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DEERFIELD MARINA
PROPOSED COMMERCIAL RECREATION LICENSE AND WATER USE FACILITIES

DRAFT ENVIRONMENTAL ASSESSMENT

Norris Reservoir
Campbell County, Tennessee

PREPARED BY:
TENNESSEE VALLEY AUTHORITY

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CHAPTER 1

1.0 PURPOSE AND NEED FOR ACTION

Parc Properties, LLC (the applicant) proposes to develop Tennessee Valley Authority (TVA) property on Norris Reservoir in Campbell County, Tennessee, for commercial recreation purposes. In 2018, the applicant requested that TVA approve a marina and grant a commercial recreation license to allow for the development and operation of the marina, including pedestrian use facilities and bank stabilization. The proposal is consistent with TVA's mission of service and meets TVA's goal of providing recreational opportunities in the Tennessee Valley Region.

The property is located on a portion of tract XNR-156 on the right descending bank of the Powell River in an embayment of Norris Reservoir at Powell River Mile 8.1 (Figures 1-1 and 1-2). TVA owns the property below the shoreline (1020-foot contour). TVA retains flowage rights only on XNR-156 from the 1020-foot contour to the 1044-foot contour elevation. Currently, a community water-use facility for the backlying Deerfield Resort is constructed in the proposed project limits. The current facility consists of two covered floating boat slips, with a total of 48 boat slips.

The proposal includes a multi-slip marina facility on this property consisting of 288 boat slips for public rent, establishment of harbor limits, and 1,403' of bank stabilization. The existing boat slips would remain, but would be reoriented within the new harbor limits and become a part of the commercial marina. The land above the 1044-foot contour elevation is private property where TVA has no land rights.

1.1. Proposed Action

As described above, the applicant's proposal consists of the conversion of an existing community facility into a commercial marina on Norris Reservoir tract XNR-156. Below is a list of the facilities and land-based activities that would be subject to Section 26a permitting and TVA recreation license approval. Project plans are also included in Attachment A.

List of facilities below the 1020-foot contour:

Marina

- Ten new floating covered slip structures with electric utilities built in phases, each structure 179' long by 66' wide with a 20' long by 6' wide access walkway to each. The two existing floating covered community slip structures with 48 slips will be reoriented to allow for the construction of the commerical marina and converted to commerical slips. After completion, the marina will consist of 288 total commercial slips.
- Three floating access walkways, 33' long by 6' wide (qty. 1), 600' long by 6' wide (qty. 1), 250' long by 6' wide (qty. 1), with two concrete walkways each 50' long by 8' wide.
- Establishment of approximately 11.1 acres of harbor limits.
- 1,403.4' of riprap bank stabilization.

Land based activities located between 1020-foot contour and 1044-foot contour elevation:

- Pedestrian walkways to access marina from parking areas.

Roads and parking associated with the proposed development are located above the 1044-foot contour elevation and would not require TVA's approval.

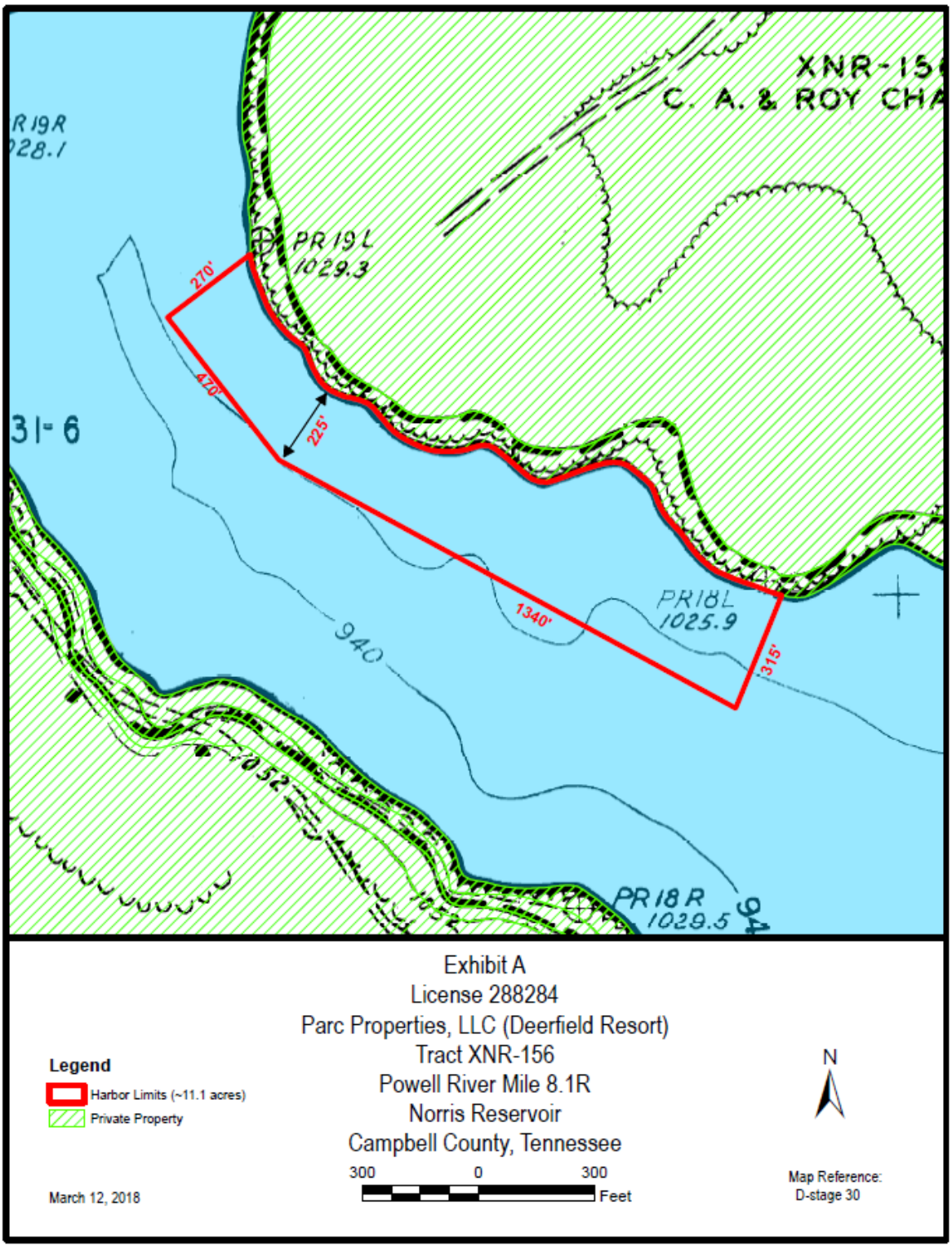

Figure 1-1. Project Location Map

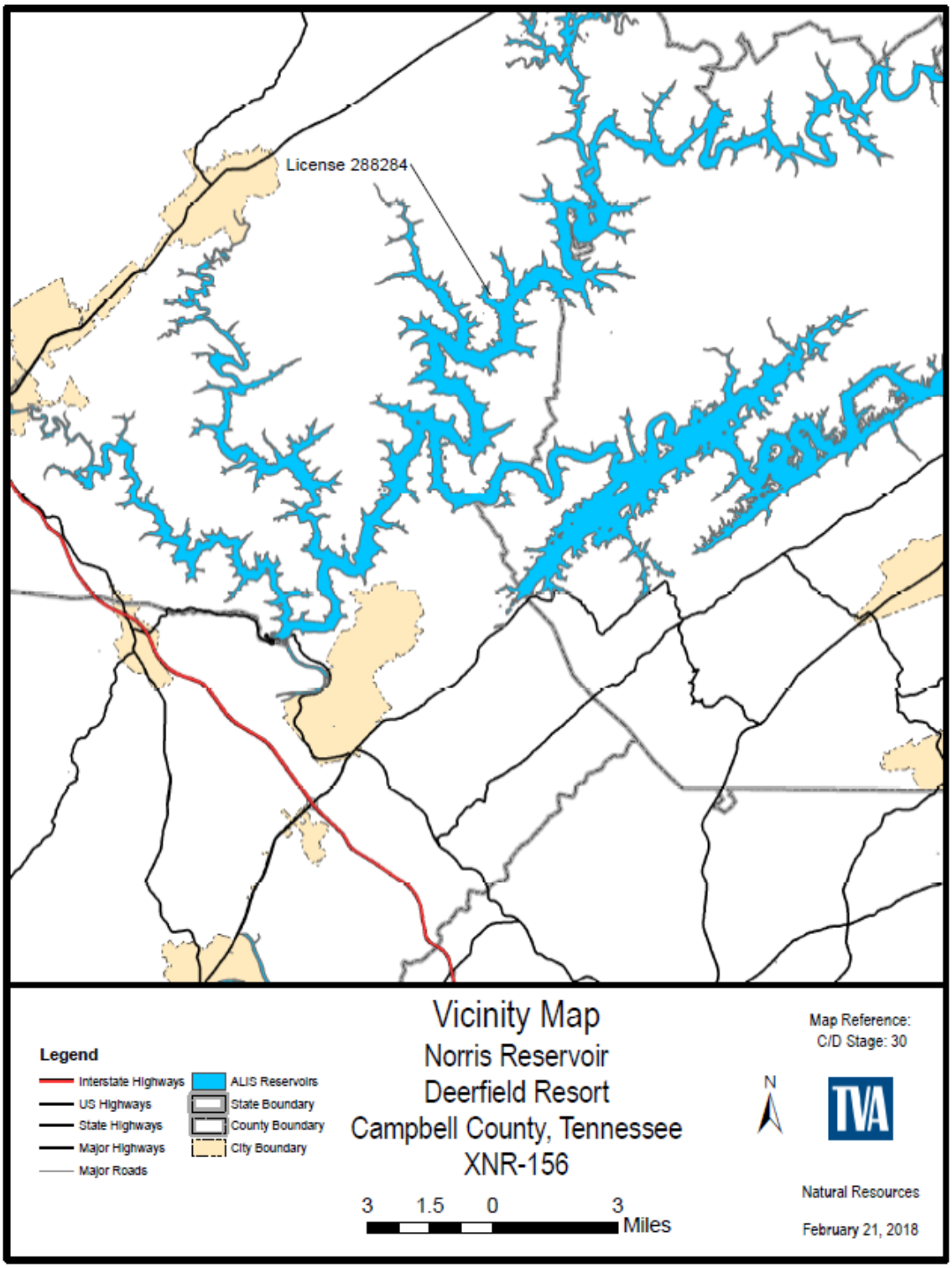

Figure 1-2. Project Vicinity Map

1.2. Decision To Be Made

Section 26a of the TVA Act of 1933, as amended, requires that TVA approval be obtained prior to the construction, operation, or maintenance of any obstruction affecting navigation, flood control, or public lands. Therefore, TVA's action would be to make a decision on the Section 26a approval request for the proposed floating facilities, harbor limits, and shoreline stabilization.

TVA also has the action of issuing a commercial license for the operation of a commercial marina on TVA property.

The U.S. Army Corps of Engineers (USACE) and TVA have a Memorandum of Understanding that designates TVA as the Lead Federal Agency for conducting environmental reviews under the National Environmental Policy Act (NEPA) and other applicable federal laws and regulations for proposed work that may occur on property which is under TVA custody or control.

1.3. Public Involvement

In accordance with TVA policy on Section 26a permit requests for commercial recreation facilities, TVA issued a public notice on November 5, 2018 requesting comments for the proposed action. During the public comment period occuring through December 5, 2018, TVA received 42 comments expressing environmental impact concerns including but not limited to recreation and boating safety, shoreline erosion, wildlife habitat loss, air emissions, and visual impacts. TVA received two comments in favor of the proposal citing increased boating storage and recreational opportunities.

1.4. Necessary Permits and Approvals

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

Section 10 of the Rivers and Harbors Act of 1899 prohibits the alteration or obstruction of any navigable waters of the United States unless authorized by the Secretary of the Army acting through the Chief of Engineers. The Powell River is listed as a navigable water of the United States, as defined by 33 Code of Federal Regulations (CFR) Part 329, and is therefore subject to Section 10 of the Rivers and Harbors Act.

Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into waters of the United States unless authorized by the Department of the Army. Powell River is waters of the United States as defined by 33 CFR Part 328. Riprap is considered fill material and is therefore subject to Section 404 of the CWA.

Section 401 of the CWA requires a Water Quality Certification (WQC) from the State of Tennessee prior to the issuance of a federal permit for activities, which result in a discharge to navigable waters. The Tennessee Department of Environment and Conservation (TDEC) administers Section 401 WQC through the Aquatic Resource Alteration Permit (ARAP) program.

CHAPTER 2

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

TVA has considered the direct, indirect, and cumulative effects of the federal actions related to the applicant's proposal. Construction of the marina, pedestrian use facilities, and bank stabilization are dependent upon the license and 26a approvals. Therefore, the area assessed in this Environmental Assessment (EA) includes the proposed marina, commercial recreation license area, and associated pedestrian use facilities.

2.1. Alternatives

Preliminary internal scoping by TVA has determined that from the standpoint of the NEPA, there are two alternatives available to TVA. These are the No Action Alternative and the Proposed Action Alternative, which are described below.

No Action Alternative

Implementation of the No Action Alternative would result in the denial or withdrawal of the applicant's request for a commercial recreation license and Section 26a approval for the proposed marina and facilities. The existing community facility would not be modified and no work would occur within the project area. Therefore, no resources would be impacted by the proposed action.

The Proposed Action Alternative

Under the Proposed Action Alternative, TVA would issue a commercial recreation license and Section 26a approval to the applicant to construct the proposed marina. The license would be a 30-day revocable license to operate commercial recreation facilities. The proposed marina, described in detail in Appendix A, would contain twelve boat slip structures accommodating 288 vessels. Currently there are two boat slip structures accommodating 48 vessels within the existing community facility. These two structures would be reoriented to allow for the installation of the additional ten structures accommodating 240 vessels.

No dredging would be required for construction of the marina. Pedestrian access walkways would be constructed to allow access to the floating boat slips. Because harbor limits are required for commercial marinas, TVA would establish harbor limits identified in Figure 1-1. The applicant has also requested 1,403.4 feet of riprap bank stabilization for the proposed marina.

2.2. Comparison of Alternatives

Under the No Action Alternative, TVA would not issue a commercial recreation license and a Section 26a permit for the proposed marina. No work would occur within the project area; therefore, no resources would be impacted by the proposed action. This alternative would not meet the needs of the applicant or TVA's mission of providing recreational opportunities in the Tennessee Valley region.

Under the Proposed Action Alternative, TVA would grant the commercial recreation license and 26a permit to the applicant. TVA has reviewed the proposed action alternative and documented potential environmental impacts related to the project in the attached categorical exclusion checklist (Checklist) (Attachment B). The Checklist identifies the resources present in the project area and documents TVA's determination that the proposal would not significantly affect these resources. As documented in the Checklist, the proposed action would not potentially impact wetlands, solid and hazardous wastes, natural areas, scenic rivers, prime farmland, or groundwater. Potential impacts to other environmental resources are further evaluated in Chapter 3 of this Draft Environmental Assessment. Under the Proposed Action Alternative, direct, indirect, and cumulative impacts to surface water and soil erosion, visual effects, noise, threatened and endangered species, navigation, recreation, archeological and historical resources, aquatic ecology, air quality, and floodplains would be insignificant with the inclusion of the mitigation measures and conditions outlined in Section 2.3.

2.3. 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 as 26a permit conditions to reduce the potential for adverse environmental effects.

To ensure that the proposed and future development would be consistent with Executive Order (EO) 11988, the following conditions would be included in the final TVA Section 26a permit and any transfer documents:

Condition 1: All floating facilities shall be securely anchored to prevent them from floating free during major floods.

Condition 2: For all electrical services permitted, a disconnect must be located at or above the 1035.0-foot contour that is accessible during flooding.

Condition 3: For purposes of shoreline bank stabilization, all portions of the shoreline bank stabilization shall be constructed or placed, on average, no more than two feet from the existing shoreline at June 1 Flood Guide elevation.

The below Navigation conditions would be included in TVA's Section 26a Permit:

Condition 4: No portion of the marina facilities may extend beyond the Navigation approved harbor limits.

Condition 5: The applicant is to be advised in writing that the facilities would be on a commercial navigation channel or marked recreational channel and may be vulnerable to wave wash and possible collision damage from passing vessels.

To minimize temporary noise impacts, the following condition would be included:

Condition 6: All construction work will be restricted to daylight hours Monday through Friday to minimize temporary noise impacts.

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

Condition 7: 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.

Condition 8: 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 will be 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, and 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.

Condition 9: Direct temporary lighting away from any suitable habitat during the active season. 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).

2.4. The Preferred Alternative

TVA's preferred alternative is the Proposed Action Alternative with the mitigation measures outlined in Section 2.3. Under this alternative, TVA would issue a commercial recreation license and 26a approval to the applicant for the proposed marina. The Proposed Action Alternative meets the needs of the applicant and supports TVA's mission of providing recreational opportunities in the Tennessee Valley region.

