

FINAL ENVIRONMENTAL ASSESSMENT

File No. 200702181

BILLY CHRISTOPHER, d/b/a River Front Development LLC

**Proposed Dredging, Community Dock, Bank Stabilization, and Boat Ramp
at Mile 7.3, Right Bank, Elk River, Wheeler Reservoir, Limestone County, Alabama**

Prepared by
U.S. ARMY CORPS OF ENGINEERS
Nashville District, Regulatory Branch

In cooperation with
TENNESSEE VALLEY AUTHORITY

For further information, contact:

Richard D. Graham
Regulatory Specialist
U.S. Army Corps of Engineers
Regulatory Branch
3701 Bell Road
Nashville, Tennessee 37214
Phone: (615) 369-7507

Stanford E. Davis
Senior NEPA Specialist
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, Tennessee 37902-1499
Phone: (865) 632-2915
Fax: (865) 632-3451
E-mail: sedavis2@tva.gov

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Date

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Chapter 1.0 Purpose and Need for Project

1.1 Background. On October 22, 2007, the U.S. Army Corps of Engineers (Corps) received a Department of the Army (DA) permit application from Billy Christopher, doing business as River Front Development LLC, 211 S. Jefferson Street, Athens, Alabama 35611, for the proposed construction of a community water use facility. The application was coordinated with the Tennessee Valley Authority (TVA), a cooperating agency in the permitting review process. Over the next several months, TVA and the Corps worked to define the project's geographic scope and area of potential effect, which is required by the *National Environmental Policy Act* (NEPA) and Section 106 of the *National Historic Preservation Act*, respectively. See the Joint Public Notice (JPN) No. 08-19 in Appendix A. The Corps and TVA have no control over or responsibility for the back-lying development, including the dry-stack boat storage, inland lake, parking area, roads, culverts, and associated residential development. Such upland development could occur without TVA or Corps approval if it complies with any other applicable federal, state, or local laws or regulations. Although there is no federal control or responsibility for these upland components of the development, TVA and the Corps decided to include these connected actions in this environmental review.

On September 8, 2008, TVA advised Mr. Christopher that he must have a Phase I archaeological survey performed and provided him with a scope of work and maps depicting the survey area. After close communication with Mr. Christopher during these processes and after he provided additional data and specifications, his application was generally considered complete on September 9, 2008. However, following another site visit on June 15, 2009, and to avoid or minimize specific project-related effects, revised plans and drawings were developed in late June 2009 (see Modifications to Proposal below and Appendix B).

The applicant's purpose and need for this project is to provide water access and enhanced recreation opportunity for residents of the planned adjoining private community as well as access and commercial boat storage to the public. Because the applicant owns the back-lying land, has the necessary landrights to apply for approval, and has presented his application and proposal for certain water use facilities described below, TVA and the Corps, under their respective authorities, must review the project and decide if the actions should be approved or denied (see Sections 1.2 and 1.3). The proposed work would involve dredging and bank stabilization, as well as constructing a community dock, boardwalk, a boat ramp, and courtesy dock in conjunction with a proposed residential development at Elk River Mile 7.3, right bank, Wheeler Reservoir, Limestone County, Alabama (Figure 1). Related land-based facilities would also include a 250-foot by 90-foot by 37-foot dry-stack storage building, a small (1.1-acre) inland lake, a parking area, roads, and residential lots (Figure 2). As noted above, because of their location, above elevation 560 mean sea level (msl), construction and operation of the inland lake, dry-stack storage building, parking area, roads, and residential development do not require TVA or Corps approval, and there is no federal control or responsibility related to these improvements. Similarly, two access road culverts, mentioned below, would be located in ephemeral drainages above elevation 560 msl and, therefore, do not need federal approvals.

The applicant proposes to develop the upland residential community and related facilities on a 54-acre tract that lies adjacent to TVA-owned shoreline. A portion of the private property proposed for the subject residential development was formerly acquired and owned by the United States, under the control and custody of TVA. A 70-acre parcel, Tract No. WR-3, was purchased in 1935 in preparation for the construction of Wheeler Reservoir. In support of TVA's mission to promote the development of the Tennessee Valley region, numerous properties were sold in the 1940s and 1950s. As such, in 1946, 40 acres of Tract WR-3 were sold to Curtis

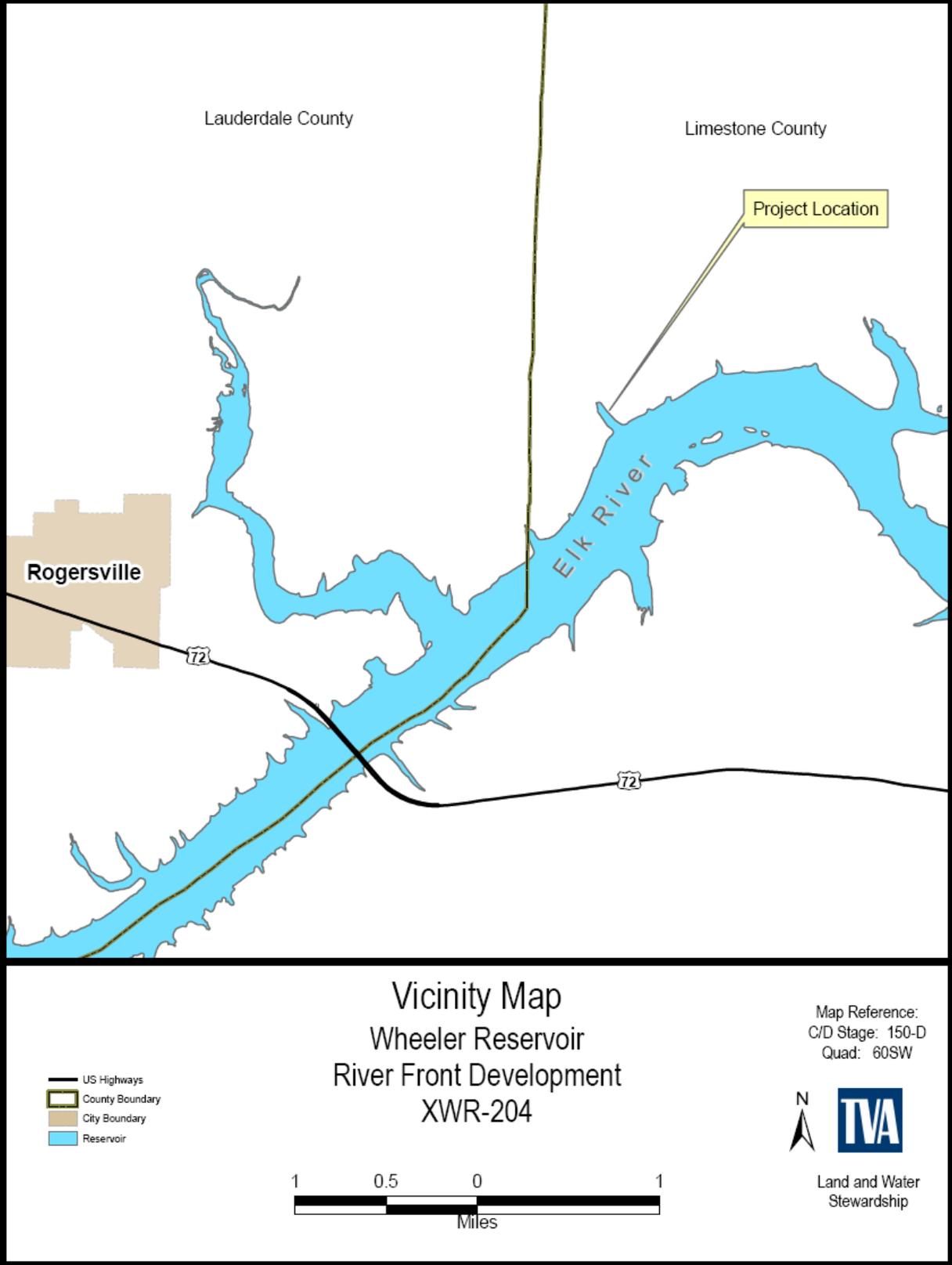


Figure 1. Billy Christopher River Front Development Proposal, Elk River Mile 7.3, Right Bank, Wheeler Reservoir, Limestone County, Alabama – General Locator Map

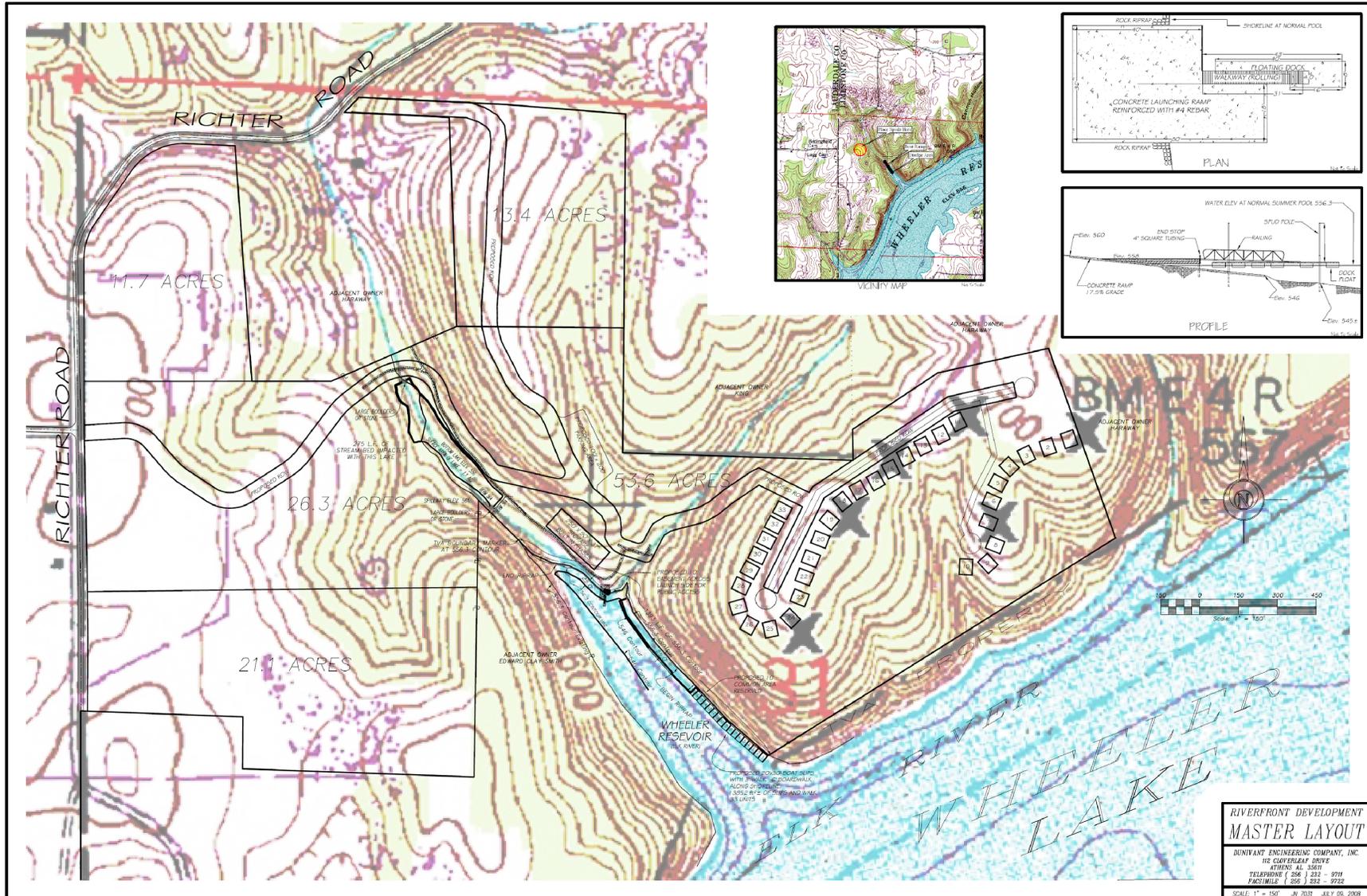


Figure 2. Billy Christopher River Front Development Proposal, Elk River Mile 7.3, Right Bank, Wheeler Reservoir, Limestone County, Alabama – Original Master Layout Plan

Haraway as Tract No. XWR-204. The property was sold to the shoreline elevation 556.3 msl along a portion of the shoreline and to a straight-line boundary along the top of the bluff adjoining the Elk River, with TVA retaining the bluff face. The tract was sold with rights of ingress and egress to the reservoir and the implied right by policy to apply for construction of residential and/or commercial water use facilities. The sale deed did not restrict the use of the property; however, TVA did reserve the right to prevent the construction of structures below elevation 560 msl and a right of access to the shoreline for the benefit of the general public. The Haraway's sold the property at public auction in 2007, and these 40 acres form a part of the 54-acre tract proposed for development by the applicant.

