 Alternative B

Under the Proposed Action Alternative, there would be no impacts on federally or statelisted plant species or designated critical habitat because neither occurs within the Project Area. While implementation of the Action Alternative would result in substantial disturbance and alterations within the Project Area, these actions would not result in adverse effects on federally or state-listed plant species. TVA's consultation with the USFWS in August 2021 resulted in a determination of "no effect" for these species.

#### 3.2.2 Aquatic Ecology

A February 2021 query of the TVA Natural Heritage Database and the USFWS IPaC tool identified one fish, one amphibian, one snail, and seven mollusks occurring within the 10-digit HUC watershed that overlaps the Project Area (Table 3-3). Because the ephemeral and intermittent channels in the Project Area do not support aquatic life, the only suitable habitat for state or federally listed aquatic species is adjacent to the Project Area within the Tennessee River.

		State	State	Element	Federal
Common Name	Scientific Name	Rank₁	Status <sub>2</sub>	Rank₃	Status <sub>4</sub>
Fishes					
Snail Darter⁵	Percina tanasi	S2S3	THR	AC	DM
Amphibians					
Tennessee Cave					
Salamander <sup>5</sup>	Gyrinophilus palleucus	S2	THR	E	
Snails					
Ornate Rocksnail⁵	Lithasia geniculata	S2		Н	
Mollusks					
Cumberland Monkeyface <sup>5</sup>	Quadrula intermedia	S1	END	Х	END
Dromedary Pearlymussel <sup>5</sup>	Dromus dromas	S1	END	H?	END
Mountain Creekshell⁵	Villosa vanuxemensis	S4		H?	
Orange-foot Pimpleback <sup>5</sup>	Plethobasus cooperianus	S1	END	E	END
Pink Mucket⁵	Lampsilis abrupta	S2	END	E	END
Rough Pigtoe⁵	Pleurobema plenum	S1	END	Е	END
Tubercled Blossom	Epioblasma torulosa				
Pearlymussel <sup>6</sup>	torulosa	SX	END	Х	END

# Table 3-3. Records of Federal and State-Listed Aquatic Animal Species within the Nickajack Lake - Tennessee River (0602000112) 10-digit HUC Watershed.

Source: TVA Natural Heritage Database and USFWS IPaC

<sup>1</sup> State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable

<sup>2</sup> State Status Codes: D = Deemed in need of management; END = Endangered; THR = Threatened

<sup>3</sup> Element Rank (=population) Rank; E = Extant record ≤25 years old; H = Historical record >25 years old; ? =

Uncertain status; X = Extirpated; AC = Excellent, good, or fair estimated viability; NR = Not ranked

<sup>4</sup> Federal Status Code: DM = Delisted and Monitored; THR = Listed Threatened; END = Listed Endangered <sup>5</sup> Species from TVA Natural Heritage Database query

<sup>6</sup> Species from USFWS IPaC query

Based on a review of the TVA Natural Heritage Database, the pink mucket (*Lampsilis abrupta*) and rough pigtoe (*Pleurobema plenum*), federally listed freshwater mussels, were observed within a one-mile radius of the Project Area. Additionally, the dromedary pearlymussel (*Dromus dromas*), orange-foot pimpleback (*Plethobasus cooperianus*), and Cumberland monkeyface (*Quadrula intermedia*) have been observed within a four-mile radius of the Project Area. The tubercled blossom (*Epioblasma torulosa*) is presumed extinct. The TVA Natural Heritage Database indicates that these freshwater mussel species generally inhabit medium to large river systems having clean sand, gravel and cobble substrates, at varying depths and current velocities.

The mountain creekshell mussel (*Villosa vanuxemensis*) is considered widespread, abundant, and secure currently in Tennessee. Although TVA Natural Heritage Database shows an historic record at TRM 468.5 (Jenkinson 1992), this mussel is most often encountered in small headwater streams with very clean water, inhabiting sand and gravel substrate riffles and along *Justicia* beds at depths no greater than three feet (Bogan 2002). Several species of sculpin act as host fish for the mountain creekshell and share the same habitat preferences. The Riverton Project Area does not support the habitat requirements of the mountain creekshell mussel, or its hosts; therefore, there would be no impact to this mussel or its habitat.

While the Tennessee River adjacent to the Project Area is considered potential habitat for listed mussel species, the proposed impacts are not anticipated to cause any disturbance to mussels or their habitat. The placement of riprap along the bank would be localized to 75 linear feet of the riverbank, and all fill activities would take place above the Tennessee River floodway elevation. Docks would be floating, moored to shore, and would therefore not adversely affect mussels or their habitat.

The TVA Natural Heritage database indicates that the snail darter (*Percina tanasi*), a federally delisted fish, was observed within a one-mile radius of the Project Area. This species inhabits sand and gravel shoals of moderately flowing, vegetated, large creeks and rivers in the upper Tennessee watershed. This darter would occasionally inhabit deeper waters, with adequate current. Watercourses within the Project Area are unsuitable (having intermittent flow with clay/silt substrate) for the snail darter and, although the deep waters of the Tennessee River could potentially harbor this species, the proposed plans referenced above have been carefully designed for minimal disturbance. Impacts to Project Area watercourses are therefore not expected to adversely affect snail darters or their habitat.

Further review of the TVA Natural Heritage Database indicates that the state-threatened Tennessee cave salamander (*Gyrinophilus palleucus*) exists within the watershed but is documented approximately 7 miles outside of the Project Area. This species is an obligate cave-dwelling salamander, inhabiting cold water streams in caves that tend to be clear and free of sediment. No habitat fitting this description exists within the Project Area; therefore, the project is not expected to adversely affect the Tennessee cave salamander.

The ornate rocksnail has been eliminated from much of its original range by pollution and construction of dams and reservoirs and cannot compete successfully with other snails on rock outcrops because it prefers sandy gravel and has not adapted well to dam tailwater situations (Sickel 1988). The TVA Natural Heritage database documents specimens of the ornate rocksnail found within Indian shell heaps approximately 14 river miles away from the Project Area (Pilsbry and Rhoads 1895). Due to the record occurring within shell heaps, the

lack of proximity, and being reported from 126 years ago, this species is not anticipated to be impacted by implementation of the Proposed Action.

#### 3.2.2.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. The Project Area would likely remain largely forested and the intermittent and ephemeral streams present on the property would be unaffected by development.

#### 3.2.2.2 Alternative B

Under the Proposed Action Alternative, granting a Section 26a permit would result in direct, adverse impacts to aquatic habitat in the Project Area. Some impacts may be temporary or minor in nature, but some stream features such as ephemeral stream S-9 would be severely degraded to a degree such that the damage is irreversible. However, because the ephemeral streams in the Project Area do not support aquatic organisms, impacts on aquatic ecology would be negligible. Impacts would be offset through the purchase of 150.4 stream mitigation credits from the Smokey Run Mitigation Bank and 1 wetland mitigation credit from the Sequatchie Valley Wetland Mitigation Bank.

Impacts on aquatic habitat in the Tennessee River would be negligible with implementation of standard construction BMPs to reduce runoff and sedimentation during construction. The placement of riprap would be localized to 75 linear feet of the riverbank, and all fill activities would take place above the Tennessee River floodway elevation, resulting in long-term benefits to water quality and aquatic habitat by reducing sedimentation compared to current conditions. TVA's consultation with the USFWS in August 2021 resulted in a determination of "no effect" for these species.

#### 3.2.3 Terrestrial Animals

A review of TVA's Regional Natural Heritage database and the USFWS IPaC tool provided records of federally and state-listed species (Table 3-4). The databases identified records of two state-listed species deemed in need of management within three miles of the Project Area (least bittern and king rail), as well as nests for six state species of conservation concern (peregrine falcon, Virginia rail, osprey, common barn owl, great blue herons, and yellow-crowned night herons) within three miles of the Project Area. In addition, three federally listed terrestrial animal species (gray bat, Indiana bat, and northern long-eared bat), and one federally delisted species (bald eagle) is known from Hamilton County. Across most of Tennessee, the tricolored bat has recently been proposed for listing as endangered, and the monarch butterfly was recently listed as a candidate species under the ESA. Migratory birds of conservation concern are discussed above in Section 3.1.3.

		Status	
Common Name	Scientific Name	Federal <sup>1</sup>	State <sup>1, 2</sup>
Mammals			
Gray bat <sup>3</sup>	Myotis grisescens	END	END(S2)
Indiana bat <sup>4</sup>	Myotis sodalis	END	END(S1)
Northern long-eared bat <sup>3</sup>	Myotis septentrionalis	END <sup>5</sup>	THR(S1S2)
Tricolored bat	Perimyotis subflavus	PEND	THR(S2S3)
Insects			
Monarch butterfly	Danaus plexippus	С	-
Birds			
Bald eagle <sup>3</sup>	Haliaeetus leucocephalus	DM	D(S3)
Common barn owl	Tyto alba	-	-(S3)
King rail	Rallus elegans	-	D(S2)
Least bittern	Ixobrychus exilis	-	D(S2B)
Osprey	Pandion haliaetus	-	-(S3)
Peregrine falcon	Falco peregrinus	-	-(S1B)
Virginia rail	Rallus limicola	-	-(S1B,S3N)

Table 3-4. Federally Listed Terrestrial Animal Species Reported from Hamilton County, Tennessee, and Other Species of Conservation Concern Documented within Three Miles of the Project Area.

Source: TVA Regional Natural Heritage Database queried February 2021 and USFWS Ecological Conservation Online System (http://ecos.fws.gov/ecos/home.action; queried January 6, 2020).

<sup>1</sup> Status Codes: C = Candidate for Listing; D = Deemed in Need of Management; DM = Delisted and Monitored; END = Listed Endangered; THR = Listed Threatened.

<sup>2</sup> State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S#B = Status of Breeding population;
 S#N = Status of Non-breeding population

<sup>3</sup> Federally listed or protected species that has not been documented within three miles of the project area, but is known from Hamilton County, Tennessee.

<sup>4</sup> Federally listed species that has not been documented from Hamilton County, Tennessee, but whose range overlaps the project area and thus has the potential to occur here.

<sup>5</sup> Status changed to Listed Endangered on March 31, 2023.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Brady et al. 1982, Tuttle 1976a,b). Bats disperse over bodies of water at dusk where they forage for insects emerging from the surface of the water (Harvey 2011). The closest record of this species is a mist-net capture approximately 9.2 miles away. No caves are known within the Project Area or were observed during field surveys. Aquatic foraging habitat is present within the Project Area over bodies of water and the Tennessee River.

Indiana bats hibernate in caves in winter and use areas around them in fall and spring (for swarming and staging), prior to migration back to summer habitat. During the 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 2007b USFWS 2022). The nearest known Indiana bat record is from a migration roost tree approximately 16.7 miles from the Project Area.

The northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During the fall and spring, they utilize entrances of caves and the surrounding forested areas for swarming and staging. In the summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees. Roost selection by the northern long-eared bat is similar to that of the Indiana bat, however northern long-eared bats are thought to be more opportunistic in roost site selection. This species also roosts in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014). The nearest northern long-eared bat is known from a cave approximately 6.8 miles from the Project Area.

Tricolored bats hibernate in caves or man-made structures such as culverts or bridges (Fujita and Kunz 1984, Newman et al 2021). During the summer, tricolored bats roost in clumps of tree foliage, often in oak and hickory trees (Veilleux et al. 2003, O'Keefe et al. 2009, Schaefer 2017, Thames 2020). Foraging studies of tricolored bats are lacking, but it is believed they typically forage near their roost trees in forested areas and riparian corridors. There are no known tricolored bat records from Hamilton County, Tennessee; however, it is reasonable to assume this species is present in the northern long-eared bat cave mentioned above.

No caves or structures that would provide habitat for the Indiana bat, northern long-eared bat, or tricolored bat were observed within the Project Area. The closest known cave is approximately 2.8 miles from the Project Area. However, there are no records of bats known from this cave. One barn was observed in the northeastern portion of the Project Area. Biologists inspected the barn for roosting bats or signs of roosting bats, but no bats, guano, or staining were observed.

A Phase 1 Bat Habitat Assessment was conducted on March 19, 2021, to determine if potential suitable habitat for the Indiana bat or northern long-eared bat is present on the Project Area. Biologists followed USFWS guidance pertaining to characteristics of suitable summer roost trees. According to the *Range-wide Indiana Bat Survey Guidelines*, potential roosts for the Indiana bat are "live trees and/or snags ≥5 inches dbh [diameter at breast height] that have exfoliating bark, cracks, crevices, and/or hollows." Potential roosts for the northern long-eared bat are "live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or hollows." Potential roosts for the northern long-eared bat are "live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities." Tree species utilized by the Indiana bat and northern long-eared bat vary widely, as any tree species having these referenced characteristics or structure can provide protection and suitable habitat for the species. Northern long-eared bats have also been observed using human-made structures such as buildings, barns, bridges, and bat houses during summer; and these structures are also considered potential summer habitat.

Utilizing guidance pertaining to characteristics of suitable roost trees, a pedestrian survey of the Project Area was conducted. Sixty acres of potential bat habitat were observed within the proposed Project Area's limits of clearing. Dominant tree species observed on the property included post oak (*Quercus stellata*), water oak (*Q. nigra*), white oak (*Q. alba*), northern red oak (*Q. rubra*), Virginia pine (*Pinus virginiana*), sweetgum (*Liquidambar styraciflua*), shagbark hickory (*Carya ovata*), American sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), green ash (*Fraxinus pennsylvanica*), sugar maple (*Acer saccharum*), and silver maple (*A. saccharinum*).

The Project Area was divided into eight Bat Habitat Assessment Sites based on similar forest characteristics within each site (Figure 5). All but two Bat Habitat Assessment Sites contained suitable habitat for the Indiana bat and northern long-eared bat. Site 4, a mostly open area, and Site 8, which was sparsely forested with immature Callery pear, did not possess suitable roosting habitat for listed bat species. The majority of the sites had poor to moderate quality habitat for bats. It is assumed that areas deemed suitable for summer roosting Indiana and northern long-eared bats are also suitable for tricolored bats.

A mist-net survey was conducted in June 2021 to determine the presence or probable absence of federally listed bat species within the 60 acres of suitable habitat. The survey was conducted according to a study plan that followed 2020 Range-wide Indiana Bat Survey Guidelines (USFWS 2020) and was reviewed and approved by the USFWS. Net sites were chosen based upon proximity to suitable bat habitat and their potential to be travel corridors. BDY captured a total of 19 bats of three different species during the survey. Species identified included big brown bat (*Eptesicus fuscus*), red bat (*Lasiurus borealis*), and evening bat (*Nycticeius humeralis*). No state or federally listed bat species were captured during the survey.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). This species is associated with large mature trees capable of supporting their nests that can weigh several hundred pounds and are typically built near larger waterways where they forage primarily for fish (USFWS 2007a). Bald eagles are most reproductively successful in areas where human disturbance is minimized (Wilson et. al. 2018). Adults exhibit high pair and nest site fidelity throughout their lifetime (Jenkins and Jackman 1993). While two juvenile bald eagles were seen flying over the Tennessee River offsite and adjacent to the Project Area, no bald eagle nest was observed. The closest documented bald eagle nest is located approximately 5.6 miles away.

Common barn owls inhabit dense grasslands, meadows, prairies, and often can be found around human habitation. Structurally complex landscapes offering a mix of forest edges, hedgerows, ditches, cavities (man-made and natural), and undisturbed areas are preferred (Martinez & Zuberogoitia 2004). Common barn owls forage over grasslands, feeding primarily on meadow voles and short-tailed shrews (Clark & Bunck 1991). Barn owls will nest in a variety of structures including, but not limited to, tree cavities, nest boxes, man-made structures, cliffsides, or caves. This species can breed year-round with multiple broods per year, but one brood per year is typical in Tennessee with peak nesting occurring during the spring through fall (Nicholson 1997). A barn in the northeastern portion of the Project Area could provide suitable nesting habitat for the common barn owl. Two owl pellets were observed in the barn, but no common barn owls or signs of nesting were observed. The closest documented common barn owl nest is approximately 1.2 miles away.

Ospreys are medium-sized raptors that are typically associated with water, since this species forages exclusively for fish (Bierregaard et al. 2020). In Tennessee, ospreys arrive on the landscape in March to begin their breeding season, building nests and hatching young from April through July. Ospreys build nests in trees or man-made structures (e.g., transmission structures) near or over water. In October, ospreys migrate south for the winter non-breeding period (Poole 1989). One osprey nest is known within 3 miles and is found approximately 1.4 miles from the Project Area. Foraging habitat is present over the Tennessee River. No ospreys or osprey nests were observed during field reviews.
King rail, least bittern, and Virginia rails are inconspicuous, freshwater marsh birds whose diets consist largely of small vertebrates and invertebrates (Nicholson 1997). The nearest records of these species are all from Amnicola Marsh. Specific locations where individuals were observed within this large marsh are 1-1.5 miles from the Project Area. Emergent wetlands do occur within the Project Area, though they are not ideal for these marsh birds. They are not dominated by tall emergent vegetation such as cattails, rushes, and sedges bordering deeper, open water.

Peregrine falcons typically nest on inaccessible cliff ledges, bridges, or urban buildings (Nicholson 1997). The closest record of this species is a historical record of a nesting pair on a railroad bridge approximately 1.2 miles away. No suitable nesting habitat for peregrine falcon exists in the Project Area.

The monarch butterfly is a highly migratory species, with eastern United States (U.S.) populations overwintering in Mexico. Monarch populations typically return to the eastern U.S. in April (Davis and Howard 2005). Summer breeding habitat requires milkweed plant species, on which adults exclusively lay eggs for larvae to develop and feed on. Adults will drink nectar from other blooming wildflowers when milkweed is not in bloom (NatureServe 2023). Though some flowering plants may occur in the unmowed fields and ROWs, significant breeding or foraging habitat is not present within the Project Area.

# 3.2.3.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. Vegetation clearing would not occur, and trees and other vegetation would remain in their current state. As a result, there would be no direct or indirect impacts to wildlife or their habitat.

# 3.2.3.2 Alternative B

Direct or indirect impacts to least bittern or king rail populations or their habitat are unlikely because forested and emergent wetlands within the Project Area are of low resource value and it is unlikely that wetlands within the Project Area would provide preferred habitat for either species.

Direct or indirect impacts to peregrine falcon or Virginia rail populations or their habitat are unlikely because no suitable nesting structure for the peregrine falcon or marsh habitat for Virginia rail was observed in the Project Area.

Some monarch butterfly habitat may exist within the Project Area. Several areas adjacent to the Project Area offer similar habitat that adult individuals could utilize if they are disturbed from the area during the time of construction. This species is currently identified under the Endangered Species Act (ESA) as a candidate species and is not subject to Section 7 consultation under the ESA. Potential impacts to the monarch butterfly would be minor.

No bald eagle, osprey, or common barn-owl nests would be impacted. Minor impacts could occur to foraging habitat for bald eagle and osprey but these would be mitigated by BMPs along water ways. Removal of foraging habitat for barn owl could cause individuals to move elsewhere to forage, though due to similarly suitable habitat nearby, effects would be minor. Proposed actions comply with the National Bald Eagle Management Guidelines.



Figure 5. Bat habitat in the Project Area.

Bat habitat assessment and mist-net survey results suggest that the Project Area is not used as foraging, commuting, or roosting habitat for federally listed bat species. On August 3, 2021, TVA initiated Section 7 Consultation with the USFWS regarding impacts to federally listed bats. On August 24, 2023, the USFWS concurred with TVA's determinations that proposed actions "may affect but are not likely to adversely affect the gray bat, Indiana bat, and northern long-eared bat (USFWS 2021). The tricolored bat was also not captured during field surveys. TVA has determined that proposed actions would not jeopardize the continued existence of the tricolored bat.

#### 3.3 Wetlands

Wetlands are areas inundated by surface or groundwater often enough to support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, mud flats, and natural ponds.

Activities in wetlands are regulated under Sections 401 and 404 of the Clean Water Act. Under Section 404, the USACE established a permit system to regulate activities in WOTUS, including wetlands. A Nationwide General Permit or an Individual Permit from the USACE is required to conduct specific activities in wetlands. A Section 401 water quality certification issued by TDEC is also required.

Multiple and iterative wetland delineations were conducted during project planning. Delineations were conducted in accordance with the USACE Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. These sources require documentation of hydrophytic vegetation, hydric soil, and wetland hydrology (USACE 2012; Environmental Laboratory 1987; Lichvar et al. 2014). These delineations culminated in an Individual Permit Supplemental Information Package submitted by the Applicant to the USACE on November 1, 2022, identifying five wetlands in the Project Area (see Table 3-5 and Figure 6) as described in the following paragraphs.

Wetland Identifier	Type <sup>1</sup>	Acres in Project Area	Jurisdictional Status <sup>2</sup>
Wetland-1	PEM	0.68	Jurisdictional
Wetland-2	PEM	0.13	Jurisdictional
Wetland-3	PFO	0.17	Jurisdictional
Wetland-4	PEM	0.06	Jurisdictional
Wetland-5	PFO	0.45	Jurisdictional
<b>Total Acres</b>		1.49	

#### Table 3-5. Wetlands within the Project Area.

<sup>1</sup>Classification codes as defined in Cowardin et al. (1979): P=palustrine; EM=emergent persistent vegetation; FO=forested, broadleaf deciduous vegetation

<sup>2</sup>Individual Permit Application Supplemental Information Package, November 1, 2022



Figure 6. Wetlands and Surface Water Features in the Project Area.

Wetland-1 is a low-lying wetland and was observed to be dominated by emergent vegetation that included silver maple, American elm (*Ulmus americana*), and Gray's sedge (*Carex grayi*). Hydrology indicators, including a high water table, saturation, water marks, and drainage patterns, were observed in Wetland-1. Soils within Wetland-1 exhibited hydric characteristics that met the definition of Depleted Matrix (F3), a hydric soil indicator. Hydrologic input into Wetland-1 is supplied via overland sheet flow from topographically higher areas to the north and west. Wetland-1 comprises approximately 0.68 acres.