CHAPTER 3

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Surface Water and Soil Erosion

Affected Environment - The proposed project is located in Campbell County, Tennessee. This project area drains to water ways within the ten-digit HUC 0601020604 Norris Lake-Powell River watershed. The surface water streams in the proposed project area and vicinity are listed below in Table 1. Precipitation in the general area of the proposed project averages about 50.9 inches per year. The wettest month is May with approximately 5.71 inches of precipitation, and the driest month is August with 2.95 inches. The average annual air temperature is 59.1 degrees Fahrenheit, ranging from a monthly average of 48 degrees Fahrenheit to 70.2 degrees Fahrenheit (US Climate Data, 2019). Stream flow varies with rainfall and averages about 24.41 inches of runoff per year, i.e., approximately 1.80 cubic feet per second, per square mile of drainage area (USGS 2008).

The federal Clean Water Act requires all states to identify all waters where required pollution controls are not sufficient to attain or maintain applicable water quality standards and to establish priorities for the development of limits based on the severity of the pollution and the sensitivity of the established uses of those waters. States are required to submit reports to the United States Environmental Protection Agency. The term “303(d) list” refers to the list of impaired and threatened streams and water bodies identified by the state. This portion of the Norris Reservoir/Powell River is not currently listed on Tennessee’s 303(d) list (TDEC, 2018). A fish advisory is in place for a portion of the Norris Reservoir, however this advisory does not include the Powell River. Table 1 provides a listing of local streams with their state designated uses (TDEC 2013).

Table 1. Designations for Streams in the Vicinity of the Proposed Project.

Stream		Use Classification[1]					
	NAV	DOM	IWS	FAL	REC	LWW	IRR
Powell River/Norris Reservoir		X	X	X	X	X	X

[1] Codes: DOM = Domestic Water Supply; IWS = Industrial Water Supply; FAL = Fish and Aquatic Life; REC = Recreation; LWW = Livestock Watering and Wildlife; IRR = Irrigation, NAV = Navigation

Environmental Consequences – Under the No Action Alternative, TVA would not issue the 26a permit and recreation license for the commercial marina, harbor limits, and bank stabilization. The existing community facility would remain unchanged and there would be no associated impacts to surface water and soil erosion from construction activities associated with the proposed marina. Potential impacts to surface water could result in the continued operation of the coummunity facility, including the introduction of oils, lubricants and/or fuels to surface waters; solid waste introduction from trash and debris not being properly stored or disposed of; and black or grey water discharges to surface waters. However, these impacts would be considered minor with continued implementation good housekeeping practices included in 26a permit general and standard conditions Best Management Practices (BMPs).

Under the Proposed Action Alternative, the construction activities would have the potential to temporarily affect surface water via storm water runoff. Soil erosion and sedimentation could clog small streams and threaten aquatic life. A general construction storm water permit would be needed if more than 1 acre is disturbed. If required, this permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would identify specific BMPs to address construction-related activities that would be adopted to minimize storm water impacts. As mentioned in Section 1.4, an ARAP permit and a USACE permit would be required for bank stabilization and work in waters of the State/US. These permits include conditions and requirements to minimize impacts to waters of the State/US. TVA would require compliance with all appropriate state and federal permit requirements. In addition, issuance of the 26a Permit would require the applicant to implement General and Standard Conditions (Attachment D) such as construction BMPs. Appropriate BMPs would be followed during construction and all proposed project activities would be conducted in a manner to ensure that waste materials are contained and the introduction of pollution materials to the receiving waters are minimized. Therefore, with permit compliance and standard 26a permit conditions included to ensure implementation of BMPs, only minor temporary impacts to surface waters would be expected from construction activities.

The implementation and operation of the proposed action has the potential to have impacts to surface waters from the day-to-day operation of the facility. Some of these potential impacts could include the introduction of oils, lubricants and/or fuels to surface waters; solid waste introduction from trash and debris not being properly stored or disposed of; and black or grey water discharges to surface waters. These potential impacts would be mitigated by employing standard 26a permit conditions for BMPs and good housekeeping practices, keeping the marina clean of oil and debris, maintaining adequate garbage pick-up services on-site, and ensuring that there are no unpermitted discharges. Therefore, with the implementation of general and standard conditions and good housekeeping practices, impacts associated with marina operations are expected to be minor.

3.2. Threatened and Endangered Species

Affected Environment - The Endangered Species Act (ESA) provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the United States. ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize federally listed species or their designated critical habitat. The policy of Congress is that federal agencies must seek to conserve endangered and threatened species and use their authorities in furtherance of ESA's purposes. The State of Tennessee provides protection for species considered endangered or of special concern within the state other than those federally listed under the ESA. The listing is handled by TDEC; however, the TDEC Natural Heritage Inventory Program and TVA Regional Natural Heritage Program both maintain databases of aquatic animal species that are considered endangered or of special concern in Tennessee. The TVA Heritiage Review (Attachment E) provides a list of species found in TVA's natural heritage data. The review conducted on April 3, 2019 showed there were sixteen state listed plant species found within five miles of the proposed action; eleven federally listed and four state listed aquatic species found within ten miles of the proposed action; and two federally listed terrestrial animal species found within three miles of the proposed action.

Environmental Consequences – Under the No Action Alternative, the proposed actions would not be implemented and would not involve any expansion beyond what has

previously been reviewed. Therefore, there would be no impacts to threatened and endangered species.

Under the Proposed Action Alternative, there would be no effect on any protected plant species due the nature of actions and the location. There are eleven federally listed and four state listed aquatic species found within ten miles of the proposed action. The installation of riprap for the purpose of bank stabilization would occur within the drawdown zone on Norris Reservoir. During winter low pool this zone is dry and does not provide suitable habitat for any of the listed aquatic species. TVA's General and Standard Conditions BMPs require this work to be performed during winter low pool (i.e. "in the dry"). In addition, ground disturbance would be minimized and all work done in accordance with TVA's General and Standard Conditions BMPs during construction of the marina. With proper implementation of BMPs, no impacts are anticipated to occur to threatened and/or endangered aquatic species.

As documented in Attachment E, there were two federally listed terrestrial animal species found within three miles of the proposed actions. The proposed actions do not include the removal of suitable summer roost habitat for Myotis (bats) species. In addition, BMPs and erosion control measures would be used in and around bodies of water to ensure there are no impacts to hydrology, water quality, and potential foraging habitats. There are also four caves located within three miles of the project area. However, due to the location and nature of the proposed actions there will be no effect on these sites. TVA would require specific conservation measures identified in the TVA Bat Strategy Project Screening Form (Attachment C) to be implemented as part of the proposed project. A number of activities associated with the proposed project were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service completed in April, 2018 on routine actions and federally listed bats, which fulfills TVA's consultation obligations under ESA Section 7(a)(2). With the implementation of BMPs and specific conservation measures during proposed project activities, bats species would not be impacted by the proposed actions.

3.3. Aquatic Ecology

Affected Environment - TVA has developed an overall aquatic monitoring program, termed Reservoir Health Ratings, to evaluate the ecological health of the Tennessee River watershed that it helps manage. Components of the Reservoir Health Ratings program include 1) dissolved oxygen (DO); (2) chlorophyll, a measure of the amount of algae in the water; (3) sediment contaminants – PCBs, pesticides, and metals; (4) benthic macroinvertebrates, and (5) fish assemblage. Each indicator is evaluated separately, and individual ratings are also combined into a single, composite health score for each reservoir. Because collection methods and rating criteria for the fish and benthic communities were different prior to 1994, those results cannot be compared directly to samples taken using current methods and therefore are not presented in this document.

Table 2. Ecological Health Indicators at Norris Reservoir — 2011.

Monitoring location	Dissolved Oxygen	Chlorophyll	Fish	Bottom life	Sediment
Forebay	Poor	Good	Fair	Fair	Fair
Mid-reservoir, Clinch River	Poor	Good	Good	Fair	Fair
Mid-reservoir, Powell River	Poor	Good	Good	Good	Fair

Dissolved oxygen rated poor due to low concentrations in the lower water column near Norris Dam. However, the volume of water affected from 1998 to 2004 was smaller than in other years because the sampling site was in the immediate area of the diffusers. In 2006, the site was moved upstream and the volume of low-oxygen water has increased but remains less than pre-1998 levels. Chlorophyll continues to rate good at all three monitoring locations. During extremely dry conditions, this indicator can rate fair or even poor at the forebay location due to fewer nutrients and less organic material being washed into the reservoir when rainfall/runoff occur.

Monitoring typically shows good fish species diversity and balanced population characteristics at the mid-reservoir locations. The forebay has rated fair each year monitored due largely to the collection of fewer fish species than what would be expected. Bottom life typically rates poor or fair at the forebay and fair or good at the mid-reservoir sites. Low levels of PCBs were detected in the sediment samples at each location, and the concentrations of arsenic were above suggested background levels at the forebay and Powell mid-reservoir locations. The forebay sediments typically have elevated concentrations of arsenic and lead. Low levels of the pesticide chlordane were detected in the sediments at each site in some previous years.

Environmental Consequences - Under the No Action Alternative, the proposed actions would not be implemented. Therefore, there would be no impacts to aquatic ecology for marina expansion. However, changes to aquatic ecology in streams within the watershed would likely occur over the long term due to factors such as the continuation of anthropogenic activities. Potential impacts to aquatic ecology could also result from the continued operation of the community facility. However, with 26a permit general and standard conditions for implementation of BMPs, these impacts are expected to be minor.

Under the Proposed Action Alternative, impacts to aquatic communities within Norris Reservoir could occur from construction of the floating marina and associated gangways due to noise and increased boat activities. As previously mentioned, the bank stabilization would be required to occur within the reservoir drawdown zone and would be completed in the dry during winter low pool. Ground disturbance would be minimized and all work done in accordance with TVA's General and Standard Conditions Best Management Practices (BMPs). With proper implementation of BMPs during construction, impacts associated with the construction and operation of the marina to the aquatic ecology would be minor and insignificant.

3.4. Navigation

Affected Environment - The proposed marina facility would include twelve boat slip structures accommodating 288 vessels. Currently there are two boat slip structures accommodating 48 vessels within the existing community facility. These two structures would be reoriented to allow for the installation of the additional ten structures accommodating 240 vessels.

Environmental Consequences - Under the No Action Alternative, the proposed actions would not be implemented and would not involve any expansion beyond what has previously been reviewed. Therefore, there would be no impacts to navigation from the existing permitted facilities.

Under the Proposed Action Alternative, TVA would issue the 26a permit and recreation licence for expansion of the marina. TVA requires that harbor limits may not extend more than one-third distance across an embayment. The proposed harbor limits meet this requirement. Although this embayment could potentially become more congested with boat traffic, TVA anticipates that the impacts to navigation would not be significant with implementation of the following conditions:

- No portion of the marina facilities may extend beyond the approved harbor limits.

- The applicant would be advised in writing that the facilities would be on a commercial navigation channel or marked recreational channel and may be vulnerable to wave wash and possible collision damage from passing vessels.

3.5. Recreation

Affected Environment - The proposed marina facility includes 288 new commercial wet slips on Norris Reservoir, Power River Mile 8.1R. The recreation study area consists of a 6-mile upstream and downstream corridor (Powell River mile 2.1-14.1), which is the accepted average distance traveled by a motorboat from its origin. The study area consists of approximately 3,950 water surface acres calculated at full summer pool. The land base in the study area is predominately private to the north with public state land (Chuck Swan WMA) bordering it to the south. There are five active private marinas within the study area. In addition, one permitted marina facility (Pointe Marina) has not been constructed as of the date of this study but has been included in the study. The decision to include the Pointe Marina was based on the fact that it is permitted and could be built without further review or permitting from TVA. Of these six marinas, there are a total of 1290 permitted wet slips and 85 dry slips. The study area also includes 646 permitted active private water use facilities.

In order to evaluate the recreational use demand, TVA reviewed participation rates derived from the National Survey on Recreation and the Environment (NSRE) data. The NSRE data provides information about current recreation activity participation rates and the projected future recreation demand for areas of the US. This supply and demand data is then compared to available facilities to determine if the proposed project would fulfill unmet recreation needs. The Proposed Action Alternative would primarily support the activity of motorboating. The NSRE outlines motorboating as being a widely popular recreation activity with approximately 23% of the state's population participating. Recent demand trends have shown a 13.2% increase in motorboating nationally. Within the study area, TVA staff's knowledge of occupancy rates in existing commercial facilities supports the

conclusion that this area has a high demand for this type of activity and supporting facilities. It is expected that the increase in demand for recreation will project into the future, increasing the need for additional recreational facilities than what is currently available within the study area.

Additionally, TVA reviewed the Water Recreation Opportunity Spectrum (WROS), which provides a framework for inventorying water-based recreational activities. Based on this framework, waterways are classified into six defined settings. These settings are assigned based on the overall biophysical and social inventory of the waterway, and WROS aids in managing recreation experiences compatible with the setting classification. The WROS approach also provides a means to define transitional areas as they become more developed or use increases.

Table 3. WROS Classification Summary and Associated Boating Density Standards.

Setting (Classification)	**Generalized Description Summary of the Recreation Experiences by WROS Class**	**Standard (Acres/boat)**
Urban	Limited opportunities to see, hear or smell the natural resources due to the extensive level of development, human activity, and natural resource modification. Watching and meeting other visitors is expected and socializing with family and friends is important. Diverse range of visitors and activities, including groups and special events. Convenience is central and dominant.	1-10
Suburban	Limited or seldom opportunities to see, hear or smell the natural resources due to the widespread and prevalent level of development, human activity, and natural resource modification. Watching and meeting other visitors is expected and socializing with family and friends is important. Diverse range of visitors and activities.	10-20

	Convenience is central and dominant.	
Rural Developed	Occasional or periodic opportunities to see, hear or smell the natural resources due to the common and frequent level of development, human activity, and natural resource modification. Brief periods of solitude, though the presence of other visitors is expected. Diverse range of visitors and activities. A moderate level of comfort and convenience expected.	20-50
Rural Natural	Frequent opportunities to see, hear or smell the natural resources due to occasional or periodic level of development, human activity, and natural resource modification. A sense of independence and freedom with a moderate level of management presence important. Diverse range of visitors and activities though experiences tend to be more resource-dependent. Comfort and convenience is not important or expected.	50-110
Semi-primitive	Widespread and prevalent opportunities to see, hear or smell the natural resources due to seldom or minor level of development, human activity, and natural resource modification. Solitude and lack of contact with other visitors,	110-480

	managers and management is important. Opportunities for more adventure-based enthusiasts and overnight visitors. A sense of challenge, adventure, risk and self-reliance is important.	
Primitive	Extensive opportunities to see, hear or smell the natural resources due to the rare and very minor level of development, human activity, and natural resource modification. Solitude and lack of sight, sound and smells of others is important. Opportunities for human powered activities (e.g. canoeing, fly fishing, backpacking, etc.). A sense of solitude, peacefulness, tranquility, challenge, adventure, risk, testing skills, orienteering, and self-reliance is important.	480-3,200

Source: WROS 2004

TVA developed an assessment to estimate the density of recreational boats on TVA reservoirs, called the Boating Density Worksheet. TVA uses the worksheet to estimate the boating density of defined areas and compare it to WROS settings. Through the worksheet, TVA can compare current conditions and experiences with those that would result with the permitting of a specific action. This analysis aids TVA in the management of reservoir resources and quality of recreation experiences offered to the public. For purposes of this evaluation, current boating use on TVA reservoirs was estimated for three different points in the peak summer boating season (May through September): (a) non-holiday week days, (b) non-holiday weekend days, and (c) peak use holiday weekend days (Memorial Day, July4th, and Labor Day).

a) Non-holiday weekdays. This case estimates 15 percent of vessels stored at commercial marinas and private access facilities are likely to be in use each non-holiday weekday (Monday through Thursday) from May to September.
b) Non-holiday weekend days. This case estimates 25 percent of vessels stored at commercial marinas and private access facilities are likely to be in use during non-holiday weekend days (Friday, Saturday, and Sunday) from May to September.
c) Peak use holiday weekend days. This case estimates 35 percent of vessels stored at commercial marinas and private access facilities are likely to be in use during holiday weekend days (Friday, Saturday, Sunday, and Monday) from May to September.

The estimate of watercraft currently using the study area of Norris Reservoir on an average daily basis on a weekday is 303 boating units with 13.0 surface acres per boating unit. Non-holiday weekend days are currently estimated to have 505 boating units with 7.8 surface acres per boating unit. Peak use holiday weekend days are estimated to currently have 707 boating units with 5.6 surface acres per boating unit. These estimates are based on the 3,950 surface acres within the study area at full summer pool.

