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CARDEN FARMS TRAILS

FINAL ENVIRONMENTAL ASSESSMENT

Melton Hill Reservoir
Anderson County, Tennessee

Prepared by:
TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee

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CHAPTER 1 – PURPOSE AND NEED FOR ACTION

Purpose and Need

TVA has received a request by Aspire Park to enter into a Cooperative Agreement to construct and maintain approximately 7 to 9 miles of multi-use trails on 174.2 acres of TVA Parcel MHR-1506 (locally referred to as Carden Farms). The trails on TVA's land would connect to additional trails on private property as part of a proposed park. The proposal would add new recreation opportunities for the surrounding community. In considering the request, TVA seeks the appropriate management of its reservoir lands in a manner that maintains the quality of life and other important values. TVA's interest in considering this proposal also arises from its commitment to improve the area's economic base and support sustainable economic growth and to provide recreational opportunities for the public.

The proposed action is also consistent with TVA's land use plan for the area. Completed in 1999, the Melton Hill Land Management Plan reflects TVA's preference to continue to manage these parcels for sensitive resource management, which includes passive recreational use. Additionally, the request meets TVA's objective to provide the public with quality, affordable outdoor recreation opportunities.

Background

TVA addressed the management of TVA Tract MHR-1506 as parcel 146 in the Melton Hill Reservoir Land Management Plan (1999). The parcel is described as:

> Parcel 146 – (174.2 acers)
>
> Zone 3 Sensitive Resource Management
>
> This parcel is located at CRM 60.5L. This forested parcel is also known as Lost Ridge. The southern-most section of this parcel is very steep and cliff-like. Six sensitive cultural sites are located on this parcel. A power line crossing is just below Clinton Island with a cave system and a stream leading into it. Also, rare plants on this parcel are *Lilum canadense* and ginseng (*Panax quinquefolius*). There is a large canebrake, which is considered to be a rare community, on the south shore. This is the second-highest-ranked parcel on Melton Hill Reservoir for forest based resource management. Resource management data have been collected on this parcel. In addition, this is visually unique and provides a buffer between Carden Farm Industrial Park and Eagle Bend Industrial Park. Navigation restrictions occur along the shoreline of the entire parcel. Two navigation buoys are also present. This parcel has been placed in Zone 3 to protect cultural sites, rare plants, wetlands, and to preserve the visual integrity of the parcel Requests for water use facilities will not be considered.

In the RLMP, Parcel 146 is allocated as Zone 3 (Sensitive Resource Management). Under TVA's single-use allocation methodology and land planning practices, lands designated as Zone 3 are managed for the protection and enhancement of sensitive resources. Sensitive resources, as defined by TVA, include resources protected by state or federal law or executive order and other land features/natural resources TVA considers important to the area viewscape or natural environment. Natural resource activities such as hunting, wildlife

observation, and camping on undeveloped sites can occur in this zone; but the overriding focus is protecting and enhancing the sensitive resource the site supports. As this project proposes to construct multi-use trails on the parcel, the proposed action would be consistent with TVA's RLMP and planning policies.

Proposed Action

Aspire Park has proposed to enter into a Cooperative Agreement which would allow for the construction of approximately 7 to 9 miles of multi-use trails on 174.2 acres of TVA Tract MHR-1506. The trail system would also extend onto the Aspire Park property, adjacent to the TVA property. The trail system is planned to be a complement of a new public park and trail system which is proposed adjacent to TVA's lands.

By entering into a Cooperative Agreement, Aspire Park would be permitted to maintain the trails on TVA property

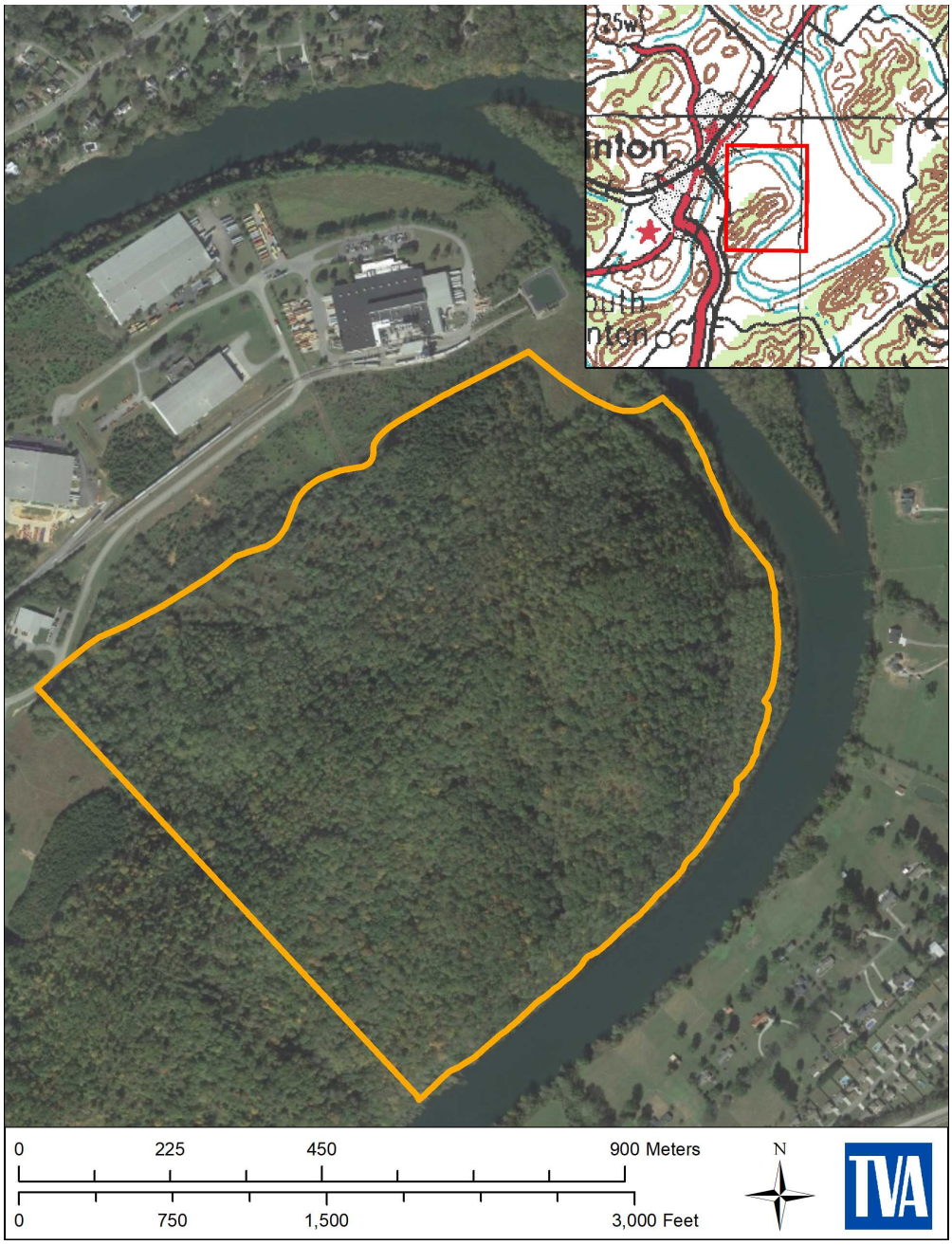

Figure 1. Aerial Map

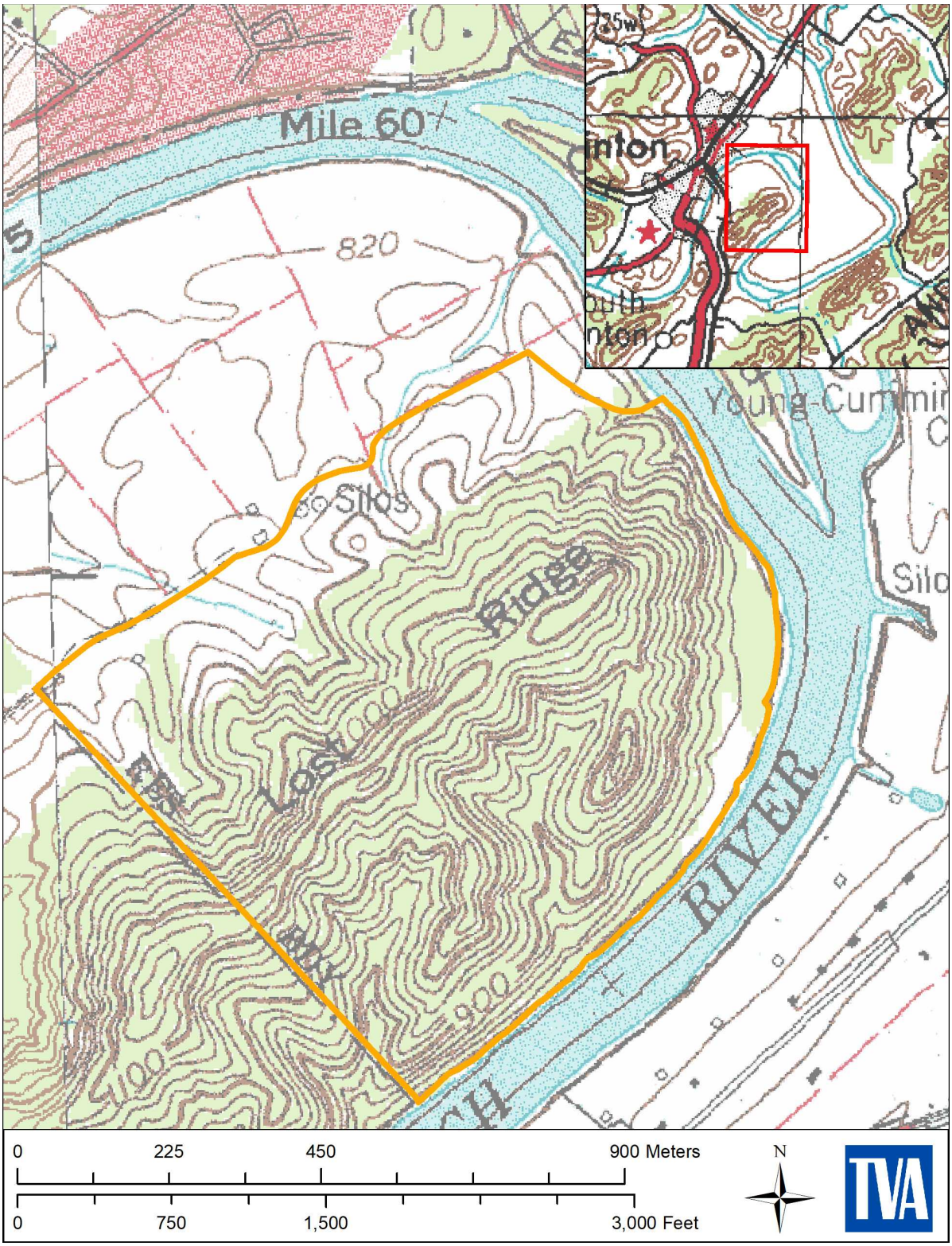

Figure 2. Topographic Map

Public Involvement

Pursuant to Section 106 of the National Historic Preservation Act, TVA consulted with the Tennessee State Historic Preservation Officer (SHPO) requesting concurrence that the proposed action would have no effect on cultural resources. The SHPO concurred with this determination in a letter dated December 27, 2019.