The TVA-owned land along the Elk River shoreline upstream of the project site to Maple Swamp Branch and downstream to Anderson Creek is dominated by forests. Of the TVA-owned shoreline in this area, only two tracts were planned by TVA in the *Wheeler Reservoir Land Management Plan* (TVA 1995). Planned Tract No. 33, a narrow 0.5-mile strip downstream of the project site (cove) that comprises the Narrow Bluff TVA Habitat Protection Area (HPA), is characterized as bluff or semibluff terrain with little or no timber. It is allocated for visual and habitat protection. A plant, Alabama snow wreath (*Neviusia alabamensis*), listed as endangered in Alabama, occurs here (see Designated Natural Areas section in Chapter 3). Planned Tract No. 34 is also a narrow tract, approximately 1.5 miles long upstream of the project site. This tract included an area locally known as Buzzard Roost Bluff. The tract is primarily bluff with steep hollows and is allocated for visual protection. Hardwood forest exists where the terrain allows. Land uses on adjacent nearby parcels include industry (i.e., the old abandoned Wheeler Grainery at Elk River Mile 5.3 on the left-descending bank), agriculture, and scattered rural residential. This strip of land is quite scenic because of the high bluffs that rise immediately from Elk River (see aesthetics in Chapter 3). Although mostly rock, the soil, where it exists, is highly erodible over both tracts. Requests for private shoreline alterations will not be considered along either of these planned tracts. The TVA-owned shoreline (below elevation 556.3 msl) fronting the applicant's proposed development was not planned in the 1995 *Wheeler Reservoir Land Management Plan* because it was shoreline fronting former TVA land that was sold with rights of ingress and egress; as a result, it may be used in any way that is compatible with those rights, including for residential and/or commercial purposes.

Two ephemeral drainages occur at the head of the unnamed cove where the shoreline structures and alterations are proposed. No federally listed or unique or uncommon aquatic life is known to occur in the reach of the Elk River immediately adjacent to the cove. Common game and nongame fish and other aquatic organisms are relatively abundant.

Portions of the 54-acre private tract proposed by the applicant to support the residential community are primarily scattered immature trees and previously harvested woodlots, open agricultural and grass lands, and reverting early serial old fields. Much of the shoreline has been cleared by regular mowing or other disturbance. This general landscape, including commercial pine plantations and scattered rural residential areas, is generally reflective of land use in southwestern Limestone County. No unique or uncommon plant or animal life is known to occur on the River Front Development LLC property, and the terrestrial habitat has been disturbed from prior agriculture and harvesting of trees over many generations. Common terrestrial wildlife species, including many species of birds, mammals, reptiles, and amphibians, are relatively abundant. Resident Canada geese and several species of migrant ducks and geese seasonally occupy this reach of the Elk River.

Applicant's Proposal

The dry-stack storage building and associated parking would be a commercial operation made available to the general public via rental agreements. The boat launching ramp and courtesy dock would be shared by the commercial operation and the residents of the development.

The originally proposed work would have consisted of dredging roughly 20,000 cubic yards of reservoir bottom at the subject location to accommodate navigational needs within the cove to the boat ramp. The proposed dredging site would have measured 90 feet wide by 500 feet long by 7 feet deep (see Modifications to Proposal). No dredging would occur within 25 feet of the normal summer pool (NSP) shoreline. NSP for Wheeler Reservoir is elevation 556.0 msl. The dredged material would be removed from the reservoir via backhoe and truck, where possible, and via suction drill if needed. Dredged material would be transported to an upland-contained holding pond and placed on private land above elevation 560.0 msl. Return water would be filtered prior to its runoff from the pond.

The community dock would include one 10-foot by 30-foot covered floating slip and 16 20-foot by 30-foot covered floating slips. The slips would be for use by residential lot owners in the development. As originally proposed, a 6-foot-wide by 910-foot-long boardwalk would be built from the docks parallel to the shoreline and leading to a private boat ramp (see Modifications to Proposal). The docks and boardwalk would be secured with spud poles.

The 18-foot-wide by 80-foot-long launching ramp, with attached 8-foot-wide by 43-foot-long floating courtesy dock, would be built beside a dry storage boat launch. The launch would require 150 cubic yards of fill. Originally, riprap stone would be placed along 600 feet of shoreline for bank stabilization (see Modifications to Proposal).

Proposed upland facilities include a 100-foot-wide by 200-foot-long parking lot, a 200-slip dry storage building, 33 developed lots, and two culverts in drainages along needed access roads off of Richter Road (see Figure 2). Two improved access roads into the residential community from Richter Road would be constructed on existing gravel/dirt field roads. At build-out over five to 10 years and according to the applicant's concept plan, the residential development is assumed to consist of 33 multiple-story single-family homes. Of the 54-acre back-lying property, approximately 17 acres or 30 percent would likely be permanently disturbed by the anticipated development footprint. This would include parts of the landscape that would be substantially altered such as roads, lawns, and homesites. Altogether, 17 community dock wet slips, with a capacity to accommodate 33 boats, would be constructed. The dry-stack facility would allow storage of up to 200 boats. The launch ramp would include portions to serve the community slips and dry storage facility. The general public would be able to use the dry storage facility and ramp through individual rental agreements.

Modifications to Proposal

During the review of the proposed activities, several project-related modifications and revisions were needed to avoid or minimize impacts (Appendix C). The proposed dredge has been reduced in length from 500 feet to 335 feet to avoid potential impacts to a wetland habitat area found in the uppermost portions of the cove. Under the revised proposal, roughly 7,000 cubic yards of reservoir bottom would be dredged from a 335-foot-long by 90-foot-wide area to accommodate recreational boat access to the cove and boat ramp. Similarly, no riprap would be placed in the back of the embayment to avoid impacts to the emergent wetland area. Riprap would be placed on either side of the proposed ramp but would be limited to the minimum needed to prevent erosion and undercutting. Total length of riprap, including placement along both sides of the ramp, has been reduced to 320 feet. The proposed boardwalk to access the

community dock facility would be moved landward and constructed immediately adjacent to the NSP shoreline. It would be a fixed structure with a floor elevation a minimum of 2 feet above NSP elevation 556.0 msl. Signage would be placed along the boardwalk indicating that no mooring of vessels to the structure is permitted. To the extent practicable, the dredge, riprap, and boardwalk would be constructed so that any effects on wetlands would be minimized (see special aquatic sites in Section 3.3).

The proposed dry-stack and associated parking area would be placed above elevation 560 msl (see flood control functions in Section 3.2).

Site Inspections

On March 12, 2008, Richard Graham, of the Corps, inspected the proposed site, which is within a narrow cove located off the right-descending bank of the Elk River. Since the cove is between two relatively steep hills, it appeared that any structure constructed within the cove, such as a boat dock, would be well protected from inclement weather. During the Corps' wetland delineation, it was determined that wetland soils were not present in these areas, and, therefore, the Corps decided that the area was nonjurisdictional. The substrate where the proposed dredging would occur appeared to be comprised of rock, cobble, and silt. There was no boating activity within the cove on this date of the Corps' inspection. See inspection report in Appendix B.

TVA staff met on site on October 29, 2008, to inspect the area for important terrestrial plant and animal resources, including rare species, which could potentially be affected by activities within the scope of the review. A narrow strip of the TVA land along the affected shoreline, below elevation 556.3 msl, shows vegetation and hydrological characteristics of a wetland. This site meets the criteria for and was determined to be a wetland as defined by Executive Order (EO) 11990, which requires only the predominance of wetland vegetation (see special aquatic sites). To verify the extent of the proposed dredge area and potential conflicts with other sensitive resources, TVA staff also examined the site by boat on June 15, 2009. On October 1, 2009, TVA staff further viewed the site from various perspectives to verify its conclusions regarding the potential aesthetic effects of the proposed development (see aesthetics).

1.2 Decision Required. The proposed location is a water of the United States (U.S.) as defined by 33 Code of Federal Regulations (CFR) Part 328 and a navigable water of the U.S. as defined by 33 CFR Part 329.

- Section 10 of the *Rivers and Harbors Act of 1899* prohibits the alteration or obstruction of any navigable water of the U.S. unless authorized by the Secretary of the Army acting through the Chief of Engineers.
- Section 301 of the *Clean Water Act* (CWA) prohibits the discharge of dredged or fill material into the waters of the U.S. unless authorized by the DA pursuant to Section 404 of the same Act.
- Section 26a of the *TVA Act* requires that no dam, appurtenant work, or other obstruction affecting navigation, flood control, or public lands or reservations be constructed and thereafter operated or maintained across, along, or in the Tennessee River or any of its tributaries until plans for such construction, operation, and maintenance have been submitted to and approved by TVA. In addition to other provisions of its approval, TVA would require the applicant to employ best management practices (BMPs) to control

erosion and sedimentation, as necessary, to prevent adverse aquatic impacts. TVA is reviewing this application for a Section 26a permit. TVA is a cooperating agency in the preparation of this environmental assessment (EA).

DA and TVA permits are required; therefore, the agencies must decide on one of the following:

- Issuance of permits for the proposed work
- Issuance of permits with modifications or conditions
- Denial of the permits

1.3 Other Approvals Required. Other federal, state, and/or local approvals may be required for the work.

- In accordance with Section 401(a)(1) of the CWA, water quality certification (WQC) from Alabama Department of Environmental Management (ADEM) is required for the originally proposed work. This certification, which has not been issued to the applicant, is expected to be forthcoming and is required prior to any federal approvals. Neither TVA nor the Corps will issue their respective project approvals prior to the applicant providing evidence that the required WQC has been obtained. If issued, the federal permitting agencies will retain the WQC as a part of their administrative records.

Chapter 2.0 Public Involvement Process

The Corps and TVA issued JPN No. 08-19 on September 11, 2008, to advertise the proposal (see Appendix A). Of the 53 written responses, 50 stated opposition to the project, 23 requested a public hearing be held, and three government agencies provided comments. Copies of all responses were sent to the applicant for his rebuttal, to which he responded in a letter dated November 11, 2008. After receiving a copy of the JPN, ADEM advised Mr. Christopher by letter dated September 17, 2008, that he should apply for WQC for the originally proposed project.

Comments on the JPN

All responses to JPN No. 08-19 are included in Appendix D. The applicant's rebuttal to the responses is included in Appendix E. A summary of the responses is as follows:

- By letter dated October 6, 2008, the Alabama Department of Conservation and Natural Resources (ADCNR) stated that (1) no net loss of stream or wetland functions should occur as a result of the project; (2) the use of BMPs to minimize shoreline erosion are encouraged; in particular, riprap is recommended rather than a sea wall since it offers usable aquatic habitat; and (3) strict adherence to state water quality standards is required.
- By letter dated October 8, 2008, the Alabama State Historic Preservation Officer (SHPO) concurred with the Corps/TVA joint opinion that a cultural resource assessment was needed in order to complete the review. The applicant was provided with a copy of the SHPO letter, and he commissioned a Phase I survey. Upon receipt of the survey, the SHPO concurred with TVA by letter dated April 2, 2009 (Appendix F), that the proposed project activities would have no effect on any known cultural resources listed in or eligible for the National Register of Historic Places (NRHP).
- By e-mail dated October 16, 2008, the U.S. Fish and Wildlife Service (USFWS) stated that no significant adverse effects on fish and wildlife resources are expected to result from this project, and, therefore, USFWS had no objections to the issuance of these permits.
- Of the 53 comments received as a result of the JPN (50 individuals, and three state and federal agencies), 50 individuals were opposed to the proposed work, and 23 commenters requested that a public hearing be held to discuss the issues.

Issues Supporting the Proposal

- Rather than placing the dredged material in an upland location, it could be put to better use by restoring the nearby eroding islands that are protected for wildlife

Issues Opposing the Proposal

- Impacts to area fish and wildlife, in particular, species such as wild turkeys, bald eagles, bats, and Alabama snow-wreath
- Proposed facility would cause a decline in wildlife and waterfowl diversity
- Not in the best interest of the people who chose to live and fish in the Elk River

- Concerns regarding large vessels on the Elk River and their perceived threat to Jet Skiers and small watercraft
- Dredging the slough may adversely affect fish spawning and waterfowl nest patterns, and any work in the slough should be approved by all property owners within the slough
- The entrance to the slough has low visibility from the river because of the bluffs on either side, and boats coming out of the slough will cause a dangerous situation when they merge with boats running the narrow river channel
- Environmental effects on water quality as a result of rainwater runoff from the parking lot or from effluents emitted from the proposed dry storage facility
- Area aesthetics would suffer because a very wealthy man just wants to make more money
- There are already enough boat ramps, boat docks, and residential homes on Elk River
- The proposal would overtax the existing potable water supply and jeopardize the continued habitability and quality of life of existing Richter Road homes
- The proposal would necessitate improvements to Richter Road, which the county cannot afford
- The public notice did not address how the disposal of sanitary waste would be handled
- The applicant would profit financially from using public land, and the public would get nothing in return
- Boat docks cause pollutants and congestion and are not necessary for access to Elk River
- The proposal should be placed on hold until the new TVA Land Policy is in place
- There is a perceived danger that the facility would allow river access to boaters who are unfamiliar with the hazards of the river like submerged stumps and logs or shallow water
- The noise level in the immediate area would increase as a result of the additional boats
- The local fire department could not handle a gasoline-fueled fire if one were to occur at the dock
- Constructing facilities within the shore management zone may be in violation of TVA's Shoreline Management Policy
- There is not enough police patrol of Elk River to serve this new development

- The increased boat traffic may stir up the riverbed, and increase sedimentation in the vicinity of the docks across from the proposed marina, making them inaccessible, which would reduce property values
- The water facilities and residential development will increase property taxes for residents on the Elk River
- The applicant has a bad reputation for saying one thing and doing another (i.e., he did not follow through with approved plans in developing the Bay Hill area boat ramp and roads)

By cover letter dated February 20, 2007, TVA received a copy of a petition from Mr. Paul Hargrove, signed by 1,016 individuals opposed to a proposal to approve, build, and operate the Elk River Marina and Resort. This proposal, subsequently denied, would have involved the use of 90 acres of public land on TVA Tract XWR-21PT. By cover letter dated October 11, 2008, Mr. Hargrove forwarded a portion of this same petition to the Corps containing 755 signatures of people against development on the Elk River.