Environmental Consequences - Under the No Action Alternative, a Section 26a permit and commercial recreation license would not be issued and the proposed actions would not be implemented. There would not be any expansion beyond what has previously been reviewed. Therefore, there would be no direct, indirect, or cumulative impacts to recreation under this alternative.

Under the Proposed Action Alternative, TVA would issue a Section 26a permit and recreational license to authorize the commercial marina. TVA provided information related to the proposed Deerfield Marina development to the Tennessee Wildlife Resources Agency (TWRA). This agency is responsible for addressing recreational boating safety issues on waters within the State. TWRA has indicated that it had no objection to the development from a boating safety perspective.

The estimate of recreational boating density including the proposed marina explansion from a community to commercial facility calculated to be 346 boating units with 11.4 surface acres per boating unit for weekday boating. Non-holiday weekend days are estimated to have 577 boating units with 6.8 acres per boating unit. Peak use on holiday weekend days with the proposed marina expansion is estimated at 808 boating units with 4.9 surface acres per boating unit. There is an approximately 14.2% average increase in boating units for the three estimations for weekday, non-holiday weekend days, and holiday weekend days. The analysis outlined above assumes full buildout of the Pointe Marina, which currently has no facilities. In terms of WROS setting classifications, the current conditions of the study area for current recreational users is urban for peak summer holidays and average summer weekend days and suburban for average summer weekdays. With the addition of the proposed slips, peak summer holidays and non-holiday weekend days would remain urban and average weekdays would remain suburban. Based on TVA's analysis, the additional wet slips proposed would not significantly change the character of the study area; therefore, there would not be a significant impact on recreation.

3.6. Visual Effects

Affected Environment - As previously discussed, the proposed marina facility is located within an embayment on Norris Reservoir at Powell River Mile 8.1. Multiple residences in direct line of sight of the proposed facilities were identified, and new homes are under construction on the adjacent property. The visual character of the proposed project area and the surrounding area is a mixture of wooded areas, residential, commercial, and recreation facilities. There is an existing marina adjacent to the location of the proposed marina and existing large water use facilities in the cove.

Environmental Consequences - Under the No Action Alternative, a Section 26a permit and commercial recreation license would not be issued and the proposed actions would not be implemented. There would not be any expansion beyond what has previously been reviewed. Therefore, there would be no direct, indirect, or cumulative impacts to visual effects under this alternative.

Under the Proposed Action Alternative, TVA would issue a Section 26a permit and recreational license to authorize the commercial marina. Construction would create a temporary visual discord for the duration of this work. Once complete, however, the proposed marina would be consistent with the current visual character of the area. Therefore, there would be minor and temporary visual impacts during construction of the proposed facilities. The completed facility would result in minor visual changes, however those impacts would be similar to other developments in this section of the reservoir.

3.7. Noise

Affected Environment – Community noise levels follow the extent of human activities. As activities go up, the community noise increases and to some degree the reverse is also true. The primary source of noise from commercial operation of the marina would be motorized watercraft. Noise emission levels for recreational boating activities can range from 40 dBA (very quiet) to 90 dBA from a personal watercraft (i.e. “jet ski”). Motor boats and personal watercraft may also exhibit short elevated bursts of noise as a result of speed of the watercraft and other operational factors. TWRA regulates boating and personal watercraft for the safety of the public by enforcing Tennessee State boating laws. State boating regulations require the noise level of any motorized vessel must not exceed 86 decibels at a distance of 50 feet or more from the vessel (TWRA 2018). Additional guidelines are provided by TWRA to prevent excessive noise from personal watercraft, such as avoiding excessive noise near residential areas, particularly early in the morning (TWRA 2018).

The WROS system referred to in Section 3.5 includes indicators of noise to help classify the recreational experience. The current WROS classification settings of the study area is urban for peak summer holidays and average summer weekend days and suburban for average summer weekdays. The WROS urban setting description includes limited opportunities to hear the natural resources due to the extensive level of development, human activity, and natural resource modification. The suburban setting characterizes the opportunities to hear natural surroundings as “limited or seldom”. In both classification settings, the current noise level is taken into account due to the level of existing development and human activity in the study area.

Environmental Consequences – Under the No Action Alternative, a Section 26a permit and commercial recreation license would not be issued and the proposed actions would not be implemented. There would not be any marina expansion beyond what has previously been reviewed. The current noise emission levels for recreational boating would be expected to continue. The opportunities to hear the natural environment would remain “limited” on peak summer holidays and average summer weekend days and would remain “limited or seldom” on average summer weekdays.

Under the Proposed Action Alternative, TVA would issue a Section 26a permit and recreational license to authorize the commercial marina. Temporary noise impacts would be expected during the construction of the proposed marina facility. However, TVA would require as a 26a permit condition that all construction work would be restricted to daylight hours, Monday through Friday to minimize impacts.

The primary source of noise from commercial operation of the marina would be motorized watercraft, which would be expected to increase from the increased number of motor boats and personal watercraft. However, TVA’s recreational analysis in Section 3.5 shows the

recreational setting classification and opportunities to hear the natural environment would not significantly change with the increase in recreational boating. The opportunities to hear the natural environment would remain "limited" on peak summer holidays and average summer weekend days and would remain "limited or seldom" on average summer weekdays. Moreover, all boaters are expected to be in compliance with state boating laws and regulations that set standards for noise levels. Therefore, with compliance with existing state regulations and implementation of mitigation measures to address temporary impacts during construction, there would be no significant impacts to noise under the Proposed Action Alternative.

3.8. Archaeological and Historical Resources

Affected Environment - Historic and cultural resources, including archaeological resources, are protected under various federal laws, including the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires federal agencies to consult with the respective State Historic Preservation Officer when proposed federal actions could affect these resources.

The area of potential effects (APE) for cultural resources is defined at 36 CFR §800.16(d) (a section of the federal regulations implementing Section 106 of the National Historic Preservation Act) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." TVA has determined that the area of potential effects (APE) is the entire 11.1 acres for new harbor limits, area of the commercial recreation license including the flowage easement area up to the 1044-foot contour, plus historic structures within a one-half mile radius that have a direct line of sight of the project.

All activities for this project would be below or immediately adjacent to summer pool elevation on Norris Reservoir. The shoreline in the APE has been previously investigated by a survey conducted during the winter drawdown. No archaeological sites were identified here (Gage and Herrmann 2009). The environmental setting – steep slopes of a ridge facing a small draw – has low potential for significant archaeological deposits. Soils above the lake are mapped as Fullerton and Bodine gravelly silt loams, 25 to 70 percent slopes, and Talbott-Rock outcrop complex, 30 to 50 percent slopes (United States Department of Agriculture–National Resources Conservation Service [USDA-NRCS] 2019). The lake bed on the slope has been eroded by wave action, which has removed topsoil.

No historic structures are indicated at this location on the 1936 and 1941 editions of the USGS Demory, TN 7.5-minute quadrangle map, and there are no National Register listings here. No previously inventoried historic architectural properties are listed in the area on the Tennessee Historical Commission online viewer.

Environmental Consequences – Under the No Action Alternative, a Section 26a permit and commercial recreation license would not be issued and the proposed actions would not be implemented. Therefore, there would be no direct, indirect, or cumulative actions to historic properties under this alternative.

Under the Proposed Action Alternative, TVA would issue a Section 26a permit and recreational license to authorize the commercial marina. TVA has determined there would be no effect to archeological sites based on a previous survey of the area and existing

environmental setting. In addition, the viewshed has been compromised by the construction of a modern subdivision, several large commercial marinas, and several private boat docks. If any above ground historic properties are located within view of the project, their integrity of setting and feeling would not be diminished by the construction of the proposed water use facilities. Therefore, TVA finds that the proposed undertaking would have no effects to historic properties. Per Section 106 of the NHPA, TVA is currently consulting with the Tennessee State Historic Preservation Officer as well as federally recognized Tribes regarding this determination.

3.9. Air Quality

Affected Environment - Under the Clean Air Act, the U.S. Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS; USEPA 2015) to protect and enhance the nation's air quality resources. The primary NAAQS were promulgated to protect the public health, including the health of "sensitive populations, such as people with asthma, children, and older adults." Secondary NAAQS protect public welfare by promoting ecosystems health, preventing decreased visibility, and damage to crops and buildings.

The USEPA has set NAAQS for the following criteria pollutants:

- Sulfur dioxide (SO_2),
- Ozone (O_3),
- Nitrogen Dioxide (NO_2),
- Particulate matter whose particles are ≤ 10 micrometers (PM_{10}),
- Particulate matter whose particles are ≤ 2.5 micrometers ($PM_{2.5}$),
- Carbon monoxide (CO), and
- Lead (Pb).

Table 4. National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide	primary	1 hour	100 ppb	98th percentile of 1-

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
(NO_2)					hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA 2019.
Notes:
1 In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 μg/m^3 as a calendar quarter average) also remain in effect.
2 The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
3 Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
4 The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)), A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

Ambient air monitors measure concentrations of criteria pollutants to determine attainment with these standards. The USEPA classifies geographic areas as being “attainment” areas, or “nonattainment” areas. A geographic area with air concentrations at or below the NAAQS is referred to as an “attainment” area. An area with air concentrations that exceed these standards is referred to as a “nonattainment” area. New sources of air pollution in or near these areas may be subject to more stringent air permitting requirements. There is no ambient air quality data for Campbell County, Tennessee. The closest data, which are located in adjacent surrounding counties included in Table 5, are all in attainment status for National Ambient Air Quality Standards.

The USEPA Air Quality Statistics Report displays air pollution values related to national standards for air quality. This report includes pertinent values for all six criteria pollutants. The report lets you see if an area's maximum air quality statistics are above the level of the national standards for a particular year. The USEPA has listed the following annual air quality standards (USAEPA 2019b):

- Ozone - 0.12 ppm (1-hour), 0.070 ppm (8-hour)
- Sulfur Dioxide - 75 ppb (1-hour), 140 ppb (24-hour), 30 ppb (annual)
- Particulate matter whose particles are ≤ 10 micrometers (PM_{10}) - 150 ug/m3 (24-hour)
- Particulate matter whose particles are ≤ 2.5 micrometers ($PM_{2.5}$): 35 ug/m3 (24-hour) - 12.0 ug/m3 (annual)
- Lead (Pb) - 0.15 ug/m3 (3-month avg)

Although Air Quality Index includes all available pollutant measurements, many areas have monitoring stations for some, but not all, of the pollutants. Table 5 includes the 2018 ambient concentrations for which data was available for the counties surrounding the proposed marina location. This information combined with the attainment status of these counties demonstrates that the air quality in the area of the proposed action is good.

Table 5. 2018 Ambient Concentrations of Criteria Air Pollutants[1]

County	Ozone 2nd Max 1-hr (ppm)	Ozone 4th Max 8-hr (ppm)	SO2 99th Percentile 1-hr (ppb)	SO2 2nd Max 24-hr (ppb)	SO2 Mean 1-hr (ppb)	PM2.5 98th Percentile 24-hr ($\mu g/m^3$)	PM2.5 Weighted Mean 24-hr ($\mu g/m^3$)	PM10 2nd Max 24-hr ($\mu g/m^3$)	PM10 Mean 24-hr ($\mu g/m^3$)	Lead Max 3-Mo Avg ($\mu g/m^3$)
Claiborne County, TN	0.07	0.062	-	-	-	-	-	-	-	-
Anderson County, TN	0.08	0.063	6	2	1	-	-	-	-	-
Knox, TN	0.08	0.067	-	-	-	19	9.4	39	17	0.06
Roane, TN	-	-	-	-	-	15	6.8	-	-	-
Bell, KY	0.07	0.061	-	-	-	16	7.6	-	-	-

Source: USEPA 2019b.
1 No air quality data is available for listed counties for CO and NO_2.

Environmental Consequences –Under the No Action Alternative, a Section 26a permit and commercial recreation license would not be issued and the proposed actions would not be implemented. There would not be any marina expansion beyond what has previously been reviewed. The current air emission levels for recreational boating would be expected to continue.

Under the Proposed Action Alternative, TVA would issue a Section 26a permit and recreational license to authorize the commercial marina. Air quality impacts from construction activities would be temporary in nature and dependent on both manmade factors (e.g. intensity of activity, control measures, etc.) and natural factors (e.g. wind speed, wind direction, soil moisture, etc.). Air quality impacts from the operation of the marina would primarily be related to emissions from increased recreational boat traffic. Based on the recreation study conducted, the proposed facilities could create about a 14% increase in the number of boats within the study area. TVA studies have shown that watercraft emissions are small when compared to the total amount of county air emissions, For example, a 2017 analysis on Tims Ford reservoir found that a 13% increase in watercraft emissions would lead to less than 0.7% percent increases in overall emissions (TVA 2017). When compared to the total emissions sources in Campbell County, watercraft emission increases from the construction and operation of the marina are not expected to have adverse impact on air quality nor lead to an exceedance or violation of any applicable air quality standard. Therefore, there would be no significant impacts to air quality under the Proposed Action Alternative.

3.10. 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. It is necessary to evaluate development in the 100-year floodplain to ensure that the project is consistent with the requirements of Executive Order (EO) 11988. The proposed project would be located at Powell River at Tennessee River Mile 8.1 on Norris Reservoir. The 100- and 500-year flood elevations at this location are 1032.0 feet and 1035.0 feet, respectively.

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

Environmental Consequences –Under the No Action Alternative, a Section 26a permit and commercial recreation license would not be issued and the proposed actions would not be implemented. There would not be any marina expansion beyond what has previously been reviewed. Therefore, there would be no changes to conditions within the local floodplains.

Under the Proposed Action Alternative, the floating slips, utility service to the docks, bank stabilization, and walkways would be located within the 100-year floodplain of the Powell River. Consistent with EO 11988, these facilities are considered to be repetitive actions in the 100-year floodplain that should result in minor impacts. To minimize adverse impacts, TVA would include the following conditions in the Section 26a permit: the floating slips would be anchored to prevent them from floating free during major floods, and the cutoff for electric service must be located at or above elevation 1035.0 feet and be accessible during floods. The walkways are approvable as proposed with no conditions.

Up to 3.1 acre-feet of bank stabilization material would be placed within the Flood Storage Zone, occupying about 1,400 linear feet of shoreline. There is no practical alternative to locating this amount of stabilization material within the reservoir because of the length of shoreline to stabilize. To minimize adverse impacts, the 26a permit would contain the following condition: bank stabilization would be placed, on average, no more than two feet from the existing shoreline at June 1 flood guide elevation. Therefore, the bank stabilization would comply with the TVA Flood Storage Loss Guideline and EO 11988. With these mitigation measures, the Proposed Action Alternative would have no significant impact on floodplains and their natural and beneficial values.

3.11. Cumulative Effects

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 on 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. TVA has received two proposals for marinas in the same vicinity on Norris Reservoir, Powell River mile 8.1R. TVA prepared environmental assessments for each request, including detailed recreation analysis for the total slips for both proposals to examine appropriateness and potential cumulative impacts to recreation.

Accounting for both facilities the estimates for recreational boating density increased to 354 boating units with 11.1 surface acres per boating unit for weekday boating. Non-holiday weekend days are estimated to have 590 boating units with 6.7 acres per boating unit. Peak use on holiday weekend days with both proposals is estimated at 826 boating units with 4.8 surface acres per boating unit. The average increase in boating units across the three estimates for weekday, non-holiday weekend days, and holiday weekend days is approximately 16.8%.

TVA's recreational analysis of the cumulative effects of the additional slips proposed would not significantly change the character of the study area. The study area would currently be classified as an urban setting during peak summer holiday times and average summer weekends, and suburban on an average summer weekday. With the addition of the slips included in both proposals, peak summer holidays and average summer weekend days would remain urban, and average weekdays would remain suburban. Therefore, the study area is able to accommodate the additional wet boating slips from both proposals without significant cumulative impacts.

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CHAPTER 4

4.0 LIST OF PREPARERS AND CONSULTED PARTIES

4.1. TVA Preparers

Michael Angst, Archeologist- Cultural Resources, National Historic Preservation Act Compliance

Nicole C. Berger, Navigation Program Supervisor – Navigation

David Forster, Recreation Specialist – Project Lead

Travis Giles, Environmental Scientist – Visual, Noise, Air Quality & NEPA Compliance

Steven Clay Guerry, Recreation Specialist – Recreation

Robert Marker, Recreation Representative – Recreation

Craig Phillips, Biologists - Aquatic Ecology, Threatened and Endangered Aquatic Species

Carrie Williamson, PE, CFM, Program Manager – Floodplains and Flood Risk

W. Douglas White, NEPA Specialist – NEPA Compliance

A. Chevales Williams, Specialist, Water Permits and Compliance –Surface Water and Erosion

Kelvin Young, Watershed Representative - Threatened and Endangered Species

4.2. Agencies and Others Consulted

The following federal and state agencies and federally recognized Indian Tribes were consulted.