Identification of Relevant Environmental Issues

TVA conducted a preliminary internal review by a network of designated environmental specialists. Based on this internal review, TVA determined that the following resources could be potentially affected by the proposed action and are addressed in this EA.

- Archaeological and Historical Resources
- Threatened and Endangered Species
- Floodplains
- Recreation
- Visual Impacts
- Wetlands and Waters

TVA also considered potential effects related to aquatic ecology, terrestrial ecology, transportation, noise impacts, solid and hazardous waste, prime farmland, air quality, and climate change. These resources were eliminated from additional analysis due to either their absence within the study area, or their impacts were determined to be de minimis. Standard construction Best Management Practices (BMPs) and erosion control methods according to TDEC guidelines should prevent direct, indirect, and cumulative impacts to aquatic and terrestrial resources as well as on air quality. Therefore, there would be no significant direct, indirect, or cumulative effects on these resources. The analysis for these resources is documented in the attached environmental checklist (Appendix B)

Other Environmental Reviews

No other reviews were identified that are related to the action currently being reviewed.

Permits, Licenses, and Approvals

In addition to the necessary approvals from TVA, the following permits would be required for implementation of the proposed action:

- A Tennessee General National Pollution Discharge Elimination System (NPDES) Construction General Permit from the TDEC would be required if the project resulted in the disturbance of more than 1 acre of land. 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.

CHAPTER 2 – DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Description of Alternatives

This EA evaluates two alternatives: Alternative A – the No Action Alternative, and Alternative B – Proposed Action Alternative. These alternatives are described in more detail below.

Alternative A - The No Action Alternative

Under the No Action Alternative, TVA would not enter into a cooperative agreement with the applicant, and no trails or improvements would be constructed. The property would remain open to the public, and passive recreation would continue to occur. This alternative does not meet the purpose and need of the project. However, it does provide a benchmark for comparing the environmental impacts of the implementation of the Action Alternative.

Alternative B - Proposed Action Alternative

Under this alternative, TVA would enter into a cooperative agreement with the applicant to construct and maintain approximately 7 to 9 miles of multi-use trails on TVA Parcel MHR-1506. Under the agreement, the applicant would be responsible for maintenance actions on the new trails.

The proposed trails would be specifically designed for hiking and cycling, and would have an approximate 40 inch tread width. Motorized and equestrian access would be prohibited. The trail tread would be of natural surface (soil and rock), and no other materials would be added.

The proposed trails would be constructed with small machine trail equipment and hand tools. The trails would be bench cut into the existing hill side where necessary to create a semi-flat surface with a slight out-slope to permit water drainage. Uphill and downhill sections of the finished trail would also be mildly sloped to facilitate water drainage and ensure a sustainable trail.

The trail may fall within a 100 foot corridor on either side of the map line shown on the project plans (200 feet total). However, the width of disturbance within the 200 foot corridor will not be greater than 40 inches. The purpose of the wide corridor is two-fold. (1) the corridor would enable construction equipment to maneuver around trees and other obstacles, and (2) the corridor would allow for possible changes in trail routing so that slopes of greater than 10 percent can be avoided and ensure a sustainable trail is constructed. Due to the density of the proposed trails and the wide corridor used to build those trails, TVA has determined the area of potential effects (APE) to be the entire 174.2-acre tract.

No trees greater than 3 inches in diameter at breast height (DBH) would be removed during trail construction. Trails will not be sited in wetlands, and all wetlands will be avoided during construction. The trail design will either avoid regulated stream features or will be crossed by bridges. The project will not place fill in streams. Appropriate Best Management Practices (BMPs) would be used during design and construction to minimize impacts. The installation of directional trail signage is also included in the scope of the review.

This alternative is preferred by TVA.

Comparison of Alternatives

The environmental impacts anticipated under the No Action and the Action Alternative are compared and summarized below in Table 2-1.

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

Resource Area	Impacts from No Action Alternative	Impacts from Proposed Action Alternative
Archaeological and Historic Resources	No impacts	No impacts to cultural resources with adherence to avoidance requirements consisting of construction buffers around potentially significant sites
Threatened and Endangered Species	No impacts	No impacts to federally listed or state listed aquatic and botanical species. For those activities with potential to affect the Indiana bat and northern long-eared bat, TVA committed to implementing specific conservation measures in their programmatic consultation with the USFWS completed in April 2018 in addition to exclusion buffers around cave features. These activities and associated conservation measures would be implemented as part of the proposed project. No significant impact to other threated and endangered terrestrial animal species.
Floodplains	No impacts	Minimal adverse impacts as standard BMPs would be used during construction of the trails. Therefore, the trails would neither significantly impact flood elevations and the natural and beneficial values of floodplains, nor suffer significant monetary damage in a flood.
Recreation	No Impacts	Beneficial impacts due to increased recreational opportunities.
Wetlands and Waters	No Impacts	No direct impacts to streams and wetlands as the project has committed to either avoiding or bridging all potentially jurisdictional features.

Resource Area	Impacts from No Action Alternative	Impacts from Proposed Action Alternative
		Minor and insignificant indirect impacts could occur from stormwater during construction activities.
Visual Resources	No Impacts	Minor and insignificant visual impacts from the construction, operation, and maintenance of these facilities.

Identification of Mitigation Measures

TVA would implement the routine environmental protection measures listed in this EA. In addition to those routine measures, the following non-routine measures would be implemented to reduce the potential for adverse environmental effects.

To avoid impacts to cultural resources, the following mitigation measures will be incorporated:

- A 50-meter buffer restricting trail construction has been added to sites 40AN173 and 40AN263.

To minimize impacts to threatened and endangered species, the following mitigation measures will be incorporated:

- A number of activities associated with the proposed project were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally listed bats in accordance with ESA Section 7(a)(2) and completed in April 2018. For those activities with potential to affect bats, TVA committed to implementing specific conservation measures. These activities and associated conservation measures are identified on page 5 of the TVA Bat Strategy Project Screening Form (attached) and need to be reviewed/implemented as part of the proposed project.

- A 200 foot protective buffer has been placed around the cave identified in the eastern portion of the property. No herbicide use is permitted within 200 feet of the cave due to potentially sensitive subterranean aquatic resources. Hand or small machinery is the only equipment permitted for use in the area to minimize the potential for increased sediment inputs in the cave. Vehicles and equipment are confined to existing access roads and personnel should avoid entering the cave.

Preferred Alternative

TVA's preferred alternative is Alternative B, the Proposed Action Alternative. Under this alternative, TVA would enter into a Cooperative Agreement with Cardin Farms to manage 174.2-acres of TVA-managed public lands on parcel MHR-1506. TVA would permit Cardin Farms to construct and maintain approximately 7 to 9 miles of multi-use trails, which could be accessed from the applicant's adjacent public park. Additionally, Alternative B is the preferred alternative because it best suits the applicant's purpose and need and TVA's goal of providing recreational opportunities in the Tennessee Valley region.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Affected Environment and Anticipated Impacts

This chapter describes the affected environment (existing conditions of environmental resources in the project area) and the anticipated environmental consequences that would occur from the adoption of each of the alternatives described in Chapter 2.

The following resources have the potential to be affected by the proposed actions:

Archaeological and Historical Resources

Affected Environment - Federal agencies are required by the National Historic Preservation Act (NHPA) and NEPA to consider the possible effects of their undertakings on historic properties. The term "undertaking" means any project, activity, or program that is funded under the direct or indirect jurisdiction of a federal agency, or requires a federal license, permit, or federal approval.

An agency may fulfill its statutory obligations under NHPA by following the process outlined in the implementing regulations, Section 106 of NHPA, at 36 CFR Part 800. Under these regulations, considering an undertaking's possible effects on historic properties is accomplished through a four-step review process: (1) initiation (defining the undertaking and the area of potential effects (APE), and identifying the consulting parties); (2) identification (studies to determine whether cultural resources are present in the APE and whether they qualify as historic properties); (3) assessment of adverse effects (determining whether the undertaking would damage the qualities that make the property eligible for the National Register of Historic Places (NRHP)); and (4) resolution of adverse effects (by avoidance, minimization, or mitigation). Throughout the process, the agency must consult with the appropriate State Historic Preservation Officer (SHPO) and federally recognized Indian tribes that have an interest in the undertaking, and should provide public notice of the undertaking.

Cultural resources include prehistoric and historic archaeological sites, districts, buildings, structures, and objects, and locations of important historic events that lack material evidence of those events. Cultural resources that are included or considered eligible for inclusion in the NRHP and maintained by the Secretary of the Interior are called historic properties. To be included or considered eligible for inclusion in the NRHP, a cultural resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, it must also meet one of four criteria: (a) association with important historical events; (b) association with the lives of significant historic persons; (c) having distinctive characteristics of a type, period, or method of construction, or representing the work of a master, or having high artistic value; or (d) having yielded or having the potential to yield information important in history or prehistory.

If the agency determines (in consultation) that the undertaking's effect on a historic property within the APE would diminish any of the qualities that make the property eligible for the NRHP (based on the criteria for evaluation at 36 CFR 60.4), the effect is said to be adverse. An undertaking may have effects on a historic property that are not considered adverse, if those effects do not diminish the qualities of the property that identify it as eligible for listing

on the NRHP. Examples of adverse effects would be ground disturbing activities in an archaeological site, or erecting structures within the viewshed of a historic building in such a way as to diminish the structure's integrity of feeling or setting. Federal agencies are required to resolve the adverse effects of their undertakings on historic properties. Resolution may consist of avoidance (such as choosing a project alternative that does not result in adverse effects), minimization (such as redesign to lessen the effects), or mitigation. Adverse effects on archaeological sites are typically mitigated by means of excavation to recover the important scientific information contained within the site. Mitigation of adverse effects on historic structures sometimes involves thorough documentation of the structure by compiling historic records, studies, and photographs. Agencies are required to consult with SHPOs, tribes, and others throughout the Section 106 process and to document adverse effects on historic properties resulting from agency undertakings.

Due to the density of the proposed trails and wide corridor used to build them, TVA has determined the area of potential effects (APE) to be the entire 174.2-acre tract. Given the nature of the final product, TVA determined that there would be no visual effects on above-ground historical resources outside of the tract. Portions of the APE have been previously surveyed for archaeological resources (Herrmann and Frankenberg 2000), but the total area surveyed was not clearly indicated in the report. In the fall of 2019, TVA conducted a Phase I Archaeological survey of the APE.