Comments on the DEA

On July 28, 2009, TVA sent the DEA on compact disc to 19 individuals including representatives of various federal, state, and local agencies and political representatives. Postcard notifications were forwarded to 48 individuals who provided written comments on the JPN. The DEA was posted on the TVA Web site, at <http://www.tva.gov/environment/reports/>, and thus also made available to the public at large. It was also made available for review at public libraries in Athens, Rogersville, and Killen, Alabama. The applicant had previously provided a rebuttal to the initial scoping comments and this rebuttal was included in the DEA (and is included in the final EA) in Appendix E. TVA requested that all comments be submitted on the contents of the DEA by August 31, 2009. At the request of Congressional representatives, the comment period on the DEA was extended through September 14, 2009. The DEA contained information, plans, and an evaluation of effects of the applicant's proposal for construction and operation of the multiple-slip community dock, dredge, boardwalk, boat ramp, courtesy dock, shoreline stabilization, and associated shoreline alterations and related development.

In response to review of the DEA, comments were received from two state agencies and one federal agency. The USFWS contacted TVA by phone and indicated that its prior comments would suffice for the requested review of the DEA (Andy Ford, USFWS, personal communication, September 29, 2009). By e-mail dated September 1, 2009, the Alabama Forestry Commission indicated that it had no issues with the proposal. By letter dated September 16, 2009, and following earlier consultation, including with federally recognized tribes (see Appendix F), the Alabama SHPO indicated continued concurrence with the project activities provided the scope of work remains the same (Appendix G).

In addition to the agency comments, 82 comments were received from private citizens and interest groups. Several people commented more than once, and most comments were in opposition to the project. Ten people requested that a public hearing or meeting be held on the proposal.

TVA has reviewed all of these comments, reexamined the proposal and revisited the site in light of them, and revised the final EA accordingly to take these comments into account. All relevant issues raised in these comments have been addressed in this final EA. The pages of the EA

where particular issues are addressed are noted in the following paragraphs in brackets. When appropriate, the analyses in the EA have been revised in response to comments received.

Because of the existence of recreational facilities, marinas, and boat ramps in the area, some commenters expressed the opinion that these facilities are not justified [EA, page 1]. Many commenters continued to express concerns about possible impacts of the project on boating traffic [EA, page 22], navigation and safety [EA, pages 26 and 29], water quality [EA, page 14], erosion [EA, pages 14, 15, 16, 17, and 18], waterfowl [EA, page 21], fish [EA, page 20], wildlife [EA, page 21], endangered and threatened plants and animals [EA, page 17], and terrestrial ecology [EA, page 21]. Some commenters remain concerned about the impacts on the TVA land [EA, pages 1, 4, and 6], wetlands [EA, page 16], aesthetics [EA, page 26], and noise [EA, page 29]. A few commenters are concerned about potential project effects on the capacity of the local infrastructure, such as roads [EA, page 27], potable water capacity [EA, page 22], and sewer [EA, pages 14 and 22], to support the new development.

A few commenters expressed concerns about perceived behaviors and motives of the applicant in regard to this proposal and other riverfront projects that he owns or owned or in which he has been allegedly involved. The Corps and TVA have no control over or responsibility for the upland development proposed by the applicant. With regard to facilities for which Section 26a approval from TVA is required, it is TVA's discretion to approve or not approve such proposals from applicants who have outstanding notices of water quality violation issued by a relevant state agency. This situation undermines confidence in a permittee's likelihood of complying with potential environmental protection conditions of approval and contributes to the project's impacts. The Corps contacted ADEM to inquire whether Billy Christopher or River Front Development LLC had any outstanding notices of violation. ADEM's Enforcement Branch indicates that there are no known enforcement actions taken on Billy Christopher or River Front Development.

A few commenters expressed concerns about the role of local government and its ability to regulate development in the county [see discussions about the role of the Limestone County Commission (LCC) in the EA, pages 14, 22, 27, 28, and 29]. Please see <http://limestonecounty-al.gov/default.aspx?id=62>.

Several commenters questioned whether the applicant's proposal was consistent with TVA's Shoreline Management Policy and Land Policy. Some also suggested that the agencies' consideration of proposal should be held in abeyance until TVA's new Land Policy is in place. Consideration of this proposal is consistent with TVA's Shoreline Management Policy (http://www.tva.gov/river/landandshore/landuse_shore.htm) (TVA 1998) and current Land Policy (http://www.tva.gov/river/landandshore/land_policy.htm), approved by the TVA Board in 1999 and 2006, respectively. No new Land Policy is under consideration by TVA at the present time. The applicant, River Front Development LLC, assumes all the business risks, and the federal permitting authorities do not require a performance bond.

A few commenters expressed concern about the commercial elements of the proposal (i.e., dry-stack boat storage, space rental, and launching ramp) and appear not to be opposed to the concept of single-family homeowners being considered for individual docks. As proposed, the number of boats to be accommodated at the covered docks is equal to the number of conceptual homesites on the applicant's property. Other than the wet slips and moored boats, the community dock, as proposed, would not have other operational amenities or facilities more commonly associated with commercial marinas such as restroom, restaurant, store, fuel, or fishing lure or bait sales.

Several commenters expressed concern about water pollution. Neither TVA nor the Corps regulates water pollution. The U.S. Environmental Protection Agency (USEPA) and each of the Valley states that share the Tennessee River and its tributaries set their own pollution regulations. TVA and the Corps have no authority to cite or fine suspected water quality violators but staffers can report potential violators to the relevant state agency. TVA can revoke Section 26a permits it issues and seek restitution for public land boundary encroachments, including vegetation (tree) damage or removal, and shoreline structures not built in accordance with plans or improperly maintained can be removed by TVA at the landowner's (permittee's) expense.

Several commenters referenced the May 2009 report by TVA's Office of the Inspector General with regard to TVA managing its program "selectively and arbitrarily" often to the benefit of "the wealthy, the influential, or both." The Inspector General's report, however, is specific to the former Maintain and Gain (M&G) Shoreline Management Program, which is not applicable to the applicant's proposal. The applicant already has the necessary landrights to qualify the proposed shoreline facilities and alterations for consideration, and no landrights are being proposed for acquisition or exchange. The M&G Program has been discontinued.

The River Front Development site lies approximately 0.9 mile downstream of the Buzzard Roost Bluff (TVA 1995), and a few commenters expressed concerns about the proposal's effect on the bluff. Because of the development's distance from the bluff, noted by TVA as an important contributing element to the scenic resources of the area, it would not be affected.

Generally, the Shoals Environmental Alliance (SEA) pointed out what it believed to be numerous inaccuracies in the draft EA and questioned the need for the project and the use of certain words, phrases, and conclusions, including the basis for certain effects determinations. Among other comments, SEA also asserted that the range of alternatives considered did not include all reasonable alternatives. Furthermore, for various reasons, the Center for Biological Diversity (Center) indicated that it believed the draft EA is deficient and fails to meet minimum requirements of NEPA and other laws. Among other comments, the Center indicated that if the proposal is considered further, it recommends that an environmental impact statement is required. The comments from SEA and the Center, in their entirety, can be read in Appendix G and TVA responses to these comments can be found in Appendix H.

Chapter 3.0 Environmental and Public Interest Factors Considered

3.1 Introduction. 33 CFR 320.4(a) states the decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. JPN 08-19 listed factors that may be relevant to the proposal and must be considered. The following sections discuss those factors identified as relevant through the public interest review process and provide a concise description of the anticipated impacts. The relevant blocks are checked with a description of the impacts.

3.2 Physical/Chemical Characteristics and Anticipated Changes.

(x) substrate. Approximately 7,000 cubic yards of substrate would be dredged from a site measuring 90 feet wide by 335 feet long, which equates to a little over 0.5 acre in size. The material would be removed via backhoe and truck, where possible, and a suction drill if needed. No dredging would occur within 25 feet of the NSP shoreline. Erection of spud poles to secure the proposed docks and boardwalk would impact the substrate, but not to a considerable degree. The reservoir bottom substrate in this portion of the Elk River generally consists of rock, cobble, and silt. The proposed action would deepen the area by approximately 7 feet, exposing new substrate of likely the same composition. The increased depth would provide safe passage from the proposed docks to the proposed ramp and dry dock area and create slightly enhanced aquatic habitat diversity. Riprap stone would be placed for stabilization along the bank adjacent to the dredged area. This would help curtail erosion of upland soils into the substrate as well as slow down bank erosion resulting from wave action (see shore erosion and accretion patterns below). Modification of this small area of shallow water habitat would result in an insignificant change in the availability of this habitat type and productivity for the area. These areas are quite common on the river and Wheeler Reservoir and would continue to function as habitat for aquatic life.

(x) currents, circulation, or drainage patterns. The site is located within a small cove off the Elk River on Wheeler Reservoir. Because this area is very small compared to the size of the reservoir, and located in the pool area, the proposed construction activities would not likely impact drainage patterns or currents in the area.

(x) suspended particulates, turbidity. During the dredging and construction phases, some turbidity would likely occur in the immediate area. This is expected to be temporary and would not be expected to disburse to the Elk River. To ensure against turbidity drift, however, a silt curtain would contain most of the resultant turbidity within the work area and would be used (see special permit condition No. 5 in Section 4.4).

(x) baseflow. Because of the nature of the action, the baseflow water volume of the two unnamed cove tributaries, the Elk River, or the Tennessee River would not be impacted from the proposed project.

(x) storm, wave, and erosion. Riprap stone would be placed for stabilization along a portion of the bank adjacent to the dredged area and near the ramp and boardwalk. This would help curtail erosion of upland soils into the substrate as well as slow down bank erosion resulting from wave action. It is likely that the increased volume of boating traffic in the cove could contribute to shoreline erosion. However, there are no studies currently available that address this issue at the proposed site. The site is within a cove that appears to be well protected from inclement weather. If a permit were granted, however, it would be conditioned to

advise the applicant of the possibility that any permitted structures may be subject to damage by wave wash from passing vessels. Issuance of a permit would not relieve the applicant from taking all proper steps to ensure the integrity of the permitted structures and the safety of any boats moored thereto from damage by wave wash, and the applicant could not hold the United States liable for any such damage.

(x) water quality. The project area drains to the Elk River at Wheeler Reservoir. This section of the Elk River is classified by ADEM for swimming and other whole body water-contact sports and for fish and wildlife. The Elk River, 2 miles downstream of the project from Wheeler Reservoir to Anderson Creek, is on the state 303(d) list of impaired (i.e., not fully supporting its designated uses) waters due to pH and nutrients from pasture grazing and nonirrigated crop production.

TVA monitors ecological conditions at four locations on Wheeler Reservoir—the deep, still water near the dam, called the forebay; the middle part of the reservoir; the Elk River embayment; and the riverlike area at the extreme upper end of a reservoir, called the inflow—usually on a two-year cycle. The reservoir rated poor in 2007, compared to either good or fair in all previous years. Generally, lower ecological health scores occur during years with lower flows when, typically, chlorophyll concentrations are higher and dissolved oxygen concentrations are lower. This pattern held true for 1999, 2001, and 2007, which were all characterized by low flows. In 118 years of record, 2007 was the driest year.

Dissolved oxygen rated good at the midreservoir location and poor at both the forebay and Elk River embayment due to low concentrations (less than 2 milligrams per liter of oxygen) in the lower water column during the summer. Dissolved oxygen has rated good at the midreservoir location in all previous years, but ratings have varied between good, fair, and poor at the forebay and embayment locations, primarily due to reservoir flows. Sediment quality rated good at all locations monitored. No pesticides or PCBs (polychlorinated biphenyls) were detected, and the concentrations of metals were within expected background levels. Sediment quality typically rates good, although it rated fair at the midreservoir location in 2003 due to the presence of low levels of chlordane (a pesticide previously used to control termites and crop pests).