Wetland-2 is located adjacent to Stream S-3 and was dominated by emergent vegetation that included boxelder maple (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), Frank's sedge (*Carex frankii*), and primrose (*Ludwigia alternifolia*). Hydrology indicators, including a high water table, saturation, water marks, and drainage patterns, were observed in Wetland-2 Soils within Wetland-2 exhibited hydric characteristics that met the definition of Depleted Matrix (F3), a hydric soil indicator. Hydrologic input into Wetland-2 is supplied from high flows in S-3. Wetland-2 comprises approximately 0.13 acres.

Wetland-3 is located within a depressional area in the Tennessee River floodplain. Wetland-3 had a tree canopy and was dominated sycamore (*Platanus occidentalis*), American elm, and hackberry (*Celtis occidentalis*). Hydrology indicators, including saturation, water marks, drift deposits, water-stained leaves, and drainage patterns, were observed in Wetland-3. Soils within Wetland-3 exhibited hydric characteristics that met the definition of Depleted Matrix (F3), a hydric soil indicator. Hydrologic input into Wetland-3 is supplied from topographically higher areas to the north, east, and west and from Tennessee River flooding. Wetland-3 comprises approximately 0.17 acres.

Wetland-4 is located at the head of Stream S-12 where the location of Lupton City Golf Club access road has resulted in the ponding of water. Wetland-4 was dominated by emergent vegetation that included primrose, tapertip rush (*Juncus acuminatus*), and goldenrod (*Solidago sp.*). Hydrology indicators were observed in the Wetland-4.Soils within Wetland-4 exhibited hydric characteristics that met the definition of Depleted Matrix (F3), a hydric soil indicator. Hydrologic input into Wetland-4 is supplied from topographically higher areas to the south and east. Wetland-4 comprises approximately 0.06 acres.

Wetland-5 is located within a depressional area in the Tennessee River floodplain adjacent to Stream S-1. Wetland-5 has a tree canopy and was dominated boxelder, willow oak (*Quercus phellos*), and sugarberry (*Celtis laevigata*). Hydrology indicators, including oxidized rhizospheres on living roots, geomorphic position, and Fac-Netural test, were present in Wetland-5. Soils within Wetland-1 exhibited hydric characteristics that met the definition of Depleted Matrix (F3), a hydric soil indicator. Hydrologic input into Wetland-5 is supplied from topographically higher areas to the north and west and from Tennessee River flooding. Wetland-5 comprises approximately 0.45 acres.

# 3.3.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. On-site wetlands would remain in their current condition. There would be no impact to wetlands located within the Project Area.

# 3.3.2 Alternative B

Under Alternative B, TVA would grant Section 26a approval for construction activities associated with the proposed Riverton development within the Project Area. The proposed development would be designed to avoid or minimize wetland impacts to the extent practicable, in accordance with federal and state wetland mandates.

This alternative would require the placement of fill in 0.50 acres of wetlands. Impacts would occur on 0.02 acres (out of 0.68 acres) of Wetland-1, all of Wetland-3 (0.17 acres), and 0.31 acres of Wetland-5 (out of 0.45 acres). These unavoidable wetland impacts would be subject to regulatory oversight and permitting. To offset impacts to wetland resources, the Applicant has purchased 1 wetland mitigation credit from the Sequatchie Valley Wetland Mitigation Bank. As described in Section 1.7, the Applicant obtained a TDEC ARAP and has applied for a USACE Individual Permit. Per USACE guidelines, the Individual Permit can only be issued after the TVA Section 26a permit is issued.

The Proposed Action would avoid Wetland-2 (0.13 acres) and Wetland-4 (0.06 acres). In accordance with TDEC requirements, a 30-foot vegetated buffer would be maintained around these two wetlands and the undisturbed portion of Wetland-1 (0.66 out of 0.68 acres). Implementation of these buffers and adherence to standard construction BMPs would minimize increases in sedimentation and changes to wetland hydrology. As a result, short- and long-term impacts would be permanent and minor.

# 3.4 Managed and Natural Areas

Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, US Department of Agriculture, US Forest Service, State of Tennessee) 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<sup>2</sup>; and wild and scenic rivers. Ecologically significant sites are either tracts of privately owned land that are recognized by resource biologists as having significant environmental resources or identified tracts on TVA lands that are ecologically significant but not specifically managed by TVA's Natural Areas program.

A review of the TVA Natural Heritage Project database identified 18 managed and natural areas within three miles of the Project Area (Table 3-6).

Natural Area	Acres	Distance to Project Area
Amicola Marsh State Wildlife Refuge	49	1.3 miles southwest
Atlantic Coast Conservancy/Pelican Coast Conservancy Conservation Easement	31	2.7 miles west
Big Ridge	202	1.8 miles east
Big Ridge TVA Habitat Protection Area	228	1.8 miles east

# Table 3-6. Managed and Natural Areas within Three Miles of the Project Area.

<sup>&</sup>lt;sup>2</sup> Nationwide Rivers Inventory streams are free-flowing segments of rivers recognized by the National Park Service as possessing remarkable natural or cultural values.

Natural Area	Acres	Distance to Project Area
Chattanooga State Community College and Arboretum	158	0.4 miles southeast
Chickamauga and Chattanooga National Military Park	8,230	2.1 miles southeast
Chickamauga Dam Reservation	104	1.3 miles east
City of Chattanooga - Blueway/Trail Easement	1	3.0 miles northeast
Dupont Park	95	0.03 miles east (opposite side of Highway 319)
Greenway Farm City Park	98	2.2 miles northeast
Nickajack Reservoir State Mussel Sanctuary	777	Immediately adjacent to the south (in the Tennessee River)
North Chickamauga Creek Greenway	140	1.7 miles east
North Chickamauga Creek Wildlife Management Area	3,037	2.8 miles northeast
Rivermont Park	114	Immediately adjacent to the west
Stringers Ridge Park	124	2.6 miles southwest
Tennessee River Gorge Trust - Conservation Easement	887	3.0 miles southwest
Tennessee River Gorge Trust Easement	52	2.7 miles southwest
Tennessee Riverpark	>150	0.3 miles south on the opposite side of Tennessee River

Source: TVA Natural Heritage Database queried June 2021

# 3.4.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no change in management of or access to managed and natural areas in the Project Area and vicinity.

# 3.4.2 Alternative B

Under the Proposed Action Alternative, construction and operation of the proposed development would not result in direct impacts on any managed or natural areas. Indirect impacts could occur on the five managed and natural areas within 1 mile of the Project Area. These indirect impacts would include construction noise, visual intrusions, and runoff, which would be minimized through the use of standard construction BMPs and coordination of construction traffic with local authorities.

Chattanooga State Community College and Arboretum and the Tennessee Riverpark are located on the opposite bank of the Nickajack Reservoir. As a result, while construction activities within the Project Area may be visible or temporarily audible from these areas, they would not affect management of the college, arboretum, or Riverpark.

Indirect effects on Dupont Park from noise and visual intrusions associated with the Proposed Action would be minimal because the park is separated from the Project Area by the Highway 319 corridor.

Implementation of BMPs to control erosion and runoff would minimize adverse indirect impacts to Nickajack Reservoir State Mussel Sanctuary, which is in the Tennessee River directly south of the Project Area. With implementation of BMPs and because no fill material, including riprap bank stabilization, would be placed within the Tennessee River floodway, indirect impacts would be negligible.

All other managed and natural areas in Table 3-7 are located more than 1 mile away, a sufficient distance such that there would be no adverse impacts on these areas.

#### 3.5 Cultural Resources

Cultural resources include, but are not limited to, precontact and historic archaeological sites, historic structures, and historic sites at which important events occurred. Cultural resources are finite, non-renewable, and often fragile. They are frequently threatened by industrial, commercial, and residential development, as well as construction of roads and other infrastructure.

The NHPA provides a national program to support both public and private efforts to identify, evaluate, and protect the nation's important cultural resources. Once identified, these resources are evaluated for inclusion in the NRHP maintained by the National Park Service. Tangible cultural resources may qualify for inclusion in the NRHP if they are 50 years of age or older and if found to possess one or more of four different criteria, in accordance with 36 CFR § 60.4:

- 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 considered generally 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.

Under Section 106 of the NHPA, each federal agency must consider public views and concerns about historic preservation issues when making final project decisions. The NHPA addresses the preservation of "historic properties," which are defined under the Act as any precontact or historic district, site, building, structure, or object included in or eligible for inclusion in the NRHP. Under Section 106 of NHPA, the Project is required to consider ways to avoid or minimize effects from its undertakings on significant cultural resources.

Due diligence Phase I archaeological surveys and Phase II archaeological testing were performed (Alexander et al. 2008; Kroulek and Morgan 2020). The Area of Potential Effects (APE) for the project was determined in consultation to be the 155-acre Project Area as well as areas within a half-mile radius of the Project Area within which it would be visible.

The purpose of the Phase I survey was to identify and document both previously recorded and newly documented archaeological and historic-age non-archaeological resources, to assess their significance as management concerns. The purpose of the Phase II testing was to gather additional data for a formal determination of NRHP eligibility in advance of federal permitting.

# 3.5.1 Archaeological Resources

Three newly identified archaeological sites (40HA536, 40HA537, and 40HA538) and four isolated finds (IF A, IF B, IF H, and IF I) were identified during the Phase I archaeological investigations (Alexander et al. 2008). Sites 40HA536 and 40HA537 are the remnants of mid-twentieth-century residential structures and associated historic artifact scatters. Site 40HA536 has been disturbed by the construction of the golf course and was recommended not eligible for the NRHP. Site 40HA537 has been extensively disturbed by the destruction of the structures and was recommended not eligible for the NRHP.

The Phase I survey recorded site 40HA538 as an expansive scatter of precontact lithic artifacts interpreted as a raw material extraction camp dating to the Early Woodland and Mississippian Periods. Alexander, et al (2008) noted that site 40HA538 appeared to have been extensively disturbed by land clearing, terracing, and logging of the uplands that has eroded the upland soils. The site was initially recommended not eligible for the NRHP. After review, however, TVA noted inconsistencies in the descriptions of the soils with the level of disturbance described, and the presence of daub in the artifact catalog which generally represents the presence of precontact structures. Based on the potential for buried intact cultural deposits and features, the NRHP-status of site 40HA538 was determined in consultation to be unassessed, and Phase II testing was recommended to determine the site's eligibility.

In 2021, archaeologists with Brockington Cultural Resources Consulting (Brockington) conducted additional archaeological testing of site 40HA538. Their testing procedures included close interval shovel testing and hand-excavated test units. The excavations produced 494 artifacts, including precontact lithics and a small number of pottery sherds. The artifacts were concentrated on a flat portion of the terrace near the center of the site. Deposits which appeared to be intact were encountered across the terrace and extended

as deep as 75 centimeters below surface. This deposit produced artifacts diagnostic of an Early Archaic occupation, including a possible Big Sandy Side-Notched, a Kirk Corner-Notched, and a Kanawah projectile point. Although no cultural features were encountered, the presence of the intact deposit indicated there was a high probability for locating intact features. Based on the presence of culturally diagnostic artifacts within intact deposits and the high potential for intact cultural features, site 40HA538 was determined eligible for inclusion on the NRHP under Criterion D.

Brockington returned to site 40HA538 in 2022-2023 to conduct data recovery excavations. Although the site was determined to be eligible for inclusion on the NRHP and avoidance was recommended, the location of the site made avoidance impractical. To avoid adverse effects and to adhere with the stipulations of the MOA (developed by TVA with the Tennessee Historical Commission, as described in Section 1.8 above), data recovery excavations were required. The excavations included a mix of hand excavated units and mechanical topsoil removal. The excavations exposed 33 features, although only eight of those were determined to be of cultural origins. Seven of those features were post holes, while one appeared to be a roasting pit. Analysis of the results of the excavations is ongoing and will be presented in a technical report.

Two other previously identified archaeological sites (40HA73 and 40HA115) were investigated during the Phase I survey (Alexander et al. 2008). Both sites contain stratified intact archaeological deposits; Site 40HA73 contains Early and Middle Woodland occupations, and Site 40HA115 contains Archaic, Early Woodland, and early to late nineteenth-century components.

Site 40HA73 was previously recorded by Evans and Karhu (1985) as an expansive site consisting of an Archaic open habitation exposed on the riverbank. During the Phase I survey of the Project Area (Alexander et al. 2008), archaeologists substantially reduced the site boundary to 9.88 acres and identified Early Woodland and Middle Woodland (AD 200 to 600) components; they also identified minimal evidence of a Mississippian component. The southern portion of the site was actively being eroded by the Nickajack Reservoir, and construction of a sewer line had encroached on the northern perimeter of the site; however, the central portion of the site contains stratified Early and Middle Woodland components and remained intact. Alexander et al. (2008) recommended 40HA73 as potentially eligible for the NRHP.

Phase II investigations at Site 40HA73 (Kroulek and Morgan 2020) included mechanical topsoil removal and hand excavations. Excavations revealed a total of 48 cultural features. Diagnostic lithic artifacts are associated with the Early Archaic through Late Woodland periods, with the majority dating to the Middle and Late Woodland periods. Diagnostic ceramics indicate major usage of the site during the Early Woodland period, with minimal occupation during the Middle and Late Woodland periods. Historic artifacts identified at the site likely represent waste disposal associated with a nearby textile mill. The site was recommended eligible for inclusion on the NRHP.

Site 40HA115 was recorded in 1979 by Evans as a portion of the 640-acre reservation and farmstead of William Brown, which was claimed under the Cherokee Treaty of 1817-1819. During the Phase I survey of the Project Area (Alexander et al. 2008), archaeologists identified late Early Archaic, Late Archaic, Early Woodland, and Middle Woodland components. Archaeologists identified the site as a precontact base camp. Additionally, investigators located a mid-nineteenth- to early twentieth-century house foundation in the

south-central area of the site on the top of a landform, along with a historic artifact scatter that indicated farming and animal husbandry activities. The southern portion of 40HA115 was actively being eroded by the Nickajack Reservoir, and the eastern area of the site adjacent to the DuPont Bridge had been significantly disturbed by past excavation for either the DuPont Bridge or by quarry removal of the underlying limestone. The southeastern edge of the site is located on exposed limestone bedrock, which has diverted erosion and preserved the in situ stratified Archaic deposits. Alexander et al. (2008) recommended 40HA115 as potentially eligible for the NRHP.

Phase II investigations at Site 40HA115 (Kroulek and Morgan 2020) included mechanical topsoil removal and hand excavations. Archaeologists identified 10 cultural features including the architectural remnants of a structure with a chimney/firebox, a fire ring, four pit features, one thermal pit feature, and one posthole. The historic component of the site was identified as an early nineteenth-century Cherokee farmhouse dating prior to the Indian Removal Act. Beneath the historic component and protected by a clay cap, investigators identified a deep precontact midden with temporal associations ranging from the Late Archaic through Mississippian periods. Archaeologists recommended the site eligible for inclusion on the NRHP.

# 3.5.2 Architectural Resources

An architectural survey was conducted in 2021 to identify resources over 50 years of age within the APE, which is comprised of the Project Site and those portions of a 0.5-mile buffer that may have direct line-of-sight to the proposed Riverton development. This visual APE was generated via GIS and then was verified and adjusted in consideration of vegetation, topography, and modern development during the field survey.

During the architectural survey conducted by Brockington (Stallings, et al. 2021), 109 architectural resources were recorded within the APE. However, the majority of these are located within the proposed Lupton City Mill Village Historic District and were evaluated collectively. None of the buildings within the district are recommended individually eligible for the NRHP but are contributing to the overall district. The Lupton City Mill Village Historic District is recommended as eligible for listing on the NRHP under Criteria A and C. The extant residential and institutional buildings within the district retain sufficient architectural integrity to be considered eligible as a district. Collectively, they represent a relatively well-preserved example of a circa 1925-1940 mill village within the region. The 9-acre mill buildings was demolished in 2013, diminishing the integrity of setting beyond the neighborhood boundaries and compromising the viewshed.

The Project Site includes a circa 1949 golf course and its associated circa 1952 clubhouse. The golf course landscape was modified and reconfigured in the late 1990s and the club house lacks physical integrity as well as significant historical associations with the mill village and are recommended as not eligible for listing on the NRHP (Brockington and Associates Inc. 2021).

# 3.5.3 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the

TVA transmission ROW easement. As a result, there would be no effects to historic properties.

# 3.5.4 Alternative B

Three archaeological sites (40HA73, 40HA115, and 40HA538) have been determined eligible for inclusion on the NRHP in consultation. An MOA among TVA, the SHPO, and the Applicant provides guidance for the avoidance, minimization, and mitigation of adverse effects to those sites (Appendix A). In adherence to the stipulations of the MOA, sites 40HA73 and 40HA115 would be avoided by the proposed development. With the stipulations to the MOA in place, the proposed undertaking would have no adverse effect on either site.

The location of site 40HA538 within the Project footprint made it impractical for it to be avoided. As the site would be destroyed by the proposed development, data recovery excavations were performed per the stipulations in the MOA. As such, the proposed undertaking would have no adverse effect on site 40HA538.

The 2021 architectural survey identified 109 architectural resources within the APE. The majority of these resources are located within a proposed Lupton City Mill Village Historic District and were evaluated collectively. None of the buildings within the district are recommended individually eligible for the NRHP but are contributing to the overall district. The Lupton City Mill Village Historic District is recommended as eligible for listing on the NRHP under Criteria A and C. The Project would be located approximately 300 feet south of the recommended district boundary, and south of the former mill building. The Project would not physically impact any areas within the proposed district boundary and, due to the loss of setting through the 9-acre mill building's demolition, there would be no adverse visual effects on the district.

Under Section 106 of the NHPA, TVA has consulted with the SHPO and federally recognized Indian tribes regarding TVA's NRHP eligibility determinations, findings of effect, and to develop avoidance and minimization efforts. The Advisory Council on Historic Preservation was consulted during the development of the MOA. TVA and the consulting parties concurred that the Project would have an adverse effect on cultural resources. TVA and the SHPO have developed and executed an MOA pertaining to Project effects to the historic properties within the Project footprint. Stipulations in the MOA to avoid or minimize adverse effects include:

- Avoid two NRHP-eligible sites (40HA73 and 40HA115);
- Allow Tribal access to sites 40HA73 and 40HA115;
- Conduct data recovery excavations at site 40HA538;
- Include culture histories provided by Tribes in the full technical report on 40HA538;
- Adhere to the Human Burial Treatment Plan included as Appendix F of the MOA; and
- Train onsite construction personnel and the Riverton Homeowner's Association on the importance of preserving archaeological resources.

Should previously undiscovered cultural resources be identified during site construction or operations, TVA and the SHPO would be consulted before any further action is taken.

#### 3.6 Floodplains

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 would be consistent with the requirements of EO 11988, Floodplain Management.

As shown in Figure 7, the proposed Project would be located between Tennessee River miles 469.4 and 468.8, right descending bank, on Nickajack Reservoir. The 100-year flood elevations would range from 659.4 to 659.5 ft msl. The 100- and 500-year floodplains are depicted on Hamilton County, Tennessee, Flood Insurance Rate Map Panel Number 47115C0300C, effective 1/16/2009; and a Letter of Map Revision 17-04-1553P, effective 1/31/2017.

Some of TVA's dams are able to be surcharged. Surcharge is the ability to raise the water level behind the dam above the top-of-gates elevation and can be sustained only for a short period of time during a flood. The TVA Flood Risk Profile (FRP) elevation is the 500-year flood elevation that has been adjusted to include surcharge at the downstream dam (Nickajack Dam), where applicable. At this location, the FRP elevation is equal to the 500-year flood elevation. The FRP elevations would range from 665.8 to 665.9 ft msl, respectively, downstream to upstream. Elevations are referenced to National Geodetic Vertical Datum 1929.

The flood elevations at Tennessee River mile 469.4 are used for the entire Project Area because of the minor differences between those and the elevations at Tennessee River mile 468.8. The City of Chattanooga has adopted the 100-year flood as the basis for its floodplain regulations, and any development must be consistent with these regulations. The floodway adopted by the City is that portion of the Tennessee River channel, other stream channels, and floodplain that must remain open and unobstructed to allow passage of floodwaters to prevent increases in upstream flood elevations.

As a federal agency, TVA adheres to the requirements of EO 11988, Floodplain Management. 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 (US Water Resources Council, 1978). The EO requires that agencies avoid the 100-year floodplain unless there is no practicable alternative.



Figure 7. Floodplains in the Project Area

### 3.6.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no fill, grading, or other changes to the floodway or 100- or 500-year floodplains within the Project Area. As a result, there would be no direct or indirect impacts on floodplains.

### 3.6.2 Alternative B

Approximately 304 residences, including 236 single-family lots, the swimming pool, fitness center, retail space, and restaurant would be constructed on the Project Area. Some of these structures would be located within the 500-year floodplain of the Tennessee River. Material on-site would be relocated to elevate residential lots to at least the 100-year flood elevation 659.5, with the first-floor elevations of the resulting slab-on-grade residences being at least one foot above the 100-year flood elevation (elevation 660.5). While this level of flood protection is consistent with Chattanooga's floodplain regulations and considered reasonable, larger floods can and do occur.

The Project also involves the placement of fill for parking areas, residential development, driveways, roads (including two new access roads for the existing transmission line), one road bridge, and the construction of storm drainage and sewer structures, portions of which would be located within the 100-year floodplain (see Figure 7). Consistent with EO 11988, fill for parking areas, driveways, roads and bridges, and the construction of storm drainage and sewer structures are repetitive actions in the 100-year floodplain that should result in minor impacts.