During the survey, six previously recorded sites (40AN169, 40AN170, 40AN171, 40AN172, 40AN173, and 40AN174) were reinvestigated. Additionally, the current survey identified nine new sites (40AN260, 40AN261, 40AN262, 40AN263, 40AN264, 40AN265, 40AN266, 40AN267, and 40AN268) and 12 low-density artifact scatters that were not classified as sites. Site 40AN173 has been determined to be eligible for the NRHP and site 40AN263 is considered potentially eligible for the NRHP (Meeks and de Gregory 2019).

Environmental Consequences - Under Alternative A, TVA would not disturb any land within the 174.2-acre project footprint and the cooperative agreement would not be executed. No clearing of vegetation would occur within the project footprint. Trees and other vegetation would remain in place in their current state. No impacts to cultural resources would occur as a result of proposed actions.

Under Alternative B, TVA would construct 7-9 miles of multi-use trails and execute a cooperative agreement with the applicant for long term maintenance of the property.

TVA has added 50-meter buffers to sites 40AN173 and 40AN263 and the revised trails would avoid the buffers. In addition to providing trail builders the buffer limits, TVA Cultural Compliance staff will demarcate buffer boundaries in the field with flagging tape, fencing, or some other highly visible boundary prior to trail construction. Following construction, TVA Cultural Compliance staff will remove the visible boundaries.

With the added site buffers, subsequent revisions to the proposed trail system, and the aforementioned commitments in place, TVA finds that no historic properties would be affected by the undertaking as currently designed.

TVA has consulted with the TN SHPO regarding these findings and determinations. On December 27, 2019, the TN SHPO concurred with TVA's findings. TVA also consulted with federally recognized tribes on the proposed undertaking. One response, from the

Muscogee (Creek) Nation, was received and they concurred with TVA's finding of "no effect" to cultural resources.

Threatened and Endangered Species

Affected Environment - The Endangered Species Act (ESA) requires federal agencies to conserve endangered and threatened species and to determine the effects of proposed actions on endangered and threatened species and Designated Critical Habitat. Endangered species are those determined to be in danger of extinction through all or a significant portion of their range. Threatened species are those determined to likely become endangered within the foreseeable future. Section 7 of the ESA requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) when proposed actions may affect endangered or threatened species or Designated Critical Habitat.

Botanical Species

A May 2019 query of the TVA Heritage database indicates that no federally listed and seven state-listed plant species have been previously reported from within a five mile vicinity of the proposed action area. No federally listed plant species are known from Anderson County, Tennessee, where the project is located (Table X). Review of maps, aerial photography, and knowledge of rare plants known from the region suggested that the proposed project area could provide suitable habitat for listed species. Field surveys conducted during May 2019 assessed much of the TVA parcel and identified all plant habitats present on site. No habitat for federally listed plant species occurs on the site, but species adapted to mesic forest could be present even though they were not observed during surveys. These species include butternut, American ginseng, and northern bush-honeysuckle. There is no habitat present on site for other species listed in Table 3.1.

Table 3.1 Federally listed plant species reported from Anderson County, Tennessee and other species of conservation concern documented within three miles of CEC #40709

Common Name	Scientific Name	Federal Status	State Status[2] (Rank[3])
Plants			
Tall Larkspur	*Delphinium exaltatum*	--	E(S2)
Northern Bush-honeysuckle	*Diervilla lonicera*	--	T(S2)
Waterweed	*Elodea nuttallii*	--	S(S2)
Butternut	*Juglans cinerea*	--	T(S3)
American ginseng	*Panax quinquefolius*	--	S-CE(S3S4)
Yellow Water-crowfoot	*Ranunculus flabellaris*	--	T(S2)
Sweetscent Ladies'-tresses	*Spiranthes odorata*	--	E(S1)

[1] Source: TVA Regional Natural Heritage Database, extracted 4/17/2019; USFWS Information for Planning and Consultation (IPaC) resource list (https://ecos.fws.gov/ipac/), accessed 4/17/2019; Tennessee Bat Working Group County Occurrence Maps (http://www.tnbwg.org/index.html), accessed 4/17/2019.

[2] Status Codes: D = Deemed in Need of Management; DM = Recovered, Delisted, and Being Monitored; LE or E = Endangered; LT or T = Listed Threatened; PS = Partial Status.

[3] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable.

[4] Federally listed species whose known range includes Anderson Co, Tennessee, but that has not been documented in Anderson Co., to date.

Terrestrial Species

A search of the TVA Natural Heritage database in April 17, 2019, resulted in records for two state-listed species (hellbender, and Payne's Cave Beetle), but no federally listed species within three miles of the project footprint. One state-listed species (tricolored bat) was observed during field reviews of the project footprint. One federally protected species (bald eagle), and three federally listed species (gray bat, Indiana bat, and northern long-eared bat) have been recorded in Anderson County, Tennessee.

Table 3.2 Federally listed terrestrial animal species reported from Anderson County, Tennessee and other species of conservation concern documented within three miles of CEC #40709 [1]

Common Name	Scientific Name	Federal Status	State Status[2] (Rank[3])
Amphibians			
Hellbender	*Cryptobranchus alleganiensis*	PS	E(S3)
Invertebrate			
Payne's Cave Beetle	*Pseudanophthalmus paynei*	--	--(S1)
Birds			
Bald Eagle[4]	*Haliaeetus leucocephalus*	DM	D(S3
Mammals			
Gray bat[4]	*Myotis grisescens*	LE	E(S2)
Indiana bat[4]	*Myotis sodalis*	LE	E(S1S2)
Northern long-eared bat[4]	*Myotis septentrionalis*	LT	T(S1S2)

[1] Source: TVA Regional Natural Heritage Database, extracted 4/17/2019; USFWS Information for Planning and Consultation (IPaC) resource list (https://ecos.fws.gov/ipac/), accessed 4/17/2019; Tennessee Bat Working Group County Occurrence Maps (http://www.tnbwg.org/index.html), accessed 4/17/2019.

[2] Status Codes: D = Deemed in Need of Management; DM = Recovered, Delisted, and Being Monitored; LE or E = Endangered; LT or T = Listed Threatened; PS = Partial Status.

[3] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable.

[4] Federally listed species whose known range includes Anderson Co, Tennessee, but that has not been documented in Anderson Co., to date.

Hellbenders favor larger, fast-flowing streams and rivers with large shelter rocks. Eggs are laid in depressions created beneath large rocks or submerged logs (Petranka 1998). Four hellbender records are known within three miles of the action area, the nearest of which occurs approximately 0.68 miles from the project footprint. All four of these known records are historic. Suitable habitat may occur adjacent to the project in the Clinch River but does not exist within the project action area.

Payne's cave beetle are usually found on moist soils (e.g. near streams or drip areas) in the twilight zone or deeper in caves (Nature Serve 2020). One individual was documented approximately 1.62 miles from the project footprint in 1982. One cave is known within the

project footprint. Nine additional caves are known within three miles of the project footprint. While no Payne's cave beetles were observed during field surveys in the cave in March 2019, cave invertebrates were not the target of the survey efforts.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (USFWS 2013) This species is associated with larger mature trees capable of supporting its massive nest (USFWS 2007). Bald eagles are usually found near larger waterways where the eagles forage. One bald eagle nest is known from Anderson County, approximately 3.35 miles from the project footprint. No bald eagles or their nests were observed during field reviews of the action area in March 2019. Suitable foraging habitat for bald eagles exists adjacent to the action area in the Clinch River.

Tricolored bats are typically found in caves, mines, or other karst features with crevices during winter months. During summer months in Tennessee, they are thought to predominantly roost in clumps of leaves in the foliage of live, mature trees (personal communication, Dustin Thames). They are occasionally seen near the entrance of caves during summer months as well (Harvey et al. 2011). Three tricolored bats were observed in the cave in the project footprint during field reviews in March 2019. Suitable summer roosting habitat for tricolored bat occurs through the project footprint in the foliage of mature trees.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Brady et al. 1982, Tuttle 1976a). Bats disperse over bodies of water at dusk where they forage for insects emerging from the surface of the water (Tuttle 1976b).This species emerges at dusk to forage for insects along waterways. Nine gray bat records are known from Anderson County, the nearest of which occurs approximately 8.38 miles from the project footprint. One cave is known within the project footprint. Nine additional caves are known within three miles of the project footprint. Internal surveys of the cave in March 2019 did find any gray bats, or any indication that colonies of gray bats use the cave during other seasons of the year (e.g. piles of guano, staining on the cave walls). Suitable foraging habitat for gray bat exists along streams within the project footprint and along the Clinch River.

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 northern long-eared bat is similar to that of Indiana bat, however northern long-eared bats are thought to be more opportunistic in roost site selection. This species also roosts in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014). The nearest record of northern long-eared bat is from a cave approximately 8.4 miles from the project footprint. One cave is known within the project footprint. Nine additional caves are known within three miles of the project footprint. Internal surveys of the cave in March 2019 did find any northern long-eared bats. Suitable foraging habitat for northern long-eared bats exists along throughout the forest and along streams within the project footprint and along the Clinch 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 (Pruitt and TeWinkel 2007, Kurta et al. 2002, USFWS 2018). The nearest record of Indiana bat is from a cave approximately 8.4 miles from the project footprint. One cave is known within the project footprint. Nine additional caves are known within three miles of the project footprint. Internal surveys of the cave in March 2019 did find any Indiana bats. Suitable foraging habitat for Indiana bats exists along throughout the forest and along streams within the project footprint and along the Clinch River.

Aquatic Species

A query of the TVA Natural Heritage Database on 4/5/2019 for records of listed aquatic animal species indicated twenty two state listed and eighteen federally listed aquatic species (Table 1). Records of two species were found within a ten-mile radius and (Chrosomus tennesseensis, -extant/Tennessee Clubshell-Possibly historical) within a one-mile radius of the proposed action.