Inadequate facilities for the collection, treatment, and disposal of domestic wastewater associated with shoreline development can result in adverse impacts to water quality and aquatic life. Wastewater collection and septic systems that are not properly designed, operated, and maintained can result in accidental spills, pipe leakage, surface breakout, sewage runoff, or seepage through the soil into the reservoir. Improper use of fertilizers, pesticides, or herbicides could result in runoff to streams and subsequent aquatic impacts. However, chemical applications and wastewater collection, management, and disposal in compliance with federal, state, and local laws and regulations would reduce potential impacts from sewage and other potential pollutants. Proper design, construction, and operation of the proposed community docks and upland development and wastewater disposal facilities are expected to result in no measurable change in the level of reservoir pollutants, nutrients, or fecal coliform bacteria. As acknowledged in his rebuttal, the applicant will be working with the LCC and appropriate local authorities to provide utilities, including sewer, to serve the area and will fully comply with relevant requirements. (See existing and potential water supplies; water conservation below).

The proposed project involves construction activities along the shoreline. During the construction phase, erosion and turbidity levels would be elevated locally for a short time (see shore erosion and accretion patterns below). Dredging would disturb sediments and could

result in increased turbidity and the movement of any potential pollutants associated with the sediment. Spoil disposal would be contained and surface runoff controlled to prevent the sediment and potential pollutants from reentering the reservoir or local streams. Following construction activities, turbidity levels and sediment movement originating from the site and construction activities would return to preconstruction levels or below due to the stabilization of the shoreline. BMPs and proper management of storm water runoff are expected to minimize impacts to reservoir water quality and would not worsen conditions in the impaired downstream part of the Elk River.

The proposed community dock would allow for the mooring of boats that may release small amounts of petroleum products into the water. However, such leaking is not expected to occur frequently or involve large amounts and would be dissipated rather quickly by normal water circulation in the cove and Elk River. No restroom facilities, fueling or food preparation services would be provided as a part of the operation of these docks, so no gray water or wastewater would require processing or disposal from these facilities. Good and proper operating, safety, and housekeeping procedures are expected to be followed at the dock, and adverse water quality impacts related to spillage of petroleum substances would be minor.

Based on his original proposal, the applicant applied for WQC from ADEM. Although the project was modified during the environmental review process, the final dredging proposal would result in the disturbance of just over 30,150 square feet of reservoir bottom. The reduced amount of dredge area still requires ADEM authorization. Based on an April 2009 e-mail, TVA forwarded a review copy of the DEA to ADEM in July, and ADEM staff participated in additional follow-up discussions among TVA and Corps staff as recent as late September and October 2009. ADEM has not yet made a decision on the proposal or issued its WQC. The required ADEM certification was also discussed with the applicant on October 2, 2009. Neither TVA nor the Corps would make a final permitting decision or issue respective approvals until the WQC is denied or issued to the applicant by ADEM. See Section 4.4. Based on the analysis above, TVA and the Corps have determined that water quality impacts would be minor.

(x) flood control functions. The community docks, dredge, riprap, and boat launch ramp are considered among a class of repetitive actions in floodplains that have been determined by TVA to have minor impacts on floodplain values. The upper limits of both the 100-year and 500-year floodplain for this location on Wheeler Reservoir are at elevation 560 msl. The proposed dry-stack building and associated parking area would be constructed above elevation 560 msl or the limits of the 500-year floodplain; therefore, the project would have no effect on TVA flood control storage.

(x) shore erosion and accretion patterns. There are many variables that contribute to shore erosion. However, there are no measurable means of determining erosion as a direct result of recreational boating in the area that might originate from boat launching and associated mooring at the proposed community docks. Mooring and operating boats at the proposed dock would slightly increase wave action within the cove and along the Elk River shoreline in the immediate vicinity. Some portions of the shoreline fronting the applicant's property have naturally occurring exposed rock, which would eliminate the possibility for shoreline erosion at that site. Some portions of shoreline at the ramp and near the boardwalk would be stabilized with riprap minimizing the effects of wave erosion.

As previously mentioned, the use of BMPs during construction would minimize sediment in runoff from the site and into Elk River.

3.3 Biological Characteristics and Anticipated Changes.

(x) special aquatic sites (wetlands, pool and riffle areas, sanctuaries and refuges). TVA owns the reservoir bottom and a narrow strip of land up to elevation 556.3 msl along the shore in the vicinity of the proposed River Front Development. TVA biologists conducted a site visit to the proposed development in late October 2008 and determined that wetlands were present along the shoreline fringe. Certain portions of the TVA shoreline up to the 556.3 elevation contain sufficient vegetative and hydrological characteristics to be classified as wetlands. These sites represent wetland habitat areas as defined by EO 11990 (Protection of Wetlands), which requires only the predominance of wetland vegetation. These areas are not considered jurisdictional wetlands, in accordance with the 1987 Corps wetland delineation manual (Environmental Laboratory 1987). During the Corps' wetland identification and delineation verification process, it was determined that hydric soils were not present in these areas; thus, these sites do not meet the criteria for Corps regulation and permitting.

Consistent with TVA's Shoreline Management Policy (TVA 1998), disturbance of TVA properties may occur only at the areas of reservoir access and shoreline alterations associated with the ramp, dredge, riprap, and boardwalk for this project.

In the vicinity of the proposed boat ramp and a portion of the associated dredge, a broad band of wetland vegetation (0.53 acre) occurs on TVA property. This area consists of a diverse wetland community, including water-willow, button bush, cattail, sedges, lizard's tail, and spotted jewel-weed. At the proposed ramp location, TVA land includes only a narrow strip along the shoreline (less than 3 feet wide), and water depth beyond the shoreline drops quickly from approximately 6 inches to about 3 feet. Wetland vegetation in this area consists of small patches of water-willow and button bush. As originally proposed, construction of the ramp would have impacted a larger portion of this wetland area. The ramp plans were modified, however, to minimize impacts to this area, and modifications have reduced impacts to less than 550 square feet or 0.01 acre of wetland habitat.

The proposed boardwalk to access the community dock facility would be placed immediately adjacent to the NSP elevation (556 msl) along the left-descending bank of the cove and outside of the wetland and, therefore, is expected to have no direct or indirect impacts.

The proposed dredge area would include TVA properties below NSP in the vicinity of the proposed boat ramp. As originally proposed, the dredge would adversely impact the emergent shoreline wetland areas. The original dredge proposal was revised, however, to reduce wetland impacts. The dredge would include a shallow water area south and east of the proposed ramp (the uppermost portions of the cove) and include a small shoreline area that had been mowed (emergent and shrub/scrub wetland vegetation has been removed). A dredge of this area, nearer the head of the cove, would deepen the water and eliminate the potential for wetland vegetation recovery. The landward TVA land contour boundary is marked in this area, and disturbance of this property is expected to cease; thus, wetland vegetation and its habitat value would likely recover over time. Removal of sediments and organic debris (driftwood) from this area could also alter hydrologic characteristics of the shoreline (increased wave action), creating adverse impacts on the fringe wetland habitats. However, the modified proposal reduced from 500 feet to 335 feet in length would reduce impacts to the wetland habitat area found in the uppermost portions of the cove. Restricting all dredge activities to a 335-foot by 90-foot channel from the ramp to navigable waters, as now proposed, minimizes impacts to this emergent habitat (see original dredge plan in Appendix A and modified plan in Facility Location in Appendix C and Section 4.4).

Similarly, no riprap would be placed in the back of the cove to avoid impacts to the emergent wetland area. Riprap would be placed on either side of the proposed ramp but limited to the minimum needed to prevent erosion and undercutting of the ramp. Total length of riprap has been reduced from 600 feet to 320 feet. Approximately 300 feet of riprap would be placed on the north side of the cove, and a 10-foot-long section would be placed on each side of the proposed ramp. To the extent practicable and based on the overall reduced length, the riprap would be placed so that any effects on wetlands would be minimized.

Overall, wetland impacts associated with this project have been minimized to the extent practicable via modifications reducing both the placement of riprap and area to be dredged. Less than 0.01 acre of wetlands would be affected. Recent data indicate approximately 20,160 acres of wetlands are present within the Wheeler Reservoir (TVA 2004). The loss of less than 0.01 acre of wetlands is a minor impact due to the relative abundance of wetlands within the area.

(x) endangered or threatened species. In response to the JPN, by e-mail dated October 16, 2008, the USFWS stated that no significant adverse effects on fish and wildlife resources are expected to result from this project. Therefore, USFWS had no objections to the issuance of these permits. These comments were provided in accordance with provisions of the *Fish and Wildlife Coordination Act* (16 U.S. Code (USC) 661 et seq.) and the *Endangered Species Act of 1973* (16 USC 1531 et seq.). The USFWS contacted TVA on September 29, 2009, and indicated that their prior comments would suffice for their review of the DEA.

Terrestrial Animals

Review of the TVA Natural Heritage database indicated that a number of federally listed terrestrial animals are reported to occur in Limestone County, Alabama, in the general vicinity of the River Front Development proposal. They include gray bat (*Myotis grisescens*) and Indiana bat (*Myotis sodalis*). A cave in the vicinity formerly inhabited by these species was inundated by Wheeler Reservoir. Extant populations do not occur in the area, and the proposal would have no effect on any known populations of these bats.

State-listed terrestrial animals, including amphibians, reported from the area include hellbender (*Cryptobranchus alleganiensis*), Tennessee cave salamander (*Gyrinophilus palleucus*), and bald eagle (*Haliaeetus leucocephalus*). Hellbender occurs only in clear, flowing streams and rivers and would not occur in the project area. Tennessee cave salamander is a cave-dwelling species and would not occur in the project area. The bald eagle is known to nest approximately 5 miles from proposed River Front Development site. Because of its distance from the development, this project would have no effect on the known eagle's nest. This nest was constructed and continues to be active with current human residential and recreational use in the vicinity. The increased use of the area after the project is complete would have no effect on this nest.

Aquatic Animals

Limestone County, Alabama, has a large number of listed or rare aquatic species. Review of the TVA Natural Heritage database indicated that 10 federally listed, two candidates for federal listing, and 45 state-listed aquatic species have been reported to occur in Limestone County, Alabama (Table 1). Extant populations of these species are primarily known from tributaries of the Tennessee and Elk River systems or from unimpounded portions of the Elk River. Most of these species were extirpated from the Tennessee and lower reaches of the Elk Rivers after

completion of Wheeler Dam. They do not occur in the impact area, and the proposal would have no effect on any known populations.

Table 1. Federally and State-Listed Aquatic Threatened and Endangered Animals Known to Occur in Limestone County, Alabama

Common Name	Scientific Name	State Status (Rank)	Federal Status
Fish			
Bigeye chub	<i>Hybopsis amblops</i>	TRKD (S3)	-
Blotched chub	<i>Erimystax insignis</i>	TRKD (S2)	-
Bluebreast darter	<i>Etheostoma camurum</i>	TRKD (S1)	-
Blueside darter	<i>Etheostoma jessiae</i>	TRKD (S3)	-
Boulder darter	<i>Etheostoma wapiti</i>	PROT (S1)	END
Chestnut lamprey	<i>Ichthyomyzon castaneus</i>	TRKD (S2)	-
Fantail darter	<i>Etheostoma flabellare</i>	TRKD (S3)	-
Flame chub	<i>Hemitremia flammea</i>	TRKD (S3)	-
Gilt darter	<i>Percina evides</i>	TRKD (S2)	-
Mountain madtom	<i>Noturus eleutherus</i>	TRKD (S1)	-
Paddlefish	<i>Polyodon spathula</i>	PROT (S3)	-
Redline darter	<i>Etheostoma rufilineatum</i>	TRKD (S3)	-
River carpsucker	<i>Carpionodes carpio</i>	TRKD (S2)	-
River darter	<i>Percina shumardi</i>	TRKD (S3)	-
Rosyface shiner	<i>Notropis micropteryx</i>	TRKD (S2)	-
Silver redhorse	<i>Moxostoma anisurum</i>	TRKD (S2)	-
Silver shiner	<i>Notropis photogenis</i>	TRKD (S1)	-
Slackwater darter	<i>Etheostoma boschungii</i>	PROT (S1)	THR
Slender madtom	<i>Noturus exilis</i>	TRKD (S3)	-
Snubnose darter	<i>Etheostoma simoterum</i>	TRKD (S3)	-
Southern cavefish	<i>Typhlichthys subterraneus</i>	PROT (S3)	-
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	TRKD (S3)	-
Spring pygmy sunfish	<i>Elassoma alabamiae</i>	PROT (S1)	-
Stargazing minnow	<i>Phenacobius uranops</i>	TRKD (S1)	-
Stonecat	<i>Noturus flavus</i>	TRKD (S1)	-
Stripetail darter	<i>Etheostoma kennicotti</i>	TRKD (S3)	-
Tuscumbia darter	<i>Etheostoma tuscumbia</i>	PROT (S2)	-
Mussels			
Butterfly	<i>Ellipsaria lineolata</i>	TRKD (S3)	-
Cumberland monkeyface	<i>Quadrula intermedia</i>	PROT (S1)	END
Deertoe	<i>Truncilla truncata</i>	TRKD (S1)	-
Kidneyshell	<i>Ptychobranthus fasciolaris</i>	TRKD (S1)	-
Monkeyface	<i>Quadrula metanevra</i>	TRKD (S3)	-
Mucket	<i>Actinonaias ligamentina</i>	TRKD (S2)	-
Ohio pigtoe	<i>Pleurobema cordatum</i>	TRKD (S2)	-
Orange-foot pimpleback	<i>Plethobasus cooperianus</i>	PROT (S1)	END
Painted creekshell	<i>Villosa taeniata</i>	TRKD (S3)	-
Pink mucket	<i>Lampsilis abrupta</i>	PROT (S1)	END
Pink papershell	<i>Potamilus ohioensis</i>	TRKD (S3)	-
Purple lilliput	<i>Toxolasma lividus</i>	TRKD (S2)	-