A portion of the Project would be located on 257 acre-feet of fill within the 100-year floodplain and is, therefore, subject to the requirements of EO 11988. The property was purchased with the intention of developing a residential subdivision. The proposed development would be undertaken on private land. TVA's action is the issuance of a Section 26a permit for the placement of fill for parking areas, residential development, driveways, roads and bridges, and the construction of storm drainage and sewer structures, portions of which would be located within the 100-year floodplain, and for use of an existing TL ROW. Accordingly, TVA has very limited control on the selection of alternative sites for locating such a development. Based on information provided by the Applicant, there are no other available, undeveloped properties that are contiguous to the Chattanooga riverfront to meet the project's objective. TVA therefore has made the determination that there is no practicable alternative to locating the fill for residential development in the 100-year floodplain. During the application process, the Applicant eliminated encroachment into the floodway of the unnamed tributary to the Tennessee River, thereby protecting cultural, aquatics, floodplain, and wetland resources, and further reducing impacts to floodplains.

Based on information provided by the Applicant, the lowest floor of any building would be at or above elevation 660.5 which would be one foot above the 100-year flood elevation, which is consistent with local floodplain regulations. In addition, no fill material would be placed within either the Tennessee River floodway or the floodway of an unnamed tributary to the Tennessee River. The City of Chattanooga approved a flood review based on revised plans showing no development within the unnamed tributary floodway in March 2023; therefore, the Project would comply with the National Flood Insurance Program and thus EO 11988. Also proposed are community trails, a swimming pool, and 21,617 square feet of commercial space in a Village Center. The Village Center plans include a fitness center, retail opportunities, a restaurant, and green space for community gatherings.

Additional facilities include roads, road bridge, utilities, stormwater appurtenances, riprap bank stabilization, and residential docks. Portions of this infrastructure would be located within the 100-year floodplain. Consistent with EO 11988, walking trails, green space, roads, roadway bridges, riprap bank stabilization, utilities, and docks are repetitive actions within the 100-year floodplain that should result in minor impacts. To minimize adverse impacts, the riprap would be placed no more than two feet from the existing shoreline at the top of Nickajack Reservoir's operating range of elevation 634.5. Adverse impacts from installation of the floating docks would be minimized by securely anchoring the docks to prevent them from floating free during major floods.

The TVA Flood Storage Loss Guideline does not apply because there is no flood storage on Nickajack Reservoir, and therefore no loss of flood storage. The riprap bank stabilization would result in the loss of up to 0.03 acre-foot of power storage, which is considered a negligible loss of power storage.

The Applicant also requested use of a TVA transmission ROW at the far landward end of the parcel. Portions of the ROW are located within 100-year floodplains. Based on Project drawings, stormwater basins, grading, and roads would be constructed within the ROW. These facilities are repetitive actions in the 100-year floodplain that should result in minor impacts. Use of the ROW for these purposes would therefore be consistent with EO 11988.

# 3.7 Surface Water

The Project Area is located within the Tennessee River-Nickajack Lake Upper HUC-12 Watershed (060200011202) and is on the north bank of the Tennessee River between river miles 469.4 and 468.8. The river along this reach receives tailwater discharge from Chickamauga Dam, which is located approximately 1.4 miles upstream. Riverbanks in this reach typically are over-steepened, unstable, and subject to erosion from frequent high-flow events. Figure 8 on the following page displays current conditions along the Nickajack Reservoir shoreline.



Figure 8. Nickajack Reservoir and C.B. Robinson Bridge Viewed from Mouth of Project Area Stream

Precipitation in the general area of the proposed project averages about 52.5 inches per year. The wettest month is November with approximately 5.0 inches of precipitation, and the driest month is October with 3.3 inches. The average high air temperature ranges from a monthly average of 50°F to 90°F (US Climate Data 2021).

The federal Clean Water Act requires states to identify 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. States are required to submit reports to the EPA. The term "303(d) list" refers to the list of impaired and threatened streams and water bodies identified by the state that are not supportive of their designated uses. Based on a review of TDEC's Division of Water Public Data Viewer, the Tennessee River is listed as impaired and not supporting its designated uses due to contaminated sediments (polychlorinated biphenyls and dioxin). No other streams in the Project Area have been assessed by TDEC to determine if they support their designated uses.

Multiple and iterative stream delineations were conducted during project planning, culminating in an Individual Permit Supplemental Information Package submitted by the Applicant to the USACE on November 1, 2022. All on-site watercourses were determined to be jurisdictional under the federal Clean Water Act. A small pond (Pond 1, 0.10 acres) has also been determined to be subject to Clean Water Act regulation. Surface waters identified on the Project Area site are shown in Figure 6, summarized in Table 3-7, and discussed below.

Drainage Name <sup>1</sup>	Type of Resource	Jurisdictional Status <sup>2</sup>	Total Length (ft)
S-1	Intermittent Stream	Jurisdictional	1,862
S-3	Intermittent Stream	Jurisdictional	1,842
S-4	Ephemeral Stream	Jurisdictional	118
S-5	Ephemeral Stream	Jurisdictional	461
S-6	Ephemeral Stream	Jurisdictional	291
S-9	Ephemeral Stream	Jurisdictional	376
S-11	Intermittent Stream	Jurisdictional	885
S-12	Intermittent Stream	Jurisdictional	1,545
S-13	Ephemeral Stream	Jurisdictional	62
Tennessee River	Perennial Stream	Jurisdictional	3,380

Table 3-7. Watercourses in the Project Area.

<sup>1</sup> Watercourses omitted from the numbered sequence of listed features are located outside of the Project Area or were considered linear wetlands by the applicable regulatory agencies.

<sup>2</sup> Individual Permit Application Supplemental Information Package, November 1, 2022

#### <u>S-1</u>

S-1 is an intermittent tributary to the Tennessee River that enters the Project Area from culverts beneath the Norfolk-Southern railroad tracks on the northern Project Area boundary. S-1 has a 21-foot-wide channel, an average depth of 3.3 feet, and a cobble substrate.

# <u>S-3</u>

S-3 is an intermittent tributary to S-1 that enters the Project Area from culverts beneath the railroad tracks on the northern Project Area boundary. The primary watershed area for S-3 is the former Dixie Yarns mill site, which has been demolished. S-3 has a very narrow buffer at the proposed impact location due to its location within a golf-course fairway. Pond-1 was identified on the Project Area in-line with stream S-3. This pond, approximately 0.10 acres in size, has been profoundly altered by past activities associated with the Lupton City Golf Club.

# <u>S-4</u>

S-4 is a short ephemeral channel near the Project Area's eastern boundary. S-4 is a tributary to S-1 and comprises a one-foot channel with a dirt and gravel substrate.

# <u>S-5</u>

S-5 is an ephemeral channel draining to S-3.

# <u>S-6</u>

S-6 is an ephemeral channel draining to S-3.

# <u>S-9</u>

S-9 is an ephemeral tributary to the Tennessee River beginning within an eroded channel in the south-central portion of the Project Area.



Figure 9. Ephemeral Stream S-9 within the Project Area

# <u>S-11</u>

S-11 is an intermittent stream extending along the extreme western boundary of the Project Area. S-11 is one to two feet wide, with a mixed soil and gravel substrate.

# <u>S-12</u>

S-12 is an intermittent tributary stream to S-10 and originates at the toe of the existing road that currently provides access to the Lupton City Golf Club. The primary watershed area for S-12 is the existing 9-hole golf course to the south and areas along the railroad and powerline to the north.

# <u>S-13</u>

S-13 is a short ephemeral stream draining to S-12.

# 3.7.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no impact to surface waters located

within the Project Area. As a result, on-site surface waters would remain in their current condition.

### 3.7.2 Alternative B

Under the Proposed Action Alternative, TVA would grant Section 26a approval for construction activities associated with the proposed Riverton development. Construction would result in unavoidable impacts to 376 linear feet of the S-9 ephemeral channel to accommodate home sites, roadways, a stormwater detention basin, and development infrastructure. The purchase of 150.4 stream mitigation credits from the Smokey Run Mitigation Bank would offset proposed impacts and produce no net loss of resource value.

As discussed in Section 3.1.2, stabilizing the north bank of the Tennessee River at its confluence with S-9 via a riprap stormwater outfall would improve water quality over the long term by decreasing erosional sedimentation.

Because Streams 3 and 12 would be crossed using concrete arch-span culverts that avoid placement of fill below the ordinary high-water mark, adverse impacts are not anticipated and Clean Water Act permitting is not required.

Construction activities could temporarily affect surface water via storm water runoff. The Applicant would comply with appropriate state and federal permit requirements. Appropriate BMPs would be followed, and all proposed project activities would be conducted in a manner to ensure that waste materials are contained, and the introduction of pollution materials to the receiving waters would be minimized. Because more than 1 acre would be disturbed, the Applicant has obtained a general construction storm water permit, which also requires the development and implementation of a SWPPP. The SWPPP identifies specific BMPs to address construction-related activities that would be adopted to minimize storm water impacts.

Construction and operation would also adhere to City of Chattanooga requirements for permanent runoff reduction measures for surface disturbing activities exceeding 1 acre. Specifically, the Applicant would install extended detention stormwater ponds to filter and treat the runoff from a 3.1-inch storm event. These extended ponds would also provide stormwater detention, meeting the City's peak runoff rate attenuation requirement. The ponds would deplete via infiltration and evaporation or discharge into the approved stormwater management system. This would minimize long-term adverse impacts associated with stormwater runoff.

In addition, the Applicant has obtained an ARAP/Section 401 Water Quality Certification issued by TDEC for work in waters of the state of Tennessee. The Applicant has also applied for a USACE Individual Permit for work in WOTUS, the public notice for which was issued in January 2023. Per USACE guidelines, USACE would issue the Individual Permit after TVA approval of the 26a permit application.

There would be no adverse impacts associated with sewer service. Portable toilets would be provided for the construction workforce as needed. These toilets would be pumped out regularly, and the sewage would be transported by tanker truck to a publicly owned wastewater treatment works that accepts pump-out. During operation, the development would be connected to the adjacent municipal sewer system for management of sewage. Overall, with purchase of mitigation credits and implementation of BMPs including the SWPPP and other measures described above, short- and long-term impacts on surface water would be minor.

#### 3.8 Navigation

The Project Area has approximately 3,400 feet of frontage on the north bank of the Tennessee River on the Nickajack Reservoir between river miles 469.4 and 468.8. Nickajack Dam is approximately 43.9 river miles downstream from the Project Area and the Chickamauga Dam is approximately 1.6 river miles upstream (Figure 10).

The Proposed Action Alternative includes approval for 16 residential floating docks. Once the riverfront lots are sold, each landowner would then need to obtain their own Section 26a permit to construct the floating dock on their lot.

# 3.8.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no change to commercial or recreational navigation on the Nickajack Reservoir.

#### 3.8.2 Alternative B

In the original design plans submitted by the Applicant to TVA, the proposed docks would be located just beyond the 626-foot (MSL) contour based on site-specific bathymetric data to provide adequate water depth for the maximum anticipated boat sizes and potential floating boat lifts. Several proposed docks would extend beyond 130 feet lakeward, including some up to 146 feet from Nickajack normal summer pool elevation 634.0.

TVA Navigation deemed these dock lengths excessive and asked the USACE and the USCG to review and comment. On March 11, 2021, TVA Navigation and USACE Navigation staff performed a site visit in the USACE's bathymetric survey vessel. River conditions were as follows:

- Chickamauga Tailwater Elevation: ~638.3
- Chickamauga Flow from the Dam: ~49,000 cubic feet per second
- Nickjack Pool Elevation: ~633.1

All the conditions are typical of winter pool conditions in this area on the Tennessee River. The bathymetric survey results indicated that at 100-foot lakeward extension there was a minimum depth of 10 feet along the entire stretch; and at 50-feet lakeward extension there was at least 6 feet of depth. As a result, dock lengths of 130- to 146-foot lakeward extensions are not warranted, particularly for recreational vessels that do not require an 11-foot-deep channel. The USCG has reviewed and concurred with the assessment that dock lengths should not exceed 100 feet at this location. As a result of interagency coordination, the Proposed Action Alternative was modified by the Applicant to limit the lakeward extension of the docks to 100 feet.



Figure 10. Navigation Facilities Near the Project Area.

Because each dock would require an individual Section 26a permit, TVA, the USACE, and the USCG would reassess if there is a condition that warrants a dock to have additional lakeward extension or dredging at the time the Section 26a application is submitted. The following additional conditions may be required, depending on the dock facility:

- The floor elevation of any fixed dock should be a minimum of 1.5 feet above the normal summer pool elevation 634.0.
- The 100-year flood elevation at this site is estimated to be 659.4-feet mean sea level. As a minimum, any fixed facilities should be designed to prevent damage to stored boats by forcing them against the roof during a 100-year flood event.
- The Section 26a applicant is to be advised in writing that the facilities will be on a commercial navigation channel or marked recreational channel and may be vulnerable to wave wash and possible collision damage from passing vessels.
- All floating structures must be firmly anchored to prevent them from floating free in a high flow or flood event.
- The USCG may require lighting on the docks for visibility by commercial navigation traffic during overnight transiting of the area.

Because the dock plans would be evaluated by TVA, USACE, and USCG for consistency with the agencies' requirements during the Section 26a permit review process, there would be minimal impacts on commercial or recreational navigation from implementing the Proposed Action Alternative.

# 3.9 Parks and Recreation

The privately owned nine-hole Lupton City Golf Club is located entirely within the Project Area boundary. The golf course opened in 1939 and was originally used by Dixie Yarns mill workers but has been open to the public for several decades (The Chattanoogan 2018).

There are two municipal parks adjacent to the Project Area:

- Rivermont Park borders the southeast side of the Project Area. Rivermont Park includes seven baseball fields, six tennis courts, a boat ramp, playground facilities, and a walking trail with a riverfront section (Chattanooga.gov). The park includes the Champions Club Tennis Complex with 26 hard tennis courts, a 6,000 square foot clubhouse with lockers, showers, viewing areas, and a pro-shop (Visitchattanooga.com)
- Dupont Park borders the northwest side of the Project Area. Dupont Park includes four soccer fields, a disc golf course, and a refuse collection center.

Public parks and/or recreational opportunities that involve the use of the Tennessee River and are located near the Project Area include:

• Tennessee Riverpark and the Tennessee Riverwalk are located on the south bank of the Nickajack Reservoir, 0.5 miles south of the Project Area. Facilities include the 10-mile-long Riverwalk, fishing piers, picnic areas, and a boat ramp.

- The Chickamauga Dam Fishing Pier and Fishing Park are located at the Chickamauga Dam, 1.5 miles east of the Project Area. These two facilities are operated by TVA and offer public fishing access below the dam.
- Nickajack Reservoir also provides multiple recreation opportunities. The reservoir is
  popular for wildlife viewing, recreational boating, boat and shoreline fishing, and
  kayaking and canoeing.

Figure 11 displays the location of parks and recreation facilities within and near the Project Area.

# 3.9.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no change in parks and recreation opportunities in the Project Area and vicinity.

# 3.9.2 Alternative B

Under the Proposed Action Alternative, the Lupton City Golf Club course would be closed and converted to other uses. This would force the club's golfers to find similar opportunities at other nearby public courses, which may charge higher tee fees and/or be located further away from users' homes. Closure of the Lupton City Golf Club would be a long-term, moderate impact for local golfers.

A new linear park with restrooms and a public greenway would be constructed by the Applicant and would cross the property providing a link between the Champions Club tennis complex and the Dupont Park soccer complex on nearby properties along the Nickajack Reservoir shoreline. This would improve local greenway recreation opportunities by facilitating connectivity between previously isolated parks.

Construction is anticipated to have a short-term, negligible effect on users at the tennis complex or Dupont Park, primarily from temporary increases in noise during construction.

Because of the distance between the project and the Tennessee River Park and the Chickamauga Dam Fishing Park, no impacts on public use of these facilities are anticipated.

Water-based recreation would be affected by construction of the 16 floating docks along the north bank of the Nickajack Reservoir. Specifically, the floating docks would alter opportunities for boating, boat fishing, and kayaking, and some users might shift their activities to other areas of the reservoir. Such effects would be long-term and minor.



Figure 11. Parks and Recreation Facilities Near the Project Area.

# 3.10 Transportation

The Project Area is accessible from Lupton Drive via Hixson Pike, North Access Road, and State Route 319, which borders the Project Area to the east. The Project Area is bounded to the north by a Norfolk Southern railroad and by residences in the Lupton City neighborhood. Rivermont Park and the Champions Club Tennis Club are accessed via Dixie Drive west of the Project Area and Nickajack Reservoir is south of the Project Area.

Nearby roadways, primarily the Amnicola Highway and SR 319, service Chattanooga to the southwest and the communities of Alpine Heights, Hixson, and Red Bank to the north. SR 319 provides a connection between I-75/I-24 to the south and US 27 to the north and allow I-75 travelers heading to US 27 to bypass downtown Chattanooga.

Tennessee Department of Transportation (TDOT) 24-hour traffic data for annual average daily traffic on roadways near the Project Area is provided in Table 3-8.

#### Table 3-8. 2022 Annual Average Daily Traffic.

Roadway	2022 Annual Average Daily Traffic
Lupton Drive (east of Hixson Pike)	1,577
Lupton Drive (west of Hixson Pike)	5,061
Amnicola Highway / SR 319 (at C.B. Robinson Bridge)	23,483
North Access Road (north of Project Area)	21,000
Hixson Pike (north of Lupton City neighborhood)	20,922
Source: TDOT 2023.	

# 3.10.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, there would be no change in transportation access or traffic volumes near the Project Area.

# 3.10.2 Alternative B

Under the Proposed Action Alternative, new roads would be constructed within the Project Area to access residences, the community center, and commercial properties. There would also be a temporary increase in construction-related traffic during the 24-month construction period on roadways in the Project Area's vicinity. An average of 500 workers would be employed during construction and there could be up to 1,000-1,100 trips to and from the construction site daily when considering worker commutes and equipment deliveries. Vehicles used to transport workers, equipment, and supplies for construction would enter the Project Area from the Amnicola Highway, North Access Road, and Hixson Pike, which average 23,483 vehicles, 21,000 vehicles, and 20,922 vehicles per day, respectively. Project construction would represent a negligible to minor increase in daily traffic volumes on these roads. Immediate access to the Project Area would be via Lupton Drive which averages 1,577 to 5,061 vehicles per day; the addition of up to 1,000-1,100 vehicle trips each weekday on this road during peak construction periods could cause temporary delays and congestion.

Operation of the proposed development would introduce additional traffic on area roadways from residents, employees, shoppers, and deliveries accessing the facility. Traffic patterns associated with vehicles accessing the Project Area would be the same as during construction. The number of vehicles accessing the Project Area daily would be similar to or slightly lower than during construction. To minimize adverse impacts on local roadways, the Applicant would install a sidewalk and new streetlights on the portion of Lupton Drive adjacent to the Project Area. While the long-term increase in traffic volume on Lupton Drive is anticipated to result in congestion during peak traffic hours (e.g., morning and afternoon commutes), these new facilities would provide a long-term benefit to drivers and pedestrians by improving pedestrian and vehicle safety.

# 3.11 Land Use

Current land cover and uses in the Project Area include the nine-hole Lupton City Golf Course, dense scrub forest, a network of unimproved trails and roads, a TVA transmission ROW, and City of Chattanooga sewer ROWs. Surrounding land uses include roadways, the old Dixie Yarns mill site, a railroad, municipal parks, and residences.

# 3.11.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no change in land use in the Project Area.

# 3.11.2 Alternative B

Under the Proposed Action Alternative, land use in the Project Area would change from recreation (i.e., golf course) and undeveloped forest to residential and commercial properties. This change is consistent with other properties in the vicinity and along the Nickajack Reservoir where mixed residential and commercial development are common. As a result, impacts on land use would be long-term and minor. Impacts on recreational opportunities and amenities are discussed in Section 3.9.

# 3.12 Visual Resources

This assessment provides a review of the visual attributes of existing scenery, along with the anticipated impacts resulting from implementation of the Proposed Action Alternative. The classification criteria used in this analysis are adapted from a scenic management system developed by the US Forest Service and integrated with planning methods used by TVA. The classification process is also based on the methodology and descriptions adapted from Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook Number 701 (US Forest Service 1995).

Scenic 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 are largely in a natural condition. Similarly, most portions of the Project Area exhibit scenic integrity; in contrast, along this stretch of the Nickajack Reservoir, many other properties have been converted to industrial, transportation, recreation, or residential land uses. Other portions of the Project Area, particularly those within the golf course, sewer ROWs, and transmission ROW, offer lower scenic attractiveness and integrity.

Sensitive visual resources near the Project Area include the Chickamauga Dam and private residences. The Chickamauga Dam Reservation is listed in the NRHP (see Section 3.5, Cultural Resources). The dam has been a visual presence in the area since the 1930s. The Project Area is 1.4 miles downstream from the dam and is separated from the dam by the Amnicola Highway. There are private residences north and west of the Project Area. Residences to the north are separated from the Project Area by the Norfolk Southern railroad and the former Dixie Yarns mill site. Residences to the west are separated from the Project Area by Rivermont Park.

The potential impacts to the visual environment from a given action are assessed by evaluating the potential for changes in the scenic value class ratings based upon landscape scenic attractiveness, integrity, and visibility. Sensitivity of viewing points available to the public, their viewing distances and visibility of the Proposed Action Alternative are also considered during the analysis. These measures help identify changes in visual character based on commonly held perceptions of landscape beauty and the aesthetic sense of place. The extent and magnitude of visual changes that could result from implementation of the alternatives were evaluated based on the process and criteria outlined in the US Forest Service scenic management system.

# 3.12.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, there would be no changes to the scenic attractiveness, integrity, or visibility of the Project Area.