Table 3.3. Records of federal and state-listed aquatic animal species within the 10-digit HUC watershed of the proposed project [1]

Common Name	Scientific Name	Federal Status	State Status[2] (Rank[3])
Aquatic Species			
Anthony's River Snail	*Athearnia anthonyi*	LE	E(S1)
Tennessee Dace	*Chrosomus tennesseensis*	--	D(S3)
Spectaclease	*Cumberlandia monodonta*	LE	E(S2S3)
Blue Sucker	*Cycleptus elongates*	--	T(S2)
Fanshell	*Cyprogenia stegaria*	LE	E(S1)
Dromedary Pearlymussel	*Dromus dromas*	LE	E(S1)
Tan Riffleshell	*Epioblasma florentina walker*	LE	E(S1)
Green Blossom Pearlymussel	*Epoblasma torulosa gubernac*	LE	E(SX)
Slender Chub	*Erimystax xahni*	LT	T(S1)
Shiny Pigtoe Pearlymussel	*Fusconaia cor*	LE	E(S1)
Fine-rayed Pigtoe	*Fusconaia cuneolus*	LE	E(S1)
Cracking Pearlymussel	*Hemistena lata*	LE	E(S1)
Spiny Riversnail	*Lo fluvialis*	--	(S2)
Pick Mucket	*Lampsilis abrupta*	LE	E(S2)

Common Name	Scientific Name	Federal Status	State Status[2] (Rank[3])
Alabama Lampmussel	*Lampsilis virescens*	LE	E(S1)
Birdwing Pearlymussel	*Lemiox rimosus*	LE	E(S1)
Yellowfin Madtom	*Noturus flavipinnis*	LT	T(S1)
White Wartyback	*Plethobasus cicatricosus*	LE	E(S1)
Orange-foot Pimpleback	*Plethobasus cooperianus*	LE	E(S1)
Tennessee Clubshell	*Pleurobema oviforme*	--	(S2S3)
Rough Pigtoe	*Pleurobema plenum*	LE	E(S1)
Slabside Pearlymussel	*Pleuronaia dolabelloides*	LE	E(S2)

[1] Source: TVA Regional Natural Heritage Database, extracted 4/5/2019; USFWS Information for Planning and Consultation (IPaC) resource list (https://ecos.fws.gov/ipac/), accessed 4/17/2019; Tennessee Bat Working Group County Occurrence Maps (http://www.tnbwg.org/index.html), accessed 4/17/2019.
2 Status Codes: D = Deemed in Need of Management; DM = Recovered, Delisted, and Being Monitored; LE or E = Endangered; LT or T = Listed Threatened; PS = Partial Status.
3 State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable.
4 Federally listed species whose known range includes Anderson Co, Tennessee, but that has not been documented in Anderson Co., to date.

Environmental Consequences - Under Alternative A, TVA would not disturb any land within the 174.2-acre project footprint and the cooperative agreement would not be executed. No clearing of vegetation would occur within the project footprint and trees and other vegetation would remain in place in their current state. No direct, indirect, or cumulative impacts to botanical, terrestrial or aquatic threatened and endangered species would occur as a result of proposed actions.

Under Alternative B, TVA would construct 7-9 miles of multi-use trails and execute a cooperative agreement with the applicant for long term maintenance of the property.

Botanical Species
The proposed project would have no effect on federally listed plants because none occur within the project area. The proposed action could have small, direct impacts on state-listed plants if the proposed trail system intersects populations that were not detected during field surveys. Direct impacts could occur to state-listed species primarily during construction of the proposed trails. If these types of impacts did occur, it is unlikely that more than a few individuals from any given population would be negatively affected. Impacts to state-listed plant species, if they were to occur, would not be significant.

Terrestrial Species
Three state-listed terrestrial animal species were assessed based on documented presence within three miles or inside the project footprint. Additionally, three federally listed and one federally protected species have been assessed based on known or potential presence within Anderson County, Tennessee. Of these, five species have the potential to utilize the

project area. Habitat for hellbender does not exist within the project footprint and one was documented in the project area.

Habitat for hellbender does not exist within the project footprint. Hellbender would not be impacted by the proposed actions

One bald eagle nest is known from Anderson County, approximately 3.35 miles from the project footprint. Due to the distance from the proposed actions, this nest would not be impacted by the proposed actions. No additional bald eagle nests are known within 660 feet of the project footprint or were observed during field reviews. BMPs would be used during trail building activities in order to minimize impacts to the adjacent Clinch River that could be used as foraging habitat by bald eagle. Proposed project actions are in compliance with the National Bald Eagle Management Guidelines. With BMPs in place, bald eagles would not be significantly impacted by the proposed actions.

One cave is known from the project footprint. Nine other caves are known within three miles of the action area, but all are sufficient distance away that they would not be impacted. The cave within the action area offers suitable habitat for Payne's cave beetle, gray bat, Indiana bat, and northern long-eared bat. In addition, tricolored bats were documented in this cave. No herbicide use is permitted within 200 feet of this cave due to potentially sensitive subterranean aquatic resources. In addition, no heavy equipment may be used within this 200-foot buffer. Vegetation removal may only occur using hand clearing or small machinery. No entry into the cave is allowed. With these restrictions in place, and the lack of documented presence in the cave, the proposed activities would have no significant impact on Payne's cave beetle.

Best management practices (BMPs) would be used around stream found within the action area during proposed actions. These BMP's would also insure impacts to the adjacent Clinch River are minimized. With BMPs in place, impacts to aquatic foraging habitat for gray bat, Indiana bat, northern long-eared bat, and tricolored bat would be minimized.

The project would avoid removing any trees greater than or equal to three inches in diameter, therefore no suitable summer roosting habitat for Indiana bat and northern long-eared bat would be impacted by the proposed activities. Avoiding removal of mature trees would also likely insure summer roosting tricolored bats also would not be impacted. While a minimal amount of foraging habitat for these bats would be removed within the forest, mature trees would be retained.

With the use of restrictions and BMPs to minimize potential impacts to the cave and streams found in the project footprint, in combination with the avoidance of suitable summer roosting trees, TVA has determined that proposed actions would not significantly impact gray bat, Indiana bat, northern long-eared bat, and tricolored bat.

A number of activities associated with the proposed project were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally listed bats in accordance with ESA Section 7(a)(2) and completed in April 2018. For those activities with potential to affect bats, TVA committed to implementing specific conservation measures. These activities and associated conservation measures are identified on page 5 of the TVA Bat Strategy Project Screening Form (attached) and need to be reviewed/implemented as part of the proposed project.

Aquatic Species
As the entire project is land based, there would be no direct impacts to sensitive aquatic species. Indirect impacts to sensitive aquatic species associated from erosion and sedimentation would be avoided by minimizing ground disturbance and conducting all work in accordance with best management practices as described in the project's Stormwater Pollution Prevention Plan (SWPPP). Therefore, with proper implementation of best management practices, no impacts to endangered, threatened, or special status species are anticipated to occur.

Floodplains

Affected Environment – A floodplain is the relatively level land area along a stream or river that is subject to periodic flooding. The area subject to a one-percent chance of flooding in any given year is normally called the 100-year floodplain. The area subject to a 0.2 percent chance of flooding in any given year is normally called the 500-year floodplain.

Environmental Consequences - 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." The EO is not intended to prohibit floodplain development in all cases, but rather to create a consistent government policy against such development under most circumstances (U.S. Water Resources Council, 1978). The EO requires that agencies avoid the 100-year floodplain unless there is no practicable alternative.

In 1981, TVA completed a class review of certain repetitive actions that could occur in floodplains (TVA 1981). The purpose of the class review were to (1) determine, for the actions listed, if there are practicable alternatives to siting in the floodplain; and (2) if no practicable alternatives exist, establish review criteria that, if followed, will minimize any adverse impacts that may be associated with the individual actions reviewed. A number of actions which could occur in floodplains were reviewed. As a result of the class review, TVA determined that there were no practicable alternative to the actions that would avoid sitting in the floodplain.

Under Alternative A, TVA would not disturb any land within the 174.2-acre project footprint and the cooperative agreement would not be executed. Thus, there would be no impacts to floodplains.

Under Alternative B, TVA would construct 7-9 miles of multi-use trails and execute a cooperative agreement with the applicant for long term maintenance of the property.

Portions of the proposed trails would be located within the 100-year floodplain of the Clinch River. Consistent with EO 11988, walking trails (walkways) are considered to be repetitive actions in the 100-year floodplain. To minimize adverse impacts, standard BMPs would be used during construction of the trails. Therefore, the trails would neither significantly impact flood elevations and the natural and beneficial values of floodplains, nor suffer significant monetary damage in a flood.

Recreation

Affected Environment – The applicant is proposing to construct a new public park (Aspire Park) on private land adjacent to the TVA property. Amenities proposed for the new park include an educational center, ball fields, playgrounds, memorial spaces, kayak and canoe launch and multi-use trails. The trail system would cross both the Aspire Park property and TVA property. The trail system is planned to be a complement of a new public park and trail system which is proposed adjacent to TVA's lands.

Melton Hill Reservoir is an outdoor recreation resource that attracts visitors from within and outside the region. The proposed project would be sited on TVA Tract MHR-1506, which is shown as Parcel 146 in the Melton Hill Reservoir Land Management Plan (TVA 2099). The parcel is identified as Zone 3 (Sensitive Resource Management). TVA allows passive recreation on Zone 3 property, such as hiking, biking, picnicking and bird watching.

Environmental Consequences - Under Alternative A, TVA would not disturb any land within the 174.2-acre project footprint and the cooperative agreement would not be executed. No clearing of vegetation would occur within the project footprint. The adjacent Aspire Park would still be constructed but trail related recreation opportunities would be reduced.

Under Alternative B, TVA would construct 7-9 miles of multi-use trails and execute a cooperative agreement with the applicant for long term maintenance of the property. The cooperative agreement would allow for the long term maintenance and management of the trails. The inclusion of the additional trails would expand on the recreational opportunities for the planned Aspire Park. Additionally, the trails would provide additional recreational opportunities for the larger community.

Wetlands and Waters of the US

Affected Environment – The U.S. Army Corps of Engineers (USACE) regulates the discharge of fill material into waters of the United States, including wetlands pursuant to Section 404 of the Clean Water Act (CWA) (33 USC 1344). Additionally, EO 11990 (Protection of Wetlands) requires federal agencies to avoid, to the extent possible, adverse impact to wetlands and to preserve and enhance their natural and beneficial values.

As defined in Section 404 of the CWA, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands and wetland fringe areas can also be found along the edges of many watercourses and impounded waters (both natural and man-made). Wetland habitat provides valuable public benefits including flood storage, erosion control, water quality improvement, wildlife habitat, and recreation opportunities.

Multiple site investigations were conducted between February 19, 2019, and March 7, 2019, to identify and delineate any potential wetlands and/or jurisdictional water features. A total of 19 streams totaling 8,562 linear feet and three wetlands totaling 1.8 acres were observed. All identified features are connected to downstream waters and may be considered jurisdictional WOUS by the USACE and WOTS by TDEC.

Environmental Consequences – Under Alternative A, TVA would not disturb any land within the 174.2-acre project footprint and the cooperative agreement would not be executed. No

clearing of vegetation would occur within the project footprint. Trees and other vegetation would remain in place in their current state. No direct, indirect, or cumulative impacts to wetlands or waters would occur as a result of proposed actions.

Under Alternative B, the applicant would construct 7-9 miles of multi-use trails and execute a cooperative agreement with the applicant for long term maintenance of the property.

No trails are sited within identified wetlands. And while trails are proposed to cross identified stream features, the project has committed to bridging all streams. The project would not place culverts or fill within stream features. Erosion control BMPs would be used during construction to minimize indirect impacts to streams and wetlands. Therefore, there would be no impacts to streams or wetlands.

Visual Resources

Affected Environment - TVA has adapted criteria for classifying the quality and value of scenery from a management system developed by the U.S. Forest Service. The classification process is also based on fundamental methodology and descriptions adapted from a Forest Service publication, *Landscape Aesthetics, A Handbook for Scenery* Management. The process and criteria are used to compare the value of scenery to other resource values during inventory and land planning tasks. These are also used to evaluate the extent and magnitude of visual changes that could result from proposed projects. In addition, they can be useful to help establish management objectives for improving or maintaining the scenic quality of managed lands.