Common Name	Scientific Name	State Status (Rank)	Federal Status
Ring pink	<i>Obovaria retusa</i>	PROT (S1)	END
Rough pigtoe	<i>Pleurobema plenum</i>	PROT (S1)	END
Sheepnose	<i>Plethobasus cyphus</i>	PROT (S1)	CAND
Spectaclecase	<i>Cumberlandia monodonta</i>	PROT (S1)	CAND
Tennessee clubshell	<i>Pleurobema oviforme</i>	TRKD (S1)	-
Tennessee pigtoe	<i>Fusconaia barnesiana</i>	TRKD (S1)	-
Wavy-rayed lampmussel	<i>Lampsilis fasciola</i>	TRKD (S1S2)	-
White heelsplitter	<i>Lasmigona complanata</i>	TRKD (S2S3)	-
Snails			
Anthony's river snail	<i>Athearnia anthonyi</i>	PROT (S1)	END
Armored snail	<i>Pyrgulopsis pachyta</i>	PROT (S1)	END
Skirted hornsnail	<i>Pleurocera pyrenella</i>	TRKD (S2)	-
Slender campeloma	<i>Campeloma decampi</i>	PROT (S1)	END
Spiral hornsnail	<i>Pleurocera brumbyi</i>	TRKD (S2)	-
Varicose rocksnail	<i>Lithasia verrucosa</i>	TRKD (S3)	-
Aquatic Insects			
A caddisfly	<i>Hydropsyche rotosa</i>	RARE (S1)	-
A caddisfly	<i>Hydropsyche simulans</i>	RARE (S1)	-
A caddisfly	<i>Rhyacophila fenestra</i>	RARE (S1)	-
Crayfish			
Troglobitic crayfish	<i>Cambarus jonesi</i>	SPCO (S2)	-

- = Not applicable

Status codes: CAND = Federal candidate species; END = Endangered; PROT = Protected; RARE = Rare; SPCO = Species of concern; THR = Threatened; TRKD = Tracked by state natural heritage program

State ranks: S1 = Critically imperiled; S2 = Imperiled; S3 = Vulnerable; S#S# = Occurrence numbers are uncertain

The proposed dredge, community boat docks, and other shoreline alterations would be located in the portion of the Elk River where the habitat is altered by the impoundment of the Tennessee River. The Wheeler Dam impoundment extends up to about Elk River Mile 14 (roughly 7 miles upstream of the proposed development site).

The nearest boulder darter record is another 13 miles upstream from the limits of the impoundment. This species is not tolerant of reservoir conditions, and is not found within the reservoir pool. An attempt was made to transplant the snail darter into the Elk River in 1980. This species was only observed in the following year (1981). Since that time it has not been reported, despite many fish collections in the river. It is presumed that the transplant was unsuccessful. No habitat for either species is present in the vicinity of the proposed project.

No records or suitable habitat for these federally listed fish or mussel species is present within the immediate vicinity of the proposed action; therefore, no direct or indirect impacts would occur from the proposed action. Several of the mussel species that are tracked by the State of Alabama can occur in impoundments, but these species are relatively common in Wheeler Reservoir. Potential impacts to these species would be confined to the areas that would be dredged and would not result in effects on the overall populations of these species in Wheeler Reservoir.

Plants

Three state-listed plant species are known to occur within 5 miles of the project (Table 2). Habitat is present for two of these species. Allegheny-spurge was found growing on the right bank of the slough on the applicant's property and in the vicinity of the proposed boardwalk. Alabama snow-wreath occurs along limestone bluffs just south of the proposed development, but not on TVA or the applicant's property.

Table 2. Plant Species of Conservation Concern Known to Occur Within 5 Miles of the Proposed Development in Limestone County, Alabama

Common Name	Scientific Name	State Status (Rank)	Federal Status
Alabama snow-wreath	<i>Neviusia alabamensis</i>	SLNS (S2)	-
Allegheny-spurge	<i>Pachysandra procumbens</i>	SLNS (S2S3)	-
Muhly grass	<i>Muhlenbergia sobolifera</i>	SLNS (S1)	-

- = Not applicable

Status codes: Alabama does not give status to state-listed species; SLNS = No state status

State rank abbreviations: S1 = Critically imperiled, often with 5 or fewer occurrences;

S2 = Imperiled, often with <20 occurrences; S3 = Rare or uncommon, often with <80 occurrences;

S#S# = Occurrence numbers are uncertain

Allegheny-spurge occurs within the project footprint and in an area where boardwalk access is planned. The species is not critically imperiled in Alabama, and this project would only potentially impact a small portion of the plant population in the area and cause no harm to the species in other parts of its range. TVA would also work with the applicant to minimize the number of individual plants destroyed during project construction and, if practicable, relocate plants that would otherwise be destroyed. Allegheny-spurge is often cultivated and used as a shade-tolerant groundcover.

(x) habitat for fish and other aquatic organisms. Aquatic ecological health measures such as fish species, benthic macroinvertebrates, chlorophyll, and sediment quality are routinely collected in Wheeler Reservoir as part of TVA's Vital Signs/Reservoir Ecological Health monitoring program (see water quality section above). No surveys have taken place at this specific location in the reservoir, but because this area does not represent unique aquatic habitat, there has been no reason to distinguish this particular area from other similar shoreline habitats in the reservoir.

The proposed dredging would result in the immediate loss of the existing benthic communities within the affected 30,150 square-foot dredging footprint (335 feet long by 90 feet wide). Recolonization by aquatic organisms is expected to occur in a short time. The composition of the new benthic communities could be slightly different due to a change in habitat diversity resulting from the increased water depths. In the long-term, following any needed future maintenance dredges (see Section 4.4), the benthic community would stabilize with a potentially slightly modified species assemblage. Fish species are expected to benefit from the increased water depths. However, it is not expected that increased water depths would alter the composition of the resident fish community in Wheeler Reservoir. Because the type of shallow reservoir habitats that would be dredged in this cove are common in Wheeler Reservoir and the Tennessee River, game or nongame fish species expected to use this particular area for spawning are abundant. Reservoir-spawning species present such as drum, carp, catfish, sunfish, and largemouth bass and suitable spawning habitat are common throughout the reservoir shoreline areas. The incremental loss (or change in habitat type) of this one very small area (0.01 acre) would have a minor direct, indirect, or cumulative impact on fish or their

spawning habitat. Some ongoing or slightly increased amount of disturbance of fish may occur from boat traffic or other wake-causing activities. However, reservoir fish species have readily adapted to these conditions elsewhere, including other existing community docks, on Wheeler Reservoir.

The proposed boat slips and boardwalk would prevent total penetration of sunlight through the water column and reduce limnetic temperature, thus cooling the aquatic environment. Furthermore, the slips would enhance aquatic habitat by providing surface areas for attachment by sedentary species and shaded areas where smaller fish could hide from predators. The proposed bank stabilization would also likely provide some habitat diversity, cover, and foraging habitat for small fish and sedentary aquatic species.

(x) wildlife habitat. The proposed facilities would cause most wildlife to alter their feeding, nesting, and movement patterns in order to avoid the area, both during and after construction. These animals would likely relocate to undeveloped habitats within the area. These displaced wildlife populations, although small in number, would compete with individuals of their kind for available suitable habitat and eventually reach population equilibrium. Most of the private land, approximately 54 acres, proposed for development has been cleared of its vegetation or disturbed from past land use. Approximately 17 acres of this site would be in the residential development footprint and permanently occupied by roads, homesites, and lawns.

There is a potential for a slight reduction in overall population numbers within their new habitats. Because of the availability of similar suitable habitats in the area relative to the small amount of habitat proposed for development and because the species present are common and abundant in the area and the region, impacts on terrestrial wildlife are expected to be directly, indirectly, and cumulatively minor. While a small amount of waterfowl use area and suitable habitat associated with this site would also be affected, the proposed water use facilities would result in a minor effect on ducks and geese that live or migrate through this area because of the small portion of water body affected relative to the size of Wheeler Reservoir. In addition, construction of the small inland lake on the unnamed tributary to Elk River would help offset this habitat loss.

Designated Natural Areas

The Narrow Bluff TVA HPA is a 7.1-acre land parcel consisting of a narrow strip approximately 0.5 mile long and located on the right bank of the Elk River near Mile 7, downstream from Buzzard Roost Bluff. The parcel consists totally of bluff or semibluff terrain with little or no timber. The soils are highly erodible. Alabama snow-wreath is state-listed (S2) and is imperiled globally (G2) (see Table 2) and occurs on this designated natural area.

Because the HPA is located a sufficient distance downstream from the development site, no direct impacts to the Narrow Bluff HPA are anticipated as a result of the proposed action. Increases in recreational boating and related noise on the Elk River would slightly diminish, in a minor way, the HPA's societal value.

Invasive Plants

Terrestrial habitats could possibly be impacted by the introduction and spread of invasive nonnative species. EO 13112 (Invasive Species) defines an invasive nonnative species as any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, which is not native to that ecosystem, and whose introduction does or is likely to cause economic or environmental harm or harm to human health (U.S. Department of Agriculture [USDA] 2007). Information provided by the Alabama Invasive Plant Council (2006)

reports the following invasive species that pose a severe threat to native ecosystems as occurring in Limestone County: alligator weed, Eurasian water milfoil, Chinese privet, Japanese honeysuckle, Japanese stiltgrass kudzu, multiflora rose, royal empress tree, and tree of heaven. In addition, the federal noxious weed cogongrass (USDA 2007) has been reported from the adjoining counties of Lauderdale and Lawrence. This highly aggressive weed disrupts ecosystem functions, reduces wildlife habitat, and alters fire regimes and intensity (Evans et al. 2008). To prevent the spread or introduction of these invasive species, all equipment used on site would be cleaned by removing any soil, seeds, or vegetation adhering to tires, digging implements, or any other surface of vehicles or machinery that enter the site. Disturbed areas would be revegetated with native or nonnative noninvasive plant species. In addition, clean and weed-free quarried shot rock would be used for bank stabilization. If the above conditions are followed, potential impacts to the terrestrial ecology from the introduction and spread of invasive nonnative species would be minimal (see Section 4.4).

(x) biological availability of possible contaminants in dredged or fill material. While there is a dredge (7,000 cubic yards) and associated lake bottom disturbance proposed, this material would be disposed of on an upland site (see spoil disposal area in Appendix A) and not allowed to reenter the reservoir. This section of the Elk River is classified by ADEM for swimming and other whole body water-contact sports and for fish and wildlife. The impaired reach of Elk River begins 2 miles downstream of the project site (see water quality above). There have been few, if any, industrial activities in the vicinity that may have contaminated sediments at the proposed dredge site. Accordingly, there is no evidence that the site is contaminated by PCBs or recognized environmental contaminants.

3.4 Human Use Characteristics and Anticipated Impacts.

(x) existing and potential water supplies; water conservation. The proposed facilities would not typically need a water supply. However, a reliable source of potable water would be needed to supply the proposed residential development. In the event that the current rural water supply may not be capable of handling those needs, the applicant may have to seek another source of water.

In accordance with Limestone County Water and Sewer Authority's Development Review and Acceptance Policy (Policy No. 2008-01, effective January 24, 2008), board approval is required prior to any and all subdivisions being accepted into the authority's water and sewer system. As indicated in the applicant's rebuttal (Appendix E) to the public comments on the JPN, the applicant will be working with the LCC and appropriate authorities to provide utilities to serve the area and will fully comply with relevant requirements. See water quality above and land use classification below.

(x) water-related recreation. The proposed community water use facilities and ramp would provide safe moorage and access for boaters, including community residents, and enhance recreational boating opportunities within this area of Wheeler Reservoir. No marine supplies, bait, fuel, or food sales or services would be offered at the community dock facility and no restrooms, more typical of commercial marinas, would be constructed along the shore. The immediate cove is large enough to allow some swimming, fishing, and canoeing while being protected from the wind and rougher waters of the open river.

As previously mentioned, the proposed facilities would be located along the Elk River on the west end of Wheeler Reservoir. This section of the reservoir includes several large embayments, the largest of which is the Elk River. The recreational boating study area includes

the embayment upstream to the Elk River Mills Bridge at Elk River Mile 14.6 near Lentzville, as well as the main stem of the Tennessee River, extending from Wheeler Dam at Tennessee River Mile 275 upstream to about River Mile 294 near Mallard Creek embayment (Figure 3). This part of the reservoir includes a total of 25,516 surface acres of water at NSP elevation. Within this area, TVA has issued 1,391 active Section 26a permits (i.e., currently valid approvals) for private individual and community docks, piers, and boathouses. The Elk River, in the vicinity of the proposed development, is almost 2,500 feet or about 0.5 mile wide.