# 3.12.2 Alternative B

Under the Proposed Action Alternative, the scenic attractiveness, integrity, and visibility of the Project Area would be altered by mixed-use residential and commercial development. The change in visual character would be similar to the character of nearby lands in the viewshed, which include a mix of residential, commercial, and open space lands. The shoreline of the development would be within line of sight of the Chickamauga Hydroelectric Project National Register boundary, but the proposed residences and floating docks visible from the Chickamauga Dam would be consistent with other shoreline developments in the area. As a result, direct and indirect adverse effects on visual resources would be minor.

#### 3.13 Solid and Hazardous Waste and Hazardous Materials

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 (EPA 2021a). 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 Tennessee, the TDEC Division of Solid Waste Management operates under the authority of the Solid Waste Management Act of 1991 (T.C.A. §68-211-101 et seq.) 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 (EPA 2021a). Hazardous wastes are regulated under the RCRA through the EPA and the Atomic Energy Act through the US Nuclear Regulatory Commission. In addition to the EPA and US Nuclear Regulatory Commission, hazardous materials are regulated in the US by laws and regulations administered by OSHA and the US Department of Transportation. In Tennessee, the TDEC Division of Solid Waste Management operates under the authority of the Hazardous Waste Management Act of 1977 (T.C.A. §68-212-101 et seq.) and implements RCRA Subtitle C at the state level.

#### Project Area

Current land cover and uses in the Project Area include the nine-hole Lupton City Golf Course, dense scrub forest, a network of unimproved trails and roads, a TVA transmission ROW, and City of Chattanooga sewer ROWs. Historically, portions of the Project Area were used as a golf course, a former sewage treatment plant associated with the adjacent mill, for disposal of fill and surplus materials, and for the golf course. Fill materials include household trash (e.g., yard waste, tires, junk metal) and construction and demolition waste (e.g., sand, concrete/brick rubble, roofing material, steel drums).

In 2001, a Phase I Environmental Site Assessment revealed the following evidence of recognized environmental conditions or controlled recognized environmental conditions in connection with the Project Area:

- Documented impacts to groundwater identified as a component of assessment and regulatory required groundwater monitoring from the adjoining former mill site/property
- Past uncontrolled/undocumented solid waste disposal/dumping on southern portion of the Project Area
- Repeated municipal sewer system overflows at manhole on east side of the Project Area (CTI Engineers 2001)

A second Phase I Environmental Site Assessment completed in 2019 identified the same recognized environmental conditions in the Project Area (S&ME 2019).

A Phase II Environmental Site Assessment completed in 2001 identified sediment samples containing elevated levels of volatile organic compounds (VOC) and Extractable Petroleum Hydrocarbon (EPH)<sup>3</sup> concentrations related to a diesel spill that occurred on the adjacent mill site and drained into the Project Area (Qore 2001). The investigation also found that groundwater samples from monitoring wells on the Project Area contained detectable concentrations of VOCs (tetrachloroethene [PCE]<sup>4</sup>), Semi-VOCs (2,6-dinitrotoluene<sup>5</sup> and trichloromethane<sup>6</sup>), and EPH and contained concentrations of PCE above 2001 EPA Regional Screening Levels. The Phase II Environmental Site Assessment concluded that groundwater contamination on the Project Area originated from the former Lupton Mill property and migrated onto the Project Area (Qore 2001).

Groundwater monitoring was conducted annually from 2004 through 2016. As described in more detail in Section 3.17, the most recent testing in May 2016 identified concentrations of PCE above maximum contaminant levels (MCLs) in one monitoring well south of the railroad tracks and west of the historic water treatment plant within the Project Area (CTI Engineers 2016). In 2018, TDEC determined that all monitoring wells could be abandoned due to a decrease in concentrations over time, the absence of drinking water wells nearby, and the availability of public water for nearby residences (TDEC 2018). Prior to the start of mass grading work within the Project Area, these monitoring wells would be properly abandoned by a licensed water well driller in accordance with TDEC Water Resources Division Water Well Licensing Regulations and Well Construction Standards (Rule 0400-45-09-.16, January 13).

No PCE was detected in three downgradient Project Area monitoring wells subsequently installed and tested in 2019 (BDY 2019).

Soil sampling was conducted at several sites within the Project Area by BDY in 2019 and identified levels of polycyclic aromatic hydrocarbon (PAH)<sup>7</sup> constituents above regulatory thresholds. Measured arsenic concentrations, although above regulatory thresholds, were at or near ranges commonly attributed to naturally occurring background concentrations (BDY 2019).

In 2021, BDY investigated the results of a 2020 GEOServices Geotechnical Report (GEOServices 2020) that identified the presence of material that appears to be foundry sand at one site within the Project Area. BDY's sampling showed elevated PAHs and arsenic concentrations above EPA Regional Screening Levels but below naturally occurring background concentrations in Tennessee (BDY 2021a).

All 2019 and 2021 sampling locations with elevated PAHs were in areas where fill material was historically dumped on the Project Area, foundry sand was encountered, or in

<sup>&</sup>lt;sup>3</sup> Chemical compounds that originally come from crude oil, which is used to make petroleum products

<sup>&</sup>lt;sup>4</sup> A colorless liquid widely used for dry cleaning of fabrics

<sup>&</sup>lt;sup>5</sup> An orange-yellow, crystalline solid used in making foams, surface coatings, and dyes

<sup>&</sup>lt;sup>6</sup> A colorless, dense liquid with multiple uses including as a precursor to Teflon

<sup>&</sup>lt;sup>7</sup> A class of chemicals that occur naturally in coal, crude oil, and gasoline. They also are produced when coal, oil, gas, wood, garbage, and tobacco are burned.

drainages where sediments were inferred to be derived from the upstream former Dixie Yarns mill property.

#### Adjacent Properties

Directly north of the Project Area is the former Dixie Yarns textile mill site that operated from 1923 to 2009. The property was purchased in 2012 by the Dockery Group and was demolished, leaving only remnant structures and demolition debris. During demolition, asbestos containing material and aboveground storage tanks and underground storage tanks were removed.

Multiple environmental site assessments and investigations have been completed on the Dixie Yarns mill site. Elevated levels of VOCs were found during a Phase II Environmental Site Assessment, with PCE and EPH detected above regulatory guidance limits (Qore 2001). In a 2016 groundwater report (CTI Engineers 2016), only one offsite well exceeded regulatory guidance limits for PCE; the investigators noted that overall VOC contaminants at the mill site had decreased since 2005, a finding which TDEC agreed with in an interoffice memo dated February 2, 2018 (TDEC 2018). In the memo, TDEC agreed that groundwater monitoring wells could be abandoned (TDEC 2018).

In addition, elevated levels of VOCs were found in exterior and sub-slab soil gas samples during the soil gas assessment prepared by S&ME for the City of Chattanooga (2017). Upon review of the assessment, TDEC placed Land Use Restrictions on the former mill property, which included conducting a vapor intrusion investigation with appropriate mitigation and requiring covering the site with two feet of clean fill prior to any commercial or industrial use (TDEC 2018).

The EPA conducted a Removal Site Evaluation in 2016, finding polyaromatic hydrocarbons in soils beneath demolished structures above industrial removal management levels. After the Removal Site Evaluation was completed, TDEC and the City of Chattanooga agreed to enter TDEC's Voluntary Cleanup, Oversight and Assistance Program to characterize and mitigate any environmental contaminants on the site. As a result, the USPEA determined that it did not need to take any further action and the agency recommended that future actions involving environmental conditions be conducted through TDEC's Voluntary Cleanup, Oversight and Assistance Program (EPA 2018). On November 30, 2020, the Dixie Yarns mill site was officially accepted into TDEC's Voluntary Cleanup, Oversight and Assistance Program (TDEC 2020).

# 3.13.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. There would be no change in solid and hazardous waste and hazardous materials conditions within the Project Area.

# 3.13.2 Alternative B

Under the Proposed Action Alternative, solid waste would be generated during the clearing, construction, and operation of the proposed Riverton development. Wastes associated with construction would likely consist of organic material, building material waste, and excess debris associated with clearing, excavation, and grading. Additionally, construction wastes

would likely include general waste produced by office and personnel activities and wastes associated with on-site maintenance of construction vehicles and equipment. Solid wastes associated with operation of the mixed-use community would likely include small amounts of garbage and general wastes. 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.

The 2019 Phase I Environmental Site Assessment revealed evidence of three recognized environmental conditions or controlled recognized environmental conditions in connection with the Project Area: impacts on groundwater from the adjoining former mill site, past solid waste disposal and dumping, and municipal sewer system overflows. Impacts on groundwater are discussed in Section 3.17.

To minimize and mitigate impacts from potentially contaminated soils, the Applicant would implement a Soil Management Plan (BDY 2021b and Appendix C of this EA) that governs the handling and management of soils on the Project Area during and after construction. Soil management would be initiated during construction phases requiring the disturbance of soil on the Project Area. Prior to the start of mass grading work on the Project Area, monitoring wells and the irrigation well located on the existing golf course would be properly abandoned in accordance with the TDEC, Water Resources Division Water Well Licensing Regulations and Well Construction Standards (Rule 0400-45-09-.16, January 2013). TDEC-Division of Remediation would be notified prior to the start of the well abandonment work and would be provided documentation regarding the completion of well abandonment work.

Engineering controls would be utilized on the Project Area to limit exposure to impacted soils during construction and after the completion of development activities. The Soil Management Plan would allow for the on-site management of impacted soils by either capping in place or relocating and capping impacted soils. Alternatively, impacted soils may be properly managed offsite in permitted facilities. Following construction and redevelopment of the Project Area, all impacted soils on the Project Area would be capped with engineering controls such as structures, concrete, pavement, or clean fill.

As described in Section 2.1.2, construction of sewer services is included in the Proposed Action. Sewer infrastructure within the Project Area would be constructed to code to minimize the potential for future overflows.

As a result of implementing BMPs to manage unauthorized access and minimize sediment and dust, and adhering to the Soil Management Plan, impacts from solid and hazardous waste and hazardous materials are expected to be negligible.

Because development would be confined to the Project Area, and because all environmental conditions on the adjacent former mill site are being characterized and appropriately mitigated through TDEC's Voluntary Cleanup, Oversight and Assistance Program, no adverse impacts related to solid and hazardous waste and hazardous materials on the former Dixie Yarns mill site adjacent the Project Area are anticipated.

#### 3.14 Socioeconomics and Environmental Justice

The Project Area is located within the City of Chattanooga in Hamilton County, Tennessee. Population and income estimates are derived from US Census data and provided in Table 3-10 below. EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) mandates federal agencies to consider

potentially disproportionate health or environmental impacts that their activities may have on minority or low-income populations. Although TVA is not subject to this EO, it routinely evaluates the impacts of its actions on low-income and minority populations.

Metric	Tennessee	Hamilton County	Census Tract 105.01	Census Block Group 6
Population	7,051,339	374,682	5,650	1,538
Per Capita Income	\$33,904	\$36,964	\$36,118	\$35,902
Median Household Income	\$58,516	\$61,050	\$63,750	\$84,792
Housing Units	3,087,963	164,705	2,903	750
Persons in Poverty (Percent)	13.6	12.6	8.2	6.8
Minority Population (Percent)	27	29	22	14

#### Table 3-9. Population and income.

Source: US Census 2021

Signed on February 11, 1994, EO 12898 directs all federal departments and agencies to incorporate environmental justice considerations in achieving their mission. Each federal department or agency is to accomplish this by conducting programs, policies, and activities that substantially affect human health or the environment in a manner that does not exclude communities from participation in, deny communities the benefits of, nor subject communities to discrimination under such actions because of their race, color, or national origin.

According to CEQ guidance on EO 12898, "minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis [...] Low income populations in an affected area should be identified using the annual statistical poverty thresholds from the Bureau of the Census."

As shown in Table 3-9, the minority population of Census Block Group 6, which includes the Lupton City neighborhood, does not exceed 50 percent, and is lower than Census Tract 105.01, the City of Chattanooga, and the State of Tennessee. The percentage of persons in poverty is lower than Census Tract 105.01, the City of Chattanooga, and the State of Tennessee.

# 3.14.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. Therefore, no anticipated changes would be expected with regards to socioeconomics and environmental justice.

# 3.14.2 Alternative B

Under the Proposed Action Alternative, there would be a minor, short-term beneficial impact on socioeconomics, primarily through the temporary use of workers to construct the

proposed facilities. Because workers would likely be local to Hamilton County, the Proposed Action would provide employment for these workers for the duration of the approximately 24-month construction period. Beneficial impacts would extend to environmental justice if workers are hired from minority or low-income populations. Indirect effects would be minor and include spending by workers in the local economy.

Implementation of the Proposed Action Alternative would accommodate continued population growth in Hamilton County while generating additional property tax revenue for the County and City of Chattanooga. At build-out, the Applicant anticipates the project would generate approximately \$3,700,000 annually in property tax revenue, of which 45 percent would be remitted to the City of Chattanooga, and 55 percent to Hamilton County. The Project Area is currently generating \$133,000/year in property taxes. There would be additional short- and long-term economic benefits derived from employment income of site contractors for development and homesite build-out, sales tax revenues for building materials and supplies, heavy-equipment rental for site preparation, and enhancement of surrounding property values.

Conversely, increased property values could result in adverse economic impacts on existing residents in the Census Block Group 6, which includes the Lupton City neighborhood. For example, property taxes may increase, but this increase is anticipated to be minor due to the geographic separation between the neighborhood and the proposed development. There would be no disproportionate impacts on low income or minority populations because Census Block Group 6 does not qualify as either type of population.

# 3.15 Public Health and Safety

The mission of OSHA, a division of the US Department of Labor, is to ensure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education, and assistance. The State of Tennessee has an OSHA-approved plan under the Tennessee Occupational and Safety and Health Administration which covers employees in the private sector and state and local government.

Portions of the Project Area are currently developed, including the Lupton City Golf Club and several overhead and underground utility easements.

# 3.15.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, there would be no change in public health and safety conditions within the Project Area.

# 3.15.2 Alternative B

Under the Proposed Action Alternative, construction crews and contractors would be expected to have a written health and safety plan which may include signs, barriers, or other markers to indicate active construction zones and other unsafe areas, as well as policies to protect the health and safety of their employees. With implementation of the health and safety plan there would be minor, short-term adverse impacts during the 24-month construction period.

The Proposed Action Alternative includes construction of 16 residential floating docks, extending up to 100 feet from the shoreline. As noted above, an initial dock plan was submitted to TVA in 2020, the review of which resulted in several design changes to minimize potential concerns with navigation and safety. The Applicant's revised dock plan was submitted in 2021 and TVA coordinated its review with the USACE and USCG. The agencies' review concluded that the revised dock plan was consistent with agency requirements for navigation and safety. Therefore, there would be no adverse impacts on health and safety from operation of the floating docks.

#### 3.16 Noise

Noise is defined as unwanted or unwelcome sound judged to be unpleasant, loud, or disruptive. For the purposes of this document, this definition is focused on sound added to the natural acoustic environment of an area caused by human activities. The level of disturbance or unpleasantness can be variable and subjective, but the intensity or loudness of a sound is measured on a logarithmic scale in units called decibels (dB). Because of inherent subjectivity, we adjust dB using an "A-weighted decibel" (dBA), which weights high-pitched and low-pitched sounds to approximate how the average person hears sound. A noise level change of 3 dBA or less is barely perceptible to average human hearing while a 5 dBA change is clearly noticeable, and a 10 dBA change is considered doubling or halving loudness.

The Noise Control Act of 1972, along with its subsequent amendments (Quiet Communities Act of 1978, USC 42 4901-4918), delegates authority to the states to regulate environmental noise and directs government agencies to comply with local community noise statutes and regulations. Although there are no federal, state, or local regulations for community noise in Hamilton County, EPA (1974) guidelines recommend that Day-Night Average Sound Level (Ldn) not exceed 55 dBA for outdoor residential areas. This dBA level is sufficient to protect the public from the effect of broadband environmental noise in typical outdoor and residential areas. These levels are not regulatory goals but are "intentionally conservative to protect the most sensitive portion of the American population" with "an additional margin of safety" (EPA 1974). The US Department of Housing and Urban Development considers an Ldn of 65 dBA or less to be compatible with residential areas (HUD 1985).

Construction activities from vehicle traffic and construction equipment create sounds referred to as construction noise. The level of construction noise is never constant. Therefore, it is necessary to use a standardized descriptor to describe the varying construction noise levels. Here we use the maximum level of a noise source (Lmax); defined as the highest root mean squared sound pressure level within a measuring period. The Federal Highway Administration has developed a table for Lmax values for various pieces of construction equipment. For traffic-related noise, the Federal Highway Administration has set a threshold of 67 dBA as the sound level at which noise abatement should be considered. Equipment likely to be utilized for construction and operation of the proposed project are presented in Table 3-10.

Construction Equipment	Average Measured Lmax @ 50 feet (dBA, slow)
Auger Drill Rig	84
Backhoe	78
Concrete Mixer Truck	79
Concrete Pump Truck	81
Crane	81
Dozer	82
Drill Rig Truck	79
Dump Truck	76
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Impact Pile Driver	101
Jackhammer	89
Pickup Truck	75
Vibratory Concrete Mixer	80
Vibratory Pile Driver	101

 Table 3-10. Average Noise Levels from Construction Equipment.

Source: Federal Highway Administration 2017

The impact of construction noise can vary not only among individuals but also based on time of day. The Ldn is the 24-hour equivalent of the steady A-weighted sound level (Leq), which incorporates a 10 dBA correction penalty for the hours between 10 p.m. and 7 a.m. to account for the increased annoyance during this period and the fact that most people are more sensitive to noise while they are trying to sleep (Table 3-12). For traffic-related noise, the Federal Highway Administration has set a threshold of 67 dBA as the sound level at which noise abatement should be considered.

Typical background Ldn for rural areas range between 35 and 50 dBA whereas higherdensity residential and urban areas background noise levels range from 43 dBA to 72 dBA (EPA 1974). Background noise levels greater than 65 dBA can interfere with normal conversation, watching television, using a telephone, listening to the radio, and sleeping. Ambient noise within the Project Area is anticipated to fall within the typical range described above for rural areas. Table 3-11 summarizes the criteria used by the FHWA to abate noise impacts.
Activity	Criteria	Evaluation	
Leq(h)	L10(h)	Location	Description
57	60	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
67	70	Exterior	Residential.
67	70	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, historic structures and sites, schools, television studios, trails, and trail crossings.
52	55	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools.
72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
			Undeveloped lands that are not permitted.

# Table 3-11. Noise Abatement Criteria (Hourly dBA).

Source: 23 CFR, Appendix Table 1, Part 772

# 3.16.1 Noise Receptors

The area surrounding the Project Area consists primarily of residential properties, parks, and sport complexes used for recreation and public access to waterways including the Tennessee River. The closest receptors are residential properties located on the north side of Lupton Drive and the Champions Tennis Club located southwest of the Project Area.

# 3.16.2 Noise Sources

The noise environment within the Project Area is characterized transportation noise from the railroad line and nearby highways and roadways, recreational and commercial watercraft noise on the Nickajack Reservoir, and recreational noise from the golf course and adjacent municipal parks.

# 3.16.3 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, there would be no changes in noise levels in the Project Area and no adverse impacts on sensitive receptors.

# 3.16.4 Alternative B

Under the Proposed Action Alternative, there would be short- and long-term increases in noise. During the anticipated 24-month construction period, noise would be generated from operation of construction equipment on-site and the movement of construction-related vehicles (i.e., worker trips and material and equipment trips) on surrounding roadways. Noise levels associated with construction activities would increase ambient noise levels adjacent to the construction site and along roadways used by construction related vehicles. Construction noise would be temporary and intermittent in nature because it would generally occur on weekdays during daylight hours which minimizes the impact on nearby receptors. As a result, adverse noise impacts associated with construction are expected to be minor.

During construction and operation, there would be approximately 1,000 – 1,000 vehicle trips each day accessing the commercial and residential properties within the Project Area. As described in Section 3.10, Transportation, impacts would be most noticeable on Lupton Drive, where the percentage increase in traffic compared to current conditions would be highest. Increased noise levels are anticipated to be most noticeable when more vehicles are traveling to and from the Project Area. There would be no night-time impacts because construction would be limited to daytime hours. Impacts to sensitive receptors along Lupton Drive from increased vehicle use are anticipated to be moderate.

# 3.17 Geology and Groundwater

The Project Area is located within the Valley and Ridge province of the Appalachian Mountain region. This province is characterized as a series of northeast-southwest trending synclines and anticlines composed of Early Paleozoic sedimentary rocks. The limestone and shale that make up much of the valley are most susceptible to erosion whereas sandstone and conglomerates that form the ridges are more resistant (National Park Service 2021). The geology of the Project Area is predominantly comprised of the unnamed upper part of the Knox Group and the Chickamauga Group. Major lithologic constituents of are Ordovician aged dolomites, limestones, and shales (USGS 2021). In Hamilton County, larger caves are found in the southeastern section of the county in the Mississippian limestones in the Cumberland Plateau region; however, a few small caves can be found in the Valley region as well (Barr 1961). No caves were found in the Project Area.

The Project Area is drained by intermittent and ephemeral streams and the Tennessee River. The intermittent and ephemeral streams flow into the Tennessee River, which eventually drains into the Ohio River in Paducah, Kentucky.

As a part of the East Tennessee aquifer system, groundwater primarily occurs and moves through fractures, bedding planes, and solution openings in carbonate rocks and in fractures in sandstone and shale. As part of the demolition and remediation of the former Dixie Yarns mill site north of the Project Area, seven groundwater monitoring wells were installed, including five on the Lupton City Golf Club course inside the Project Area. In 2016, depth to groundwater elevations from these monitoring wells varied from 3.6 feet to 22.8 feet.