Tennessee Wildlife Resources Agency

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Services

Tennessee Historical Commission

Absentee Shawnee Tribe of Oklahoma

Alabama-Coushatta Tribe of Texas

Cherokee Nation

Coushatta Tribe of Louisiana

Eastern Band of Cherokee Indians

Eastern Shawnee Tribe of Oklahoma

Kialegee Tribal town

Muscogee (Creek) Nation

Shawnee Tribe

Thlopthlocco Tribal Town

United Keetoowah Band of Cherokee Indians in Oklahoma

CHAPTER 5

5.0 LITERATURE CITED

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CHAPTER 6

6.0 LIST OF ATTACHMENTS

Attachment A – Project Plans

Attachment B – Categorical Exclusion Checklist

Attachment C - TVA Bat Strategy Project Screening Form

Attachment D – General and Standard 26a Permit Conditions

Attachment E - Heritage Data Review

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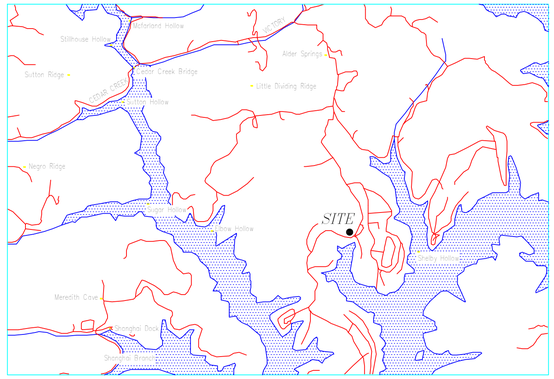
APPENDIX A – PROJECT PLAN

LOCATION MAP



NO SCALE

NOTES :

THIS PARCEL IS REFERENCED TO THE PROPERTY DESCRIBED IN WARRANTY DEED BOOK 409, PAGE 431 AS RECORDED IN THE CAMPBELL COUNTY REGISTER OF DEEDS OFFICE IN JACKSBORO.

DEVELOPER HAS ELECTED TO OMIT UNIT 13 FROM THE NUMBERING SEQUENCE. TOTAL UNITS : 41

THIS PARCEL IS SUBJECT TO ALL RESTRICTIONS, COVENANTS, AND EASEMENTS APPLICABLE.

THIS PARCEL IS ALSO SUBJECT TO ALL TVA RESTRICTIVE COVENANTS ANDS EASEMENTS GOVERNING FLOOD CONTROL OF THE NORRIS LAKE RESERVOIR. ALL PROPERTY BELOW THE 1044.0' ELEVATION CONTOUR IS WITHIN THE MAXIMUM LAKE FLOOD STAGE.

THE NORTH ARROW OF THIS SURVEY IS REFERENCED TO THE PLAT PREPARED FOR DEER HILL SUBDIVISION DATED 8-7-00 BY JERRY W. CRUTCHFIELD R.L.S. 1612.

FUTURE DEVELOPMENT CONTRUCTION & AMENITIES ARE SUBJECT TO CHANGE AT THE DEVELOPERS DISCRETION. ALL FUTURE DEVELOPMENT SHOWN HEREON IS FOR CONCEPT PLANNING ONLY.

THIS SURVEY HAS BEEN MADE USING THE LATEST RECORDED DEEDS AND OTHER INFORMATION, AND THERE ARE NO ENCROACHMENTS OR PROJECTIONS OTHER THAN THOSE SHOWN HEREON. THIS SURVEY IS SUBJECT TO THE FINDINGS OF A TITLE REPORT.

CRUTCHFIELD SURVEYS
JERRY W. CRUTCHFIELD R.L.S. 1612
TONY W. CRUTCHFIELD R.L.S. 1788
P.O. BOX 292
105 LIBERTY STREET
JACKSBORO, TENNESSEE 37757
(423) 566-1483 office
(423) 566-0362 fax
(423) 562-8285 home

I HEREBY CERTIFY THAT THIS IS A CATEGORY _____ SURVEY AND THAT THE RATIO OF PRECISION OF THE UNADJUSTED SURVEY EXCEEDS

1 : _____ AS SHOWN HEREON.

_____
TONY W. CRUTCHFIELD R.L.S. 1788

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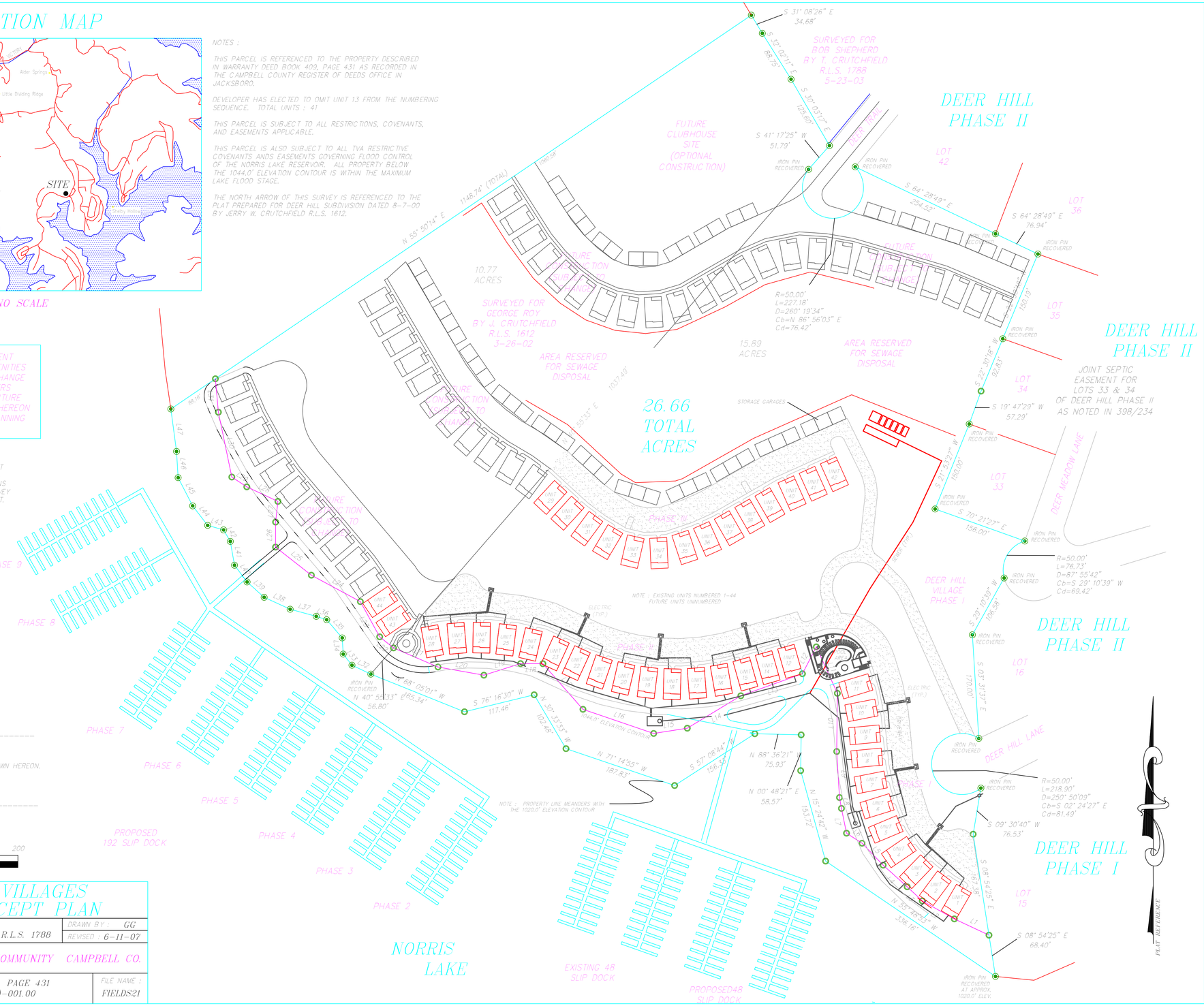
SCALE : 1" = 100'



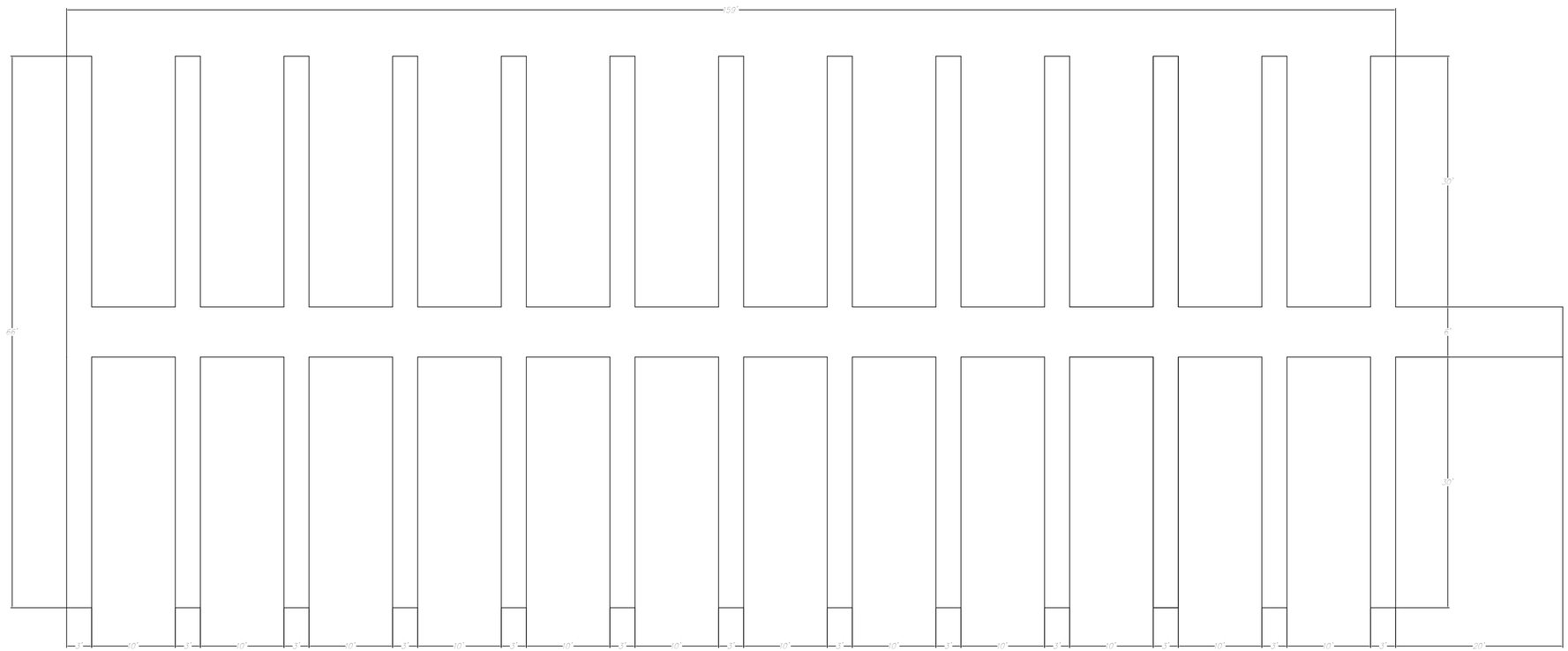
DEER HILL VILLAGES OVERALL CONCEPT PLAN

SCALE : 1" = 100'	APPROVED BY : T. CRUTCHFIELD R.L.S. 1788	DRAWN BY : GG
DATE : 8-8-06		REVISED : 6-11-07

DISTRICT 2 ALDER SPRINGS COMMUNITY CAMPBELL CO.

WARRANTY DEED BOOK 409 PAGE 431
TAX MAP 099H-A-(099H)-001.00

FILE NAME : FIELDS21



PROPOSED DOCK PHASE SECTION

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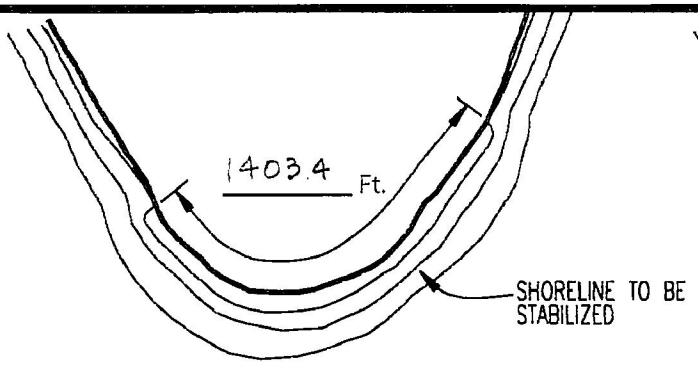
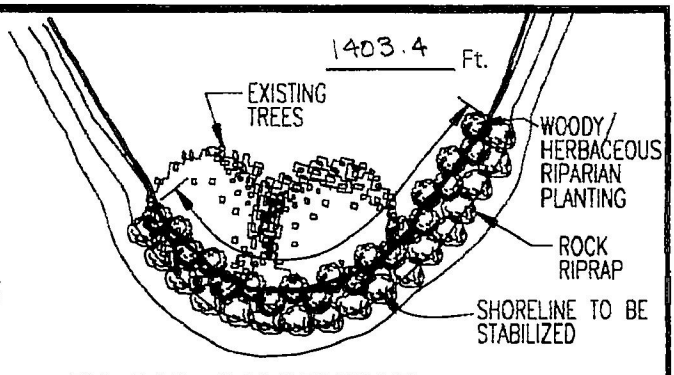
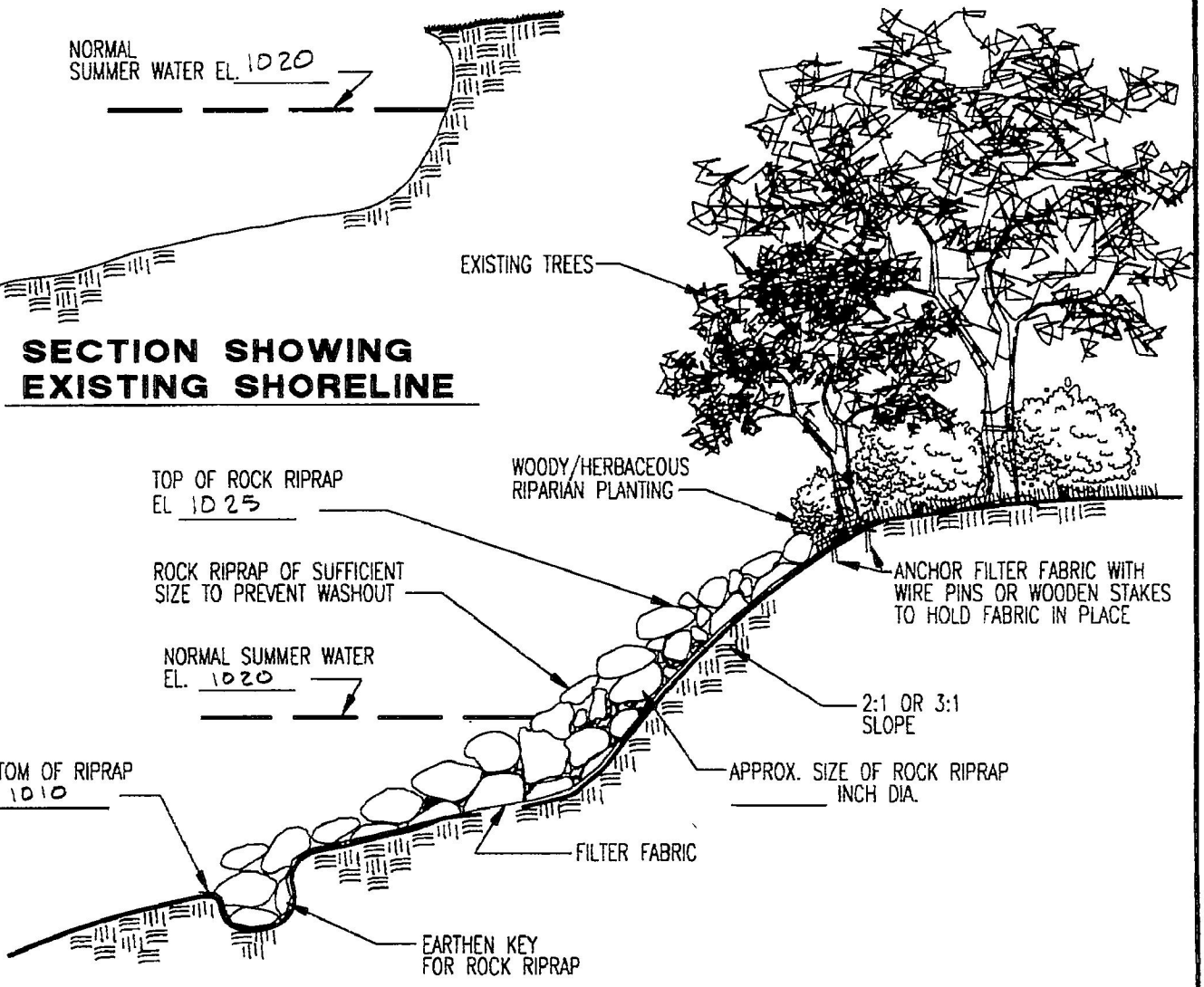


PLAN SHOWING EXISTING SHORELINE



PLAN SHOWING STABILIZED SHORELINE

SECTION SHOWING EXISTING SHORELINE



SECTION SHOWING STABILIZED SHORELINE

THE NORMAL SUMMER WATER LEVEL IS: 1020

NOTE:
INCLUDE ALL DIMENSIONS AND ELEVATIONS WHERE INDICATED.