Currently, a total of 11 public recreation areas, one private employee park, and three marina facilities provide boating access to the reservoir and other accommodations in this study area. The public recreation areas and employee park include a total of 14 boat launching ramps with a combined total of 488 vehicle and trailer parking spaces. These ramp areas are listed in Table 3 below.

Table 3. Public Recreation Areas, Employee Park, and Marina Facilities and Available Parking Spaces Within the Boating Density Analysis Area

Ramp Areas	Number of Parking Spaces
Anderson Creek Ramp	15
Barnett's Landing Ramp	12
Buck Island Ramp	10
Elk River Group Lodge	20
Elk River Mills Ramp	30
Elk River Ramps at Highway 72 (2)	70
Goldfield Branch Ramp	5
Joe Wheeler State Park Ramps (2)	182
Limestone County Park Ramp	30
Mallard Creek Recreation Area Ramp	44
Spring Creek Ramp	20
International Paper Company Employee Park Ramp	50
TOTAL	488

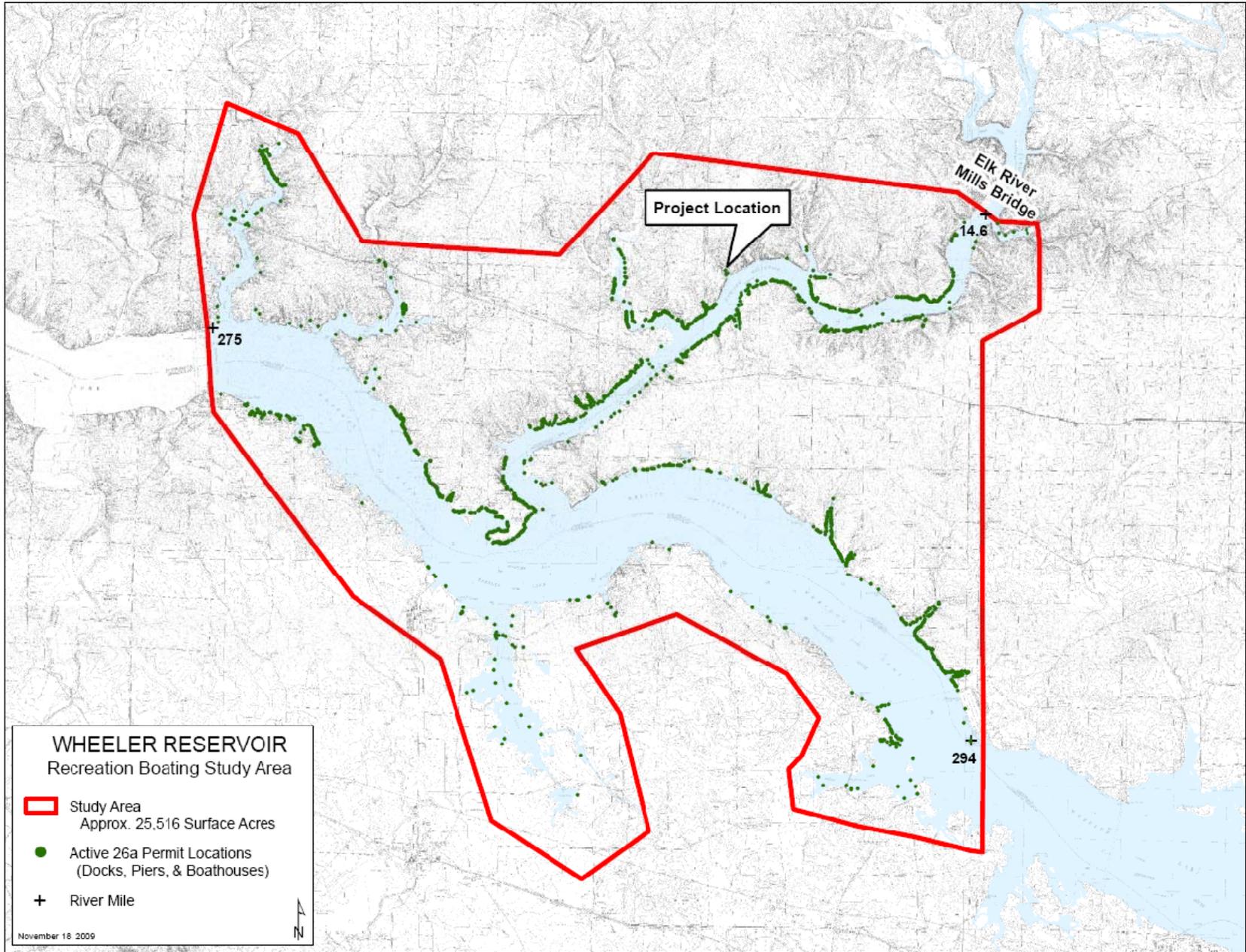


Figure 3. Billy Christopher River Front Development Proposal, Elk River Mile 7.3, Right Bank, Wheeler Reservoir, Limestone County, Alabama – Recreational Boating Density and Cumulative Impacts Analysis Studies Area

The marina operations provide a total of 229 dry-stack boat storage spaces and 324 wet slips. These areas are listed in Table 4 below.

Table 4. Dry-Stack Boat Storage Space and Wet Slips Available at Commercial Marina Facilities Within the Boating Density Analysis Area

Name of Marina	Number of Dry Slips	Number of Wet Slips
Bay Hill Marina	209	150
Elk River Group Lodge	0	16
Joe Wheeler State Park Marina	20	158
TOTAL	229	324

In addition, there are an estimated 2,625 boats moored along the shoreline by private property owners on this section of Wheeler Reservoir. This includes boat access provided at Two Rivers and The Pointe developments near the mouth of the Elk River, approved by TVA and the Corps in recent years. The River Front Development LLC proposal would result in the addition of 200 commercial dry boat storage spaces and 33 private community wet slips. As explained below, not all 233 boats from these community and dry storage facilities are expected on the reservoir at the same time. However, during the recreation season, an increase in boating activity and usage would likely occur.

Based on observations of boating use patterns across the Tennessee River system and on Wheeler Reservoir, TVA estimates that about 25 percent of boats stored at marinas and private water access facilities are likely to be in use during a typical summer weekend day and 35 percent on a peak use summer holiday weekend. Similarly, public boat launching ramps are generally not used at full vehicle/trailer parking capacity. TVA estimates that use of public ramps ranges from 60 to 75 percent of full capacity on typical and peak holiday weekend days, respectively. Therefore, the proposed facilities would result in up to 58 additional boats on the reservoir on a typical weekend day during the boating season and an estimated 82 additional boats during a holiday weekend. These estimates of usage are supported by analysis contained in a recent technical report (TVA 2009). Given the water surface area available, it appears that typical summer weekend (22 acres per boat) and holiday weekend (16 acres per boat) boating activity can be accommodated without exceeding generally accepted optimum recreational boating density thresholds (6-7 acres per boat and 5-6 acres per boat, respectively).

It is also assumed that as a staging area, some boaters would motor out of the embayment and onto the Elk River and main (Tennessee) river channel to pursue their boating pleasures. With the increased reservoir access and moorage, water-related recreation opportunities such as boating, fishing, and leisure time activities would most likely increase. This would provide a positive benefit and attraction for the residents, potential residents, and those in need of dry boat storage. Because this increase would not be large and would be achieved gradually during residential build-out and availability of commercial dry-stack storage rental, the increased demand and use would not significantly affect overall reservoir (water-related) recreation. Increased use within this area would not jeopardize recreational boating in the cove in the immediate vicinity of the residential development or on Elk River or Wheeler Reservoir, as long as recreational boaters follow safe boating practices, State of Alabama boating laws, and U.S. Coast Guard-recommended safety zones around commercial boat and barge traffic. Although

there would be a slight increase in recreational boating traffic, it is expected that this impact on recreational boating opportunities would be minor, and safety would not be reduced (also see traffic/transportation patterns and navigation and safety sections below).

TVA coordinated its review of the proposed developments and sought information about area boating accidents from the ADCNR, Boating Law Administrator's Office. Captain John Clifton, District I supervisor and investigations officer, stated that he is familiar with the area and accidents that have happened over the years. He further indicated that the numbers of additional boats proposed to be stored, both dry- and wet-slips, and the supporting analysis seemed reasonable and, in his judgment, would not significantly impact boater safety in the area (John Clifton, ADCNR, personal communication, September 29, 2009, and Erica Shipman, ADCNR, personal communication via e-mail, September 29, 2009).

(x) aesthetics. The criteria for classifying the quality and value of scenery has been adapted from a scenic management system developed by the U.S. Forest Service (1995) and integrated with current planning methods used by TVA. The classification process is also based on fundamental methodology and descriptions adapted from the U.S. Forest Service (1995). Among other uses, this methodology is used to evaluate the extent and magnitude of visual changes that could result from proposed projects.

The proposed community water use facilities and associated upland residential development (site) as described in Section 1.1 lie within a cove and adjacent uplands on the lower Elk River at Mile 7.3. This cove is positioned between TVA Planned Tracts Nos. 33 and 34 on the right-descending bank (TVA 1995, see plan land maps). The associated upland development would lie on privately owned land located landward of the westernmost portion of Tract No. 34. The cove measures about 300 feet in width at the confluence with the Elk River and about 1,000 feet in length. The shoreline within the cove is generally stable and well vegetated. The topography of the area surrounding the cove is moderately to steeply sloping. The portion of Tract No. 34, which would front the proposed upland development, is steeply sloping and generally well vegetated with mature hardwood-cedar forest.

Views within this segment of the Elk River are generally restricted to the foreground (from 0 feet up to 0.5 mile from the observer) viewing distance, due to topography, vegetation, and the winding course of the Elk River itself. Presently, there is one pier and boathouse in the cove; a total of 14 existing shoreline facilities occur within the foreground viewing distance of the proposed site. The majority of these facilities lie along the opposite and left-descending bank, Elk River, fronting the Gobble Fite and Fort Hampton Farms residential waterfront developments. The River Front Development LLC site lies almost 1 mile downstream of the Buzzard Roost Bluff, noted by TVA as an important contributing element to the scenic resources of the area (TVA 1995).

The scenic attractiveness within the viewshed ranges from common to distinctive, and the scenic integrity ranges from low, along the left bank, to high, upstream and along the right bank, near Buzzard Roost Bluff.

Construction of the proposed water use facilities would result in an incremental but minor change in the scenic integrity within the viewshed. This change would be discernable to residents living across the Elk River and to recreational reservoir users in the foreground viewing distance. Direct views of the water use facilities would be limited due to their proposed location in the cove and the topography and vegetation landward at the confluence with the Elk River. Recreational boaters would have brief views of the proposed facilities. These views would generally remain in context with existing views of water use facilities within the viewshed. Viewers, including shoreline residents across the river, would additionally likely notice a small

increase in the number of watercraft in the vicinity of the proposed project (see water-related recreation section above). These incremental increases in reservoir traffic would vary seasonally, but would generally remain in context with the surrounding landscape character and usage patterns on the Elk River.

The associated upland development planned for construction would be discernable to broader viewing positions into the middleground (0.5 mile up to 4 miles) viewing distance. Topography on the property, adjacent to Tract No. 34, rises to elevations above 710 msl. This elevation is approximately 154 feet above the NSP elevation on the Elk River and approximately 80 feet above the average uppermost elevation of Tract No. 34. The upland development would appear similar in context to the existing development along the left-descending bank, Elk River, and downstream developments along the right bank. Residential development of private property located adjacent to Tract No. 34 could potentially result in a discernable increase in night sky brightness, depending on the viewing position relative to the horizon in context with the proposed development. However, the existing level of residential development in rural areas across the Elk River, as well as downstream, currently contributes to increased levels of night sky brightness in the area. The impacts associated with the proposed upland development would not result in the production of significant amounts of waste light.

Night lighting of shoreline facilities for navigation safety purposes is required (see item No. 7 in Section 4.4). Site lighting associated with the proposed community water use facilities would be equipped with full cutoff features, which limit the amount of waste light produced at a vertical angle of 80 degrees above the lowest light emitting portion of the luminaire. Therefore, with the commitment specified above, proposed site developments associated with the community water use facilities and upland development would result in minor impacts to the existing scenic resources within the viewshed.

(x) traffic/transportation patterns. As indicated above, because the expected increase in recreational boating would not be large and would be achieved gradually during residential build-out and commercial dry storage rental, the increased demand and use would not significantly affect overall reservoir (water-related) recreation (also see water-related recreation section above and navigation and safety section below).

The proposed commercial dry storage and ramp along with development of 33 residential lots would result in a small increase in land-based vehicular traffic on county roads and highways in the area. Some additional traffic to and from this development would be expected from the River Front Development's two access roads onto Richter Road; one of which would T-intersect at Richter Road and County Road 566 (see Appendix A). However, any slight traffic increase would likely be seasonal during the peak summer recreation months and decline in volume during inclement weather and cooler months. Because no fuel services would be offered at the community dock, no greater fire hazard would exist there compared to elsewhere in the area. The need for emergency response and services associated with fire hazard is not expected to exceed that currently afforded by the level of service provided by existing roads.