Groundwater in the Project Area was first investigated as part of a Phase II Environmental Site Assessment in 2001 (Qore 2001; see Section 3.13 for additional information) which found contaminants in several sampling sites. The Phase II Environmental Site Assessment concluded that groundwater contamination on the Project Area originated from the former Lupton Mill property and migrated onto the Project Area (Qore 2001). As a result, TDEC required annual groundwater monitoring from 2004 until 2016. The 2016 sampling identified concentrations of PCE above MCLs in one monitoring well within the Project Area. TDEC issued a No Additional Action letter in February 2017 (TDEC 2017). The letter indicated that after review of the last annual groundwater monitoring report (2016), "there did not appear to be any need for additional investigation or remedial action at this time".

Subsequent installation and sampling of three additional downgradient groundwater monitoring wells within the Project Area did not detect PCE (BDY 2019).

In 2017, S&ME completed a Report of Limited Soil Gas Assessment for the Dixie Yarns mill site adjacent to the Project Area. The background summary provided in this report indicates that, with the exception of well BC-3 (located within the Project Area), PCE concentrations in groundwater at each of the monitored wells were below regulatory thresholds. TDEC observed that historic PCE levels had decreased over time and that natural attenuation was likely to continue (TDEC 2018). TDEC concluded that no development restrictions should be implemented for the former mill property with regards to groundwater, given that drinking water in the area is provided by City of Chattanooga infrastructure and not private drinking water wells (TDEC 2018). Correspondence from the EPA in July 2018 summarized the results of a removal site evaluation and associated correspondence with TDEC and the City of Chattanooga. The EPA concurred that no further action needed to be taken by the EPA regarding environmental conditions on the former mill property because the City of Chattanooga had entered TDEC's Voluntary Cleanup, Oversight and Assistance Program and committed to fully characterizing and properly mitigating any environmental contaminants at the mill site (EPA 2018).

# 3.17.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, there would be no changes to the existing geological and groundwater conditions.

# 3.17.2 Alternative B

Under the Proposed Action Alternative, soil would be disturbed during construction activities including grading and earthmoving. This is not expected to adversely affect geologic conditions directly or indirectly. Clearing and grading would likely result in predominantly shallow to moderate depth ground disturbances with greater soil disturbance depths expected for utilities, foundations, and piping. Ground disturbance activities are not expected to exceed depths that may impact drinking supplies, as groundwater used for public drinking water in the Valley and Ridge carbonate-rock aquifers is typically deep and varies from 50 to 250 feet beneath the land surface at the top of the aquifer (USGS 2016).

Clearing, grading, and development of the landscape including vegetation clearing, increases in impermeable surfaces, and soil compaction are expected to result in minor impacts to shallow aquifers as water infiltration is reduced.

In 2016, the final year of annual groundwater monitoring, concentrations of PCE above regulatory thresholds were identified in one monitoring well within the Project Area. Subsequent installation and sampling of three additional downgradient monitoring wells within the Project Area did not detect PCE (BDY 2019). The potential for groundwater contamination during the construction and operation of the proposed Riverton Development would be mitigated by implementation of the Soil Management Plan (see Appendix C), construction BMPs and compliance with applicable permits and regulatory requirements. As a result, adverse impacts are expected to be negligible.

# 3.18 Air Quality

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

- Sulfur dioxide (SO2)
- Ozone
- Nitrogen dioxide (NO<sub>2</sub>)
- Particulate matter with particle sizes less than or equal to 10 micrometers (PM10)
- Particulate matter with particle sizes less than or equal to 2.5 micrometers (PM2.5)
- Carbon monoxide (CO)
- Lead

The primary NAAQS were promulgated to protect public health, and the secondary NAAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air.

In accordance with the CAA Amendments of 1990, all counties are designated with respect to compliance, or degree of noncompliance, with the NAAQS. These designations are either attainment, nonattainment, or unclassifiable. An area with air quality better than the NAAQS is designated as "attainment" whereas an area with air quality worse than the NAAQS is designated as "non-attainment". Non-attainment areas are further classified as extreme, severe, serious, moderate, or marginal. An area may be designated as unclassifiable when there is a lack of data to form a basis of attainment status.

Hamilton County and the surrounding counties (Marion, Sequatchie, Bledsoe, Rhea, Meigs, and Bradley counties in Tennessee and Whitfield, Catoosa, Walker, and Dade counties in Georgia) are all in attainment with applicable NAAQS (EPA 2021b), Tennessee ambient air quality standards referenced in the Tennessee Air Pollution Control Regulations Chapter 1200-3-3, and Georgia ambient air quality standards referenced in Georgia Air Quality Control Official Code of Georgia Annotated 391-3-1.

Proposed construction and operation activities would be subject to both federal and state (Tennessee Division of Air Pollution Control) regulations. These regulations impose permitting requirements and specific standards for expected air emissions.

# 3.18.1 Alternative A

Under the No Action Alternative, TVA would not issue Section 26a approval for construction activities associated with the proposed Riverton development or approval for use of the TVA transmission ROW easement. As a result, there would be no changes to the existing air quality conditions.

# 3.18.2 Alternative B

# 3.18.2.1 Construction

Under the Proposed Action Alternative, transient air pollutant emissions would occur during the anticipated 24-month construction phase. Construction-related air quality impacts would primarily result from the staging of construction vehicles, equipment, and supplies and the operation of construction vehicles and equipment and worker personnel vehicles.

Combustion of gasoline and diesel fuels by internal combustion engines (vehicles, generators, construction equipment, etc.) would generate local emissions of PM, nitrogen oxides, CO, volatile organic compounds, and SO<sub>2</sub> during the site preparation and construction period. However, new emission control technologies and fuel mixtures have significantly reduced vehicle and equipment emissions.

Additionally, it is expected that all vehicles would be properly maintained, and idling times would be kept to a minimum to reduce emissions. Therefore, emissions from internal combustion engines during construction and operation would result in minor short-term local effects on air quality due to the relatively low number of vehicles, adherence to equipment maintenance requirements, and continued improvement by the manufacturers of emission control measures and fuel blends.

Fugitive dust from site development and building/facilities construction would be minimized during the construction period. Fugitive dust would be controlled using wet suppression and other BMPs, as appropriate.

Generally, temporary impacts on air quality during construction would be similar to other medium-scale construction and development projects. The quantity and duration of construction-related emissions would vary and be spread out over the 24-month construction phase, further minimizing short-term impacts on air quality. Air emissions would be dependent upon 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 below applicable ambient air quality standards.

# 3.18.2.2 Operation

The proposed development would include mixed-use commercial and residential properties. There would be air emissions from vehicles that drive to and from the Project Area daily. Overall, the number of vehicles utilizing the Project Area is estimated to be less than 5 percent of the number of vehicles traveling on nearby roadways such as the Amnicola Highway or Hixson Pike. As a result, the potential impacts to air quality from operationrelated activities on local and regional air quality would be negligible.

## 3.19 Cumulative Effects

CEQ regulations for implementing NEPA define cumulative effects as "...effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.1(g)(3)).

Unless otherwise stated, the geographic scope of analysis for cumulative effects includes the Project Area and a 1-mile buffer. This is the area in which indirect and cumulative effects are expected to occur. Current land cover and uses in the Project Area include the nine-hole Lupton City Golf Course, dense scrub forest, a network of unimproved trails and roads, a TVA transmission ROW, and City of Chattanooga sewer ROWs. Land uses within the 1-mile buffer include roadways, the old Dixie Yarns mill site, a railroad, municipal parks, commercial properties, and residences.

Past, present, and reasonably foreseeable future actions identified within the geographic scope of analysis include the following:

- Demolition and remediation of the former Dixie Yarns textile mill site
- Closure of the Lupton City Golf Club when Project construction begins
- Possible USACE and Hamilton County future project to stabilize several thousand feet of the north bank of the Tennessee River which may include shoreline within the Project Area
- Continued operation of nearby recreational facilities including Rivermont Park, the Champions Club Tennis Complex, and others as described in Section 3.9
- Continued residential and commercial development in Chattanooga and Hamilton County, including on formerly undeveloped lands
- While no specific road construction or maintenance projects were identified within the geographic scope of analysis, it is reasonable to assume that local roadways will continue to require maintenance and possible upgrades (e.g., widening)

As shown in Table 3-12, cumulative effects associated with the Proposed Action in combination with the above identified actions would be insignificant.

Resource Area	Cumulative Effects under the Proposed Action
Aquatic Ecology	Negligible adverse effects due to implementation of compensatory mitigation and BMPs
Botany	Negligible cumulative effects from long-term trend of land development and associated effects in Hamilton County
Terrestrial Zoology	Negligible cumulative effects from long-term trend of terrestrial habitat conversion and associated effects in Hamilton County
Threatened and Endangered Species	Negligible cumulative effects from long-term trend of terrestrial habitat conversion and associated effects in Hamilton County; negligible adverse effects on aquatic ecology due to implementation of compensatory mitigation and BMPs; no cumulative impact on listed plants due to lack of habitat
Wetlands	No adverse cumulative effects due to offsetting compensatory mitigation
Managed and Natural Areas	Proposed Action is consistent with nearby land uses and cumulative effects would be negligible during construction and operation
Cultural Resources	No cumulative adverse impacts to significant archaeological or historic resources with implementation of MOA
Floodplains	Minor adverse cumulative effects within 100- and 500-year floodplains; negligible impacts on loss of power storage on Nickajack Reservoir.
Surface Water	Negligible adverse cumulative effects which would be offset by compensatory mitigation and possible future bank stabilization projects within the geographic scope of analysis
Navigation	Negligible adverse cumulative effects because floating dock design including lakeward extension would be consistent with TVA, USACE, and USCG requirements
Parks & Recreation	Minor adverse cumulative effects on water-based recreation from installation of private floating docks; beneficial effects on local recreation from construction of new greenway segment
Transportation	Minor adverse cumulative effects on traffic volume on arterial roads and highways used to access the Project Area, moderate impacts on Lupton Drive during construction
Land Use	Minor adverse cumulative effects as part of broader trend of land development in Chattanooga and Hamilton County
Visual Resources	Minor adverse cumulative effects from conversion of another Nickajack Reservoir shoreline property from mostly forested to a developed condition

# Table 3-12. Cumulative Effects.

Resource Area	Cumulative Effects under the Proposed Action
Solid & Hazardous Waste & Hazardous Materials	Proposed Action would be part of a broader trend in remediation of former industrial sites; overall cumulative effects would be beneficial due to implementation of cleanup actions in accordance with TDEC programs
Socioeconomics/ Environmental Justice	Minor short-term contribution to cumulative effects related to employment and property values within the Census Block Group.
Public Health and Safety	No indirect effects and, therefore, no cumulative effects
Noise	Minor cumulative effects from broader trend of land development and associated construction noise
Geology and Groundwater	Negligible adverse cumulative effects due to implementation of Soil Management Plan
Air Quality	Negligible cumulative effects on air quality conditions in Hamilton County

## 3.20 Unavoidable Adverse Environmental Impacts

Unavoidable adverse effects on air quality and the local sound environment would result from construction and operation of the proposed project, including from employee traffic, logging materials transportation, and incidental operational noise from equipment and machinery. As described in Sections 3.2.3.1 and 3.7, there would also be unavoidable adverse effects on 376 linear feet of streams and 0.50 acres of wetlands; these impacts would be offset through the purchase of stream and wetland mitigation credits. Finally, the Proposed Action would result in unavoidable adverse impacts on cultural resources, as described in Section 3.5. A Phase III data recovery and burial recovery was conducted to mitigate these impacts.

# 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 the maintenance and enhancement of long-term productivity. This EA analyzes the potential environmental effects of constructing and operating the proposed housing development. 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 approximately 24-month 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 use of land and construction materials, use of existing roadways, and correlative, but temporary increases in emissions from transportation vehicles, as well as increased noise and vibration from construction equipment use. Most of the environmental impacts from construction activities would be relatively short-term and would be addressed by BMPs and mitigation measures. Construction activities would also have a limited, yet favorable shortterm impact to the local economy through the creation of construction and support jobs and revenue.

Operation of the proposed facilities would affect long-term productivity primarily through the conversion of forested areas to other uses. Project-related activities would alter the Project Area landscape from forested and, consequently, effects on vegetation may be considered permanent.

## 3.22 Irreversible and Irretrievable Commitments of Resources

A commitment of a resource is "irreversible" when the primary or secondary effects from its use limit future options for its use. An irretrievable commitment refers to the use or consumption of a resource that is neither renewable nor recoverable for use by future generations.

The granting of the Section 26a permit would result in the irreversible commitment of certain fuels, energy, and construction materials during construction and operation of the proposed facility. However, because the proposed land use of the Project Area is consistent with land uses identified in the City of Chattanooga's Code of Ordinances for Zoning, these commitments would result in minor and insignificant impacts on the land use.

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# CHAPTER 5 – LITERATURE CITED

- Alexander, Lawrence S. 2008. Phase I Archaeological Survey Investigations of a 145 Acre Parcel at Tennessee River Mile 469R in Chattanooga, Hamilton County, Tennessee. Prepared by Alexander Archaeological Consulting, Wildwood, Georgia, for Blue Cross Blue Shield Real Estate, Chattanooga, Tennessee.
- Bailey, Mark, Jeff Holmes, Kurt Buhlmann, and Joseph Mitchell. 2006. Habitat Management Guidelines for Amphibians and Reptiles of the Southeastern United States. Partners in Amphibian and Reptile Conservation Technical Publication HMG-2, Montgomery, AL.
- Barr, Thomas Calhoun, Jr. 1961. Caves of Tennessee. Reprint. Nashville: Tennessee Department of Environmental Conservation, Division of Geology, Bulletin 64.
- BDY Environmental, LLC. 2019. Summary Report of Findings Environmental Site Investigation. May 31, 2019.
- \_\_\_\_\_. 2021a. Summary Report of Foundry Sand Sampling letter report. April 8, 2021.
- \_\_\_\_\_. 2021b. Soil Management Plan for Riverton Development. Approved by TDEC on May 3, 2021.
- 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, New York, USA.
- Brock, Jim and Ken Kaufman. 2003. Field Guide to Butterflies of North America. Houghton Mifflin, New York, NY.
- Brockington and Associates, Inc. 2021. Architectural Survey of Riverton Development Tract. Hamilton County, TN. December 2021.
- Chattanooga.gov. Directory of Chattanooga City Parks and Open Spaces. Accessed Feb. 11, 2021. http://www.chattanooga.gov/parks/community-parks
- Clark, D. R., Jr., & C. M. Bunck. 1991. Trends in North American small mammals found in common barn-owl (TYTO ALBA) dietary studies. Can. J. Zool. 69:3093-3102
- Conant, R., and J. T. Collins. 1998. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. 3<sup>rd</sup> ed. Houghton Mifflin, Boston, MA.
- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetland and Deepwater Habitats of the United States. Washington, D.C.: US Fish and Wildlife Publication FWS/OBS-79/31.
- CTI Engineers, Inc. 2001. Phase I Environmental Site Assessment, Lupton City Property, Chattanooga, Hamilton County, Tennessee. November 5, 2001.
- . 2016. R.L. Stowe Plant And Blue Cross/Blue Shield Property Groundwater Monitoring Report. May 2016.

- Davis, A.K., & E. Howard. 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.
- Dorcas, L. and W. Gibbons. 2005. Snakes of the Southeast. The University of Georgia Press, Athens, GA.
- Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual. Vicksburg, Miss.: US Army Corps of Engineers Waterways Experiment Station. Technical Report Y-87-1
- Evans, E. Raymond and Vicky Karhu. 1985. Archaeological Sites of Nickajack Riverfront. Prepared by The RiverCity Company, Chattanooga, on behalf of the TVA, Cultural Resources Program, Norris, Tennessee.
- Executive Order 11988, Floodplain Management, Federal Register Vol. 42, No. 101, May 25, 1977. pp. 26951-26957.
- Federal Highway Administration. 2017. Construction Noise Handbook: Construction Equipment Noise Levels and Ranges. US Department of Transportation. Washington, DC.
- Fujita, M. S., and T. H. Kunz. 1984. Pipistrellus subflavus. Mammalian Species 228:1-6
- GEOServices LLC. 2020. Report of Additional Geotechnical Exploration and Infiltration Testing Results. January 29, 2020
- 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.
- Harvey, M. J., J. S. Altenback, and T. L. Best. 2011. Bats of the United States and Canada. John Hopkins University Press, Baltimore, MD. 224 pp.
- Jenkins, J. M., & Jackman, R. E. 1993. Mate and nest site fidelity in a resident population of bald eagles. Condor, 1053-1056.
- Kays, R., and D. E. Wilson. 2002. Mammals of North America. Princeton University Press, Princeton, NJ.
- Kroulek, Orion Scott, and James Morgan. 2020. A NHPA Phase II Archaeological Assessment of Sites 40HA73 and 40HA115 in Chattanooga, Hamilton County, Tennessee. Prepared by Cumberland Applied Research Associates, Chattanooga, for BDY Environmental, LLC, Nashville, and Thunder Enterprises, Chattanooga.
- Kurta, A, S. W. Murray, & D. H. Miller. 2002. Roost selection and movements across the summer landscape. In Kurta, A. and J. Kennedy, eds. 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.
- Lichvar, R. W., M. Butterwick, N. C. Melvin, and W. N. Kirchner. 2014. The National Wetland Plant List: 2014 update of wetland ratings. Phytoneuron 2014-41: 1–42. Published 2 April 2014. ISSN 2153 733X (n.d.)
- National Geographic. 2002. Field Guide to the Birds of North America. Fourth edition. National Geographic Society, Washington, DC.
- National Park Service. 2021. Valley and Ridge Province Series. NPS Geodiversity Atlas— Chickamauga & Chattanooga National Military Park, Georgia and Tennessee. Available online at https://www.nps.gov/articles/valleyandridgeprovince.htm Accessed June 22, 2021.
- Natural Resources Conservation Service (NRCS). 2021a. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed on May 20, 2021.
- NatureServe. 2023. NatureServe Explorer [web application]. NatureServe, Arlington, VA. Available https://explorer.natureserve.org/. Accessed: May 15, 2023.
- Newman B.A., S.C. Loeb, and D.S. Jachowski. 2021. Winter roosting ecology of tricolored bats (Perimyotis subflavus) in trees and bridges. Journal of Mammalogy102(5): 1331–1341.
- Nicholson, C. P. 1997. Atlas of Breeding Birds of Tennessee. Univ. of Tennessee Press, Knoxville.
- O'Keefe, J.M., S.C. Loeb, J.D. Lanham, and H.S. Hill. 2009. Macrohabitat factors affect day roost selection by eastern red bats and eastern pipistrelles in the southern Appalachian Mountains, USA. Forest Ecology and Management 257:1757–1763.
- Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington.
- Poole, A. 1989. Ospreys: a natural and unnatural history. Cambridge Univ. Press, Cambridge, U.K.
- Qore, Inc. 2001. Phase II Environmental Site Assessment Report, Dixie Group Lupton City Property, Lupton Drive, Chattanooga, Hamilton County, Tennessee. December 18, 2001.
- S&ME. 2017. Report of Limited Soil Gas Assessment. Former Dixie Yarns-Lupton City (SRS#33-739). August 10, 2017.

- . 2019. Draft Phase I Environmental Site Assessment. Riverton Investments Lupton City Properties. April 11, 2019.
- Schaefer, K. 2017. Habitat Useage of tri-colored bats (Perimyotis subflavus) in western Kentucky and Tennessee post-white nose syndrome. Murray State Theses and Dissertations. 26.
- Sibley, D. A. 2003. The Sibley Field Guide to Birds of Eastern North America. Alfred A. Knopf, Inc. New York, New York.
- Tennessee Department of Environment and Conservation (TDEC). 2017. Letter of No Additional Action. Site ID #SRS33044. February 27, 2017.
- \_\_\_\_\_. 2018. Interoffice Memo: 33739 Report of Limited Soil Gas Assessment. Division of Remediation. February 2, 2018.
- \_\_\_\_\_. 2020. Voluntary Program Acceptance Letter. Riverton Development. DoR Site ID 33-803. November 30, 2020.
- Tennessee Department of Transportation (TDOT). 2023. Average Annual Daily Traffic. Available online: https://tdot.public.ms2soft.com/tcds/tsearch.asp?loc=Tdot&mod=TCDS. Accessed on April 26, 2023.
- Tennessee Valley Authority (TVA). 1981. Class Review of Repetitive Actions in the 100-Year Floodplain, Federal Register Vol. 46, No. 76, April 21, 1981. 22845-22846.
- Thames, D.B. 2020. Summer foraging range and diurnal roost selection of tricolored bats, Perimyotis subflavus. Master's Thesis, University of Tennessee, 2020.
- The Chattanoogan. 2018. End Of Era For Lupton City Golf Club. By John Shearer. Monday, June 25, 2018.
- Tuttle, M. D. 1976a. 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.
- Tuttle, M. D. 1976b. Population ecology of the gray bat (Myotis grisescens): factors influencing growth and survival of newly volant young. Ecology 57: 587-595.
- US Army Corps of Engineers (USACE). 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0, ed. J. F. Berkowitz, J. S. Wakeley, R. W. Lichvar, C. V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: US Army Engineer Research and Development Center.
- US Census Bureau. 2023. Explore Census Data. Available online: https://data.census.gov/. Accessed April 2023.