The proposed project consists of constructing 7-9 miles of multi-use trails in Anderson County, Tennessee. The site is mostly undeveloped and heavily vegetated ridge along the Clinch River.

The visual character of the project area is of a steep, vegetated ridge along the Clinch River. Residential homes are developed on the south and eastern portion side of the river, and Clinton Island is located northeast of the project site. An industrial park is developed adjacent to the northern property boundary, and the city of Clinton is located north of the industrial park.

The physical, biological, and cultural features of an area combine to make the visual landscape character both identifiable and unique. Scenic integrity indicates the degree of unity or wholeness of the visual character. Scenic attractiveness is the evaluation of outstanding or unique natural features, scenic variety, seasonal change, and strategic location. Where and how the landscape is viewed would affect the more subjective perceptions of its aesthetic quality and sense of place. Views of a landscape are described in terms of what is seen in foreground, middleground, and background distances. In the foreground, an area within one half mile of the observer, details of objects are easily distinguished in the landscape. In the middleground, normally between a mile and four miles from the observer, objects may be distinguishable but their details are weak and they tend to merge into larger patterns. Details and colors of objects in the background, the distant part of the landscape, are not normally discernible unless they are especially large and standing alone. The impressions of an area's visual character can have a significant influence on how it is appreciated, protected, and used. The scenic attractiveness of the project area was defined as "common"; meaning the area is one where the land forms, rock, vegetation patterns, water, and other features have ordinary or common visual quality. These areas have generally positive but typical attributes, with a basic variety of forms,

colors, and textures that are normally seen throughout the landscape. While the undeveloped ridge is a unique and distinctive feature to the area, the surrounding industrial park detracts from the overall attractiveness.

Visual consequences are examined in terms of visual changes between the existing landscape and proposed actions, sensitivity of viewing points available to the general public, their viewing distances, and visibility of proposed changes. Scenic integrity indicates the degree of intactness or wholeness of the landscape character. These measures help identify changes in visual character based on commonly held perceptions of landscape beauty, and the aesthetic sense of place. The scenic integrity of the project area was defined as “moderate”, meaning areas where the valued landscape character appeared to be slightly altered. Noticeable deviations must be visually subordinate to the landscape being viewed, and borrow much of the natural form, line, color, texture, and pattern.

The value class of a landscape is determined by combining the levels of scenic attractiveness, scenic integrity and visibility. The scenic value class for the project site would be defined as “good”; which are areas with attractive but common scenic quality. Minor human alteration may be seen in the foreground but is barely noticeable in the middle ground. These areas have relatively high visibility from both land and water.

Environmental Consequences – Under Alternative A, TVA would not disturb any land within the 174.2-acre project footprint and the cooperative agreement would not be executed. No clearing of vegetation would occur within the project footprint. There would be no impact on visual resources.

Under Alternative B, TVA would construct 7-9 miles of multi-use trails and execute a cooperative agreement with the applicant for long term maintenance of the property.

The development of multi-use trails could be seen in the foreground by recreating visitors along the Clinch River. However, the overall planned trails would not remove vegetation over 3 inches DBH, so views at middleground distances by recreation users along the river would be unaltered.

The development of multi-use trails would likely not reduce the overall scenic class from a value of “good”. During the construction period there may be minor visual impacts due to an increase in personnel, equipment, and materials on-site. This will be temporary until all activities are complete. Therefore, the proposed actions would result in minor and insignificant visual impacts from the construction, operation, and maintenance of these facilities.

Cumulative Impacts

Cumulative impacts are defined in the Council on Environmental Quality’s regulations at 40 C.F.R. § 1508.7 as follows:

> Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Past actions that have already occurred and present actions are integrated into the existing baseline conditions discussed above. The parcel on which the multi-use trails would be developed is restricted to be used solely for sensitive resource management. Only limited facilities, such as trails, would be allowed to support passive recreational activities. While requests for additional recreation related facilities could be submitted to TVA in the future, only proposed actions consistent with sensitive resource management guidelines and restrictions included in the cooperative agreement would be considered. Based on these restrictions, the cumulative effects of issuing the cooperative agreement would be insignificant.

CHAPTER 4 – SUPPORTING INFORMATION

TVA Preparers

Michael G. Angst, Cultural Compliance, M.A. in Anthropology, 26 years in cultural resource management and Section 106 compliance

Adam Dattilo, Threatened and endangered plants, Botanist, 10 years of experience in botany, restoration ecology, threatened and endangered plant monitoring/surveys, invasive species control, as well as NEPA and ESA compliance.

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Bob Marker, Recreation, B.S. Outdoor Recreation Resources Management, 40 years in outdoor recreation resources planning and Management.

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Brian Ross, Natural Resource Management, Heritage Reviewer, BS in Plant Science & Landscape Systems, MS in Parks and Resource Management, 10 years of experience in Natural Resource Management.

W. Doug White, NEPA Compliance, Document Development, B.S. in Forestry, 16 years in water resources management and NEPA compliance.

Carrie Williamson, Flood Risk, Program Manager, B.S. in Civil Engineering, M.S. in Civil Engineering, Professional Engineer, Certified Floodplain Manager, 6 years in Floodplains and Flood Risk, 3 years in River Forecasting, 11 years in Compliance Monitoring.

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Appendix A:

Agency Correspondence

Project Review Form - TVA Bat Strategy *(03/2019)*

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

Project Name: Carden Farm Trail **Date:** Apr 5, 2019

Contact(s): Clay Guerry (scguerry@tva.gov) **CEC#:** 40709 **Project ID:** 4002525

Project Location (City, County, State): Clinton, Anderson County TN

Project Description:

Construct new trails on Carden Farm (XMHR-146PT) using a small mini x and hand tools. Trail tread with be natural surface (soil), no trees greater than or equal to 3"dbh will be cut. Project includes directional trail signage and general ongoing maintenance as needed. All standard trail BMP's will be used to minimize impacts .

SECTION 1: PROJECT INFORMATION - ACTION AND ACTIVITIES

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

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

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

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

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

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

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

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

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

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

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

a) Will project project involve continuous noise (i.e., ≥ 24 hrs) that is greater than 75 decibels measured on the A scale (e.g., loud machinery)?

- (●) **NO** (NV2 does not apply)
- ( ) **YES** (NV2 applies, subject to records review)

b) Will project involve entry into/survey of cave, bridge, other structure (potential bat roost)?

- ( ) **NO** (HP1/HP2 do not apply)
- (●) **YES** (HP1/HP2 applies, subject to review of bat records)

c) If conducting **prescribed burning** (**activity 23)**, estimated acreage**:** [ ] and timeframe(s) below; [■] **N/A**

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 31	☐ Apr 1 - May 31, Aug 1- Oct 14	☐ Jun 1 - Jul 31
VA	☐ Sep 16 - Nov 15	☐ Nov 16 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 15	☐ Jun 1 - Jul 31
AL	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 15	☐ Mar 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
NC	☐ Oct 15 - Nov 14	☐ Nov 15 - Apr 15	☐ Apr 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
MS	☐ Oct 1 - Nov 14	☐ Nov 15 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 30	☐ Jun 1 - Jul 31

d) Will the project involve vegetation piling/burning?

- (●) **NO** (SSPC4/ SHF7/SHF8 do not apply)
- ( ) **YES** (SSPC4/SHF7/SHF8 applies, subject to review of bat records)

e) If **tree removal (activity 33 or 34)**, estimated amount: [ ] ( )**ac** ( )**trees** (●)**N/A**

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 31	☐ Apr 1 - May 31, Aug 1- Oct 14	☐ Jun 1 - Jul 31
VA	☐ Sep 16 - Nov 15	☐ Nov 16 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 15	☐ Jun 1 - Jul 31
AL	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 15	☐ Mar 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
NC	☐ Oct 15 - Nov 14	☐ Nov 15 - Apr 15	☐ Apr 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
MS	☐ Oct 1 - Nov 14	☐ Nov 15 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 30	☐ Jun 1 - Jul 31

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

For **PROJECT LEADS** whose projects will be reviewed by a Heritage Reviewer, **STOP HERE**. Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date", and submit with project information.

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

STEP 5) **Review of bat/cave records conducted by Heritage/OSAR reviewer?**

(●) **YES** ( ) **NO** (Go to Step 13)

Info below completed by:

☐ **Heritage Reviewer**	(name)		Date	
☐ **OSAR Reviewer**	(name)		Date	
■ **Terrestrial Zoologist**	(name)	Sara McLaughlin-Johnson	Date	4/25/2019

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

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

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

Virginia big-eared bat records: ☒ None ☐ Within 10 miles* ☐ Within the County

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

Bat Habitat Inspection Sheet completed? (●) **NO** ( ) **YES**

Amount of SUITABLE habitat to be removed/burned (may differ from STEP 4e): [ ] **(**( )**ac** ( )**trees)*** (●)**N/A**

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

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

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

STEP 7) Project will involve:

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

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

STEP 9) Presence/absence survey results, on _____ ○ **NEGATIVE** ○ **POSITIVE** ◉ **N/A**

STEP 10) Project ○ **WILL** ◉ **WILL NOT** require use of Incidental Take in the amount of 0 ○ **acres or** ◉ **trees** proposed to be used during the ○ **WINTER** ○ **VOLANT SEASON** ○ **NON-VOLANT SEASON** ■ **N/A**

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

TVA Action	Total 20-year	Winter	Volant Season	Non-Volant Season
1 Manage Biological Resources for Biodiversity and Public Use on TVA Reservoir Lands				

STEP 12) Amount contributed to TVA's Bat Conservation Fund upon activity completion: $ 0 OR ◉ **N/A**

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

SECTION 3: REQUIRED CONSERVATION MEASURES

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

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

- ○ **NO** (Go to Step 14)
- ◉ **YES** (STOP HERE; Submit for Terrestrial Zoology Review. Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date", and submit with project information).