TVA

ROCK RIPRAP w/ OPTIONAL VEGETATION

PROJECT LOCATION INFORMATION:

STREAM NAME _____ SUBDIVISION NAME _____

RESERVOIR NAME _____ LOT NUMBER _____

MILE MARKER _____ MAP NO. _____

(APPLICANT'S NAME)

Marc Lebeune

APPENDIX B - CATEGORICAL EXCLUSION CHECKLISTS

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number RLR288283	**Tracking Number** *(NEPA Administration Use Only)* 38694

Form Preparer	Project Initiator/Manager	Business Unit
David B Forster	David B Forster	P&NR - Commercial & Public Recreation

Project Title	Hydrologic Unit Code
26a Category 2 RLR 288283 Parc Properties, LLC Norris Reservoir - Deerfield Marina	

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

Applicant(s): Parc Properties, LLC 1235 Deerfield Way LaFollette TN 37766

Initiating TVA Facility or Office	TVA Business Units Involved in Project
Eastern Region	P&NR - Commercial & Public Recreation

Location *(City, County, State)*

CAMPBELL, TN, County, State: CAMPBELL, TN Map Sheet(s): 30 C/D Stage Stream(s): Powell R 8 R

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			NOA, Forster, David B. 04/11/2018
	2. Is part of a larger project proposal involving other TVA actions or other federal agencies?	X			NOA, Forster, David B. 04/11/2018
*	3. Involves non-routine mitigation to avoid adverse impacts ?	X		No	Giles, Travis A. 06/11/2018
	4. Is opposed by another federal, state, or local government agency?	X			Giles, Travis A. 06/11/2018
*	5. Has environmental effects which are controversial?	X			NOA, Forster, David B. 04/11/2018
*	6. Is one of many actions that will affect the same resources?		X		For comments see attachments
	7. Involves more than minor amount of land?	X			NOA, Forster, David B. 04/11/2018

*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	No	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	NOA, Forster, David B. 04/11/2018
4.Potentially affect Wild and Scenic Rivers or their tributaries?	X		No	No	Giles, Travis A. 06/11/2018
5.Potentially affect a stream on the Nationwide Rivers Inventory?	X		No	No	Giles, Travis A. 06/11/2018
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	NOA, Forster, David B. 04/11/2018
13.Potentially affect surface water?		X	No	No	For comments see attachments
14.Potentially affect drinking water supply?	X		No	No	NOA, Forster, David B. 04/11/2018
15.Potentially affect groundwater?	X		No	No	NOA, Forster, David B. 04/11/2018
16.Potentially affect unique or important terrestrial habitat?	X		No	No	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	For comments see attachments
2.Generate water pollutants?		X	No	No	For comments see attachments
3.Generate wastewater streams?	X		No	No	CBC, Forster, David B. 04/11/2018
4.Cause soil erosion?		X	Yes	No	For comments see attachments
5.Discharge dredged or fill materials?		X	Yes	No	For comments see attachments
6.Generate large amounts of solid waste or waste not ordinarily generated?	X		No	No	CBC, Forster, David B. 04/11/2018
7.Generate or release hazardous waste (RCRA)?	X		No	No	CBC, Forster, David B. 04/11/2018
8.Generate or release universal or special waste, or used oil?	X		No	No	CBC, Forster, David B. 04/11/2018
9.Generate or release toxic substances (CERCLA, TSCA)?	X		No	No	CBC, Forster, David B. 04/11/2018
10.Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	X		No	No	CBC, Forster, David B. 04/11/2018
11.Involve disturbance of pre-existing contamination?	X		No	No	Giles, Travis A. 06/11/2018
12.Generate noise levels with off-site impacts?		X	No	No	For comments see attachments
13.Generate odor with off-site impacts?	X		No	No	CBC, Forster, David B. 04/11/2018
14.Produce light which causes disturbance?	X		No	No	CBC, Forster, David B. 04/11/2018
15.Release of radioactive materials?	X		No	No	CBC, Forster, David B. 04/11/2018
16.Involve underground or above-ground storage tanks or bulk storage?	X		No	No	CBC, Forster, David B. 04/11/2018
17.Involve materials that require special handling?	X		No	No	CBC, Forster, David B. 04/11/2018

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	NOA, Forster, David B. 04/11/2018
2.Increase the potential for accidents affecting the public?	X			No	For comments see attachments
3.Cause the displacement or relocation of businesses, residences, cemeteries, or farms?	X			No	NOA, Forster, David B. 04/11/2018
4.Contrast with existing land use, or potentially affect resources described as unique or significant in a federal, state, or local plan?	X			No	Giles, Travis A. 06/11/2018
5.Disproportionately affect minority or low-income populations?	X			No	NOA, Forster, David B. 04/11/2018
6.Involve genetically engineered organisms or materials?	X			No	NOA, Forster, David B. 04/11/2018
7.Produce visual contrast or visual discord?		X		No	For comments see attachments
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	For comments see attachments
10.Potentially generate highway or railroad traffic problems?	X			No	For comments see attachments

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	NOA, Forster, David B. 04/11/2018
2.Involve a structure taller than 200 feet above ground level?	X		No	NOA, Forster, David B. 04/11/2018
3.Involve site-specific chemical traffic control?	X		No	NOA, Forster, David B. 04/11/2018
4.Require a site-specific emergency notification process?	X		No	NOA, Forster, David B. 04/11/2018
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	NOA, Forster, David B. 04/11/2018
6.Potentially impact operation of the river system or require special water elevations or flow conditions??	X		No	Giles, Travis A. 06/11/2018
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	Giles, Travis A. 06/11/2018

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 David B Forster		Date 06/08/2018
TVA Organization P&NR	E-mail dbforste@tva.gov	Telephone

Environmental Concurrence Reviewer

Travis Adam Giles 06/10/2019

Signature

Preparer Closure

Travis A Giles 06/10/19

Signature

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

Signature

Signature

Signature *Signature*

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

David B. Harrell 06/12/2018

Signature *Signature*

Signature *Signature*

Signature *Signature*

Attachments/References

CEC General Comment Listing

1.	In the Information Source columns associated with the checklist questions, NOA refers to Nature of Action and CBC refers to Cleared By Criteria. These criteria are described in the Resource Stewardship Prescreening Criteria Checklist Instructions.			
	By: David B Forster		04/11/2018	
2.	TVA Bat Strategy Form is attached.			
	By: Travis A Giles		06/13/2018	
	Files:	Bat_Form_CEC 38694.pdf	06/14/2018	1,712.33 Bytes
3.	License Concurrence Sheet with Signatures			
	By: David B Forster		12/14/2018	
	Files:	Briefing_ParcProperties_Commercial_Rec_License_Request_FINAL Signed 9-27-18.pdf	12/14/2018	933.86 Bytes
4.	Parking Plan			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_ Proposed Parking Plan for Marina_12-11-18.pdf	12/14/2018	763.83 Bytes
5.	County Support Letter			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_Campbell County Support Letter for Marina_8-21-18.pdf	12/14/2018	28.03 Bytes
6.	Land Use Application			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_Signed LUP Application.pdf	12/14/2018	669.38 Bytes
7.	ADF			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_Signed ADF.pdf	12/14/2018	351.45 Bytes
8.	Plans and Layout			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_Plans and Layout_Revised 2-22-18.pdf	12/14/2018	367.32 Bytes
9.	Project Maps			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_Exhibit B_D Stage and Exhibit Map.pdf	12/14/2018	237.18 Bytes
		Deerfield Marina_Exhibit A_Aerial Harbor Map_R2.pdf	12/14/2018	252.11 Bytes
		Deerfield Marina_VicinityMap.pdf	12/14/2018	293.19 Bytes
10.	Deeds			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_XNR-156, -157, -158, -155 Special Warranty Deed.pdf	12/14/2018	631.13 Bytes
11.	Special Deed			
	By: David B Forster		12/14/2018	
	Files:	Deerfield Marina_XNR-156 S-1 Deed of Exchange.pdf	12/14/2018	193.35 Bytes
12.	Rip Rap Plans			
	By: David B Forster		05/02/2019	
	Files:	Deerfield Marina_Stabilization Form and Plans_FINAL.pdf	05/02/2019	1,083.49 Bytes

13. NO COMMENT TEXT

By: 26a Added Comment

14. NO COMMENT TEXT

By: 26a Added Comment

15. NO COMMENT TEXT

By: 26a Added Comment

16. Collection Fee Report

By: 26a Added Comment

17. Former 26a Approval - RLR 161536

By: 26a Added Comment

18. Harbor Map

By: 26a Added Comment

19. NO COMMENT TEXT

By: 26a Added Comment

20. Vicinity Map

By: 26a Added Comment

21. Facility Map

By: 26a Added Comment

22. Facility List Definitions

By: 26a Added Comment

23. Bat Form

By: 26a Added Comment

24. Completed CEC

By: 26a Added Comment

CEC Comment Listing

Part 1 Comments

6. This action is considered to have cumulative impacts covered and discussed under TVA SMI (1999).

By: David B Forster 04/18/2018

6. Addresses in Shoreline Management Initiative Environmental Impact Statem ent

By: David B Forster 04/11/2018

Part 2 Comments

1. There is 11 federally listed and 4 state listed aquatic species found within 10 miles of the proposed actions. Most populations of state and federally listed aquatic species were extirpated after the completion of Watts Bar Dam. Habitat at the proposed site is not suitable for the various state and federally listed aquatic species known to occur in the vicinity. Due to the location of the proposed actions there would be no effects on any protected aquatic species.

There are two federally listed terrestrial animal species found within 3 miles of the proposed actions. No listed terrestrial animal species occur in the vicinity of the proposed actions. The proposed action does not include the removal of suitable Myotis summer roost habitat. Therefore, there would be no effects to Myotis species.

There are 16 state listed plant species found within 5 miles of the proposed actions. Due to the nature of action and location, the proposed actions would have no effect on any protected plant species.

By: Kelvin Young 04/17/2019

Files: Heritage_Species_List2.pdf 05/10/2018 406.05 Bytes

1. See EA for analysis.

By: Travis A Giles 04/05/2019

2. See EA for more information.

By: Travis A Giles 04/05/2019

2. The project area of potential effects, which consists of the shoreline where cable anchors for the floating marina would be installed, were included in a previous archaeological survey and no archaeological sites were recorded at this location. The paleosetting--the steep slopes of a ridge facing a small draw- has low potential for significant archaeological deposits. No historic structures are indicated at this location on the 1936 and 1941 editions of the USGS Demory, TN 7.5-minute quadrangle map, and there are no National Register listings here. The existing lake bed has been eroded by wave action, which has removed topsoil, and is covered with silt accumulated during the past 80+ years of reservoir operations. No previously inventoried historic architectural properties are listed in the area on the Tennessee Historical Commission online viewer. The viewshed has been compromised by the construction of Norris Reservoir, a modern subdivision, several large commercial marinas, and several private boat docks. If any above ground historic properties are located within view of the project, their integrity of setting and feeling would not be further diminished by the construction of the proposed water use facilities.
   By: Steve C Cole 06/08/2018
   Files: CID73349_CEC38694_Parc Properties LLC_Norris Reservoir.pdf 06/08/2018 12.87 Bytes
2. ALIS SMI data depicts that the action takes place in an area surveyed for archaeological resources, no archaeological resources present, and no potential for buried deposits (GREEN in the data), and no effects of the action are anticipated outside the “GREEN” zone.
   By: David B Forster 04/18/2018
8. See EA Input.
   By: Travis A Giles 04/05/2019
8. This facility would fall under the guidelines of TVA's class review of repetitive actions within the 100-year floodplain. From the standpoint of Flood Control, TVA has no objection to the 26a permit for the proposed project provided the following conditions are included in the final CEC and permit: 1. The floor elevation of the fixed dock will be a minimum of two feet above the normal summer pool elevation 1020.0 2. You agree to securely anchor all floating facilities to prevent them from floating free during major floods. 3. For purposes of shoreline bank stabilization, all portions will be constructed or placed, on average, no more than two feet from the existing shoreline at normal summer pool elevation.
   By: David B Forster 04/18/2018
9. There are four Managed areas (MABR) and one Heritage Site (SBR) located in the vicinity. However, due to the nature and location of the proposed actions these sites would not be affected.
   By: Kelvin Young 05/10/2018
10. The proposed actions would not contribute to the spread of exotic or invasive species.
   By: Kelvin Young 05/10/2018
11. Due to the location the proposed actions would have no effect on migratory birds.
   By: Kelvin Young 05/10/2018
13. See EA for more information.
   By: Travis A Giles 04/05/2019
13. Insignificant with implementation of General and Standard Conditions including Best Management Practices.
   By: David B Forster 04/18/2018
16. There are four caves located in the vicinity. Due to the nature of the proposed actions there would be no effect on these sites or suitable habitat for bat hibernacula.
   By: Kelvin Young 05/10/2018
17. No unique aquatic habitat areas are known from the vicinity of the proposed actions.
   By: Kelvin Young 05/10/2018
6. No wetlands impacts are expected.
   By: Kelvin Young 05/10/2018
6. No impacts to wetlands proposed, project is in compliance with Executive Order 11990 requiring federal agencies to minimize wetland destruction, loss, or degradation, and preserve and enhance natural and beneficial wetland values, while carrying out agency responsibilities.
   By: Travis A Giles 05/22/2019
7. With implementation of general and standard best management practices for this type of activity effects will be minimal to water flow, stream banks, and stream channels.
   By: Travis A Giles 12/21/2018

Part 3 Comments

1. See EA for discussion.
   By: Travis A Giles 04/17/2019
2. No commitments beyond standard TVA requirements—i.e., compliance with all applicable federal, state and local environmental laws and regulations, proper implementation of BMPs and best engineering practices and proper containment/treatment/disposal of wastewaters, stormwater runoff, wastes, and potential pollutants. Please review TVA Clean Marina Guidebook for recommended BMPs for implementation during facility use.
   By: Travis A Giles 12/21/2018
2. A spill kit must be maintained on site while any heavy machinery is in operation during construction. It should be capable of containing any spill to the ground or a waterway due to refueling activities or hydraulic line breakage.
   By: Travis A Giles 12/21/2018

4. Insignificant impacts for undergroung utilities, boat ramp, and bank stabiliztion with compliance with ARAP requirements and implementation of BMPs.
By: Travis A Giles 06/13/2018

4. The total new ground disturbance, if over an acre, would require a NPDES construction permit, including laydown areas and barrow/spoil disposal sites. This application requires that a Stormwater Pollution Prevention Plan be submitted that will detail BMPs and project plans. Additionally, a Section 404 permit from the USACE may be required and a ARAP 401 Water Quality Certifications from TDEC. No commitments beyond standard requirements—i.e., compliance with all applicable federal, state and local environmental laws and regulations, proper implementation of BMPs and best engineering, and proper containment/treatment/disposal of wastewaters, storm water runoff, wastes, and potential pollutants. It is also recommended that BMPs be incorporated during construction and during use of the facility to minimize impacts to surface water quality. Please review TVA Clean Marina Guidebook for recommended BMPs for implementation during facility use.This project is not expected to have any adverse impact relative to these pollutants of concern.
By: Travis A Giles 12/21/2018

4. See EA for more information.

By: Travis A Giles 04/05/2019

4. Insignificant with implementation of General and Standard Conditions in cluding BMPs
By: David B Forster 04/11/2018

5. See EA for more information.

By: Travis A Giles 04/05/2019

5. Shoreline stabilization is considered fill material and therefore requires 401and 404 certification. 401 certification is covered under the general permit.

Docks are considered obstructions in navigable waterways and require a Section 10 permit.
Dredges are considered source of water quality impact requiring 401 and 404 certification.
Launch Ramps are considered source of water quality impact requiring 401 and 404 certification.

Section 10 is required for all structures located in navigable waters.