- US Climate Data. 2021. Information for Chattanooga, TN. Available Online: https://www.usclimatedata.com/climate/chattanooga/tennessee/unitedstates/ustn0084. Accessed June 22, 2021.
- US Environmental Protection Agency (EPA). 1974. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with Adequate Margin of Safety." EPA/ONAC Report No. 550/9-74-004. Washington, DC.
- \_\_\_\_\_. 2018. Removal Site Evaluation, Lupton City PCB Site. July 3, 2018.
- . 2021a. Defining hazardous waste: listed, characteristic and mixed radiological wastes. Available online at: https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes. Accessed June 22, 2021.
- . 2021b. US EPA Green Book. Tennessee Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available at: https://www3.epa.gov/airquality/greenbook/anayo\_tn.html. Accessed June 22, 2021.
- US Fish and Wildlife Service (USFWS). 2007a. National bald eagle management guidelines. Arlington (VA): U.S. Fish and Wildlife Service, Division of Migratory Bird Management. 23 p. Available from: https://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.p df. Accessed: February 14, 2022.
- \_\_\_\_\_. 2007b. Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp. Available from: https://ecos.fws.gov/ServCat/DownloadFile/45796?Reference=44940. Accessed: February 14, 2022.
- . 2014. Northern Long-eared Bat Interim Conference and Planning. Available online: https://www.nrc.gov/docs/ML1507/ML15070A304.pdf. Accessed May 11, 2023.
- . 2017. Conservation Strategy for Forest-dwelling Bats in Tennessee. Tennessee Ecological Services Field Office. October 5, 2017.
- . 2020. Range-wide Indiana Bat Survey Guidelines. March 2020.
- . 2021. Review of Riverton Bat Mist Net Survey. Email from David Pelren, USFWS Fish and Wildlife Biologist, to Sara Samoray, BDY Biologist, on July 6, 2021.
- . 2023. 2023 Range-Wide Indiana Bat & Northern Long-eared bat Survey Guidelines. U.S. Fish and Wildlife Service, Bloomington, MN. 65pp. Available from: https://www.fws.gov/sites/default/files/documents/USFWS\_Rangewide\_IBat\_%26\_NLEB\_Survey\_Guidelines\_2023.05.10.pdf Accessed May 11, 2023.
- US Forest Service. 1995. Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook Number 701. December 1995.
- \_\_\_\_\_. 2023. Forest Inventory and Analysis Program. EVALIDator Version 2.0.6. Available online: https://apps.fs.usda.gov/fiadb-api/evalidator.

- US Geological Survey (USGS). 2016. Groundwater Quality in the Valley and Ridge and Piedmont and Blue Ridge Carbonate-Rock Aquifers, Eastern United States. Fact Sheet 2016–3079. September 2016.
- \_\_\_\_\_. 2021. Tennessee Geological Map Data. Online Spatial Data. Available online: https://mrdata.usgs.gov/geology/state/state.php?state=TN&as\_qdr=y15. Accessed May 20, 2021.
- US Department of Housing and Urban Development (HUD). 1985. The Noise Guidebook. Prepared By The Environmental Planning Division, Office of Environment and Energy.
- US Water Resources Council. 1978. Guidelines for Implementing Executive Order 11988, Floodplain Management. Federal Register Vol. 43, No. 29, February 10, 1978. pp. 6030-6054.
- Veilleux, J.P., Whitaker, J.O., and S. L. Veilleux. 2003. Tree-roosting ecology of reproductive female eastern pipistrelles, Pipistrellus subflavus, in Indiana. Journal of Mammalogy 84:1068–1075.
- Visitchattanooga.com. Champions Club Tennis Complex at Rivermont Park. https://www.visitchattanooga.com/listing/champions-club-tennis-complex-atrivermont-park/831/. Accessed February 11, 2021.
- Whitaker, J. O. 1996. *Field Guide to North American Mammals*. National Audubon Society. Alfred A. Knopf, New York.
- Wilson, T. L., Schmidt, J. H., Mangipane, B. A., Kolstrom, R., & Bartz, K. K. 2018. Nest use dynamics of an undisturbed population of bald eagles. Ecology and Evolution, 8(15), 7346-7354. https://doi.org/10.1002/ece3.4259

# Appendix A – Consultation and Communication

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To:	Hamrick, Elizabeth Burton
Cc:	Tennessee ES, FWS; Sikula, Nicole R
Subject:	FWS #2021-CPA-0432 / I-1122 Riverton development ESA consultation
Date:	Tuesday, August 24, 2021 4:14:43 PM

## This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the "Report Phishing" button located on the Outlook Toolbar at the top of your screen.

Ms. Elizabeth Hamrick Tennessee Valley Authority 400 West Summit Hill Drive Knoxville, Tennessee 37902

## Liz-

Thank you for coordinating with us to address the potential for environmental impacts relative to a Shoreline Construction Permit under Section 26a of the TVA Act. This project would involve a 155acre residential and commercial community development project by Riverton LLC along the Nickajack Reservoir of the Tennessee River in Chattanooga, Hamilton County, Tennessee (FWS #2021-CPA-0589 / I-1122). We have reviewed a description of the project proposal in a letter from Douglas White (Manager, TVA's Biological Compliance section), dated August 3, 2021. The action would involve construction of approximately 309 residences, commercial space, roads, utilities, stormwater appurtenances, riprap, and residential floating docks. You included the following list of species (generated during a search of the Fish and Wildlife Service's Information for Planning and Consultation system) that could potentially be affected by the proposed project: gray bat (Myotis grisescens), Indiana bat (Myotis sodalis), northern long-eared bat (Myotis septentrionalis), snail darter (Percina tanasi), Cumberland monkeyface (Quadrula intermedia), dromedary pearlymussel (Dromus dromas), orangefoot pimpleback (Plethobasus cooperianus), pink mucket (Lampsilis abrupta), rough pigtoe (Pleurobema plenum), tubercled blossom pearlymussel (Epioblasma torulosa torulosa), large-flowered skullcap (Scutellaria montana), small whorled pogonia (Isotria medeoloides), Virginia spiraea (Spiraea virginiana), white fringeless orchid (Platanthera integrilabia), and American harts-tongue fern (Asplenium scolopendrium).

Based on negative findings for the gray bat, Indiana bat, and northern long-eared bat during a mistnet survey conducted in the summer of 2021, you have determined that these species are not likely to be adversely affected by the project. Likewise, a comprehensive survey for the large-flowered skullcap on May 25, 2021 did not result in documentation of the species' presence at this site; and you determined that the project would not affect it. None of the streams located within the proposed project area provide suitable habitat for any of the above-listed aquatic species, and all activity adjacent to the Tennessee River would occur at an elevation above the floodway. Further, standard best management practices for water quality control would be implemented. Therefore, you have determined that the project would have no effect on the snail darter or any of the six mussels specified above. You indicated that the project would have no effect on the remaining four plant species addressed because of lack of habitat and because none of the species are known to occur within the local area of the Ridge and Valley ecoregion. You requested concurrence with these determinations regarding federally listed species.

Based on bat and large-flowered skullcap survey findings, proposed conservation measures, habitat conditions at the project site, and location of the project site relative to known records of threatened or endangered species, we are not aware of any federally listed species that would reasonably be expected to occupy the anticipated area of impact. We concur with your "not likely to adversely affect" findings, and we acknowledge your "no effect" findings. Therefore, we consider this correspondence to conclude the coordination requirements of the Endangered Species Act of 1973, as amended. You should re-coordinate with us if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

Feel free to contact me if further coordination regarding this project will be helpful.

David Pelren Fish and Wildlife Biologist Ecological Services U.S. Fish and Wildlife Service 446 Neal St. Cookeville, TN 38501 office phone: 931-525-4974 mobile phone: 931-261-5844

NOTE: This email correspondence and any attachments to and from this sender are subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

### Riverton Development Section 26a Approval Environmental Assessment

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## Public Notices

# Public Notice 23-01; LRN-2017-01076

#### **USACE - NASHVILLE DISTRICT** Published Ian, 10, 2023

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Contracting Opportunities Less

Expiration date: 2/9/2023

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#### PRINT | E-MAIL

SUBJECT: Proposed Riverton Residential Development, Chattanooga, Hamilton County, Tennessee

TO ALL CONCERNED: The application described below has been submitted for a Department of the Army (DA) Permit pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. § 1344). The proposed project also requires Tennessee Valley Authority (TVA) approval under Section 26a of the Tennessee Valley Authority Act, The Applicant received a Section 401 Water Quality Certification (NRS21.230) from the State of Tennessee, Department of Environment and Conservation (TDEC), Division of Water Resources, dated September 29, 2022, pursuant to 40 CFR Part 121 of the CWA (33 U.S.C. § 1251).

#### APPLICANT: Dane Bradshaw

**Riverton Development, LLC** P.O. Box 4737 Chattanooga, Tennessee 37405

LEAD FEDERAL AGENCY: The U.S. Army Corps of Engineers (USACE) and TVA have a Memorandum of Understanding 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 (e.g., the National Historic Preservation Act (NHPA) and the Endangered Species Act (ESA)) for proposed work that may occur on property which is under TVA jurisdiction or control.

LOCATION: The proposed project is located within the boundaries of Parcel Number 118K A 046, near 1100 Lupton Drive, and between Tennessee River Miles 468.6 and 469.4, Chattanooga, Hamilton County, Tennessee; HUC 12 060200011202 – Upper Nickajack Lake – Tennessee River; Latitude N. 35.102156°, Longitude W. -85.267979°.

DESCRIPTION OF PROPOSED WORK: The Applicant proposes to construct a planned residential community that would include 236 single-family homesites, 38 townhomes, 30 live/work units, and amenities such as community trails, pool, and a 21,617 square foot commercial space in the Village Center on a 154.96 acre project site. The Village Center would include a fitness center, retail opportunities within the live/work units, designated space for a restaurant, and green space with an open-air pavilion and stage for community gatherings. The proposed project would include permanent impacts to 376 linear feet (0.03 acre) of stream and 0.50 acre of wetlands for grading and construction activities, and 75 linear feet of the Tennessee River for bank stabilization.

Plans and location maps of the proposed project are provided in this notice. If you wish to view additional plans, please contact this office or visit our web site at: http://www.lrn.usace.army.mil/Media/PublicNotices.aspx

PURPOSE AND NEED: The Applicant has stated that the purpose of the proposed project is to construct a master-planned, mixed-use residential community along the Tennessee River, in proximity to downtown Chattanooga. The project is needed to accommodate the continued population growth in Hamilton County. The proposed project would provide 236 single-family homesites, 38 townhomes, 30 live/work units, and amenities such as community trails, pool, and a 21,617 square foot commercial space in the Village Center.

AVOIDANCE AND MINIMIZATION OF IMPACTS TO WATERS OF THE U.S.: Based on information provided in the project application, efforts were made during the planning and design phases of this project to avoid impacts to waters of the U.S. to the extent practicable, and to minimize impacts that were not avoidable. The Applicant has redesigned the project from the original application to avoid impacts to approximately 7,066 linear feet of streams and 0.95 acre of wetlands within the project site, through spanned bridge crossings, and avoidance of jurisdictional features during construction activities.

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**COMPENSATORY MITIGATION:** The proposed project would result in the unavoidable impacts to 376 linear feet of streams and 0.5 acre of wetlands. The Applicant has proposed to mitigate unavoidable impacts to 376 linear  $^{\rm Q}$ 

US Army Corps of Engineers Nashville District Website

PUBLIC INTEREST REVIEW/CUMULATIVE EFFECTS: The decision whether to issue a DA permit will be based on an evaluation of the probable impacts including cumulative impacts of the activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. In addition, the evaluation of the Impact of the activity on the public Interest will include application of the guidelines promutgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b)(1) of the CWA (40 CFR Part 230).

**SOLICITATION OF COMMENTS:** The United States Army Corps of Engineers (USACE) is soliciting comments from the public federal, state, and local agencies and officials; indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historical properties, water quality, and general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental impact Statement (EIS) pursuant to NEPA. Comments are also used to determine the need for a public hearing and determine the overall public interest of the proposed activity. An EA will be prepared by this office prior to a final dedsion concerning issuance or denial of the requested DA Permit.

HISTORIC AND CULTURAL RESOURCES: As lead federal agency, TVA will review the proposal for compliance with Section 106 of the NHPA. This Public Notice also serves to initiate public involvement requirements of Section 106 of the National Historic Preservation Act of 1996, as amended. Copies of this notice are being sent to the office of the State Historic Preservation Office (SHPO).

ENDANGERED/THREATENED SPECIES REVIEW: The Endangered Species Act (ESA) requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat. As lead federal agency, TVA will review the proposal for compliance with Section 7 of the ESA. A review of USFWS's information for Planning and Conservation (IPaC) website (http://ecos.fws.gov/ipac/) identified the following 13 federally-listed Threatened (T) and/or Endangered (E) species that may occur or could potentially be affected by the activities in this location:

Species Nomenclature	Federal Status
Mammals	25
Gray Bat (Myotis grisescens)	Endangered
Indiana Bat (Myotis sodalis)	Endangered
Northern Long-eared Bat (Myotis septentrionalis)	Endangered
Tricolored Bat (Perimyotis subflavus)	Proposed Endangered
Clams	
Dromedary Pearlymussel (Dromus dromas)	Endangered
Orangefoot Pimpleback (pearlymussel) (Plethobasus cooperianus)	Endangered
Pink Mucket (pearlymussel) (Lampsilis abrupta)	Endangered
Rough Pigtoe (Pleuroberna plenum)	Endangered
Tubercled Blossom (pearlymussel) (Epioblasma torulosa torulosa)	Endangered
Insects	Me Garde Hardware
Monarch Butterfly (Danaus plexippus)	Candidate
Flowering Plants	
Large-flowered Skullcap (Scutellaria montana)	Threatened
Small Whorled Pogonia (Isotria medeoloides)	Threatened
Virginia Spiraea (Spiraea virginiana)	Threatened

OTHER APPROVALS: In addition to the DA permit, other federal, state, and/or local approvals may be required for the proposed work, including:

1. A Section 401 Water Quality Certification was approved by TDEC on September 29, 2022, pursuant to 40 CFR Part 121 of the CWA (33 U.S.C. § 1251).

TVA approval is required under Section 26a of the TVA Act for the proposed work and will be processed separately.

3. Other federal, state, and/or local approvals that may be required for the proposed work.

PUBLIC HEARING REQUESTS: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a hearing.

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## STATE OF TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION DIVISION OF WATER RESOURCES

Chattanooga Environmental Field Office 1301 Riverfront Parkway, Suite 206 Chattanooga, TN 37402 Phone 423-634-5745 Statewide 1-888-891-8332 Fax 423-634-6389

September 30, 2022

Mr. Dane Bradshaw Thunder Enterprises e-copy: daneb@tnland.com P.O. Box 4737 Chattanooga, TN 37405

## Subject: NPDES Construction General Permit Tracking No. TNR113886 Master Tracking Number: TNR113886 Lupton Drive Thunder Enterprises Chattanooga, Hamilton County, Tennessee

Dear Mr. Bradshaw:

You recently submitted a Notice of Intent (NOI) form as part of an application package to obtain coverage under a General NPDES Permit for Storm Water Discharges Associated with Construction Activity. The Division of Water Resources (the division) acknowledges receipt of the most recent version of the application for the above referenced project on August 1, 2022. After review, the application was deemed to be complete on August 30, 2022. Enclosed is the Notice of Coverage (NOC) form which shows the site name and location, receiving stream, effective date of coverage, etc.

## **Contractor Information**

You have not identified a contractor on the NOI. You must identify a primary contractor, or contractor otherwise responsible for sediment and erosion controls on the construction site, if appropriate, and submit a revised NOI to this office prior to beginning earth clearing operations onsite. When submitting the NOI, please include the above referenced permit tracking number.

## Storm Water Pollution Prevention Plan (SWPPP)

You have submitted a Storm Water Pollution Prevention Plan (SWPPP) as required by Section 1.4.2 of the CGP. Please note that the division has not performed an engineering review of the SWPPP and does not certify whether the SWPPP adequately provides for the pollution prevention requirements at the site as described in the general permit. The division acknowledges that you have submitted a SWPPP that appears to include the required components of a SWPPP. It is the responsibility of all site operators to design, implement, and maintain measures that are sufficient to prevent pollution at the referenced site, and to remain in compliance with the terms and conditions of the general permit.

## Annual Maintenance Fee and Termination of Permit Coverage

Effective July 1, 2014, permit fees for the General Permit have been revised. In addition to new application fee amounts, annual maintenance fees are now required for projects that exceed one year of coverage. Permittees wishing to terminate coverage must submit a completed notice of termination (NOT) form, which is available on the division's construction stormwater webpage at <a href="https://www.tn.gov/content/tn/environment/permit-permits/water-permits1/npdes-stormwater-permits1/npdes-stormwater-construction-permit.html">https://www.tn.gov/content/tn/environment/permit-permits/water-construction-permits1/npdes-stormwater-construction-permit.html</a>.

The division will review the NOT for completeness and accuracy and, when necessary, investigate the site for which the NOT was submitted. The division will notify the applicant that either the NOT form was received and accepted, or that the permit coverage is not eligible for termination and has not been terminated. If applicable, the notification will include a summary of existing deficiencies.

We appreciate your attention to the general construction storm water permit and its requirements. A copy of the CGP can be obtained from <u>https://www.tn.gov/content/tn/environment/permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program/npdes-stormwater-construction-permit.html.</u> We believe this does make a difference to the quality of state waters. If you have any questions, please contact Mr. Jason Dees at (423) 497-6125 or by e-mail at *Jason.Dees@tn.gov*.

Sincerely,

Jennifes Innes

Jennifer Innes Environmental Program Manager

cc: DWR, Chattanooga EFO Permit File Dr. Mounir Minkara, Water Quality ManagerCity of Chattanooga MS4 Program, mminkara@chattanooga.gov Mr. Michael C. Hodges, P.E., A. D. Engineering Services, Inc., mike@adengineering.us



### Tracking Number TNR113886

## NOTICE OF COVERAGE UNDER THE GENERAL NPDES PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (CGP)

Tennessee Department of Environment and Conservation Division of Water Resources William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 11th Floor Nashville, TN 37243

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 <u>et seq</u>.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, <u>et seq</u>.):

Name of the Construction Project:

**Riverton Development (119.6 acres)** 

Master Tracking Number at the Site:	TNR113886
Permittee Name:	Thunder Enterprises
Project Name:	Riverton Development
Contractor(s):	no contractor
is authorized to discharge:	storm water associated with construction activity
from site located at:	1100 Lupton Drive, Hamilton County
to receiving waters named:	Nickajack Reservoir
in accordance with effluent limitations	, monitoring requirements and other conditions set forth herein.

Likely presence of threatened or endangered species in one mile radius: **NO** Likely presence of threatened or endangered species downstream: **NO** 

Additional pollution prevention requirements apply for discharges into waters which TDEC identifies as:

### - Exceptional Tennessee Waters: NO

Your coverage under the CGP shall become effective on August 30, 2022, and shall be terminated upon receipt of <u>Notice of Termination</u>.

A copy of the CGP can be obtained from

https://www.tn.gov/content/tn/environment/permit-permits/water-permits1/npdes-permits1/npdesstormwater-permitting-program/npdes-stormwater-construction-permit.html From: City of Chattanooga, TN <noreply@viewpointcloud.com> Sent: Wednesday, March 8, 2023 10:58 AM To: Adam Driver <adam@adengineering.us> Subject: Message received about 1100 LUPTON DR



City of Chattanooga, TN

Jeremy Swilley commented on Flood Review:

Message:	<b>Message:</b> "The Flood Review is approved. New grading plan(s) will be included in p set V2 as a revision per agreement with Adam Driver to further reflect no work being performed within the floodway, as shown in flood study."	
Where:	1100 LUPTON DR	
Туре:	Land Disturbing Permit	
Number:	L-22-329	

From: To: Cc: Subject: Date: Attachments: <u>TN Help</u> <u>Beliles, Emily</u> <u>McCampbell, Amy Boardman; Avery, Paul Gordon</u> Riverton Development, Nickajack Reservoir (35:10050, -85:26:123), CID 80040 - Project # SHPC0001130 Priday, September 2, 2022 2:22:17 PM State Seal for TDEC.pngx patricksignature.pngx

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TENNESSEE HISTORICAL COMMISSION STATE HISTORIC PRESERVATION OFFICE 2941 LEBANON PIKE NASHVILLE, TENNESSEE 37243-0442 OFFICE: (615) 532-1550 www.tnhistorical.commission.org

09-02-2022 12:41:01 CDT

Michaelyn Harle TVA MHarle@tva.gov

RE: Tennessee Valley Authority (TVA), Riverton Development, Nickajack Reservoir (35.10050, -85.26123), CID 80040, Project#: SHPO0001130, Chattanooga, Hamilton County, TN

Dear Ms. Harle:

At your request, our office has reviewed the above-referenced revised draft memorandum of agreement. This review is a requirement of Section 106 of the National Historic Preservation Act for compliance by the participating federal agency or applicant for federal assistance. Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Based on the information provided, we find that the revised memorandum of agreement adequately resolves the adverse affects to site 40HA538 and provides for the avoidance and protection of eligible archaeological sites 40HA73 and 40HA115.

Your continued cooperation is appreciated.