Limestone County Engineering Department (ED) provides technical support and direction to the LCC in all areas of public works construction and maintenance including roads. Each of four commissioners is responsible for maintaining roads in the districts they serve via funds obtained through the Gasoline Tax Funds. The ED prepares construction plans as needed for roadway, bridge, and other public works projects and ensures compliance with state and federal laws and regulations. ED also reviews subdivision plans and monitors construction in new subdivisions.

As previously indicated the applicant will be working with LCC and appropriate authorities to provide utilities to serve the area and fully comply with its requirements (see <http://limestonecounty-al.gov/default.aspx?id=62>).

The main east-west artery south of the Elk River from the project, U.S. Highway 72, connects Athens and Florence, Alabama. This multiple-lane highway provides a level of service that would continue to support this development and others occurring west of Athens. Therefore, impacts on area transportation are expected to be minor.

(x) energy consumption or generation. No energy generation would result from the proposal. Because of the low addition of residential and commercial energy-related consumption compared to the available base load in the area, it is not anticipated that the proposed project would have any notable impacts on energy consumption.

(x) conservation. The project would impact approximately 54 acres of private land, all of which has been disturbed from previous land uses including agriculture and forestry. It is estimated 17 acres or 30 percent of the site would likely be permanently disturbed by the construction of roads, lawns, and homes. A small strip of TVA land occurs below elevation 556.3 msl along the shoreline that would be affected by the facilities. Because this represents a very small amount of land relative to the amount of rural private land and public land in the area, such a change in resource conservation and land use would be minor.

(x) air quality. Given the nature of the activity, air quality during performance of the work would not exceed *de minimis* (so minor as to merit disregard) levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. After project completion, levels of pollutants normally associated with combustible engines would be higher due to increased traffic within the commercially developing area.

(x) historic properties and cultural values. By letter from TVA dated March 19, 2009, a cultural resources survey conducted by the applicant's consultant, documented in a report entitled *A Phase I Cultural Survey of a Proposed Residential Development Area in Limestone County, Alabama* (Thompson 2009), was transmitted to the Alabama SHPO. Two sites were identified, 1Li758 and 1Li759, but both were determined to be ineligible for listing in the NRHP. By letter dated April 2, 2009, the Alabama SHPO concurred with TVA and the Corps that there are no properties listed or eligible for listing in the NRHP that would be affected by this undertaking. TVA also consulted with federally recognized tribal representatives that may have an interest in the project. On March 26, 2009, the United Keetoowah Band of Indians in Oklahoma had no objection to the project. Furthermore, in its letter dated April 16, 2009, the Alabama-Coushatta Tribe of Texas indicated that based on the January 2009 cultural resources investigation, the project would have no impact to religious, cultural, or historical assets of interest (Appendix F). By letter dated September 16, 2009, and in response to review of the draft EA on the project, Alabama SHPO indicated that it continued to concur with the project activities provided the scope of work remains the same (Appendix G). As mentioned above, this follows earlier consultation with the Alabama SHPO and federally recognized tribes (see Appendix F).

Dredged material would be transported to an upland-contained holding pond and placed on private land above the 560.0-foot msl contour (see Appendix A). This area is identified in consultation correspondence with the Alabama SHPO.

(x) navigation and safety. Elk River is not a commercial waterway but is commonly used recreational-boating waters. The proposed facilities would insignificantly benefit recreational navigation in the area by providing safe moorage facilities that would allow easy ingress and egress to the main channel from the applicant's proposed development (see water-related recreation section above). Commercial navigation on the Tennessee River (Wheeler Reservoir) would not be affected by these community docks. The Elk River navigation channel is immediately adjacent to the shoreline along this section of the river. Navigation restrictions are in effect on the upstream and downstream tracts of TVA land on each side of the project site (cove); therefore, no requests for private docks or other shoreline alterations will be considered along these tracts. Marking the community dock with safety lights or reflectors would allow boaters to see it better between dusk and dawn, further reducing any navigational hazard (see Section 4.4).

According to TVA Section 26a regulations (18 CFR 1304.204 Docks, Piers, and Boathouses), docks and walkway(s) may not extend more than 150 feet from the shoreline, or more than one-third the distance to the opposite shoreline, whichever is less. This requirement ensures that adequate room is available for navigating within coves and embayment areas. The boardwalk would be located approximately along the NSP contour (elevation 556 msl) and would not extend more than 10 feet into the reservoir. The community dock would include multiple covered floating slips that would extend 30 feet into the reservoir from the NSP shoreline. This would be less than one-third of the width of the cove, which is approximately 300 feet wide at its mouth.

(x) noise. There would be a temporary increase in noise generation during construction above normal background levels. Construction noise levels would be typical of shoreline and residential developments including others that have occurred along Elk River. It is expected that construction would be performed during daylight hours. After project completion, there would be a slight increase in noise from increased boating and vehicle traffic. However, because construction noise would be temporary and the number of additional boats and cars would be relatively small, the expected increase in noise would be minor.

(x) land use classification. In order to succeed at selling residential lots, the applicant proposes to offer each prospective lot owner a boat slip at the proposed facility. This would result in changing the current land use from rural (agricultural and forestry) to residential. The applicant will be working with the LCC and appropriate authorities to provide utilities to serve the area and fully comply with its requirements. See existing and potential water supplies; water conservation and traffic/transportation patterns sections above and Limestone County, Alabama, Subdivision Regulations at <http://limestonecounty-al.gov/default.aspx?id=62>.

(x) economics. Contractors, the workforce, and materials suppliers would receive minor economic benefit from the proposed work. The applicant would benefit economically from the sale of residential lots, dry dock rental fees, and other means that he may decide to include in the future. The local government would also benefit from the increased tax base. The proposed facility is not expected to have an adverse financial effect on other such area facilities. Also see discussion of potential effects on property values in the Section 3.5 below.

(x) food and fiber production. Because the site is not currently used for food or fiber production, it is not anticipated that use of the private property at the project site for other purposes would have any impacts on food and fiber production.

(x) mineral needs. Because the site has no history of mining or related mineral extraction, it is not anticipated that the proposed project would not have any impacts on mineral needs or production.

(x) consideration of private property. The adjacent private property within the cove would become less private, i.e., subject to less tranquility because of the presence of others and their activities, if the proposed facilities are constructed. Any such impacts are likely to be small with respect to current residents of the area because of their location relative to the project site. The project would be located in Census Tract 203, Block Group 3, Block 3029, in Limestone County. This block had a total population of 66 persons, as of the 2000 Census of Population (http://factfinder.census.gov/home/saff/main.html?_lang=en). This block extends eastward from the Lauderdale County line to the inlet at Wahl Road and north to Temperance Oak Road. The population in this block is primarily in the north end away from the river channel. The area across the channel from the site is also sparsely populated, and residents are generally located away from the channel. As discussed in Section 3.5, the proposed project is expected to have minor negative impacts on property values. If any such impacts occur, they would most likely be temporary and short-term.

(x) environmental justice. The minority population in the area around the River Front Development LLC site in this southwestern part of Limestone County is very small. As of the 2000 Census of Population (http://factfinder.census.gov/home/saff/main.html?_lang=en), minorities constituted 1.5 percent of the population in Block 3029, 3.3 percent in the Block Group 3, and 3.2 percent in Tract 203. Census Tract 204.01, Block Group 2, is across the channel from the site. The minority population in the block group was 6.2 percent of the total; in the various blocks in that area, minority population shares ranged from none to 3.8 percent of the total. The general area across the channel from the site is sparsely populated, with few residents in the blocks immediately across the channel (Blocks 2007, 2008, the upper end of 2012, and the western end of 2005). Total population of these blocks was 102, of which 2.9 percent were minority. The minority population in Limestone County was 17.6 percent of the total, lower than the state average of 29.7 percent and the national average of 30.9 percent. More recent estimates for 2008 indicate that the minority shares in the general area have increased somewhat, to 19.5 percent in Limestone County, 31.6 percent statewide, and 34.4 percent nationally. More recent estimates are not available for smaller areas.

As of the 2000 Census of Population, poverty levels in this area were comparable to county or state levels. In Census Tract 203, Block Group 3, where the site is located, the poverty level was 12.8 percent, lower than the state average of 16.1 percent and slightly higher than the county level of 12.3 and the national level of 12.4. The poverty level across the channel in Block Group 2, Census Tract 204.01, was 17.0 percent, slightly higher than the state average and somewhat higher than the county and national averages. Poverty data are not available for individual blocks.

Because the minority population is very small and there is not a disproportionate share of low-income residents in the area, TVA and the Corps do not anticipate the impacts of this proposal will have a disproportionate effect on minority or low-income populations. Through the public involvement process, the general public, including low-income and minority populations, has had an opportunity to participate in a decision-making process that could affect their well-being. As proposed at build-out, there would be 33 more homes on the property, and there would be no residential relocations caused by the proposed action.

3.5 Cumulative and Secondary Impacts. One of the most important aspects of a cumulative effects assessment is that it requires consideration of how actions by others (including those actions completely unrelated to the action under review) have affected and will affect the same resources. Cumulative environmental effects for the proposed facilities were assessed in accordance with guidance provided by the President's Council on Environmental Quality (USEPA 1999). This guidance provides a process for identifying and evaluating cumulative effects under NEPA. For purposes of cumulative impact assessment, the spatial boundary has been broadened to consider effects of the work and its effects to other projects within the Wheeler Reservoir and Elk River shoreline area included in the water-related recreation analysis. TVA and the Corps assume build-out of the development would occur over a five to 10-year period. In this case, reasonably foreseeable future actions include:

- Increased real estate value for the applicant's property and other properties within the area
- Improved recreational boating access due to additional moorage and storage facilities
- Increased boating effects on crowding, navigation and safety, and water quality

The proposed facilities would be located along the Elk River on the west end of Wheeler Reservoir. This section of the reservoir includes the area of the boating density analysis as described in the water-related recreation section above, and this cumulative impacts analysis (see Figure 3). This part of the reservoir includes a total of 25,516 surface acres of water at NSP elevation. Within this area, there are 1,645 active Section 26a approvals for docks, piers, boathouses, shoreline stabilizations, ramps, and other shoreline improvements and alterations. The area of this evaluation includes a portion of the Elk and Tennessee rivers that encompass the existing Two Rivers, The Pointe, and Bay Hill developments; Elk River and Joe Wheeler State Parks; Limestone County Park; a portion of Mallard Creek Public Recreation Area; and the Mallard-Fox Creek Wildlife Management Area (see water-related recreation section). Most of the shoreline, a considerable amount owned by TVA, is covered in forests, particularly the left-descending bank of the Elk River south of the U.S. Highway 72 bridge.

Similar to water frontage, it is well established that a water (i.e., lakefront, riverfront) view or an open space view adds value to property (Benson et al. 2000; Irwin and Bockstael 2001). Irwin (2002) found that the property value impact is significantly greater if the open space is preserved, rather than being developable. Earnhart (2006) found, more recently, that benefit from open space adds no value if it is potentially short-lasting, while preserved open space adds about 5 percent to housing value. While negative impacts due to obnoxious and noticeably discordant views are generally acknowledged, views that are not discordant and cause no physical harm are likely to have a minor, if any, impact on property values. None of the proposed actions are expected to be discordant in contrast to the existing developments (see aesthetics section). As noted in the section on transportation, any impacts on local transportation would be minor, as would impacts on noise (see noise section). Given the generally sparse and scattered nature of current subdivision development in the area, growth in this portion of Limestone County is likely to be slow compared to growth in the cities of Athens and Rogersville. Therefore, it is unlikely that any noticeably negative long-term impacts to property values would occur in the analysis area.

In the long-term (5 years or longer), the increased demand for residential living along waterfront properties, associated recreation, and uses of available natural resources would likely maintain or increase property values. Effects of additional boating from River Front Development LLC docks, according to analysis in the water-related recreation section of this EA, indicate that navigation and safety impacts would be cumulatively minor for the foreseeable future. Neither TVA nor the Corps is currently aware of any other proposed substantive shoreline and residential

development projects in the area that could affect property values, recreation, safety, or water resources along this reach of Elk River.

Previously, shoreline development and alterations in the area have been approved with environmental protection provisions, mitigation measures, or conditions to minimize their individual and cumulative impacts. Similarly, future development permitted by the Corps, ADEM, and TVA would likely be conditioned to protect the environment and avoid or individually and cumulatively reduce any adverse impacts on water quality. This includes the use of BMPs and other appropriate environmental protection measures that would minimize the likelihood of worsening conditions in the downstream impaired reach of the Elk River. It is unlikely that the causes this impairment from Wheeler Reservoir to Anderson Creek (i.e., due to pH and nutrients from pasture grazing and nonirrigated crop production) would be substantially exacerbated by contributions from the River Front Development LLC site. Through the exercise of their respective regulatory jurisdictions, these agencies maintain considerable control over potential shoreline development through various land management programs and the permitting process. Appropriate mitigation measures would be required, if necessary, to offset anticipated impacts from future developments.