By: David B Forster 04/18/2018

12. See EA for more information.

By: Travis A Giles 04/05/2019

12. Further information provided in EA.

By: Travis A Giles 03/13/2019

Part 4 Comments

2. See EA for more information.

By: Travis A Giles 04/05/2019

2. TVA expects no potential significant impacts for accidents affecting the public with enforcement of boating safety and traffic laws by governing state agency.
By: Travis A Giles 12/21/2018

7. See EA for more information.

By: Travis A Giles 04/05/2019

10. With compliance with any applicable TDOT requirements no significant impacts to highway traffic is expected.
By: Travis A Giles 12/21/2018

8. See EA for more information.

By: Travis A Giles 04/05/2019

9. Please see attached navigation comments.

By: Nicole Berger 03/20/2019
Files: 288283 - 26a - Land Use application - Powell River Mile 8.1R - Deerfield Resort.docx 03/20/2019 14.14 Bytes

9. See EA for more information.

By: Travis A Giles 04/05/2019

9. Permit will be via 26a upon final approval of license.

By: David B Forster 06/18/2018

CEC Permit Listing

Part 3 Permits

4. Aquatic Resource Alteration Permit

By: Travis A Giles 06/11/2018

4. National Pollutant Discharge Elimination System Permit (¿402 Clean Water Act)

By: Travis A Giles 12/21/2018

5. Section 404 Permit (¿404 Clean Water Act)

By: Travis A Giles 06/11/2018

CEC Commitment Listing

APPENDIX C – TVA BAT STRATEGY PROJECT SCREENING FORM

Project Screening Form - TVA Bat Strategy *(05/01/2018)*

This form is to assist in determining alignment of proposed projects and any required measures to comply with TVA's ESA Section 7 programmatic consultation for routine actions and federally-listed bats[1]

Project Name: 26a Category 2 RLR 288283 Parc Properties, LLC Norris Reservoir - Deerfield Marina **Date**: 6/13/2018
Contact(s): Travis Giles **CEC#**: 38694 **RLR#:** 288283 **Project ID**: 205799

Project Description: Marina on Norris Reservoir, Applicant(s): Parc Properties, LLC 1235 Deerfield Way LaFollette TN 37766

STEP 1) Select Appropriate TVA Action (or check here □ if none of the Actions below are applicable):

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

STEP 2) Select **all** activities from **Tables 1 and 2** (Column 1 only) included in proposed project. If you have an activity that is not listed below, describe here): _____

Table 1. Activities (CHECK ALL THAT APPLY) with No Effect on Federally Listed Bats. If none, check here: □

	#	ACTIVITY		#	ACTIVITY
□	**1**	Loans and/or grant awards	□	**12**	Sufferance agreement
□	**2**	Purchase of property	□	**13**	Engineering or environmental planning or studies
□	**3**	Purchase of equipment for industrial facilities	□	**14**	Harbor limits
□	**4**	Environmental education	□	**19**	Site-specific enhancements in streams and reservoirs for aquatic animals
□	**5**	Transfer of ROW easement or ROW equipment	□	**20**	Nesting platforms
□	**6**	Property and/or equipment transfer	□	**41**	Minor water-based structures
□	**7**	Easement on TVA property	□	**42**	Internal renovation or internal expansion of existing facility
□	**8**	Sale of TVA property	□	**43**	Replacement or removal of TL poles, or cutting of poles to 4-6 ft above ground
□	**9**	Lease of TVA property	□	**44**	Conductor and OHGW installation and replacement
□	**10**	Deed modification of TVA rights or TVA property	□	**49**	Non-navigable houseboats
□	**11**	Abandonment of TVA retained rights			

Table 2. Activities (CHECK ALL THAT APPLY) and Associated Conservation Measures. If none, check here: □

	#	ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
□	**15**	Windshield or ground surveys for archaeological resources	□ a. NV1 □ b. HP2	□ b. HP1
□	**16**	Drilling	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3 □ g. L1, L2	□ a NV3, NV4 / □ a1. NV2
□	**17**	Mechanical vegetation removal; does not include removal of trees or tree branches ≥ 3" in diameter.	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4, SSPC7
■	**18**	Erosion control – minor	■ a. NV1 ■ f. SPCC1, SSPC2, SSPC3, SSPC5	None
□	**21**	Herbicide use	□ d. SSPC1, SSPC2, SSPC3, SSPC5	□ d. SSPC6, SSPC7
□	**22**	Grubbing	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4
□	**23**	Prescribed burns, burn piles, or	□ c. SHF1, SHF4, SHF5	□ c. SHF2, SHF3, SHF6, SHF7,

	#	ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
		brush piles		SHF8, SHF9
□	**24**	Tree planting	□ a. NV1 □ f. SSCP1, SSPC2, SSPC3, SSPC5	None
□	**25**	Maintenance, improvement or construction of pedestrian or vehicular access corridors	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ a1. NV2 □ f. SSPC7
□	**26**	Maintenance or construction of access control measures	□ a. NV1 □ b. HP2 □ f. SSPC1, SSPC2, SSPC3,SSPC5 □ g. L1, L2	□ a NV3, NV4 / □ a1. NV2 □ b. HP1 □ f. SSPC7
□	**27**	Restoration of sites following human use and abuse	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3	□ f. SSPC7
□	**28**	Removal of debris (e.g., dump sites, hazardous material, unauthorized structures)	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3	□ f. SSPC7
□	**29**	Acquisition and use of fill/borrow material	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3	□ f. SSPC7
□	**30**	Dredging and excavation; recessed harbor areas	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	None
□	**31**	Stream/wetland crossings	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC7
□	**32**	Clean-up following storm damage	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3	□ f. SSPC4, SSPC7
□	**33**	Removal of hazardous trees or tree branches	□ a. NV1 □ d. TR7, TR8 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ d. TR1, TR2, TR3, TR4, TR5, TR6, TR9, □ f. SSPC4, SSPC7
□	**34**	Mechanical vegetation removal, includes trees or tree branches three inches or greater in diameter	□ a. NV1 □ d. TR7, TR8 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ d. TR1, TR2, TR3, TR4, TR5, TR6, TR9, □ f. SSPC4, SSPC7
□	**35**	Stabilization (major erosion control)	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	□ f. SSPC4, SSPC7
□	**36**	Grading	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5 □ g. L1, L2	□ f. SSPC4, SSPC7
□	**37**	Installation of soil improvements	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3 □ g. L1, L2	□ a1. NV2 □ f. SSPC7
□	**38**	Drainage installations (including for ponds)	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3 □ g. L1, L2	□ f. SSPC7
□	**39**	Berm development	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, □ g. L1, L2	None
□	**40**	Closed loop heat exchangers (heat pumps)	□ f. SSPC5	None
□	**45**	Stream monitoring equipment-placement, use	□ a. NV1	None
■	**46**	Floating boat slips within approved harbor limits	■ f. SSPC5	None
□	**47**	Conduit installation	□ a. NV1	□ a1. NV2
□	**48**	Laydown areas	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, □ g. L1, L2	None
□	**50**	Minor land-based structures	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5 □ g. L1, L2	None
□	**51**	Signage installation	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	None
□	**52**	Floating buildings	□ a. NV1 □ f. SSPC2, SSPC3,SSPC5 □ g. L1, L2	□ a1. NV2
□	**53**	Mooring buoys or posts	□ a. NV1	

	#	ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
			□ f. SSPC2, SSPC3, SSPC5	None
□	54	Maintenance of water control structures (dewatering units, spillways, levees)	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	□ f. SSPC6, SSPC7
□	55	Solar panels	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	□ f. SSPC7
□	56	Culverts	□ a. NV1 □ f. SSPC1, SSPC3, SSPC5	None
□	57	Water intake - non-industrial	□ a. NV1 □ f. SSPC3, SSPC5	None
□	58	Wastewater outfalls	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	None
□	59	Marine fueling facilities	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5 □ g. L1, L2	None
■	60	Commercial water-use facilities (e.g., marinas)	■ a. NV1 ■ f. SSPC2, SSPC5 ■ g. L1, L2	None
□	61	Septic fields	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5	None
□	62	Blasting	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, □ g. L1, L2	□ a NV3, NV4 / □ a1. NV2
□	63	Foundation installation	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3	□ a1. NV2
□	64	Installation of steel structure, overhead bus, equipment, etc.	□ a. NV1 □ g. SSPC1, SSPC2, SSPC3	□ a1. NV2
□	65	Pole and/or tower installation and/or extension	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3	□ a1. NV2
□	66	Private, residential docks, piers, boathouses	□ a. NV1 □ f. SPCC5 □ g. L1, L2	None
□	67	Siting of temporary office trailers	□ a. NV1 □ f. SSPC1, SSPC2, SSPC3, SSPC5 □ g. L1, L2	None
□	68	Financing for speculative building construction	□ a. NV1 □ f. SSPC5	None
□	69	Renovation of existing structures	□ a. NV1 □ f. SSPC1, SSPC3, SSPC5 □ g. L1, L2	□ e. AR1, AR2, AR4, AR5
□	70	Lock maintenance and construction	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	□ a1. NV2
□	71	Concrete dam modification	□ a. NV1 □ f. SSPC2, SSPC3	□ a1. NV2
□	72	Ferry landings/service operations	□ a. NV1 □ f. SSPC5 □ g. L1, L2	None
□	73	Boat launching ramps	■ a. NV1 ■ f. SSPC2, SSPC5	□ a1. NV2
□	74	Recreational vehicle campsites	□ a. NV1 □ g. SPCC5	None
□	75	Utility lines/light poles	□ a. NV1 □ f. SPCC5 □ g. L1, L2	None
■	76	Concrete sidewalk	■ a. NV1 ■ f. SSPC2, SSPC3, SSPC5	None
□	77	Construction or expansion of land-based buildings	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5 □ g. L1, L2	□ e. AR1, AR2, AR5
□	78	Wastewater treatment plants	□ a. NV1 □ f. SSPC2, SSPC5 □ g. L1, L2	□ a1. NV2
□	79	Swimming pools and associated	□ a. NV1	

	#	ACTIVITY	CONSERVATION MEASURES	TZ SME Review Needed
		equipment	□ f. SSPC5 □ g. L1, L2	None
□	**80**	Barge fleeting areas	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	□ a1. NV2
□	**81**	Water intakes - Industrial	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	None
□	**82**	Construction of dam/weirs/ Levees	□ a. NV1 □ f. SPCC2, SPCC3, SPCC5	□ a1. NV2
□	**83**	Submarine pipeline, directional boring operations	□ a. NV1 □ f. SSPC2, SSPC3, SSPC5	□ a1. NV2
□	**84**	On-site/off-site public utility relocation or construction or extension	□ a. NV1 □ f. SSPC1, SSPC3, SSPC5	None
□	**85**	Playground equipment - land-based	□ a. NV1 □ f. SSPC5	None
□	**86**	Landfill construction	□ a. NV1 □ f. SSPC2, SSPC3 □ g. L1, L2	□ a1. NV2
□	**87**	Aboveground storage tanks	□ a. NNV1 □ f. SSPC2, SSPC3, SSPC5	None
□	**88**	Underground storage tanks (USTs)	□ a. NV1 □ g. SSPC2, SSPC3, SSPC5	None
□	**89**	Structure demolition	□ f. SSPC1, SSPC2, SSPC3	□ e. AR1, AR2, AR4, AR5
□	**90**	Pond closure	□ a. NV1 □ f. SSPC2, SSPC3	None
□	**91**	Bridge replacement	□ a. NV1 □ f. SSPC3, SSPC5	□ a1. NV2 □ e. AR1, AR2, AR3, AR5,
□	**92**	Return of remains to former burial sites	□ a. NV1 □ b. HP2	□ b. HP1
□	**93**	Standard license	□ a. NV1 □ f. SSPC5	None
□	**94**	Special use license	□ a. NV1	None
□	**95**	Recreation license	□ a. NV1 □ f. SSPC5	None
□	**96**	Land use permit	□ a. NV1 □ f. SSPC5	None

STEP 3) Are all project activities limited to Table 1? If **YES**, **STOP HERE**. No Bat Strategy Conservation Measures required. Include this form in environmental documentation (e.g., attach to CEC) and send to batstrategy@tva.gov. If **NO**, proceed to Step 4.....□ **YES** ■ **NO**

STEP 4) Check ALL relevant characteristics below. If **none** apply, **STOP HERE** and check ☐. No Bat Strategy Conservation Measures required. Include form in environmental documentation and send to batstrategy@tva.gov

■ **a**. Project may occur outside, involves human presence, or use of equipment that **generates noise or vibration** (e.g., drilling, blasting, loud machinery).

□ **a1.** Project involves continuous noise (i.e., ≥ 24 hrs) that is >75 decibels measured on A scale (e.g., loud machinery).

□ **b**. Project may involve **human entry into/survey of a potential bat roost** (cave, bridge, other structure).

□ **c**. Project may involve **fire (e.g., prescribed fire, burn piles) or preparation of fire breaks** within 0.25 mi of trees, caves, or water sources. **If prescribed burn**, estimated acreage: _____

□ **d**. Project may involve **tree removal.**
Tree removal may need to occur **outside of winter**.....☐ **YES** ☐ **NO**
Tree removal will occur **only in winter**.....☐ **YES** ☐ **NO**

Estimated number of trees or acres to be removed: none □ acres □ trees
If warranted, project has flexibility for bat surveys (May 15-Aug 15):.....□ **MAYBE** □ **YES** ■ **NO**

□ **e**. Project may involve **alteration or removal of bridges or other human structures**.

■ **f**. Project may involve land use activities involving **ground disturbance or use of chemicals or fuels** near water sources, wetlands, sinkholes, caves, or exposed limestone/karst.

□ ■ g. Project may involve use of artifical lighting at night.

STEP 5) *Please contact Holly LeGrand or other Bat Strategy support staff for assistance if needed*. For those Activities selected in Table 2: select all Conservation Measures with letters (e.g., a-g) that correspond to characteristics selected in Step 4. If this results in selection of Conservation Measures in the last column of Table 2, a review by a terrestrial zoologist is required. Based on selection of Conservation Measures, does project require review by a terrestrial zoologist? If **YES**, **STOP HERE** and submit form as part of environmental review request; if **NO**, skip to **STEP 16**.....□ **YES** ■ **NO**

Terrestrial Zoologist SME Verification (Steps 6-11 will be completed by a terrestrial zoologist if warranted):

STEP 6) Project is within range of: ☐ Gray bat ☐ VA Big-eared bat ☐ Indiana bat ☐ Northern long-eared bat

STEP 7a) Project includes the following:

- □ Removal/burning of suitable trees within 0.5 mile (0.8 km) of P1-P2 Indiana bat hibernacula or 0.25 mile (0.4 km) of P3-P4 Indiana bat hibernacula or any northern long-eared bat hibernacula.
- □ Removal/burning of suitable trees within 10 miles of documented Indiana bat hibernacula or within 5 miles of northern long-eared bat hibernacula.
- □ Removal/burning of suitable trees greater than 10 miles from documented Indiana bat hibernacula or greater than 5 miles from documented northern long-eared bat hibernacula.
- □ Removal/burning of trees within 150 feet of a documented Indiana bat or northern long-eared bat maternity roost tree.
- □ Removal/burning of suitable trees within 2.5 miles of Indiana bat roost trees or within 5 miles of Indiana bat capture sites.
- □ Removal/burning of suitable trees greater than 2.5 miles from Indiana bat roost trees or greater than 5 miles from Indiana bat capture sites.
- □ Removal/burning of documented Indiana bat or northern long-eared bat roost tree, if still suitable.

STEP 7b) Amount of SUITABLE tree/acreage removal or burned (may be different than total amount of removal): _____ □ acres □ trees

STEP 8) Select anticipated date range of burning/tree removal in table below:

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 - Sep 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 - Sep 30	□ Jun 1 - Jul 31

STEP 9) Presence/absence surveys (visual, mist net, acoustic) were/will be conducted: □ **YES** ■ **NO** □ **TBD**

STEP 10) Result of presence/absence surveys (if conducted), on _____ (date): □ **NEGATIVE** □ **POSITIVE** □ **N/A** *NOTES*: _____

_____

STEP 11) □ Conservation measures have been verified (and modified, if necessary) in Table 2. *NOTES*:

_____

_____

Bat Strategy Compliance Verification (Steps 12-15 will be completed by SME/Bat Strategy Support staff):

STEP 12) Project □ **WILL** □ **WILL NOT** require use of Incidental Take in the amount of _____ □ acres or □ trees, proposed to be used during the □ **WINTER** □ **VOLANT** □ **NON-VOLANT** bat season (or □ **N/A**).