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

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

Manual Override

Name: Sara McLaughlin-Johnson

Check if Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description
■	15, 16, 17, 18, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 45, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96	**NV1** - Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
■	15, 26, 92	**HP1** - Site-specific cases in which potential impact of human presence is heightened (e.g., conducting environmental or cultural surveys within a roost) will be closely coordinated with staff bat biologists to avoid/ minimize impacts below any potential adverse effect. Any take from these activities would be covered by TVA's Section 10 permit.
■	16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 52, 53, 54, 55, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 70, 71, 73, 76, 77, 78, 80, 81, 82, 83, 86, 87, 88, 89, 90	**SSPC2** - Operations involving chemical/fuel storage or resupply and vehicle servicing will be handled outside of riparian zones (streamside management zones) in a manner to prevent these items from reaching a watercourse. Earthen berms or other effective means are installed to protect stream channel from direct surface runoff. Servicing will be done with care to avoid leakage, spillage, and subsequent stream, wetland, or ground water contamination. Oil waste, filters, other litter will be collected and disposed of properly. Equipment servicing and chemical/fuel storage will be limited to locations greater than 300-ft from sinkholes, fissures, or areas draining into known sinkholes, fissures, or other karst features.
■	17, 18, 21, 22, 24, 25, 26, 30, 31, 33, 34, 35, 36, 40, 46, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 66, 67, 68, 69, 70, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, 91, 93, 95, 96	**SSPC5** (**26a, Solar, Economic Development only**) - Section 26a permits and contracts associated with solar projects, economic development projects or land use projects include standards and conditions that include standard BMPs for sediment and contaminants as well as measures to avoid or minimize impacts to sensitive species or other resources consistent with applicable laws and Executive Orders.
■	21, 54	**SSPC6** - Herbicide use will be avoided **within 200 ft of portals associated with caves, cave collapse areas, mines and sinkholes** are capable of supporting cave-associated species. Herbicides are not applied to surface water or wetlands unless specifically labeled for aquatic use. Filter and buffer strips will conform at least to federal and state regulations and label requirements.
■	17, 21, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 54, 55	**SSPC7** - Clearing of vegetation **within a 200-ft radius of documented caves** will be limited to hand or small machinery clearing only (e.g., chainsaws, bush-hog, mowers). This will protect potential recharge areas of cave streams and other karst features that are connected hydrologically to caves.
■	16, 26, 36, 37, 38, 39, 48, 50, 52, 59, 60, 62, 66, 67, 69, 72, 75, 77, 78, 79, 86	**L1** - Direct temporary lighting away from suitable habitat during the active season.
■	16, 26, 36, 37, 38, 39, 48, 50, 52, 59, 60, 62, 66, 67, 69, 72, 75, 77, 78, 79, 86	**L2** - Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

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

Hide All Unchecked Conservation Measures

- (•) HIDE
- ( ) UNHIDE

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

- ( ) HIDE
- (•) UNHIDE

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

STEP 14) Save completed form (Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date") in project environmental documentation (e.g. CEC, Appendix to EA) AND send a copy of form to batstrategy@tva.gov. Submission of this form indicates that Project Lead/Applicant:

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

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

For Use by Terrestrial Zoologist Only

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

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

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

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

December 27, 2019

Mr. Clinton E. Jones
Tennessee Valley Authority
Biological and Cultural Compliance
400 West Summit Hill Drive
Knoxville, TN 37902

RE: TVA / Tennessee Valley Authority, Carden Farms Multi-use Trails, Tract XMHR-146PT, Anderson County, TN

Dear Mr. Jones:

In response to your request, we have reviewed the archaeological resources survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no historic properties eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions or comments may be directed to Jennifer Barnett (615) 687-4780.

Your cooperation is appreciated.

Sincerely,

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

EPM/jmb

HISTORIC AND CULTURAL PRESERVATION
P.O. BOX 580 | OKMULGEE, OK 74447
T 918.732.7733 l F 918.758.0649

January 29, 2020

Marianne M. Shuler
Senior Specialist, Archaeologist & Tribal Liaison
Cultural Compliance
Tennessee Valley Authority
400 W Summit Hill Drive
Knoxville, TN 37902

RE: Tennessee Valley Authority (TVA), Proposed Carden Farms Trails, Anderson County, Tennessee

Ms. Shuler,

Thank you for the correspondence to the Muscogee (Creek) Nation regarding the proposed construction of several miles of multi-use trails for pedestrians and bicyclists. This project is located in Anderson County, Tennessee. Anderson County is located in the Muscogee (Creek) Nation's historical area of interest and we would like to consult on this project.

After reviewing this undertaking, we are unaware of any Muscogee cultural resources or sacred sites located in the immediate project area. We recommend a finding of "no effect" to historic properties and work should proceed as planned. However, if artifacts or archaeological features are encountered during project activities, work shall cease and our office shall be consulted immediately. This can include but not limited to arrowheads, broken pieces of pottery or glass, stone implements, metal fasteners or tools, human remains, etc. Archeological features are stains in the soil that indicate disturbance by human activity. Some examples are post holes, building foundations, trash pits, and human burial. These stipulations should be placed on the construction plans to insure contractors are aware of it. Any changes to the approved scope of work for this project will require re-submission to, evaluation and approval by the Muscogee (Creek) Nation prior to initiation of any work for compliance with Section 106. If you have any questions, please let us know.

Thank you.

Ms. Corain Lowe-Zepeda
Tribal Historic Preservation Officer
Historic and Cultural Preservation Department
Muscogee (Creek) Nation
P.O. Box 580 l Okmulgee, OK 74437
T: 918-732-7835
E-Mail: clowe@mcn-nsn.gov or Section106@mcn-nsn.gov

A Phase I Archaeological Survey for the Carden Farm Recreational Trails Project, Melton Hill Reservoir, Anderson County, Tennessee Volume I

Tennessee Valley Archaeological Research

A Phase I Archaeological Survey for the Carden Farm Recreational Trails Project, Melton Hill Reservoir, Anderson County, Tennessee Volume II

Tennessee Valley Archaeological Research

Appendix B:

Environmental Checklist

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number Tri ID 4002525	**Tracking Number** *(NEPA Administration Use Only)* 40709

Form Preparer	Project Initiator/Manager	Business Unit
S C Guerry	S C Guerry	P&NR - Commercial & Public Recreation

Project Title	Hydrologic Unit Code
NRM Need TRIRIGA ID 4002525 Melton Hill Reservoir - Carden Farm Trails	

Description of Proposed Action *(Include Anticipated Dates of Implementation)* ☐ Continued on Page 3 *(if more than one line)*

Carden Farm Trail - construct new trails on Carden Farm XMHR-146PT; see scope and maps attached to Record 4002525

Initiating TVA Facility or Office	TVA Business Units Involved in Project

Location *(City, County, State)*

Anderson County, TN, County, State: Anderson County, TN Land Tract(s): Acquisition MHR 1506 Planned MHR 146 PT

Parts 1 through 4 verify that there are no extraordinary circumstances associated with this action:

Part 1. Project Characteristics

	Is there evidence that the proposed action...	**No**	**Yes**	**Commit-ment**	**Information Source for Insignificance**
	1. Is major in scope?	X			Guerry, S C. 01/28/2020
	2. Is part of a larger project proposal involving other TVA actions or other federal agencies?	X			Guerry, S C. 01/28/2020
*	3. Involves non-routine mitigation to avoid adverse impacts ?	X		No	Guerry, S C. 01/28/2020
	4. Is opposed by another federal, state, or local government agency?	X			Guerry, S C. 01/28/2020
*	5. Has environmental effects which are controversial?	X			Guerry, S C. 01/28/2020
*	6. Is one of many actions that will affect the same resources?	X			Guerry, S C. 01/28/2020
	7. Involves more than minor amount of land?	X			Guerry, S C. 01/28/2020

*If "yes" is marked for any of the above boxes, consult with NEPA Administration on the suitability of this project for a categorical exclusion.

Part 2. Natural and Cultural Features Affected

Would the proposed action...	No	Yes	Permit	Commit-ment	Information Source for Insignificance
1.Potentially affect endangered, threatened, or special status species?		X	No	Yes	For comments see attachments
2.Potentially affect historic structures, historic sites, Native American religious or cultural properties, or archaeological sites?		X	No	No	For comments see attachments
3.Potentially take prime or unique farmland out of production?	X		No	No	Guerry, S C. 01/28/2020
4.Potentially affect Wild and Scenic Rivers or their tributaries?	X		No	No	For comments see attachments
5.Potentially affect a stream on the Nationwide Rivers Inventory?	X		No	No	For comments see attachments
6.Potentially affect wetlands?		X	No	No	For comments see attachments
7.Potentially affect water flow, stream banks or stream channels?	X		No	No	For comments see attachments
8.Potentially affect the 100-year floodplain?		X	No	No	For comments see attachments
9.Potentially affect ecologically critical areas, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, or trails?		X	No	No	For comments see attachments
10.Contribute to the spread of exotic or invasive species?		X	No	No	For comments see attachments
11.Potentially affect migratory bird populations?	X		No	No	For comments see attachments
12.Involve water withdrawal of a magnitude that may affect aquatic life or involve interbasin transfer of water?	X		No	No	Guerry, S C. 01/28/2020
13.Potentially affect surface water?	X		No	No	Guerry, S C. 01/28/2020
14.Potentially affect drinking water supply?	X		No	No	Guerry, S C. 01/28/2020
15.Potentially affect groundwater?	X		No	No	Gilliland, Margaret 05/21/2019
16.Potentially affect unique or important terrestrial habitat?	X		No	Yes	For comments see attachments
17.Potentially affect unique or important aquatic habitat?	X		No	No	For comments see attachments

Part 3. Potential Pollutant Generation

Would the proposed action potentially (including accidental or unplanned)...	No	Yes	Permit	Commit-ment	Information Source for Insignificance
1.Release air pollutants?	X		No	No	Guerry, S C. 01/28/2020
2.Generate water pollutants?	X		No	No	Guerry, S C. 01/28/2020
3.Generate wastewater streams?	X		No	No	Gilliland, Margaret 05/21/2019
4.Cause soil erosion?		X	No	No	For comments see attachments
5.Discharge dredged or fill materials?	X		No	No	Guerry, S C. 01/28/2020
6.Generate large amounts of solid waste or waste not ordinarily generated?	X		No	No	Gilliland, Margaret 05/21/2019
7.Generate or release hazardous waste (RCRA)?	X		No	No	Guerry, S C. 01/28/2020
8.Generate or release universal or special waste, or used oil?	X		No	No	Guerry, S C. 01/28/2020
9.Generate or release toxic substances (CERCLA, TSCA)?	X		No	No	Guerry, S C. 01/28/2020
10.Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	X		No	No	Guerry, S C. 01/28/2020
11.Involve disturbance of pre-existing contamination?	X		No	No	Guerry, S C. 01/28/2020
12.Generate noise levels with off-site impacts?	X		No	No	Guerry, S C. 01/28/2020
13.Generate odor with off-site impacts?	X		No	No	Guerry, S C. 01/28/2020
14.Produce light which causes disturbance?	X		No	No	Guerry, S C. 01/28/2020
15.Release of radioactive materials?	X		No	No	Guerry, S C. 01/28/2020
16.Involve underground or above-ground storage tanks or bulk storage?	X		No	No	Gilliland, Margaret 05/21/2019
17.Involve materials that require special handling?	X		No	No	Guerry, S C. 01/28/2020

Part 4. Social and Economic Effects

Would the proposed action...	No	Yes	Permit	Commit-ment	Information Source for Insignificance
1.Potentially cause public health effects?	X			No	Guerry, S C. 01/28/2020
2.Increase the potential for accidents affecting the public?	X			No	Guerry, S C. 01/28/2020
3.Cause the displacement or relocation of businesses, residences, cemeteries, or farms?	X			No	Guerry, S C. 01/28/2020
4.Contrast with existing land use, or potentially affect resources described as unique or significant in a federal, state, or local plan?	X			No	Guerry, S C. 01/28/2020
5.Disproportionately affect minority or low-income populations?	X			No	Guerry, S C. 01/28/2020
6.Involve genetically engineered organisms or materials?	X			No	Guerry, S C. 01/28/2020
7.Produce visual contrast or visual discord?	X			No	Guerry, S C. 01/28/2020
8.Potentially interfere with recreational or educational uses?	X			No	For comments see attachments
9.Potentially interfere with river or other navigation?	X		No	No	Guerry, S C. 01/28/2020
10.Potentially generate highway or railroad traffic problems?	X			No	Guerry, S C. 01/28/2020