Sincerely,

E. Patrick ME Intyre, Jr.

E. Patrick McIntyre, Jr. Executive Director and State Historic Preservation Officer

Ref:MSG6899852\_jVoVGAAAQTADEcJ2Y5J9

#### MEMORANDUM OF AGREEMENT BETWEEN THE TENNESSEE VALLEY AUTHORITY, THE TENNESSEE STATE HISTORIC PRESERVATION OFFICER, RIVERTON, LLC, ABSENTEE SHAWNEE TRIBE OF INDIANS OF OKLAHOMA, ALABAMA-COUSHATTA TRIBE OF TEXAS, CHEROKEE NATION, COUSHATTA TRIBE OF LOUISIANA, EASTERN BAND OF CHEROKEE INDIANS, EASTERN SHAWNEE TRIBE OF OKLAHOMA, JENA BAND OF CHOCTAW INDIANS, KIALEGEE TRIBAL TOWN, THE MUSCOGEE (CREEK) NATION, THE SEMINOLE NATION OF OKLAHOMA, SHAWNEE TRIBE, THLOPTHLOCCO TRIBAL TOWN, UNITED KEETOOWAH BAND OF CHEROKEE INDIANS IN OKLAHOMA REGARDING A PROPOSED SECTION 26A PERMIT FOR RESIDENTIAL DEVELOPMENT, SITE AVOIDANCE AND DATA RECOVERY MITIGATION AT THE RIVERTON DEVELOPMENT, HAMILTON COUNTY, TENNESSEE

WHEREAS, the Tennessee Valley Authority (TVA) is proposing to issue a Section 26a permit to allow Riverton, LLC (Applicant), to develop property on 155 acres on private land within TVA's jurisdictional area at Riverton, Hamilton County, Tennessee for homes and water use facilities (UNDERTAKING); and

WHEREAS, TVA has defined the UNDERTAKING's area of potential effects (APE) as the area of proposed ground-disturbance (155 acres), where physical effects could occur, as well as areas within a half-mile radius of the project within which the project would be visible, where visual effects on above-ground resources could occur; and

WHEREAS, Riverton is a planned residential community and commercial development of 155 acres, which is currently the location of the Lupton City Golf Course but otherwise undeveloped, located on the right descending bank of the Tennessee River between river miles 468.6 and 469.4 north of downtown Chattanooga; and

WHEREAS, the Section 26a permit applied for by the Applicant allows them to place approximately 75 feet of riprap around a stormwater outfall on the shoreline and to designate 16 residential riverfront lots as dockable; and

WHEREAS, the permit will state that after the residential lots are sold, each private landowner would need to submit a Section 26a application to TVA for a permit to construct the floating dock on their lot; and

WHEREAS, Riverton is located within 500 feet of a known riverine segment of the Native American Removal Route (Trail of Tears), now inundated by Nickajack Reservoir, but will have no effect on it; and

WHEREAS, a previous owner of the tract undertook due diligence archaeological identification investigations in 2007 within the entirety of the 155-acre development prior to the sale of the property and identified archaeological sites 40HA536, 40HA537, and 40HA538, and refined the boundaries of sites 40HA73 and 40HA115; and

WHEREAS, the 2007 survey recommended sites 40HA73 and 40HA115 as eligible for inclusion on the National Register of Historic Places (NRHP), while sites 40HA536, 40HA537, and 40HA538 were recommended as ineligible; and

WHEREAS, prior to submitting their application for a Section 26a permit, Riverton undertook NRHP-eligibility testing of sites 40HA73 and 40HA115 in 2020, resulting in a recommendation that both sites were eligible for listing on the NRHP under Criteria D; and

WHEREAS, TVA agreed with the recommendation that sites 40HA73 and 40HA115 were eligible and that sites 40HA536 and 40HA537 were not eligible, but disagreed with the 2007 recommendation that 40HA538 was not eligible; and

WHEREAS, TVA determined, in consultation with the Tennessee State Historic Preservation Officer (SHPO) and federally recognized Indian tribes (Tribes), that sites 40HA73, 40HA115 were eligible, site 40HA538 was potentially eligible, and that sites 40HA536 and 40HA537 were not eligible; and

WHEREAS, based on additional archaeological evaluation of NRHP-eligibility for site 40HA538, TVA determined, in consultation, that the site is eligible under Criteria D; and

WHEREAS, the UNDERTAKING as originally proposed included residential and commercial development over the 155-acre tract, including the locations of sites 40HA73, 40HA115, and 40HA538; and

WHEREAS, the Applicant plans to avoid sites 40HA73 and 40HA115, but has determined that avoidance of site 40HA538 is not feasible; and

WHEREAS, TVA, in consultation, determined that the UNDERTAKING will adversely affect site 40HA538; and

WHEREAS, TVA, in consultation, determined that archaeological data recovery is an appropriate treatment for the adverse effects to site 40HA538; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), TVA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination by providing documentation specified in 36 CFR § 800.11(e), and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, in accordance with 36 CFR Part 800.3(f)(2), TVA has consulted with the following Tribes who have a religious and cultural interest in the resources mentioned above: Absentee Shawnee Tribe of Indians of Oklahoma, Alabama-Coushatta Tribe of Texas, Cherokee Nation, Coushatta Tribe of Louisiana, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, Kialegee Tribal Town, The Muscogee (Creek) Nation, The Seminole Nation of Oklahoma, Shawnee Tribe, Thlopthlocco Tribal Town, and the United Keetoowah Band of Cherokee Indians in Oklahoma regarding historic properties within the proposed project's APE that may be of religious and cultural significance to them and eligible for the NRHP and invited them to participate in this MOA as invited signatories; and

WHEREAS, the Alabama-Coushatta Tribe of Texas, Cherokee Nation, Coushatta Tribe of Louisiana, Eastern Band of Cherokee Indians, The Muscogee (Creek) Nation, The Seminole Nation of Oklahoma, Thlopthlocco Tribal Town, and the United Keetoowah Band of Cherokee Indians in Oklahoma participated in the development of this Memorandum of Agreement (MOA); and

WHEREAS, Tribes that request to be invited signatories are documented by their signature to this MOA; and

WHEREAS, TVA consulted with the Applicant and invited them to participate in this MOA as an invited signatory; and

**NOW, THEREFORE** TVA and the signatories agree that the resolution of adverse effects shall be implemented in accordance with the following stipulations in order to satisfy TVA's responsibilities under Section 106 of the National Historic Preservation Act (NHPA). The TVA Federal Preservation Officer, or designee thereof, shall act for TVA in all matters concerning the administration of this agreement.

## STIPULATIONS

TVA and the Applicant shall ensure that the following measures are carried out:

## I. AVOIDANCE OF SITES 40HA73 AND 40HA115

- A. The Applicant plans to avoid all ground-disturbing activities within the boundaries of sites 40HA73 and 40HA115 (Appendix A).
- B. Site 40HA73 encompasses approximately 3.3 acres while site 40HA115 encompasses approximately six acres.
- C. The Applicant shall have the boundaries of both sites 40HA73 and 40HA115 surveyed by a licensed land surveyor and a legal description of each resulting parcel completed within six months of execution of this MOA.
- D. A Notice of Land Use Restriction (Appendix B) will be recorded in the office of the Register of Hamilton County, Tennessee, and will provide for the protection of the sites regardless of who owns the land. It establishes that no ground disturbing activities can take place within the boundaries of either site. If any ground disturbance is proposed in the future, TVA would be notified, and consultation would resume with all of the consulting parties. The Notice of Land Use Restriction will reference the legal survey and description of each site parcel.
- E. If at any time the Applicant determines that it can no longer commit to avoiding 40HA73 and 40HA115, the Applicant must notify TVA. Prior to any work being conducted in these two areas, TVA will reopen consultation and resume its responsibilities under Section 106 of NHPA in order to develop appropriate mitigation with all consulting parties.
- F. The Avoidance Plan made part of this agreement as Appendix C includes the following actions:
  - The site boundaries will be marked in the field by a professional land surveyor prior to the beginning of construction.
  - Temporary construction fencing will be erected outside the site boundaries prior to any construction activities within 15 meters of the sites.
  - The Applicant or its agents will inspect the sites on a weekly basis to assure no construction-related disturbance or looting has occurred. These inspections will continue until construction is completed on the lots adjacent to the sites. If any disturbance is noted, the Applicant will notify TVA and the Tennessee Division of Archaeology. TVA will notify the SHPO and Tribes if any disturbance occurs and consult to determine if any protection or remediation will be necessary.
  - A permanent fence will be constructed outside the boundary of each site of sufficient height to deny access. The fence will be constructed in such a manner as to not restrict visibility of the sites from outside the fence. Photographic documentation will be provided to the consulting parties once the fence has been constructed.
- No landscaping activities will occur within the boundary of either site except for those activities which can be accomplished using hand tools and with minor ground disturbance.
- At this time, the Applicant intends to retain the tracts on which the sites are located. The Applicant may elect to remove the restrictions set out in the avoidance plan by electing to conduct data recovery for the two sites in accordance with plans approved in advance in consultation with the signatories, invited signatories and other consulting parties. If the Applicant sells these tracts the deed restrictions will follow the property and any future landowner would be required to conduct data recovery in consultation with the signatories, invited signatories and other consulting parties.
- The above commitments will be included in the Section 26a permit.
- The responsibility for maintaining and monitoring the sites will be held by the Riverton Homeowner's Association. Although this organization has not been established, the responsibility for the maintenance and protection of sites 40HA73 and 40HA115 will be included in the bylaws governing the homeowner's association. The pertinent language to the bylaws is made a part of this agreement as Appendix D. The Applicant will retain responsibility for monitoring of the sites until such time as the homeowner's association has been chartered and is active.

#### II. TRIBAL ACCESS TO SITES 40HA73 AND 40HA115

The Applicant has agreed to allow Tribes with a religious or cultural interest in sites 40HA73 and 40HA115 to visit those sites.

- During the data recovery and while TVA is completing its Section 106 compliance, TVA will serve as the point of contact and facilitate requests for tribal visits.
- Following the completion of the data recovery and TVA's completion of Section 106 compliance, the Applicant will serve as the point of contact and facilitate requests for tribal visits.
- Once the Riverton Homeowner's Association is formed, the sitting president or designated appointee will serve as the point of contact and facilitate requests for tribal visits.
- As a courtesy, the Tribe(s) will notify the correct point of contact, at least five (5) days prior to the requested day of the visit.

#### III. DATA RECOVERY EXCAVATIONS

- A. In order to mitigate adverse effects to site 40HA538, TVA shall ensure that data recovery will be conducted in accordance with the Data Recovery Plan developed in consultation with the SHPO and Invited Signatories and made a part of this Agreement as Appendix E-
- B. The Data Recovery Plan will be implemented by or under the direct supervision of a person or persons meeting, at a minimum, the Secretary's Professional

Qualifications Standards (48 FR 44738) and the SHPO's *Standards and Guidelines for Archaeological Resource Management Studies*, October 2018.

- C. TVA will ensure that the archaeological contractor for the data recovery will submit weekly updates/progress reports to TVA through the duration of the data recovery.
- D. TVA will work with the Applicant and their consultant to facilitate visits by the Tribes during the field portion of the data recovery.
- E. TVA will forward each weekly progress report to the SHPO and Tribes upon receipt from the archaeological contractor.
- F. TVA will provide the management summary and data recovery report to the SHPO and Tribes for review and comments.

#### IV. TRIBAL CULTURAL HISTORY

A. TVA has invited Tribes to participate in the development of the cultural history of this undertaking. Any Tribe that is interested can supply a written document stating their Tribes cultural history in this area. All written Tribal cultural history information will be incorporated into the Phase III report.

#### V. TREATMENT OF HUMAN BURIALS

- A. No burials have been identified at site 40HA538, but the possibility cannot be ruled out.
- B. During the data recovery investigations, the archaeological contractor will make every effort to identify any and all human burials within the investigated area. All cultural features exposed by plow zone stripping will be carefully investigated to determine whether they contain evidence of human burial. In the event the feature is identified as a human burial, archaeological work on that feature shall cease immediately and the consultant will follow the Human Burial Treatment Plan (Appendix F).

#### VI. TRAINING

- A. In an effort to help assure that onsite personnel are aware of the importance of avoiding sites 40HA73 and 40HA115, TVA will provide onsite training to construction personnel prior to the beginning of the project. TVA will facilitate the involvement of Tribes in the training session.
- B. Once the Riverton Homeowner's Association has been formed, TVA will offer training to its staff and community members. The training will follow the format of TVA's Thousand Eyes volunteer training program, which trains members of the community to be site stewards. The training will provide the community members with the following:
  - information on archaeology,
  - information on the sites at Riverton and why they are important,

- the laws which protect archaeological resources,
- how to recognize looting,
- what to do if looting is taking place, and
- Tribal perspectives on the resources presented by a Tribal representative.

The training session will include a visit to sites 40HA73 and 40HA115 led by the instructors.

#### VII. MANAGEMENT SUMMARY AND REPORTS

- A. TVA shall ensure that the results of the data recovery are communicated clearly to the SHPO and the Tribes in writing.
- B. During the data recovery, TVA will provide progress/status reports on a weekly basis to the SHPO and Tribes.
- C. TVA will provide a detailed management summary to the SHPO and Tribes of the data recovery. This will include a summary description of the findings, a brief discussion of the significance of the site, documentation that the Data Recovery Plan (Appendix B) was followed, a preliminary count and general description of the artifacts recovered, and at least one map showing the location of all investigative units and cultural features. The SHPO and Tribes shall be afforded 30 days after receipt of the management summary to provide comments to TVA.
- D. TVA shall submit a draft archaeological report (the "archaeological report") to the SHPO and Tribes. The archaeological report will adhere to the Secretary's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716) and the SHPO's Standards and Guidelines for Archaeological Resource Management Studies, October 2018.
- E. A final archaeological report, which takes into consideration comments received on the draft report, will be provided to the SHPO and Tribes for their records.

#### VIII. SCHEDULE

A The Applicant will provide a detailed management summary to TVA for review and comment within 30 days of completion of the data recovery excavations. TVA shall provide the Applicant with its comments within 15 days after receiving the detailed management summary. Once the detailed management summary meets TVA's requirements for compliance with Section 106, TVA shall provide it to the signatories, invited signatories and other consulting parties. Consulting parties will have 30 days to review the detailed management summary and provide comments to TVA. If any consulting party, who responds within the 30day review period for the detailed management summary, does not agree that TVA faithfully carried out the Data Recovery Plan and notifies TVA in writing of the disagreement or requests additional documentation, then the applicant shall not begin any physical work related to the undertaking within site 40HA538 prior to TVA addressing the comments from all signatories/consulting parties. Work may begin within the boundaries of site 40HA538 once the revised detailed management summary has been approved by TVA after providing due consideration to comments received from consulting parties and the Section 26a permit has been issued.

- B. If the consulting parties do not respond within the 30-day review period, TVA may presume their concurrence with the contents of the management summary.
- C. The Applicant will provide the draft archaeological report to TVA within 12 months of completion of the data recovery TVA will provide the Applicant with its comments within 10 business days after receiving the draft report. Once the draft report meets TVA's requirements for compliance with Section 106, TVA will provide it the SHPO and Tribes. The SHPO and Tribes shall be allowed 45 days after receipt of the full draft archaeological report to provide comments to TVA.
- D. TVA shall provide the final archaeological report to the SHPO and Tribes.

#### IX. DURATION

This MOA will expire if its terms are not carried out within three (3) years from the date of its execution. Prior to such time, TVA may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation XII below.

#### X. MONITORING AND REPORTING

Each year, following the execution of this MOA until it expires or is terminated, TVA shall provide all signatories to this MOA and the ACHP a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in TVA's efforts to carry out the terms of this MOA.

#### XI. DISPUTE RESOLUTION

Should SHPO or any Tribes object to the manner in which the terms of the MOA are implemented, TVA shall consult with all signatories to resolve the objection. If, after this additional consultation, TVA determines that the objection cannot be resolved, TVA will:

- A. Forward all documentation relevant to the dispute, including TVA's proposed resolution, to the ACHP. The ACHP shall provide TVA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, TVA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and provide all signatories a copy of this written response. TVA will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day-time period, TVA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, TVA shall prepare a written response that takes into account any timely comments regarding the dispute and provide all signatories and the ACHP with a copy of such written response.
- C. TVA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

#### XII. AMENDMENTS

Any signatory may propose an amendment to this MOA. This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy is signed by all signatories and is filed with the ACHP.

#### XIII. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation XII, above. If within thirty (30) days (or another time period agreed to by signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to other signatories.

Once the MOA is terminated, and prior to work proceeding with the undertaking, TVA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. TVA shall notify the SHPO and Tribes as to the course of action it will pursue.

EXECUTION of this Agreement by TVA, SHPO and Invited Signatories and implementation of its terms evidence that TVA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment. TVA will submit a copy of the executed MOA, along with the documentation that is specified in 36 CFR § 800.11(f), to the ACHP. This MOA shall govern the Undertaking and all of its parts.

UNITED STATES OF AMERICA

**Tennessee Valley Authority** 

Susanjacks Date <u>11/28/2022</u>

Ms. Susan R. Jacks Federal Preservation Officer

SIGNATORIES:

STATE OF TENNESSEE

**Tennessee State Historic Preservation Office** 

Date 11/30/22

Mr. E. Patrick McIntyre, Jr. State Historic Preservation Office

SIGNATORIES:

Applicant

Riverton, LLC, a Tennessee limited liability company

Date 10-8-22

Mr/John Thornton, Member of the Board of Managers Riverton Investments, LLC, a Delaware limited liability company

## Appendix B – Grading and Drainage Plans

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## Appendix C – Soil Management Plan

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#### STATE OF TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Remediation Chattanooga Environmental Field Office 1301 Riverfront Parkway, Suite 206 Chattanooga, Tennessee 37402

May 3, 2021

Mr. Samuel K. Parish, PG, CPESC BDY Environmental LLC 2607 Westwood Drive Nashville, Tennessee 37204

#### Re: Soil Management Plan Riverton Development 1100 Lupton Drive, Chattanooga, Tennessee Tennessee Division of Remediation Site No. 33-803

Dear Mr. Parish:

Division of Remediation has reviewed the Soil Management Plan, dated April 27, 2021, and prepared by BDY Environmental on behalf of Riverton, LLC. The Soil Management Plan is approved for implementation. Please provide a schedule for commencing site intrusive activities and copies of any updated site development drawings when finalized.

If you have any questions or comments regarding this letter, please feel free to contact Pat Gribben by telephone at (423) 634-5758, or via e-mail at <u>pat.gribben@tn.gov</u>.

Sincerely,

Pat Gribben, PG Environmental Consultant I TDEC-Division of Remediation

cc: Mr. Dane Bradshaw/Riverton LLC (via email)

# **BDY** NATURAL SCIENCES CONSULTANTS

April 27, 2021

via electronic mail

Tennessee Department of Environmental & Conservation Division of Remediation Attn: Mr. Pat Gribben 1301 Riverfront Parkway, Suite #206 Chattanooga, TN 37402

Re: Soil Management Plan Riverton Development Parcel ID: 118K A 046 Acreage: 154.96 1100 Lupton Drive Chattanooga, Hamilton County, Tennessee DoR Site ID: 33-803

Dear Mr. Gribben:

On behalf of Riverton Development, LLC, BDY Environmental, LLC (BDY) has prepared this Soil Management Plan (SMP) that outlines the soil management procedures during future construction and redevelopment activities at Riverton Development (hereinafter referred to as the "Site"). This SMP addresses soils on the approximately 154.96-acre Site. This Soil Management Plan is also referenced in the Brownfield Voluntary Agreement for the Site.

The 154.96-acre Site that is the subject for this SMP is located on tax parcel 118K A 046 in Chattanooga, Hamilton County, Tennessee. The current physical address for the Site is 1100 Lupton Drive, Chattanooga, TN 37218. A map showing the Site boundaries is provided in APPENDIX 1.

#### **SECTION 1. BACKGROUND**

Previous land uses on the Site include a 9-hole golf course (Lupton City Golf Club) located adjacent to and downgradient from the former R.L. Stowe Mill (previously Dixie Yarns, also known as the former Lupton Mill property) and an abandoned former sewage treatment plant (STP), which was associated with the former mill operations, is located on the eastern portion of the Site.

R.L. Stowe Mills (formerly Dixie Yarns and herein referenced as the former Lupton Mill property) previously utilized the Site for disposal of fill and surplus materials and for an employee golf course during the time the mill was operational (1923-2009). Fill materials include household trash (yard waste, tires, junk metal) and construction and demolition waste

(sand, concrete/brick rubble, roofing material, steel drums). The Site has been vacant/utilized as a golf course (Lupton City Golf Club) from 2009 to present.

Reports of previous environmental investigations that document the environmental conditions on the Site are summarized in the following documents that were provided to your office:

- 1) Environmental Resources Management (ERM) Phase I & II Environmental Site Assessment with a Limited Compliance Review Dixie Yarns Lupton City Facility 1 Mercer Street Lupton City (Chattanooga), Tennessee (dated April 23, 1999).
- 2) Consolidated Technologies, Inc. (CTI) Phase I Environmental Site Assessment, Lupton City Property, Chattanooga, Hamilton County, Tennessee (dated November 5, 2001)
- 3) QORE, Inc. Phase II Environmental Site Assessment Report, Dixie Group Lupton City Property, Lupton Drive, Chattanooga, Hamilton County, Tennessee (dated December 18, 2001)
- 4) CTI Engineers, Inc. (CTI), Groundwater Monitoring Report for RL Stowe Plant and BlueCross/BlueShield Property, dated April 2012 and April 2013.
- 5) S&ME, Results of Groundwater Sampling and Environmental Document Summary. May 15, 2014
- 6) CTI, R.L. Stowe Plant and Blue Cross/Blue Shield Property Groundwater Monitoring Report April 2015, The Dixie Group Inc. May 2015
- 7) CTI, R.L. Stowe Plant and Blue Cross/Blue Shield Property Groundwater Monitoring Report April 2016, The Dixie Group Inc. May 2016
- 8) S&ME, Report of Limited Soil Gas Assessment, Former Dixie Yarns-Lupton City (SRS# 33-739). August 10, 2017
- 9) S&ME, Phase I Environmental Site Assessment- Draft, Riverton Investments-Lupton City Properties. April 11, 2019
- 10) BDY Environmental, LLC (BDY) Summary Report of Findings Environmental Site Investigation (May 31, 2019)
- 11) GEOServices, LLC, Report of Additional Geotechnical Exploration and Infiltration Testing Results. January 29, 2020
- 12) BDY Summary Report of Foundry Sand Sampling letter report. April 8, 2021

#### SECTION 2. SUMMARY OF ENVIRONMENTAL CONDITIONS

The above referenced Phase I & II ESA prepared by ERM and dated April 23, 1999 primarily address the adjacent, former Dixie Yarn Plant/ former Lupton Mill property located upgradient and to the north of the Site. The Phase I ESA identified four areas of potential environmental concern at the former Dixie Yarn Plant: 1) the area around then-existing oil Above Ground Storage Tanks (ASTs) and a used oil tank; 2) the former gasoline underground storage tank (UST) area; 3) the three on-site groundwater production wells; and 4) the surface drainage system used to route stormwater and non-contact cooling water to the Tennessee River. The assessment of potential environmental concerns within the former Dixie Yarn Plant (items 1 through 3) identified elevated concentrations of volatile organic compounds (VOCs) [tetrachloroethylene (PCE), 1,2-dichlorobenzene (1,2-DCB) and total petroleum hydrocarbon



(TPH)] in groundwater. The report concluded that further investigation of the PCE in groundwater would be required. Although this report did not specifically include the Site, the report did include the results of sampling conducted along the Dixie Yarn Plant surface drainage system that drains through the Site. This drainage ditch, which is located on the northeastern portion of the Site, was evaluated through collection of a surface water sample for analysis of VOCs. The results of the surface water sample did not identify detectable concentrations of VOCs in Site surface waters.