STEP 13) Available Incidental Take as of _____ for _____(Action):

TVA Action	Total 20-year acreage	Winter Burning/Removal	Volant Season Burning/Removal	Non-Volant Season Burning/Removal

STEP 14) Amount contributed to TVA's Bat Conservation Fund upon activity completion: _____or □ **N/A**

STEP 15) Project Effects Determinations: ***Gray Bat***:☐NE ☐NLAA ☐N/A;***Virginia Big-eared Bat***:☐NE ☐NLAA ☐N/A ***Northern Long-eared Bat***: ☐NE ☐NLAA ☐LAA ☐N/A; ***Indiana Bat***: ☐NE ☐NLAA ☐LAA ☐N/A

NOTES:_____

_____

TVA's ESA Section 7 Bat Strategy Conservation Measures Required for:

STEP 16) Based on completion of Step 5, select the appropriate Conservation Measures listed in the table below (this will be completed/verified by a Terrestrial Zoologist if a Terrestrial Zoologist review is required) and review the following bullets. Save this form in project environmental documentation AND send a copy of form to batstrategy@tva.gov. Submission of this form is an indication that the Project Lead David Forster/Travis Giles (name) is (or will be made) aware of the requirements below.

- Implementation of conservation measures identified below is required to comply with TVA's programmatic Endangered Species Act bat consultation.

- Confirmation of completion (e.g., report from contractor, time stamped photos pre and post completion) for Conservation Measures below with an * (as well as any additional confirmation noted here by Terrestrial Zoologist:_____) will be provided to TVA's Bat Strategy Compliance Officer (batstrategy@tva.gov) following completion of activit (ies).

- TVA may conduct post-project monitoring to determine if conservation measures were effective in minimizing or avoiding impacts to federally listed bats.

STEP 17) For projects that require use of Take and/or contribution to TVA's Bat Conservation Fund, please acknowledge the following statement:

□ Project Lead/Contact acknowledges that proposed project will result in use of _____ □ acres/□ trees in Incidental Take and will require _____ contribution to TVA's Conservation Fund upon completion of activity.

	Conservation Measure Acronym	Conservation Measure Description
☑	NV1	Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
☐	NV2	Drilling, blasting, or any other activity that involves continuous noise (i.e., longer than 24 hours) disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) within a 0.5 mile radius of documented winter and/or summer roosts (caves, trees, unconventional roosts) will be conducted when bats are absent from roost sites.
☐	NV3	Drilling or blasting within a 0.5 mile radius of documented cave (or unconventional) roosts will be conducted in a manner that will not compromise the structural integrity or alter the karst hydrology of the roost site.
☐	NV4	Drilling or blasting within 0.5 miles of a documented roost site (cave, tree, unconventional roost) that needs to occur when bats are present will first involve development of project-specific avoidance or minimization measures in coordination with the USFWS.
☐	HP1	Site-specific cases in which potential impact of human presence is heightened (e.g., conducting environmental or cultural surveys within a roost site) will be closely coordinated with staff bat biologists to avoid or minimize impacts below any potential adverse effect. Any take from these activities would be covered by TVA's Section 10 permit.
☐	HP2	Entry into roosts known to be occupied by federally listed bats will be communicated to the USFWS when impacts to bats may occur if not otherwise communicated (i.e., via annual monitoring reports per TVA's Section 10 permit). Any take from these activities would be covered by TVA's section 10 permit.
☐	SHF1	Fire breaks will be used to define and limit burn scope.
☐	SHF2	Site-specific conditions (e.g., acres burned, transport wind speed, mixing heights) will be considered to ensure smoke is limited and adequately dispersed away from caves so that smoke does not enter cave or cave-like structures.
☐	SHF3	Acreage will be divided into smaller units to keep amount of smoke at any one

		time or location to a minimum and reduce risk for smoke to enter caves.
☐	SHF4	If burns need to be conducted during April and May, when there is some potential for bats to present on the landscape and more likely to enter torpor due to colder temperatures, burns will only be conducted if the air temperature is 55° or greater, and preferably 60° or greater.
☐	SHF5	Fire breaks will be plowed immediately prior to burning, will be plowed as shallow as possible, and will be kept to minimum to minimize sediment.
☐	SHF6	Tractor-constructed fire lines will be established greater than 200 feet from cave entrances. Existing logging roads and skid trails will be used where feasible to minimize ground disturbance and generation of loose sediment.
☐	SHF7	Burning will only occur if site specific conditions (e.g. acres burned, transport wind speed, mixing heights) can be modified to ensure that smoke is adequately dispersed away from caves or cave-like structures. This applies to prescribed burns and burn piles of woody vegetation.
☐	SHF8	Brush piles will be burned a minimum of 0.25 mile from documented, known, or obvious caves or cave entrances and otherwise in the center of newly established ROW when proximity to caves on private land is unknown.
☐	SHF9	A 0.25 mile buffer of undisturbed forest will be maintained around documented or known gray bat maternity and hibernation colony sites, documented or known Virginia big-eared bat maternity, bachelor, or winter colony sites, Indiana bat hibernation sites, and northern long-eared bat hibernation sites. Prohibited activities within this buffer include cutting of overstory vegetation, construction of roads, trails or wildlife openings, and prescribed burning. Exceptions may be made for maintenance of existing roads and existing ROW, or where it is determined that the activity is compatible with species conservation and recovery (e.g., removal of invasive species).
☐	TR1*	Removal of potentially suitable summer roosting habitat during time of potential occupancy has been quantified and minimized programmatically. TVA will track and document alignment of activities that include tree removal (i.e., hazard trees, mechanical vegetation removal) with the programmatic quantitative cumulative estimate of seasonal removal of potential summer roost trees for Indiana bat and northern long-eared bat. Project will therefore communicate completion of tree removal to appropriate TVA staff.
☐	TR2	Removal of suitable summer roosting habitat within 0.5 mile of Priority 1/Priority 2 Indiana bat hibernacula, or 0.25 mile of Priority 3/Priority 4 Indiana bat hibernacula or any northern long-eared bat hibernacula will be prohibited, regardless of season, with very few exceptions (e.g., vegetation maintenance of TL ROW immediately adjacent to a known cave).
☐	TR3*	Removal of suitable summer roosting habitat within documented bat habitat (i.e., within 10 miles of documented Indiana bat hibernacula, within five miles of documented northern long-eared bat hibernacula, within 2.5 miles of documented Indiana bat summer roost trees, within five miles of Indiana bat capture sites, within one mile of documented northern long-eared bat summer roost trees, within three miles of northern long-eared bat capture sites) will be tracked, documented, and included in annual reporting. Project will therefore communicate completion of tree removal to appropriate TVA staff.
☐	TR4*	Removal of suitable summer roosting habitat within potential habitat for Indiana bat or northern long-eared bat will be tracked, documented, and included in annual reporting. Project will therefore communicate completion of tree removal to appropriate TVA staff.
☐	TR5	Removal of any trees within 150 feet of a documented Indiana bat or northern long-eared bat maternity summer roost tree during non-winter season, range-wide pup season or swarming season (if site is within known swarming habitat), will first require a site-specific review and assessment. If pups are present in trees to be removed (determined either by mist netting and assessment of adult females, or by visual assessment of trees following evening emergence counts),

		TVA will coordinate with the USFWS to determine how to minimize impacts to pups to the extent possible. May include establishment of artificial roosts before removal of roost tree(s).
☐	TR6	Removal of a documented Indiana bat or northern long-eared bat roost tree that is still suitable and that needs to occur during non-winter season, range-wide pup season, or swarming season (if site is within known swarming habitat) will first require a site-specific review and assessment. If pups are present in trees to be removed (determined either by mist netting and assessment of adult females, or by visual assessment of trees following evening emergence counts), TVA will coordinate with USFWS to determine how to minimize impacts to pups to the extent possible. This may include establishment of artificial roosts before removal of roost tree(s).
☐	TR7	Tree removal within 100 feet of **existing transmission ROWs** will be limited to hazard trees. On or adjacent to TLs, a hazard tree is a tree that is tall enough to fall within an unsafe distance of TLs under maximum sag and blowout conditions and/or are also dead, diseased, dying, and/or leaning. Hazard tree removal includes removal of trees that 1) currently are tall enough to threaten the integrity of operation and maintenance of a TL or 2) have the ability in the future to threaten the integrity of operation and maintenance of a TL.
☐	TR8	Requests for removal of hazard trees on or adjacent to **TVA reservoir land** will be inspected by staff knowledgeable in identifying hazard trees per International Society of Arboriculture and TVA's checklist for hazard trees. Approval will be limited to trees with a defined target.
☐	TR9	If removal of suitable summer roosting habitat occurs when bats are present on the landscape, a funding contribution (based on amount of habitat removed) towards future conservation and recovery efforts for federally listed bats would be carried out. Project can consider seasonal bat presence/absence surveys (mist netting or emergence counts) that allow for positive detections without resulting in increased constraints in cost and project schedule. This will enable TVA to contribute to increased knowledge of bat presence on the landscape while continuing to carry out TVA's broad mission and responsibilities.
☐	AR1	Projects that involve structural modification or demolition of buildings, bridges, and potentially suitable box culverts, will require assessment to determine if structure has characteristics that make it a potentially suitable unconventional bat roost. If so a survey to determine if bats may be present will be conducted. Structural assessment will include: o Visual check that includes an exhaustive internal/external inspection of building to look for evidence of bats (e.g., bat droppings, roost entrance/exit holes); this can be done at any time of year, preferably when bats are active. o Where accessible and health and safety considerations allow, a survey of roof space for evidence of bats (e.g., droppings, scratch marks, staining, sightings), noting relevant characteristics of internal features that provide potential access points and roosting opportunities. Suitable characteristic may include: gaps between tiles and roof lining, access points via eaves, gaps between timbers or around mortise joints, gaps around top and gable end walls, gaps within roof walling or around tops of chimney breasts, and clean ridge beams. o Features with high-medium likelihood of harboring bats but cannot be checked visually include soffits, cavity walls, space between roof covering and roof lining. o Applies to box culverts that are at least 5 feet (1.5 meters) tall and with one or more of the following characteristics. Suitable culverts for bat day roosts have the following characteristics: ▪ Location in relatively warm areas

		▪ Between 5-10 feet (1.5-3 meters) tall and 300 ft (100 m) or more long ▪ Openings protected from high winds ▪ Not susceptible to flooding ▪ Inner areas relatively dark with roughened walls or ceilings ▪ Crevices, imperfections, or swallow nests o Bridge survey protocols will be adapted from the Programmatic Biological Opinion for the Federal Highway Administration (Appendix D of USFWS 2016c, which includes a Bridge Structure Assessment Guidance and a Bridge Structure Assessment Form). o Bat surveys usually are NOT needed in the following circumstances: ▪ Domestic garages /sheds with no enclosed roof space (with no ceiling) ▪ Modern flat-roofed buildings ▪ Metal framed and roofed buildings ▪ Buildings where roof space is regularly used (e.g., attic space converted to living space, living space open to rafters) or where all roof space is lit from skylights or windows. Large/tall roof spaces may be dark enough at apex to provide roost space.
☐	AR2	Additional bat P/A surveys (e.g., emergence counts) conducted if warranted (i.e., when AR1 indicates that bats may be present).
☐	AR3	Bridge survey protocols will be implemented, either by permittee (e.g., state DOT biologists) or qualified personnel. If a bridge is determined to be in use as an unconventional roost, subsequent protocols will be implemented.
☐	AR4	Removal of buildings with suitable roost characteristics within six miles of known or presumed occupied roosts for Virginia big-eared bat would occur between Nov 16 and Mar 31. Buildings may be removed other times of the year once a bat biologist evaluates a buildings' potential to serve as roosting habitat and determines that this species is not present and/or is not using structure(s).
☐	AR5	If evidence of bat use warrants seasonal modification or removal, TVA will carry out or recommend (i.e., to applicants) seasonal modification or removal. Risk to human safety, however, should take priority. For project-specific cases in which project is unable to accommodate seasonal modification or removal, and federally listed bat species are present, TVA will carry out or recommend consultation with the USFWS to determine the best approach in the context of the project-specific circumstance. This may include establishment of artificial roosts before demolition of structures with bats present.
☐	SSPC1	**Transmission actions and activities** will continue to Implement A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities. This focuses on control of sediment and pollutants, including herbicides. Following are key measures: o BMPs to minimize erosion and prevent/control water pollution in accordance with state-specific construction storm water permits. BMPS are designed to keep soil in place and aid in reducing risk of other pollutants reaching surface waters, wetlands and ground water. BMPs will undertake the following principles: ▪ Plan clearing, grading, and construction to minimize area and duration of soil exposure. ▪ Maintain existing vegetation wherever and whenever possible. ▪ Minimize disturbance of natural contours and drains. ▪ As much as practicable, operate on dry soils when they are least susceptible to structural damage and erosion. ▪ Limit vehicular and equipment traffic in disturbed areas. ▪ Keep equipment paths dispersed or designate single traffic flow

		paths with appropriate road BMPs to manage runoff. ▪ Divert runoff away from disturbed areas. ▪ Provide for dispersal of surface flow that carries sediment into undisturbed surface zones with high infiltration capacity and ground cover conditions. ▪ Prepare drainage ways and outlets to handle concentrated/increased runoff. ▪ Minimize length and steepness of slopes. Interrupt long slopes frequently. ▪ Keep runoff velocities low and/or check flows. ▪ Trap sediment on-site. ▪ Inspect/maintain control measures regularly and after significant rain. ▪ Re-vegetate and mulch disturbed areas as soon as practical. o Application of herbicide is in compliance with USEPA, state water quality standards, and state permits. Areas in which covered species are known to occur on existing transmission line ROW are depicted on referenced, applicable spreadsheets and include guidelines to follow for impact minimization or avoidance. During pre-job briefings, the ROW Forester will review location of resources with contractors and provide guidelines and expectations from TVA's BMP Manual (Appendix O). Herbicides labeled for aquatic use are utilized in and around wetlands, streams, and SMZs. Unless specifically labeled for aquatic use, measures are taken to keep herbicides from reaching streams whether by direct application or through runoff or flooding by surface water. Hand application of certain herbicides labeled for use within SMZs is used only selectively. o Specific guidelines regarding sensitive resources and buffer zones: ▪ Extra precaution (wider buffers) within SMZs is taken to protect stream banks and water quality for streams, springs, sinkholes, and surrounding habitat. ▪ BMPs are implemented to protect and enhance wetlands. Select use of equipment and seasonal clearing is conducted when needed for rare plants; construction activities are restricted in areas with identified rare plants. ▪ Standard requirements exist to avoid adverse impacts to caves, protected animals, and unique and important habitat (e.g., protective buffers around caves, restricted herbicide use, seasonal clearing of suitable habitat).
☑	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.
☐	SSPC3	**Power Plant actions and activities** will continue to implement standard environmental practices. These include: o Best Management Practices (BMPs) in accordance with regulations:

		▪ Ensure proper disposal of waste, ex: used rags, used oil, empty containers, general trash, dependent on plant policy ▪ Maintain every site with well-equipped spill response kits, included in some heavy equipment ▪ Conduct Quarterly Internal Environmental Field Assessments at each sight ▪ Every project must have an approved work package that contains an environmental checklist that is approved by sight Environmental Health & Safety consultant. ▪ When refueling, vehicle is positioned as close to pump as possible to prevent drips, and overfilling of tank. Hose and nozzle are held in a vertical position to prevent spillage o Construction Site Protection Methods ▪ Sediment basin for runoff - used to trap sediments and temporarily detain runoff on larger construction sites ▪ Storm drain protection device ▪ Check dam to help slow down silt flow ▪ Silt fencing to reduce sediment movement o Storm Water Pollution Prevention (SWPP) Pollution Control Strategies ▪ Minimize storm water contact with disturbed soils at the construction site ▪ Protect disturbed soil areas from erosion ▪ Minimize sediment in storm water before discharge ▪ Prevent storm water contact with other pollutants ▪ Construction sites also may be required to have a storm water permit, depending on size of land disturbance (>1 acre) o Every site has a Spill Prevention and Control Countermeasures (SPCC) Plan and requires training. Several hundred pieces of equipment often managed at the same time on power generation properties. Goal is to minimize fuel and chemical use
☐	SSPC4	Woody vegetation burn piles associated with **transmission construction** will be placed in the center of newly established ROWs to minimize wash into any nearby undocumented caves that might be on adjacent private property and thus outside the scope of field survey for confirmation. Brush piles will be burned a minimum of 0.25 miles from documented caves and otherwise in the center of newly established ROW when proximity to caves on private land is unknown.
☑	SSPC5	**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.
☐	SSPC6	Herbicide use will be avoided within 200 ft of portals associated with caves, cave collapse areas, mines and sinkholes that 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 any label requirements.
☐	SSPC7	Clearing of vegetation within a 200-ft radius of documented caves will be limited to that conducted by 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.
☑	L1	Direct temporary lighting away from suitable habitat during the active season.
☑	L2	Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

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

APPENDIX D – General and Standard 26a Permit Conditions

RLR No. _____

GENERAL AND STANDARD CONDITIONS
Section 26a and Land Use

General Conditions

1. You agree to make every reasonable effort to construct and operate the facility authorized herein in a manner so as to minimize any adverse impact on water quality, aquatic life, wildlife, vegetation, and natural environmental values.