Part 5. Other Environmental Compliance/Reporting Issues

Would the proposed action...	No	Yes	Commit-ment	Information Source for Insignificance
1.Release or otherwise use substances on the Toxic Release Inventory list?	X		No	Guerry, S C. 01/28/2020
2.Involve a structure taller than 200 feet above ground level?	X		No	Guerry, S C. 01/28/2020
3.Involve site-specific chemical traffic control?	X		No	Guerry, S C. 01/28/2020
4.Require a site-specific emergency notification process?	X		No	Guerry, S C. 01/28/2020
5.Cause a modification to an existing environmental permit or to existing equipment with an environmental permit or involve the installation of new equipment/systems that will require a permit?	X		No	Guerry, S C. 01/28/2020
6.Potentially impact operation of the river system or require special water elevations or flow conditions??	X		No	Guerry, S C. 01/28/2020
7.Involve construction or lease of a new building or demolition or renovation of existing building (i.e. major changes to lighting, HVAC, and/or structural elements of building of 1000 sq. ft. or more)?	X		No	Guerry, S C. 01/28/2020

Parts 1 through 4: If "yes" is checked, describe in the discussion section following this form why the effect is insignificant. Attach any conditions or commitments which will ensure insignificant impacts. Use of non-routine commitments to avoid significance is an indication that consultation with NEPA Administration is needed.

An ☒ *EA or* ☐ *EIS Will be prepared.*

Based upon my review of environmental impacts, the discussion attached, and/or consultations with NEPA Administration, I have determined that the above action does not have a significant impact on the quality of the human environment and that no extraordinary circumstances exist. Therefore, this proposal qualifies for a categorical exclusion under Section 5.2. _____ *of TVA NEPA Procedures.*

Project Initiator/Manager S C Guerry		Date 02/27/2020
TVA Organization UNKN	E-mail scguerry@tva.gov	Telephone

Environmental Concurrence Reviewer

Brandon Hartline 02/27/2020

Signature

Preparer Closure

S C Guerry 02/28/20

Signature

Other Environmental Concurrence Signatures *(as required by your organization)*

Signature

Signature

Signature *Signature*

Other Review Signatures *(as required by your organization)*

Garry E Chappelle 02/28/2020

Signature *Signature*

Signature *Signature*

Signature *Signature*

Attachments/References

CEC General Comment Listing

1.	Scope of Work		
	By: S C Guerry	03/27/2019	
	Files: Carden Farm Trails Scope of Work.docx	03/27/2019	12.87 Bytes
2.	Map - Topo/Quad (with location of interest)		
	By: S C Guerry	03/27/2019	
	Files: Carden_topo.pdf	03/27/2019	217.25 Bytes
3.	Map - C/D Stage (with location of interest)		
	By: S C Guerry	03/27/2019	
	Files: carden_D.pdf	03/27/2019	149.64 Bytes
4.	updated scope		
	By: S C Guerry	04/03/2019	
	Files: Carden Farm Trails Scope of Work_updated.docx	04/03/2019	91.49 Bytes
5.	Attached bat strategy form.		
	By: S C Guerry	04/05/2019	
	Files: CEC40709_BatForm_040519.pdf	04/05/2019	1,155.75 Bytes

CEC Comment Listing

Part 2 Comments

1.	A review of terrestrial animal species in the TVA Natural Heritage database on April 17, 2019, resulted in records for two state-listed species (hellbender and Payne's Cave Beetle) but no federally listed species within three miles of the project footprint. One federally protected species (bald eagle), and three federally listed species (gray bat, Indiana bat, and northern long-eared bat) have been recorded in Anderson County, Tennessee. Proposed actions are not expected to impact populations of hellbender or Payne's cave beetle. Bald eagle would not be significantly impacted by the project activities. See additional comments for Section 7 ESA compliance regarding impacts to federally listed bats. See attached input for species impact analyses.		
	By: Sara J McLaughlin-Johnson	04/26/2019	
	Files: CEC40709_TerrZoo_P2Q1.docx	04/26/2019	17.52 Bytes
1.	A number of activities associated with the proposed project were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally listed bats in accordance with ESA Section 7(a)(2) and completed in April, 2018. For those activities with potential to affect bats, TVA committed to implementing specific conservation measures. These activities and associated conservation measures are identified on page 5 of the TVA Bat Strategy Project Screening Form (attached) and need to be reviewed/implemented as part of the proposed project.		
	By: Sara J McLaughlin-Johnson	04/26/2019	
	Files: 20190426_CEC40709_CadenFarmTrails_TVA_Bat_Strategy_Form.pdf	04/26/2019	92.25 Bytes

1. A May 2019 query of the TVA Heritage database indicates that no federally listed and seven state-listed plant species have been previously reported from within a five mile vicinity of the proposed action area. No federally listed plant species are known from Anderson County, Tennessee, where the project is located (Table X). Review of maps, aerial photography, and knowledge of rare plants known from the region suggested that the proposed project area could provide suitable habitat for listed species. Field surveys conducted during May 2019 assessed much of the TVA parcel and identified all plant habitats present on site. No habitat for federally listed plant species occurs on the site, but species adapted to mesic forest could be present even though they were not observed during surveys. These species include butternut, American ginseng, and northern bush-honeysuckle. There is no habitat present on site for other species listed in Table X.

   The proposed project would have no effect on federally listed plants because none occur within the project area. The proposed action could have small, direct impacts on state-listed plants if the proposed trail system intersects populations that were not detected during field surveys. Direct impacts would occur primarily during construction of the proposed trails. If these types of impacts did occur, it is unlikely that more than a few individuals from any given population would be negatively affected. Impacts to state-listed plant species, if they were to occur, would not be significant.

   By: Adam J Dattilo 05/20/2019

   Files: 34672_botany_CardenFarms_Table.docx 05/20/2019 14.96 Bytes

1. A review of the TVA Natural Heritage Database on 4/5/19 for potential impacts to state and federally listed species resulted in these findings. There are twenty two state listed and eighteen federally listed aquatic species (Table 1) within a ten-mile radius and (Chrosomus tennesseensis, -extant/Tennessee Clubshell-Possibly historical) within a one-mile radius of the proposed action. Proposed project should have no impacts to listed aquatic species due to proximity from aquatic habitat. Seven state listed and no federally listed plant species (Table 2) occur within a five-mile and Waterweed-extant/American ginseng-extant within a one-mile radius of the proposed action. No champion trees occur within a five-mile radius of the proposed action. Three state and one federally listed terrestrial species (Table 3) are within a three-mile and (Hellbender-extant) within a one-mile radius of the project location. No bats appear within three miles of the project site. Indiana Bat, Gray Bat, and Northern Long-eared Bat appear within a ten-mile radius. Myotis grisescens (gray bat), Myotis sodalis (Indiana bat), and Myotis septentrionalis (Northern Long-eared bat) are listed as a federally endangered or threatened species for this area. All three species hibernates in caves. Gray bat roosts in caves year-round and forages over streams and rivers. Indiana bat and northern long eared bats migrate from winter caves to roost during the summer behind loose bark of dead or dying trees or in tree cavities. This includes both individual bats and maternity colonies. Northern long-eared bats are also known to roost in buildings, bridges, and culverts. Indiana bat and northern long-eared bat forage within and around forests, as well as over bodies of water. Although habitat impact should be minimal, additional review will be coordinated with TVA Heritage SMEs to consider potential impacts to listed bat and plant species.
   By: Brian Ross 04/05/2019

   Files: Heritage_40709.pdf 04/05/2019 99.52 Bytes

2. TVA finds the undertaking will have no effect to historic properties. See associated EA for supporting documentation.
   By: Michael Angst 02/27/2020

   Files: Report cover pages.pdf 02/27/2020 205.79 Bytes
   SHPO response.pdf 02/27/2020 223.27 Bytes
   Muscogee Creek response.pdf 02/27/2020 83.04 Bytes

4. A review of the TVA Natural Heritage database indicates there are no Wild & Scenic Rivers nor their tributaries within, adjacent, or within one mile of the proposed project.
   By: Kim Pilarski-Hall 02/07/2020

5. A review of the TVA Natural Heritage database indicates there are no Nationwide Rivers Inventory streams within, adjacent, or within one mile of the proposed project.
   By: Kim Pilarski-Hall 02/07/2020

8. Portions of the proposed trails would be located within the 100-year floodplain of the Clinch River. Consistent with EO 11988, walking trails (walkways) are considered to be repetitive actions in the 100-year floodplain. To minimize adverse impacts, standard BMPs would be used during construction of the trails. Therefore, the trails would neither significantly impact flood elevations and the natural and beneficial values of floodplains, nor suffer significant monetary damage in a flood.
   By: Carrie C Williamson 09/06/2019

   Files: 4002525_ESCS_34672_mlh_carden_trails.pdf 09/06/2019 289.49 Bytes

9. Trail construction is proposed within the Lost Ridge TVA Habitat Protection Area; such activity is consistent with the land use plan for this Zone 3 parcel. Trail construction has been sited to avoid impacts to sensitive resource features such as wetlands; indirect impacts associated with sedimentation and trail construction will be temporary, and mitigated to an insignificant level via the use of standard construction BMPS. Overall direct, indirect, and cumulative impacts to managed areas will be minor and insignificant.
   By: Kim Pilarski-Hall 02/07/2020

9. A review of the TVA Natural Heritage database indicates heritage natural areas within a five-mile radius of the proposed actions. The proposed project is located on the Lost Ridge TVA Habitat Protection Area. Additional coordination with a Natural Areas Specialist is recommended.
   By: Brian Ross 04/05/2019

10. Based on review of the actions, site location information, maps, and photographs, the proposed project would not contribute to the spread of exotic or invasive terrestrial animal species.
   By: Sara J McLaughlin-Johnson 04/26/2019

10. It is likely that construction of the proposed trails would result in very small, localized increases of invasive plants, but the plants most likely to colonize the area are distributed widely throughout the region and implementation of the proposed project would not change this situation. Many of the lower slopes across the parcel are currently heavily infested with invasive species like Chinese privet, bush honeysuckle, Japanese stilt grass, and others. Trail construction and maintenance would not fundamentally change the habitats present on site and would not meaningfully contribute to the spread of invasive plant species. Both mature forest dominated by native species and heavily disturbed successional forest stands would remain in their current state. Any changes in the extent or magnitude of invasive species in the action area would be negligible and insignificant.
By: Adam J Dattilo 05/20/2019

10. Based on the scope, location, and nature of the proposed actions, the proposed project is not expected to contribute to the spread of exotic or invasive species with the implementation of applicable TVA General and Standard Conditions, including best management practices.