The above referenced *Phase I ESA* prepared by CTI and dated November 5, 2001, identified the following *recognized environmental conditions* (RECs) on the Site.

- 1) The historic use of the Site for disposal of household trash, fill dirt, demolition debris, and construction debris (including steel drums) of unknown origin and composition;
- 2) The former presence of a sewage treatment plant and the potential for remaining wastewater residuals (sludge) around the tanks and structure;
- 3) The potential migration of Constituents of Concern (COCs) in groundwater onto the site from the adjacent Lupton Mill property (low concentrations of PCE and related contaminants were detected in monitoring wells and production wells on the east side of the Lupton Mill property; the PCE concentrations in MW-1 exceeded TDEC's Regional Guidance Levels (RGLs) from 2000 and exceeded the current Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL).

The above referenced *Phase II ESA* prepared by QORE, Inc. and dated December 18, 2001, identified the following conditions on the Site.

- 1) Sediment samples (SS-01, SS-02, and SS-03) taken from a ditch located on the Site that drains the former Lupton Mill property contained VOC and semi-volatile organic compound (SVOC) constituents above 2001 EPA Regional Screening Levels (RSLs) and contained Extractable Petroleum Hydrocarbon (EPH) concentrations in excess of TDEC's RGL of 100 milligrams per kilogram (mg/kg), and the report states that the identified constituents in the ditch sediment samples correlates to a diesel fuel spill at the former Lupton Mill property that drained into the ditch on the Site;
- 2) Soil and sediment samples from the remainder of the Site (outside the diesel fuel spill area) generally lacked any indication of contamination;
- 3) Groundwater samples from monitoring wells on Site contained detectable concentrations of VOCs (PCE), SVOCs (2,6-dinitrotoluene and trichloromethane), and EPH and contained concentrations of PCE above 2001 EPA RSLs; since these contaminants were consistent with contaminants one would expect to find at the adjacent former Lupton Mill property, the report concluded that groundwater contamination on the Site originated from the former Lupton Mill property and migrated onto the Site;

4) Contaminants (chlorobenzene, 1-4, Dichlorobenzene, and EPH) indicating that petroleum compounds were processed at the former sewage treatment plant on the Site were identified in residual liquids within the former sewage treatment plant (STP) structure.

A summary of the above referenced 2012 and 2013 *Groundwater Monitoring Reports* prepared by CTI is provided in the S&ME's *Results of Groundwater Sampling and Environmental Document Summary* report and identified the following conditions on the Site.

- CTI sampled seven groundwater wells (two wells were located on the adjacent former Lupton Mill property to north of the Site [RLS-1 and RLS-5] and five wells were located on the Site [BC-1, BC-2, New Production Well, BC-3, and BC-5) to determine the extent of groundwater contamination on the Site and the adjacent former Lupton Mill property;
- 2) With the exception of PCE, detected in BC-3, no VOCs were identified at detectable concentrations in the monitoring wells located on the Site;
- 3) In 2012, PCE was detected at 0.0085 mg/L in B-3;
- 4) In 2013, PCE was detected at 0.0078 mg/L;
- 5) The 2013 report stated:

"Recent detections of [P]CE may or may not be related to activities that occurred when the property was owned and operated by the Dixie Group. During operation of the facility, the R. L. Stowe Plant [former Lupton Mill property] had three production wells that constantly pumped water from the bedrock aquifer. This water was used in the boilers and throughout the air conditioning system. Tests have shown that the effluent was stripped of the VOCs to levels well below regulatory MCLs. Since plant activities ceased in early March 2009, these pumps are no longer in use."

6) The report concluded that while PCE levels have declined since 2005, the detected concentrations of PCE exceed the corresponding MCL and that continued annual monitoring of VOCs was recommended.

The above referenced *Results of Groundwater Sampling and Environmental Document Summary* prepared by S&ME and dated May 15, 2014 identified the conditions noted above on the Site and summarized the results of the S&ME Groundwater Sampling of Site [BCBST] wells BC-1, BC-2, BC-3, BC-4, and BC-5 conducted in March 2014, which identified the following conditions on the Site.

- 1) With the exception of PCE, detected in BC-3, no VOCs were identified at concentrations above the laboratory reporting limit. In BC-3, PCE was identified at 0.008 milligrams per liter (mg/L) which exceeds both the corresponding MCL of 0.005 mg/L and the corresponding tap water RSL of 0.0035 mg/L.
- 2) With the exception of two PAHs (anthracene and fluorene), no PAHs or SVOCs were identified at concentrations above the laboratory reporting limit. The detected concentrations of anthracene (0.000098 mg/L at BC-1) and fluorene (0.000072 mg/L mg/L) each were below the corresponding comparison criteria (RSL tap) of 0.13 mg/L and 0.063 mg/L respectively.

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3) S&ME also compared the detected 2014 PCE concentration to results reported by CTI in 2012 and 2013 and indicated that detected concentrations of PCE have remained fairly stable, ranging from 0.00078 mg/L in 2013 to 0.0085 mg/L in 2012.

The above referced *Groundwater Monitoring* reports prepared by CTI and dated May 2015 and May 2016 identified the following conditions on the Site.

- The only detection of PCE in the April 2015 event which exceeded the applicable MCL was 12.0 part per billion (ppb) at the BC-3 monitoring well located on the Site. Detections below the MCL included PCE and trichlorofluoromethane, both at RLS-1 well located on the adjacent former Lupton Mill property.
- 2) The only detection of PCE in the April 2016 event which exceeded the applicable MCL was 6.70 ppb at BC-3.

The above referenced *Report of Limited Soil Gas Assessment* prepared by S&ME and dated August 10, 2017 identified the following conditions on the adjacent Lupton Mill property:

- 1) The Background summary provided in this report indicates that with the exception of well BC-3 (located just south of the mill site on the former golf course), PCE concentrations in groundwater at each of the monitored wells were below regulatory thresholds; and
- 2) Concentrations of benzene, chloroform, naphthalene, and PCE were identified in exterior soil gas samples from the former Lupton Mill property at concentrations exceeding EPA regulatory screening levels.

The above referenced *Phase I Environmental Site Assessment- Draft* report prepared by S&ME and dated April 11, 2019 identified the following conditions on the Site:

- 1) Documented impacts to groundwater on subject property identified during assessment of the north adjoining former mill site/property. Based on the reported concentrations of PCE in a monitoring well (BC-3) located on the subject property at levels above regulatory comparison criteria in the most recent (2016) sampling event, subsequent installation and use of an irrigation well at the subject property which may serve to pull contaminants toward the subject property, along with documented soil gas concentrations on the north adjoining property (within 75 feet of the subject property) detected above regulatory screening levels (EPA Regional Screening Levels) for residential sites, and the absence of soil gas data on the subject property, in our opinion, the documented impacts (both on the subject and north adjoining properties) associated with the former mill site operations, are considered a *recognized environmental condition* in relation to the subject property, which would also represent a vapor encroachment condition.
- 2) Past uncontrolled/undocumented solid waste disposal/dumping on subject property. Two areas of what appeared to be uncontrolled/undocumented solid waste disposal/dumping were observed on subject property during site reconnaissance activities. Historical aerials reviewed indicate an area of disturbance with what appeared to be possible burying of the waste, and an unimproved road traveling toward the area on



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- 3) Repeated municipal sewer system overflows at manhole on east side of subject property. A berm was observed in an approximately 30 feet diameter around the sewer manhole, and signs are posted warning against contact with any leaked substances. Interview information indicated that the specific manhole frequently overflows during significant rain events. Given the proximity to industrial facilities, it is possible industrial discharge is transported in the sewer line. Based on the potential that industrial effluent is transported through the sewer in this area and the reported frequency of overflows of the manhole, and the potential that substances in the overflow have adversely impacted the subject property, in our opinion, the repeated overflow from the sewer manhole on the east side subject property is considered a *recognized environmental condition*.
- 4) Lupton City LLC & DG Deconstruction/ Lupton City PCB Site / Old Lupton Mill (EDR ID: A1 4, A5) located on a north adjoining property at 1210 Mercer Street. S&ME reviewed regulatory files for the site from both TDEC-DoR and TDEC-DSW. Regulatory file information indicated that previous assessments of the former Lupton Mill property documented elevated concentrations of VOCs (tetrachloroethylene (PCE) and 1,2-dichlorobenzene) and total petroleum hydrocarbons in groundwater. Additional

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#### April 27, 2021

# Riverton Development Soil Management Plan **Error! Reference source not found.**



investigation indicated that groundwater on the south adjoining (golf course) property had also been impacted. TDEC subsequently required annual groundwater sampling, which occurred from about 2004 to 2016. Information in the regulatory file indicates the final groundwater monitoring event was performed in April 2016, and that the detected concentration of PCE (0.0067 parts per million (ppm)) exceeds regulatory comparison criteria (Maximum Contaminant Level (MCL) of 0.005 ppm) in one of the golf course monitoring wells (BC-3). Over the course of the annual sampling events, concentrations varied, ranging from high of 0.0282 ppm in September 2002 to non-detect in 2007. The reported PCE concentration at the most recent sampling event in 2016 (0.0067 ppm) was similar to the concentration of PCE first detected in 2001 (0.00624 ppm) at the subject property. TDEC issued a No Additional Action letter to BlueCross BlueShield in February 2017. The letter indicated that after review of the last groundwater monitoring report (2016), "there did not appear to be any need for additional investigation or remedial action at this time". The regulatory file also included a subsequent Limited Soil Gas Assessment Report prepared by S&ME of the former mill site in August 2017. The soil gas assessment identified the presence of VOCs in exterior and sub-slab soil gas collected. Concentrations of benzene, chloroform, naphthalene, samples and tetrachloroethylene were identified at levels exceeding EPA target Exterior Soil Gas Screening Levels for residential sites. Based on the reported concentrations of PCE in a monitoring well (BC-3) located on the subject property at levels above regulatory comparison criteria in the most recent (2016) sampling event, along with documented soil gas concentrations on the north adjoining property (within 75 feet of the subject property) detected above regulatory screening levels (EPA Regional Screening Levels) for residential sites, and the absence of soil gas data on the subject property, in our opinion, the documented impacts to soil and groundwater on the north adjoining former Lupton Mill property), are considered a recognized environmental condition in relation to the subject property, which would also represent a vapor encroachment condition.

The above-referenced BDY *Summary Report of Findings Environmental Site Investigation* identified the following conditions on the Site.

- 1) Groundwater samples obtained by S&ME in 2017 from a former monitoring well (MW-BC3) located on the northern portion of the Site, adjacent to the former Lupton Mill property, reported low-level PCE concentrations of 6.70 micrograms per liter ( $\mu$ g/l) above EPA MCLs and an irrigation well utilized by the former golf course reported PCE concentrations above EPA MCLs;
- 2) PCE was not detected in recently installed monitoring wells MW-2, MW-3, and MW-4 which are downgradient from the former Lupton Mill property;
- PCE concentrations were reported above EPA MCLs in the two consecutive samples BDY obtained from the golf-course irrigation well at 8.28 and 7.16 micrograms per liter (µg/l);
- 4) Arsenic was detected in site soils but concentrations were at or near ranges commonly attributed to naturally-occurring background concentrations;

- 5) Samples of sediments from a watercourse and pond draining stormwater from former Lupton Mill property reported PAHs constituents [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] at concentrations above EPA RSLs for Residential and/or Industrial soil;
- 6) PAHs detected in test pit samples from illicit debris disposal locations on the Site at the Test Pit 1 and 3 sample locations reported PAHs constituents [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] at concentrations above EPA RSLs for Residential and/or Industrial soil;
- 7) Soils sampled at the former STP and electrical substation contained arsenic exceeding Residential and/or Industrial Soils RSLs but within recognized background concentration range; all other measured parameters from these sample locations were below RSLs.

The above referenced GEOServices Geotechnical Report identified the presence of material that that appears to be foundry sand was encountered in the top 3 feet at B-71 and indicates that foundry sand may potentially be present at other locations on the Site.

The above-referenced BDY *Summary Report of Foundry Sand Sampling* letter report identified the following conditions on the Site:

- 1) Arsenic was detected in the B-71 and DUP samples above EPA Regional Screening Levels (RSLs) for Residential and Industrial soil but was present at concentrations below naturally occurring background concentrations in Tennessee.
- 2) The B-71 and DUP samples reported PAH constituents [benzo(a)pyrene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] above EPA RSLs for Residential and/or Industrial soil.

A map showing BDY's recent soil, groundwater, and soil gas sampling locations on the Site is provided in APPENDIX 1.

#### SECTION 3. ENVIRONMENTAL ANALYSIS OF SITE CONDITIONS

All of the soil samples reporting elevated PAHs were from areas where fill material was historically dumped on the Site, foundry sand was encountered, or in drainages where sediments were inferred to be derived from the upstream former Lupton Mill property. Arsenic was detected in all soil samples at typical background levels long-observed at remedial sites across Tennessee.

The future potential use of the property includes construction of roadways, parking areas, residential structures, and retail structures. These uses further isolate on-site constituents, impede their potential migration via groundwater, and greatly reduce the opportunity for exposure to human or ecological receptors. All soil contained within the limits of the Site will be considered as potentially impacted and will be handled and managed in accordance with this SMP during future construction activities to limit potential exposure. During onsite construction activities, stormwater and surface water will be diverted away from contaminated and disturbed soils located on the Site to prevent any contamination to downgradient water resources.

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#### SECTION 4. SOIL MANAGEMENT PLAN

Soil management will be initiated during construction phases requiring the disturbance of soil on the Site. Prior to the start of mass grading work on the Site, the irrigation well located on the existing golf course will be properly abandoned in accordance with the TDEC, Water Resources Division Water *Well Licensing Regulations and Well Construction Standards* (Rule 0400-45-09-.16, January 2013). TDEC-Division of Remediation will be notified prior to the start of the well abandonment work and will be provided documentation regarding the completion of well abandonment work. Additionally, if any other monitoring wells associated with groundwater monitoring at the adjacent former Lupton Mill property are discovered on the Site, TDEC will be notified, and these additional monitoring wells will be abandoned in the same manner described above.

Engineering controls will be utilized on the Site to limit exposure to impacted soils during construction and after the completion of development activities. This soil management plan will allow for the on-site management of impacted soils and will allow for the proper disposal of any impacted soils removed from the Site. Following construction and redevelopment of the Site, all impacted soils on the Site will be capped with engineering controls such as structures, concrete, pavement, or clean fill.

#### Soil Management During Construction Activities

The future potential use of the property is a residential development that also includes some retail shops. Future Site development activities include the excavation and disturbance of Site soils during the installation of utilities, stormwater infrastructure, and landscaping; construction of roadways and parking areas; and construction of residential and retail structures. The Site contractor will attempt to use most excavated materials onsite as fill during proposed development activities.

The Site contractor will attempt to either cap in place or relocate and cap any impacted soils, foundry sand, demolition debris, or construction debris to onsite areas where no residences or other structures are proposed. Any of the above referenced materials that are relocated will be segregated to ensure that materials with similar characteristics and similar constituent concentrations are placed in the same location and are not mixed or spread in different locations across the Site. Additionally, the Site contractor will place a witness barrier under the cap in areas where the above referenced materials may potentially be encountered during future intrusive activities associated with utility installations, landscaping, or other similar activities on the Site. Any fill material, impacted soils, foundry sand, demolition debris, construction debris, or other excavated materials generated during Site construction activities that is determined to be unsuitable fill material or cannot be used as fill on the Site will be properly characterized and will be disposed of according to local, state, and federal waste disposal regulations.

Any proposed subsurface infiltration stormwater management practices that promote infiltration into subsoils, such as pits, chambers of pipes, perforated pipes, and/or galleys, will not be sited or designed over impacted soils and/or foundry sands.

Based on previous findings, it is not anticipated that underground storage tanks or areas of notable or gross contamination, which include areas where obvious visual and/or olfactory indications of contamination are identified, will be encountered. However, if such gross contamination or unidentifiable/suspect materials inconsistent with previous findings are discovered during excavation work, the contractor will notify the project manager, will segregate the contaminated soil and/or unidentifiable/suspect materials, will evaluate the segregated soils and/or unidentifiable/suspect materials for waste characterization, and will consult with TDEC to determine how to properly manage and dispose of the soil and/or unidentifiable/suspect materials to limit potential exposure. Any such contaminated soils and/or unidentifiable/suspect materials shall be stockpiled on and covered with plastic sheeting and bermed by the contractor to minimize fugitive dust and contact with storm water runoff.

Based on previous findings, it is possible that areas of dumped foundry sand will be encountered outside the location identified at geotechnical boring location B-71. If additional areas of foundry sand are discovered during excavation work, the foundry sand will be sampled for 8 Resource Recovery and Conservation Act (RCRA) metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver) and for polycyclic aromatic hydrocarbons (PAHs), and TDEC will be consulted to determine how to properly manage the foundry sand onsite and/or dispose of the foundry sand offsite to limit potential exposure.

During excavation activities, if groundwater is encountered and requires removal, it will be managed in accordance with applicable regulatory rules and regulations.

During construction activities, the potential routes of human exposure to impacted soils are through dermal contact, ingestion, and inhalation. In order to minimize human exposure to impacted soils, the following measures will be implemented during Site construction activities.

- 1) Install high visibility perimeter fencing to prevent Site access by unauthorized personnel;
- Install sediment control measures (such as erosion eels and inlet protection) and a construction entrance/exit to prevent the offsite migration of Site soils during construction activities;
- 3) Implement dust control measures, as needed, by managing onsite vehicle speeds during grading, managing drop heights from dump truck, and applying water to active construction areas using a water truck or other appropriate methods;
- 4) Ensure all construction workers are wearing proper personal protective equipment such as work gloves, shirts, pants, and boots and ensure that all workers remove trackable or loose materials on shoes, clothing, and work gloves prior to leaving the Site;
- 5) Inspect all trucks leaving the Site to make sure rails, dump gates and tires are free of potential contamination and clean any loose debris from trucks prior the trucks leaving the Site;
- 6) Stabilize disturbed areas as soon as practicable and within 15 days following the completion of grading activities. Disturbed areas can be stabilized using temporary

stabilization practices such as seed and mulch or permanent stabilization such as clean shot rock, concrete, structures, pavement, or permanent vegetative cover; and

7) Backfill all utility trenches with clean backfill.

#### Post-Construction Soil Management

Following grading, filling, and excavation activities at the Site, impacted soils and any foundry sand discovered on the Site will be capped in order to prevent exposure. Any impacted soils and/or foundry sands encountered in areas within proposed single-family residential lots will be relocated to an area outside the boundaries of said lots and will be capped with one or more of the engineered barriers described below. All of the impacted soils and/or foundry sands will be capped with one or more of the following engineered barriers.

- Impacted soils and/or foundry sands will be covered with concrete building foundations;
- Impacted soils and/or foundry sands will be covered with concrete or asphalt during the construction of roadways, parking areas, sidewalks, and patios;
- Impacted soils and/or foundry sands will be covered with clean fill materials, and these capped areas will comprise 18 inches of compacted soil or gravel, 6 inches of topsoil, and vegetative cover; and
- In landscaped and raingarden areas where clean fill materials are placed over impacted soil and/or foundry sands, soils will be over-excavated to allow for the placement of two feet of clean fill materials as described above and a witness barrier (such as orange polyethylene fencing or other similar material) will be placed between the impacted soil and clean fill materials.

All of the post-construction engineered barriers will be maintained by the current and future property owners. If any of the engineered barriers are removed or disturbed for any reason at any time after the completion of Site construction activities, TDEC will be notified and one or more of the post-construction engineered barriers referenced above must be implemented as soon as practicable to prevent potential exposure to human health and the environment.

Additionally, Land Use Restrictions recorded at the Hamilton County Register of Deeds will be placed on the Site to ensure that engineered barriers are maintained by the current and future property owners.

At the completion of Site redevelopment activities, a Soil Management Report (SMR) will be submitted to TDEC-Division of Remediation. This SMR will document the location of any areas where any impacted soils, foundry sand, demolition debris, and/or construction debris are capped on the Site and will include as-built drawings and a site location figure. The SMR will provide a table of tabulated results of any sampling conducted during redevelopment and include copies of lab reports and waste manifests.

April 27, 2021

Riverton Development Soil Management Plan Error! Reference source not found.

We will be pleased to discuss the contents of this SMP with you further at your convenience. Please contact us at (615) 460-9797 if you or future Site owners have questions regarding this SMP.

Very truly yours, BDY Environmental, LLC

Samuel Blin

Samuel K. Parish, PG, CPESC Senior Scientist



APPENDIX 1. Maps



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