Future associated work that may be proposed in the vicinity of the site can be identified as cumulative or secondary impacts; however, determining the magnitude and significance of cumulative effects, modifying to avoid, minimize, or mitigate significant cumulative effects, and planning for monitoring and adaptive management would have to be addressed on a case-by-case basis. Overall, while there would be permanent impacts on the private tract, given the relatively small area of impact and the relatively low physical and biological functions present in the impact area, the proposal is anticipated to have a minor cumulative or secondary effect upon the existing environment, and the sustainability of important resources would not be adversely affected. When considering the impacts from past, present, and reasonably foreseeable future proposals, the cumulative and secondary impacts from this proposal on these resources along this reach of Elk River, Wheeler Reservoir, and in the area are expected to be minor.

Chapter 4.0 Alternatives

4.1 Introduction. This section discusses alternatives as required by 33 CFR 320.4(a)(2). The relevant environmental issues identified in Chapter 3.0 were used to formulate the alternatives. The alternatives that were given detailed consideration are listed below.

4.2 Description of Alternatives. Only reasonable alternatives have been considered in detail, as specified in 40 CFR 1508.14(a).

a. **No Action.** No action may be brought about by either of the following: (1) that the applicant elects to eliminate the proposed work currently under jurisdiction of the Corps and TVA, (2) that the permit application be denied, or (3) the application is withdrawn. Under the No Action Alternative, the applicant could develop the uplands, outside TVA's and the Corps' jurisdictions, for residential, commercial, or other purposes if such development complies with any other applicable federal, state, or local laws or regulations. However, the applicant contends that the residential development project would not occur unless the shoreline facilities and alterations requiring federal approval could be approved. Therefore, assuming the project would not go forward under this alternative, there would be no effects on any evaluated resources caused by either the Corps' or TVA's authorizations.

b. **The Applicant's Proposed Action.** This would consist of permitting the proposed facilities as originally described in the JPN.

c. **Applicant's Proposed Action With Special Conditions or Mitigation.** In accordance with 33 CFR 320.4(r), review of the existing action has revealed mitigation measures typical for activities of this nature, which would reduce environmental impacts of the proposed action. The recommended conditions (listed in Section 4.4) were discussed with the applicant who verbally agreed to those conditions. The applicant has also agreed to some reductions in the scope of various aspects of his proposal such as the length of shoreline stabilization, placement of the boardwalk, and extent of dredging, which were intended to further reduce effects of the project (see Section 1.1). The applicant also agrees to prohibit mooring of boats to the boardwalk.

4.3 Comparison of Alternatives.

a. **No Action.** With this alternative, the applicant would not be allowed to construct the community dock, boardwalk, or boat ramp or to perform the dredging or bank stabilization. No economic or recreational benefits would be derived from this alternative, and the applicant's purpose and need for the project would not be met. In addition, under this alternative the applicant would not implement his planned residential development. Assuming the applicant would not develop the land above the limits of the TVA and Corps jurisdiction, this would be the least impacting alternative.

b. **The Applicant's Proposed Action.** This alternative would authorize the bank stabilization and dredging and the construction of the community dock, boardwalk, and boat ramp according to plans originally outlined in the JPN. No properties listed in or eligible for the NRHP would be affected, and no federally listed as endangered or threatened species would be impacted. The proposed community dock, commercial dry-stack storage facility, and ramp would increase water-related recreational opportunities. Dredging the cove as described would create a more navigable area, and the bank stabilization would aid in preventing further erosion of the shoreline. Permitting the proposed action would meet the needs of the applicant and create minor economic benefits to investors and the community.

c. Applicant's Proposed Action With Special Conditions or Mitigation. The impact of this action would be similar to the description in "b" above. Modifications to the proposal identified in Section 1.1 and special conditions, listed in Section 4.4, have been reviewed and accepted by the applicant. This alternative would have the least adverse impacts of the two action alternatives under consideration. Dredging and ramp construction would impact a small area of wetland (see special aquatic sites above). Other negative impacts to the environment would be minimized. The applicant would adhere to written commitments included in any approvals granted (see Section 4.4).

4.4 Special Permit Conditions. The following recommended special permit conditions, when applicable, are typically included in most DA permits, and are necessary to comply with federal law, while affording appropriate and practicable environmental protection. In addition and in accordance with Section 401 of the CWA, neither TVA nor the Corps will issue their respective project approvals until the applicant provides evidence that he has obtained the required WQC from ADEM indicating that state water quality standards would not be violated. Neither agency would approve the project if the Section 401 approval is denied.

1. The work shall be in accordance with any plans attached to this permit. You (the applicant) must have a copy of this permit available on the site and ensure all contractors are aware of its conditions and abide by them. *Justification: Recommended at 33 CFR 325, Appendix A.*
2. A preconstruction meeting with you, your contractors, and representatives from the Corps and TVA shall be held on site prior to any work in jurisdictional waters. The contractors shall present their method of operation for the work at this meeting. You should contact the Corps' office at least one week prior to construction to arrange the required meeting (telephone 615-369-7500). *Justification: To minimize permit noncompliance.*
3. Your (the applicant) use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States. *Justification: Recommended at 33 CFR 325, Appendix A.*
4. The disturbance to riparian vegetation must be kept to a minimum during construction. To the extent practicable, equipment shall be limited to one access point along the bank. *Justification: To minimize the amount of disturbance in the work area.*
5. A silt curtain, placed between the dredging location and the reservoir proper, must be utilized and be properly maintained at all times during the operation. Appropriate markers must be placed on the silt curtain when it is being used to alert boaters of its presence. Dredged material shall be placed at an upland location outside the 100-year floodplain (also the same as the 500-year flood elevation at this location) and properly stabilized to prevent reentry into the waterway. No dredging would occur within 25 feet of the NSP shoreline. *Justification: To minimize the impacts on water quality.*
6. Maintenance dredging may be performed, as needed, for a period of 10 years from the date of this permit. You must apply to TVA and notify the Corps in writing at least six months prior so your request may be reviewed. Written approval from both agencies is required in order to commence maintenance dredging. *Justification: To facilitate upkeep of the channel and allow the permitting agencies to determine if circumstances have changed and further review is necessary.*

7. You must install and maintain, at your expense, adequate safety lights, reflectors, and/or signals that would allow the boating public to recognize the community dock's water-based structures between dusk and dawn. This shall be coordinated with the Alabama Marine Police Division, and you must provide evidence of approval to the Corps office and TVA Land and Water Stewardship office. *Justification: To minimize impacts to navigation and safety.*
8. You must recognize that the structure may be subject to damage by wave wash from passing vessels. You must take all proper steps to ensure the integrity of the structure and the safety of boats moored thereto. *Justification: To minimize impacts to safety.*
9. To prevent the spread or introduction of invasive plants, all of the applicant's equipment used on site will be cleaned by removing any soil, seeds, or vegetation adhering to tires, digging implements, or any other surface of vehicles or machinery that enter the site. Disturbed areas must be revegetated with native or nonnative noninvasive plant species. Clean and weed-free quarried shot rock will be used for bank stabilization. *Justification: To minimize adverse impacts to the environment.*
10. Upon advanced notification by the applicant, TVA will work with the applicant to minimize the number of individual Allegheny-spurge (plants) destroyed during project construction and, if practicable, relocate plants that would otherwise be destroyed. *Justification: To minimize adverse impacts to the environment.*
11. The proposed boardwalk to access the community dock facility will be a fixed structure constructed immediately adjacent to the NSP shoreline with a floor elevation a minimum of 2 feet above elevation 556.0 msl. It will not extend more than 10 feet into the reservoir. Signage will be placed along the boardwalk indicating that no mooring of vessels to the structure is permitted. *Justification: To minimize impacts to navigation and safety.*
12. Riprap, launch ramp, and dredge will be constructed as described in the modification to proposal and special aquatic sites sections (Section 1.1 and Section 3.3 of this EA) so that effects on TVA wetlands are minimized. TVA would also be notified prior to initiation of construction of these shoreline alterations and provided an opportunity to visit the site (see Special Permit Condition No. 2 above). *Justification: To minimize the impacts on wetland resources.*
13. Site lighting associated with the proposed community water use facilities shall be equipped with full cutoff features, which limit the amount of waste light produced at a vertical angle of 80 degrees above the lowest light emitting portion of the luminaire to reduce night sky brightness in the area. *Justification: To minimize the impacts from light pollution.*

Chapter 5.0. Literature Cited

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Chapter 6. List of Preparers

Tennessee Valley Authority

John (Bo) T. Baxter

Position: Specialist, Aquatic Endangered Species Act Permitting and Compliance
 Education: M.S. and B.S., Zoology
 Experience: 19 years in Protected Aquatic Species Monitoring, Habitat Assessment, and Recovery; 11 years in Environmental Review
 Involvement: Aquatic Ecology/Threatened and Endangered Species

Patricia B. Cox

Position: Botanist, Specialist
 Education: Ph.D., Botany (Plant Taxonomy and Anatomy); M.S. and B.S., Biology
 Experience: 31 years in Plant Taxonomy at the Academic Level; 6 years in Environmental Assessment and NEPA Compliance
 Involvement: Threatened and Endangered Species Compliance, Invasive Plant Species, and Terrestrial Ecology

Stanford E. Davis

Position: Senior NEPA Specialist
 Education: B.S., Wildlife and Fisheries Science
 Experience: 35 years in Wildlife Habitat and Land Management, Site Evaluation, and Environmental Impact Analysis and Review Requirements
 Involvement: NEPA Compliance and Document Preparation

James H. Eblen

Position: Contract Economist
 Education: Ph.D., Economics; B.S., Business Administration
 Experience: 41 years in Economic Analysis and Research
 Involvement: Socioeconomics and Environmental Justice

Jerry G. Fouse

Position: Recreation Manager
 Education: M.B.A.; B.S., Forestry and Wildlife
 Experience: 35 years in Natural Resources – Recreation Planning and Economic Development
 Involvement: Recreation

Travis Hill Henry

Position: Terrestrial Endangered Species Specialist
 Education: M.S., Zoology; B.S., Wildlife Biology
 Experience: 20 years in Zoology, Endangered Species, and NEPA Compliance
 Involvement: Terrestrial Ecology, Threatened and Endangered Species

John M. Higgins, P.E.

Position: Water Quality Specialist
Education: Ph.D., Environmental Engineering; B.S. and M.S., Civil Engineering
Experience: 36 years in Environmental Engineering and Water Resources Management
Involvement: Surface Water and Wastewater

Clinton E. Jones

Position: Senior Aquatic Community Ecologist
Education: B.S., Wildlife and Fisheries Science
Experience: 17 years in Environmental Consultation and Fisheries Management
Involvement: Aquatic Ecology and Aquatic Threatened and Endangered Species

Robert A. Marker

Position: Contract Recreation Planner
Education: B.S., Outdoor Recreation Resources Management
Experience: 37 years in Recreation Resources Planning and Management
Involvement: Recreation Resources

Loretta A. McNamee

Position: Contract Biologist
Education: B.S., Biology
Experience: 1 year NEPA Compliance
Involvement: NEPA Compliance and Document Preparation

Roger A. Milstead, P.E.

Position: Program Manager, Flood Risk
Education: B.S., Civil Engineering
Experience: 33 years in Floodplain and Environmental Evaluations
Involvement: Floodplains

Kim Pilarski-Brand

Position: Senior Wetlands Biologist
Education: M.S., Geography, Minor Ecology
Experience: 14 years in Wetlands Assessment and Delineation
Involvement: Wetlands

Erin E. Pritchard

Position: Archaeologist
Education: M.A., Anthropology
Experience: 10 years in Archaeology and Cultural Resource Management
Involvement: Cultural Resources

Jon C. Riley, ASLA

Position: Senior Landscape Architect
Education: Bachelor of Landscape Architecture
Experience: 10 years in Site Planning, Design, and Visual Resource Management; 4 years in Architectural History and Historic Preservation
Involvement: Visual Resources, and Historic Architectural Resources

Deborah K. Ruth

Position: Specialist, Navigation Infrastructures
Education: B.S., Agricultural Engineering
Experience: 6 years in Navigation; 5 years in Resource Stewardship; 6 years in River Operations Forecast Center
Involvement: Navigation

Damien J. Simbeck

Position: Water Resources Representative
Education: B.S. Professional Biology, M.S. Zoology
Experience: 19 years in water quality, natural resources, endangered species, wetlands, and wildlife management and assessment
Involvement: Endangered species, water quality, and wetlands protection

Samantha J. Strickland

Position: Senior Watershed Representative
Education: M.S., Biology
Experience: 8 years in Land Management
Involvement: Land use and Landrights

Jan K. Thomas

Position: Contract Natural Areas Specialist
Education: M.S., Human Ecology
Experience: 11 years in Health and Safety Research, Environmental Restoration, Technical Writing; 6 years in Natural Area Reviews
Involvement: Natural Areas

Cassandra L. Wylie

Position: Atmospheric Analyst
Education: M.S., Forestry and Statistics; B.S., Forestry
Experience: 21 years in Atmospheric Modeling and Effects of Air Pollution on Forests; 9 years in Noise Analysis
Involvement: Noise Impacts

Nashville District, U.S. Army Corps of Engineers

Richard D. Graham

Position: Regulatory Specialist
Education: B.A. and M.S., Biology
Experience: 14 years in Regulatory Branch; prior 21 years in Natural Resources (park ranger)
Involvement: Regulatory Permitting