By: Brian Ross 04/05/2019

11. One wading bird colony is known within three miles of the project footprint, occurring approximately 1.04 miles from the area of impact. No additional aggregations of migratory birds are known from the project footprint. Suitable foraging or nesting habitat may be present within the project footprint for migratory birds. These individuals could be impacted by the proposed actions if nests are active in the action area at the time of vegetation removal. However, similarly suitable habitat is ample across the adjacent landscape such that disturbed/displaced individuals could easily find alternative habitat nearby. Proposed project activities would not impact populations or aggregations of migratory birds.
By: Sara J McLaughlin-Johnson 04/26/2019

11. There are no known wading bird colonies, osprey nests, or aggregations of migratory birds within 660 feet of the project footprint. No aggregations of migratory birds were observed during field review. Actions would not significantly reduce nesting habitat or foraging habitat for migratory birds. The proposed actions would have no significant impact on populations of migratory birds.
By: Brian Ross 04/05/2019

16. Ten caves are known within three miles of the project footprint, the nearest of which occurs within the project footprint. A 200 foot protective buffer has been placed around this cave in the project mxd and a map of the cave buffer has been provided to the project lead. No herbicide use is permitted within 200 feet of the cave due to potentially sensitive subterranean aquatic resources. As well, hand or small machinery is the only equipment permitted for use. Vehicles and equipment are confined to existing access roads. Personnel should avoid entering the cave. No additional caves are known from the project footprint and none would be impacted by proposed activities. No additional unique or important terrestrial habitats are known from the project footprint. Proposed project activities would not affect unique or important terrestrial habitats.
By: Sara J McLaughlin-Johnson 04/26/2019

16. No uncommon plant communities have been previously reported from near the project area and no such habitats were observed during field surveys. The TVA parcel where trails would be constructed is nearly entirely forested. The quality of those stands varies across the parcel. Lower slopes are generally comprised of small diameter overstory trees with a higher percentage of invasive species compared to mid and upper slopes, which are relatively intact and dominated by native plants. In fact, deciduous forests situated on mid to upper slopes are regularly populated with overstory trees that approach 36” diameter at breast height. Stands comprised of trees of this size are uncommon on the landscape. However, implementation of the proposed project would not change these mature forest stands on any appreciable scale. Implementation of the proposed project would not potentially affect unique or important terrestrial habitat.
By: Adam J Dattilo 05/20/2019

16. The nearest listed cave is ~1.7 miles from the proposed project site. This action should have no impact on cave habitat or associated species.
By: Brian Ross 04/05/2019

17. A review of the TVA Natural Heritage database found that no impacts are expected to aquatic habitats due to their absence on or immediately adjacent to the project location.
By: Brian Ross 04/05/2019

6. A wetland delineation was performed by SM&E for the entire Carden Farms site. Two wetlands were identified within the proposed project area; trail construction will not occur in these areas, and standard BMPs will minimize any indirect impacts to wetlands. Overall impacts to wetlands will be negligible.
By: Kim Pilarski-Hall 04/30/2019
Files: Carden_wetland.pdf 04/30/2019 844.45 Bytes

6. After a review of the National Wetland Inventory database, this potential project should be elevated for review by a wetlands SME.
By: Brian Ross 09/04/2019
Files: CEC40709_NWIMap.pdf 04/05/2019 273.21 Bytes

7. After a review of the D-Stage map, proposed trail map, and proposed project scope no impacts are expected which may affect water flow, stream channels or stream banks.
By: Brian Ross 04/05/2019

Part 3 Comments

4. Use appropriate BMPs to mitigate soil erosion and potential run off.

By: Margaret Gilliland 05/21/2019

Part 4 Comments

8. Project will enhance public recreation opportunities on this parcel

By: Robert A Marker 03/28/2019

CEC Permit Listing

CEC Commitment Listing

Part 2 Commitments

1. User Defined: One cave occurs within the project footprint. A 200 foot protective buffer has been placed around this cave in the project mxd and a map of the cave buffer has been provided to the project lead. No herbicide use is permitted within 200 feet of the cave due to potentially sensitive subterranean aquatic resources. As well, hand or small machinery is the only equipment permitted for use. Vehicles and equipment are confined to existing access roads. Personnel should avoid entering the cave.
   By: Sara J McLaughlin-Johnson 04/26/2019

16. User Defined: Ten caves are known within three miles of the project footprint, the nearest of which occurs within the project footprint. A 200 foot protective buffer has been placed around this cave in the project mxd and a map of the cave buffer has been provided to the project lead. No herbicide use is permitted within 200 feet of the cave due to potentially sensitive subterranean aquatic resources. As well, hand or small machinery is the only equipment permitted for use. Vehicles and equipment are confined to existing access roads. Personnel should avoid entering the cave. No additional caves are known from the project footprint and none would be impacted by proposed activities. No additional unique or important terrestrial habitats are known from the project footprint. Proposed project activities would not affect unique or important terrestrial habitats.
   By: Sara J McLaughlin-Johnson 04/26/2019

TVA Natural Heritage database queried by Brian Ross on 4/5/19 for the heritage review for TVA CEC 40709

Table 1. Records of state- and federal-listed aquatic animal species located within a 10 mile radius search							
Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status	Watershed
Athearnia anthonyi	Anthony's River Snail	X - Extirpated	TN	S1	E	LE	
Chrosomus tennesseensis	Tennessee Dace	E - Verified extant (viab	TN	S3	D		
Cumberlandia monodonta	Spectaclecase	H - Historical	TN	S2S3	E	LE	
Cycleptus elongatus	Blue Sucker	X - Extirpated	TN	S2	T		
Cyprogenia stegaria	Fanshell	X - Extirpated	TN	S1	E	LE	
Dromus dromas	Dromedary Pearlymussel	X - Extirpated	TN	S1	E	LE	
Epioblasma florentina walkeri	Tan Riffleshell	X - Extirpated	TN	S1	E	LE	
Epioblasma torulosa gubernac	Green Blossom Pearlymuss	X - Extirpated	TN	SX	E	LE	
Erimystax cahni	Slender Chub	X - Extirpated	TN	S1	T	LT	
Fusconaia cor	Shiny Pigtoe Pearlymussel	H - Historical	TN	S1	E	LE	
Fusconaia cuneolus	Fine-rayed Pigtoe	H - Historical	TN	S1	E	LE	
Hemistena lata	Cracking Pearlymussel	X - Extirpated	TN	S1	E	LE	
Io fluvialis	Spiny Riversnail	H - Historical	TN	S2			
Lampsilis abrupta	Pink Mucket	H - Historical	TN	S2	E	LE	
Lampsilis virescens	Alabama Lampmussel	X - Extirpated	TN	S1	E	LE	
Lemiox rimosus	Birdwing Pearlymussel	X - Extirpated	TN	S1	E	LE	
Noturus flavipinnis	Yellowfin Madtom	X - Extirpated	TN	S1	T	LT	
Plethobasus cicatricosus	White Wartyback	H - Historical	TN	S1	E	LE	
Plethobasus cooperianus	Orange-foot Pimpleback	H - Historical	TN	S1	E	LE	
Pleurobema oviforme	Tennessee Clubshell	H? - Possibly historical	TN	S2S3			
Pleurobema plenum	Rough Pigtoe	X - Extirpated	TN	S1	E	LE	
Pleuronaia dolabelloides	Slabside Pearlymussel	H? - Possibly historical	TN	S2	E	LE	
Table 2. Records of state- and federal-listed plant species and champion tree points located within a 5 mile radius search							
Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status	Watershed
Delphinium exaltatum	Tall Larkspur	E - Verified extant (viab	TN	S2	E		
Diervilla lonicera	Northern Bush-honeysuckle	E - Verified extant (viab	TN	S2	T		
Elodea nuttallii	Waterweed	E - Verified extant (viab	TN	S2	S		
Juglans cinerea	Butternut	E - Verified extant (viab	TN	S3	T		
Panax quinquefolius	American ginseng	E - Verified extant (viab	TN	S3S4	S-CE		
Ranunculus flabellaris	Yellow Water-crowfoot	E - Verified extant (viab	TN	S2	T		
Spiranthes odorata	Sweetscent Ladies'-tresses	E - Verified extant (viab	TN	S1	E		
Table 3. Records of state- and federal-listed terrestrial animal species and herony points located located within a 3 mile radius search							

TVA Natural Heritage database queried by Brian Ross on 4/5/19 for the heritage review for TVA CEC 40709

Scientific Name	Common Name	EO Rank	State	State Rank	State Status	Federal Status	Watershed
Colonial Wading Bird Colony	Colonial Wading Bird Colon	E - Verified extant (viab	TN	SNR			
Cryptobranchus alleganiensis	Hellbender	E - Verified extant (viab	TN	S3	E	PS	
Pseudanophthalmus paynei	Payne's Cave Beetle	H? - Possibly historical	TN	S1			
Table 4. Records of state- and federal-listed Myotis located located within a 10 mile radius search							
Scientific Name	**Common Name**	**EO Rank**	**State**	**State Ra**	**State St**	**Federal Status**	**Watershed**
(1) Indiana Bats are listed within a 10 Mile Search Radius							
(1) Northern Long Eared Bats are listed within a 10 mile Search Radius							
(1) Gray Bats are listed within a 10 mile Search Radius							
Myotis grisescens	Gray Bat	AC - Excellent	TN	S2	E	LE	
Myotis leibii	Eastern small-footed bat	E - Verified extant (viab	TN	S2S3	D		
Myotis lucifugus	Little Brown Bat	E - Verified extant (viab	TN	S3	T		
Myotis lucifugus	Little Brown Bat	E - Verified extant (viab	TN	S3	T		
Myotis septentrionalis	Northern Long-eared Bat		TN	S1S2	T	LT	
Myotis sodalis	Indiana Bat	C - Fair estimated viabi	TN	S1	E	LE	
Table 5. Records of Heritage Natural Areas located located within a 5 mile radius search							
Managed Area Name						MA Code	MA ID
AULTON ISLAND TVA HABITAT PROTECTION AREA							
CLINCH RIVER 1							
CLINTON CITY PARK							
EAGLE BEND HATCHERY STATE WILDLIFE OBSERVATION AREA							
EAGLE BEND STATE FISH HATCHERY							
LITTLE DISMAL SLOPES TVA HABITAT PROTECTION AREA							
LOST RIDGE TVA HABITAT PROTECTION AREA							
MELTON HILL DAM RESERVATION							
NORTH EAGLE BEND TVA HABITAT PROTECTION AREA							
Table 6. Records of caves located located within a 3 mile radius search							
Scientific Name	**Common Name**	**EO Rank**	**State**	**State Rank**	**State Status**	**Federal Status**	**Watershed**
TN Anderson County Cave	A cave	Not ranked	TN				
LEGEND: Yellow - Species or Land Location Has Recorded Occurrence Within a One Mile Search Radius From the Project Location.							