2. This permit may be revoked by TVA by written notice if:
   a) the structure is not completed in accordance with approved plans;
   b) if in TVA's judgment the structure is not maintained as provided herein;
   c) the structure is abandoned;
   d) the structure or work must be altered to meet the requirements of future reservoir management operations of the United States or TVA, or:
   e) TVA finds that the structure has an adverse effect upon navigation, flood control, or public lands or reservations.

3. If this permit for this structure is revoked, you agree to remove the structure, at your expense, upon written notice from TVA. In the event you do not remove the structure within 30 days of written notice to do so, TVA shall have the right to remove or cause to have removed, the structure or any part thereof. You agree to reimburse TVA for all costs incurred in connection with removal.

4. In issuing this Approval of Plans, TVA makes no representations that the structures or work authorized or property used temporarily or permanently in connection therewith will not be subject to damage due to future operations undertaken by the United States and/or TVA for the conservation or improvement of navigation, for the control of floods, or for other purposes, or due to fluctuations in elevations of the water surface of the river or reservoir, and no claim or right to compensation shall accrue from any such damage. By the acceptance of this approval, applicant covenants and agrees to make no claim against TVA or the United States by reason of any such damage, and to indemnify and save harmless TVA and the United States from any and all claims by other persons arising out of any such damage.

5. In issuing this Approval of Plans, TVA assumes no liability and undertakes no obligation or duty (in tort, contract, strict liability or otherwise) to the applicant or to any third party for any damages to property (real or personal) or personal injuries (including death) arising out of or in any way connected with applicant's construction, operation, or maintenance of the facility which is the subject of this Approval of Plans.

6. This approval shall not be construed to be a substitute for the requirements of any federal, state, or local statute, regulation, ordinance, or code, including, but not limited to, applicable electrical building codes, now in effect or hereafter enacted.

7. The facility will not be altered, or modified, unless TVA's written approval has been obtained prior to commencing work.

8. You agree to notify TVA of any transfer of ownership of the approved structure to a third party. Third party is required to make application to TVA for permitting of the structure in their name.

9. You agree to stabilize all disturbed areas within 30 days of completion of the work authorized. All land-disturbing activities shall be conducted in accordance with Best Management Practices as defined by Section 208 of the Clean Water Act to control erosion and sedimentation to prevent adverse water quality and related aquatic impacts. Such practices shall be consistent with sound engineering and construction principles; applicable federal, state, and local statutes, regulations, or ordinances; and proven techniques for controlling erosion and sedimentation, including any *required* conditions.

10. You agree not to use or permit the use of the premises, facilities, or structures for any purposes that will result in draining or dumping into the reservoir of any refuse, sewage, or other material in violation of applicable standards or requirements relating to pollution control of any kind now in effect or hereinafter established.

11. The facility will be maintained in a good state of repair and in good, safe, and substantial condition. If the facility is damaged, destroyed, or removed from the reservoir or stream for any reason, or deteriorates beyond safe and serviceable use, it cannot be repaired or replaced without the prior written approval of TVA.

12. You agree that if any historical or prehistoric archaeological material (such as arrowheads, broken pottery, bone or similar items) is encountered during construction of this facility you will immediately contact this office and temporarily suspend work at that location until authorized by this office to proceed.

13. The Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act apply to archaeological resources located on the premises. If LESSEE {or licensee or grantee (for easement) or applicant (for 26a permit on federal land} discovers human remains, funerary objects, sacred objects, objects of cultural patrimony, or any other archaeological resources on or under the premises, LESSEE {or licensee, grantee, or applicant} shall immediately stop activity in the area of the discovery, make a reasonable effort to protect the items, and notify TVA by telephone (phone _____). Work may not be resumed in the area of the discovery until approved by TVA.

14. On TVA land, unless otherwise stated on this permit, vegetation removal is prohibited.

15. You agree to securely anchor all floating facilities to prevent them from floating free during major floods.

16. You are responsible for accurately locating your facility, and this authorization is valid and effective only if your facility is located on or fronting property *owned* or *leased* as shown on your application.

Standard Conditions: (Items that pertain to your request have been checked.)

1. Structures and Facilities

a) ☐ TVA number _____ has been assigned to your facility. When construction is complete, this number shall be placed on a readily visible part of the outside of the facility in the numbers not less than three inches high.

b) ☐ The 100-year flood elevation at this site is estimated to be _____-feet mean sea level. As a minimum, your fixed facility should be designed to prevent damage to stored boats by forcing them against roof during a 100-year flood event.

c) ☐ You agree that the float will be temporarily connected (i.e., by slip pin/ropes) and not permanently attached to nonnavigable houseboat.

d) ☐ You agree that this _____ shall have no side enclosures except wire mesh or similar screening.

e) ☐ Buildings or other enclosed structures containing sleeping or living accommodations, including toilets and related facilities, or that have enclosed floor area in excess of 32 square feet, are prohibited.

f) ☐ Ski jumps will not be left unattended for extended periods of time. All facilities will be tied to the shoreline or to a boathouse or pier fronting your property at the completion of each day's activities.

g) ☐ For all electrical services permitted, a disconnect must be located at or above the _____-foot contour that is accessible during flooding.

h) ☐ You should contact your local government official(s) to ensure that this facility complies with all applicable local floodplain regulations.

i) ☐ The entire closed-loop coil heating and air conditioning system and its support apparatus must be either placed below elevation _____ (to provide a five-foot clearance for water craft at minimum pool elevations of_____) or located underneath a TVA approved water-use facility or other TVA approved structure. The supply and return lines must be buried as they cross the reservoir drawdown zone in areas of water depth less than five feet (minimum pool). The liquid contents of the closed-loop heating and air conditioning system must be propylene glycol or water, and the applicant or authorized agent must provide TVA with written verification of this fact.

j) ☐ You agree that only those facilities which have been approved by TVA prior to construction will be placed within the harbor limits and that permanent mooring buoys, boat slips, or other harbor facilities will not be placed outside the harbor limits.

k) ☐ You agree that all storage, piping, and dispensing of liquid fuel shall comply with applicable requirements of the "Flammable and Combustible Liquids" section of the National Fire Codes and any additional requirements of federal, state, and local laws and regulations.

l) ☐ You agree that the _____ facility hereby approved will be used for _____ and for no other purpose unless approved in writing from TVA.

m) ☐ You agree that the construction project covered by this permit will be completed by the following date:_____.

2. Ownership Rights

a) ☐ No fill will be placed higher than elevation _____ maximum shoreline contour (msc), and every precaution will be taken not to disturb or alter the existing location of the _____-foot contour elevation through either excavation or placement of fill.

b) ☐ It is understood that you own partial interest in the land at this location. Therefore, you should be aware that, if objections to this structure are received by the other owners of partial interest at this site, that action may be cause for TVA to consider revoking this permit.

c) ☐ You are advised that TVA retains the right to flood this area and that TVA will not be liable for damages resulting from flooding.

d) ☐ You shall notify TVA of any sale or transfer of land, which would affect the landward limits of harbor area, as far in advance of such sale or transfer as possible.

e) ☐ This approval of plans is only a determination that these harbor limits will not have any unacceptable effect on TVA programs or other interests for which TVA has responsibility. Such approval does not profess or intend to give the applicant exclusive control over the use of navigable waters involved.

f) ☐ You recognize and understand that this authorization conveys no property rights, grants no exclusive license, and in no way restricts the general public's privilege of using shoreland owned by or subject to public access rights owned by TVA. It is also subject to any existing rights of third parties. Nothing contained in this approval shall be construed to detract or deviate from the rights of the United States and TVA held over this land under the Grant of Flowage Easement. This Approval of Plans does not give any property rights in real estate or material and does not authorize any injury to private property or invasion of private or public rights. It merely constitutes a finding that the facility, if constructed at the location specified in the plans submitted and in accordance with said plans, would not at this time constitute an obstruction unduly affecting navigation, flood control, or public lands or reservations.

3. Shoreline Modification and Stabilization

a) ☐ For purposes of shoreline bank stabilization, all portions will be constructed or placed, on average, no more than two feet from the existing shoreline at normal summer pool elevation.

b) ☐ You agree that spoil material will be disposed of and contained on land lying and being above the _____-foot contour. Every precaution will be made to prevent the reentry of the spoil material into the reservoir.

c) ☐ Bank, shoreline, and floodplain stabilization will be permanently maintained in order to prevent erosion, protect water quality, and preserve aquatic habitat.

d) ☐ You agree to reimburse TVA $_____, which is the current value of the _____ acre feet of power storage volume displaced by fill into the reservoir.

4. Water Intake

a) ☐ If the reservoir falls below the elevation of the intake, the applicant will be responsible for finding another source of raw water.

b) ☐ You must install and maintain a standard regulatory hazard buoy at the end of the intake to warn boaters of the underwater obstruction. The word “intake” should be added to the buoy and be attached using a five-foot cable.

c) ☐ The screen openings on the intake strainer must be 1/8-inch (maximum), to minimize the entrapment of small fish.

d) ☐ This approval does not constitute approval of the adequacy or safety of applicant’s water system. TVA does not warrant that the water withdrawn and used by applicant is safe for drinking or any other purpose, and applicant is solely responsible for ensuring that all water is properly treated before using.

5. Bridges and Culverts

a) ☐ You agree to design/construct any instream piers in such a manner as to discourage river scouring or sediment deposition.

b) ☐ Applicant agrees to construct culvert in phases, employing adequate streambank protection measures, such that the diverted streamflow is handled without creating streambank or streambed erosion/sedimentation and without preventing fish passage.

c) ☐ Concrete box culverts and pipe culverts (and their extensions) must create/maintain velocities and flow patterns which offer refuge for fish and other aquatic life, and allow passage of indigenous fish species, under all flow conditions. Culvert floor slabs and pipe bottoms must be buried at least one foot below streambed elevation, and filled with naturally occurring streambed materials. If geologic conditions do not allow burying the floor, it must be otherwise designed to allow passage of indigenous fish species under all flow conditions.

d) ☐ All natural stream values (including equivalent energy dissipation, elevations, and velocities; riparian vegetation; riffle/pool sequencing; habitat suitable for fish and other aquatic life) must be provided at all stream modification sites. This must be accomplished using a combination of rock and bioengineering, and is not accomplished using solid, homogeneous riprap from bank to bank.

e) ☐ You agree to remove demolition and construction by-products from the site--for recycling if practicable, or proper disposal--outside of the 100-year floodplain. Appropriate BMPs will be used during the removal of any abandoned roadway or structures.

6. Best Management Practices

a) ☐ You agree that removal of vegetation will be minimized, particularly any woody vegetation providing shoreline/streambank stabilization.

b) ☐ You agree to installation of cofferdams and/or silt control structures between construction areas and surface waters prior to any soil-disturbing construction activity, and clarification of all water that accumulates behind these devices to meet *state* water quality criteria *at the stream mile where activity occurs* before it is returned to the *unaffected portion of the stream*. Cofferdams must be used wherever construction activity is at or below water elevation.

c) ☐ A floating silt screen extending from the surface to the bottom is to be in place during excavation or dredging to prevent sedimentation in surrounding areas. It is to be left in place until disturbed sediments are visibly settled.

d) ☐ You agree to keep equipment out of the reservoir or stream and off reservoir or stream banks, to the extent practicable (i.e., performing work "in the dry").

e) ☐ You agree to avoid contact of wet concrete with the stream or reservoir, and avoid disposing of concrete washings, or other substances or materials, in those waters.

f) ☐ You agree to use erosion control structures around any material stockpile areas.

g) ☐ You agree to apply clean/shaken riprap or shot rock (where needed at water/bank interface) over a water permeable/soil impermeable fabric or geotextile and in such a manner as to avoid stream sedimentation or disturbance, or that any rock used for cover and stabilization shall be large enough to prevent washout and provide good aquatic habitat.

h) ☐ You agree to remove, redistribute, and stabilize (with vegetation) all sediment which accumulates behind cofferdams or silt control structures.

i) ☐ You agree to use vegetation (versus riprap) wherever practicable and sustainable to stabilize streambanks, shorelines, and adjacent areas. These areas will be stabilized as soon as practicable, using either an appropriate seed mixture that includes an annual (quick cover) as well as one or two perennial legumes and one or two perennial grasses, or sod. In winter or summer, this will require initial planting of a quick cover annual only, to be followed by subsequent establishment of the perennials. Seed and soil will be protected as appropriate with erosion control netting and/or mulch and provided adequate moisture. Streambank and shoreline areas will also be permanently stabilized with native woody plants, to include trees wherever practicable and sustainable (this vegetative prescription may be altered if dictated by geologic conditions or landowner requirements). You also agree to install or perform additional erosion control structures/techniques deemed necessary by TVA.

Additional Conditions

APPENDIX E – HERITAGE DATA REVIEW

TVA Natural Heritage database queried by K. Young on 4/3/2019 for the heritage review for TVA CEC 38694

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 Rank	State Status	Federal Status
Io fluvialis	Spiny Riversnail	X - Extirpated	S2		
Lampsilis abrupta	Pink Mucket	X - Extirpated	S2	E	LE
Etheostoma sagitta	Arrow Darter	E - Verified extant (viability not assessed)	S2	D	
Cyprogenia stegaria	Fanshell	X - Extirpated	S1	E	LE
Lithasia geniculata	Ornate Rocksnail	H - Historical	S2		
Epioblasma florentina walkeri	Tan Riffleshell	X - Extirpated	S1	E	LE
Chrosomus cumberlandensis	Blackside Dace	E - Verified extant (viability not assessed)	S2	T	LT
Fusconaia cor	Shiny Pigtoe Pearly	X - Extirpated	S1	E	LE
Cycleptus elongatus	Blue Sucker	X - Extirpated	S2	T	
Dromus dromas	Dromedary Pearlyr	X - Extirpated	S1	E	LE
Erimystax cahni	Slender Chub	X - Extirpated	S1	T	LT
Epioblasma torulosa gubernaculum	Green Blossom Pea	X - Extirpated	SX	E	LE
Fusconaia cuneolus	Fine-rayed Pigtoe	X - Extirpated	S1	E	LE
Athearnia anthonyi	Anthony's River Sn	X - Extirpated	S1	E	LE
Pleurobema plenum	Rough Pigtoe	X - Extirpated	S1	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 Rank	State Status	Federal Status
Thuja occidentalis	Northern White Ce	E - Verified extant (viability not assessed)	S3	S	
Veronica catenata	Sessile Water-spee	E - Verified extant (viability not assessed)	S1	E	
Rhynchospora capillacea	Horned Beakrush	H - Historical	S1	E	
Eleocharis intermedia	Spike-rush	H - Historical	S1	E	
Carex interior	Inland Sedge	E - Verified extant (viability not assessed)			
Rhamnus alnifolia	Alderleaf Buckthor	H - Historical	S1	E	
Meehania cordata	Meehania Mint (He	H? - Possibly historical	S2	T	
Homaliadelphus sharpii	Sharp's Homaliadel	H - Historical	S1	E	
Prenanthes alba	White Rattlesnake-	E - Verified extant (viability not assessed)	S1	S	
Eleocharis elliptica	Elliptic Spikerush	E - Verified extant (viability not assessed)	S1	E	
Panax quinquefolius	American ginseng	E - Verified extant (viability not assessed)	S3S4	S-CE	
Juncus brachycephalus	Short-head Rush	E - Verified extant (viability not assessed)	S2	S	

TVA Natural Heritage database queried by K. Young on 4/3/2019 for the heritage review for TVA CEC 38694

Parnassia grandifolia	Large-leaved Grass	E - Verified extant (viability not assessed)	S3	S
Lonicera dioica	Mountain Honeysu	E - Verified extant (viability not assessed)	S2	S
Patis racemosa	Mountain ricegrass	E - Verified extant (viability not assessed)	S1	E
Sullivantia sullivantii	Sullivantia	E - Verified extant (viability not assessed)	S1	E

Table 3. Records of state- and federal-listed terrestrial animal species and heronry points located within a 3 mile radius search

Scientific Name	Common Name	EO Rank	State Rank	State Status	Federal Status
Myotis grisescens	Gray Bat	H? - Possibly historical	S2	E	LE
Myotis sodalis	Indiana Bat	C - Fair estimated viability	S1	E	LE

Scientific Name	Common Name	EO Rank	State Rank	State Status	Federal Status

Table 4. Records of Managed Areas (MABR) and Heritage Sites (SBR) points located within a 5 mile radius search

MEREDITH CAVE
CEDAR CREEK SULLIVANTIA PROTECTION PLANNING SITE
CHUCK SWAN STATE WILDLIFE MANAGEMENT AREA
CHUCK SWAN STATE FOREST

Table 5. Records of caves sites located within a 3 mile radius search

Scientific Name	Common Name	EO Rank	State Rank	State Status	Federal Status
TN Campbell County Cave	A cave	Not ranked			
TN Campbell County Cave	A cave	Not ranked			
TN Campbell County Cave	A cave	Not ranked			
TN Campbell County Cave	A cave	Not ranked			
