

DRAFT ENVIRONMENTAL ASSESSMENT

(File No. 200800886)

Applicant: Knoxville South Waterfront Development Department

Proposed Waterfront Public Improvements
Miles 647.7 – 649.0, Left Bank, Tennessee River (Fort Loudoun Reservoir),
In Knoxville, Knox County, Tennessee, U.S. Geological Survey Knoxville, Tennessee 7.5-Minute Series
Quadrangle Map, Latitude 35°, 57 feet 43 inches, Longitude 83°, 54 feet 17 inches

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
Nashville District, Regulatory Branch
and
TENNESSEE VALLEY AUTHORITY

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Date

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DOCUMENT CONTENTS

CHAPTER 1.0 Proposed Activity 1

- 1.1. Background 1
- 1.2. Initial Proposal..... 1
 - 1.2.1 Lower Section4
 - 1.2.2 Middle Section4
 - 1.2.3 Upper Section5
- 1.3. Project Changes..... 5
- 1.4. Decision Required 6
 - 1.4.1 U.S. Army Corps of Engineers6
 - 1.4.2 Tennessee Valley Authority6
 - 1.4.3 Summary7
- 1.5. Other Approvals Required..... 7
- 1.6. Scope of Analysis..... 7
- 1.7. Site Inspection..... 8

CHAPTER 2.0 Public Involvement Process 9

- 2.1. General 9
- 2.2. Public Notice Comments 9
 - 2.2.1 Agency Comments 9
 - 2.2.1.1 U.S. Fish and Wildlife Service 9
 - 2.2.1.2 Tennessee Historical Commission..... 9
 - 2.2.1.3 Knoxville Community Development Corporation 9
 - 2.2.2 Commercial Navigation Interests 10
 - 2.2.2.1 Ingram Barge Company 10
 - 2.2.2.2 Magnolia Marine Transport Company..... 10
 - 2.2.3 Adjacent Property Owners and Individuals..... 10
 - 2.2.4 Internal Comments 11
- 2.3. Applicant’s Rebuttal 11
 - 2.3.1 Property Ownership..... 11
 - 2.3.2 Cultural Resources and Floodplain Management 11
 - 2.3.3 Navigation Issues 11
- 2.4. Supplemental Public Notice 11

CHAPTER 3.0 Environmental and Public Interest Factors Considered..... 12

- 3.1 Introduction 12
- 3.2 Physical/Chemical Characteristics and Anticipated Changes..... 12
- 3.3 Biological Characteristics and Anticipated Changes..... 13
- 3.4 Human Use Characteristics and Anticipated Impacts 14
- 3.5 Cumulative and Secondary Impacts 21

CHAPTER 4.0 Alternatives 23

- 4.1. Introduction 23
- 4.2. Description of Alternatives 23
 - 4.2.1 No Action 23
 - 4.2.2 Applicant’s Proposed Action 23
 - 4.2.3 Applicant’s Proposed Action With Added Special Conditions..... 23
- 4.3. Comparison of Alternatives 23
 - 4.3.1 No Action 23
 - 4.3.2 Applicant’s Proposed Action 23
 - 4.3.3 Applicant’s Proposed Action With Added Special Conditions..... 23
- 4.4. Alternatives Not Considered in Detail 23

CHAPTER 5.0 Other Considerations 24

- 5.1. Section 404(b)(1) Guidelines Determination 24
 - 5.1.1 General 24
 - 5.1.2 Restrictions on the Discharge 24
 - 5.1.3 Factual Determination 24
- 5.2. Clean Air Act Determination 24
- 5.3. Environmental Justice 24
- 5.4. Special Conditions to Minimize Adverse Impacts 25

CHAPTER 6.0 References 28

CHAPTER 1.0 Proposed Activity**1.1. Background**

The Knoxville City Council adopted the South Waterfront Vision Plan, Action Plan, Urban Renewal and Redevelopment Plan, and Form Based Development Code in 2006. The City of Knoxville (City) has worked closely with the local community and stakeholders throughout the visioning and design process for the Knoxville South Waterfront. A series of public workshops, open houses, and community meetings were held between 2005 and 2007 to explain and formalize the plans and develop the Phase 1 Public Improvements Schematic Design.

The 20-year goal of the Vision Plan is to transform the south side of the downtown Knoxville riverfront with a careful balance of development, preservation, and enhancement. Under the Vision Plan, the City proposes to transform the South Waterfront properties and revitalize them to increase the riverfront's environmental, recreational, cultural-resource, civic, and economic value to the community. The City is now shifting from a long-term planning focus to that of a short-term project design and implementation focus. The Action Plan identified and budgeted several public improvement projects that would assist in achieving the City's goals within the next five years, i.e., Phase 1. As part of its comprehensive plan to develop the South Waterfront, the City submitted to the **U.S. Army Corps of Engineers (USACE)** and **Tennessee Valley Authority (TVA)** a Section 26a/USACE Section 404 **joint permit application (JPA)** in July 2008. TVA holds flowage easement rights along the project areas in these **proposed public improvements (PPIs)**, which give TVA the right to flood the property to elevation 822 feet above **mean sea level (msl)**. The 100-year floodplain elevation at this location is also 822 feet above msl.

1.2. Initial Proposal

The **Knoxville South Waterfront Development Department (KSWD)** proposes a series of public improvement projects recommended in Phase 1 of the Action Plan. A number of structures are planned along the river to provide recreational opportunities to lake users. These include kayak ramps, storage areas, floating docks, floating walkways, and riverfront decks. Additional land-based facilities include informal sports areas and a children's play area. The City has a Web site with information and history regarding its plan, found at: <http://www.cityofknoxville.org/southwaterfront/default.asp>

The portion of the development effort considered in this joint **environmental assessment (EA)** is Phase 1, which consists of three separate sections of riverfront, marked in red and shown in Figure 1.

Each of the three sections in the City's JPA contains individual projects. Other projects (Projects 1 – Cherokee Trail Connector, 2 – Goose Creek Landing, 3 – Pedestrian Bridge, 4 – Riverwalk and West Blount Avenue at City View, 8 – Sevier Avenue and Council Place Improvements, and 12 – Springs Water Center) are mentioned in the City's Schematic Design Package, but were not included in this JPA; however, the original numbering scheme is maintained for continuity and clarity. The projects are the specific tasks and structures the City wants to build on the waterfront. They are discussed further in Sections 1.2.1, 1.2.2, and 1.2.3 of this EA. The land within these projects is divided into red rectangles, called areas. Each area may have one project, more than one project, or a portion of a project within it. The sections, projects, and areas are presented in Figure 2.



Figure 1. Location of Proposed Public Improvements along the Knoxville South Waterfront

The City proposes to construct floating walkways along the river, called riverwalks, to allow lake users and pedestrians to stroll and enjoy the scenery. These riverwalks would connect to landings that would contain transient docks, as well as slips for kayaks, canoes, and sculls for **University of Tennessee (UT)** rowing teams. The projects contained within these PPIs extend from slightly east of the Norfolk Southern Railroad Bridge at **Tennessee River Mile (TRM)** 647.36 to Baker Creek at TRM 649.13. The projects are:

Lower Section

- Project 5 – Henley Riverwalk
- Project 6 – Shoals Riverwalk
- Project 7 – Gay Street Stair

Middle Section

- Project 9 – River Plain Park
- Project 10 – Lincoln Landing

Upper Section

- Project 11 – Baker Creek Landing

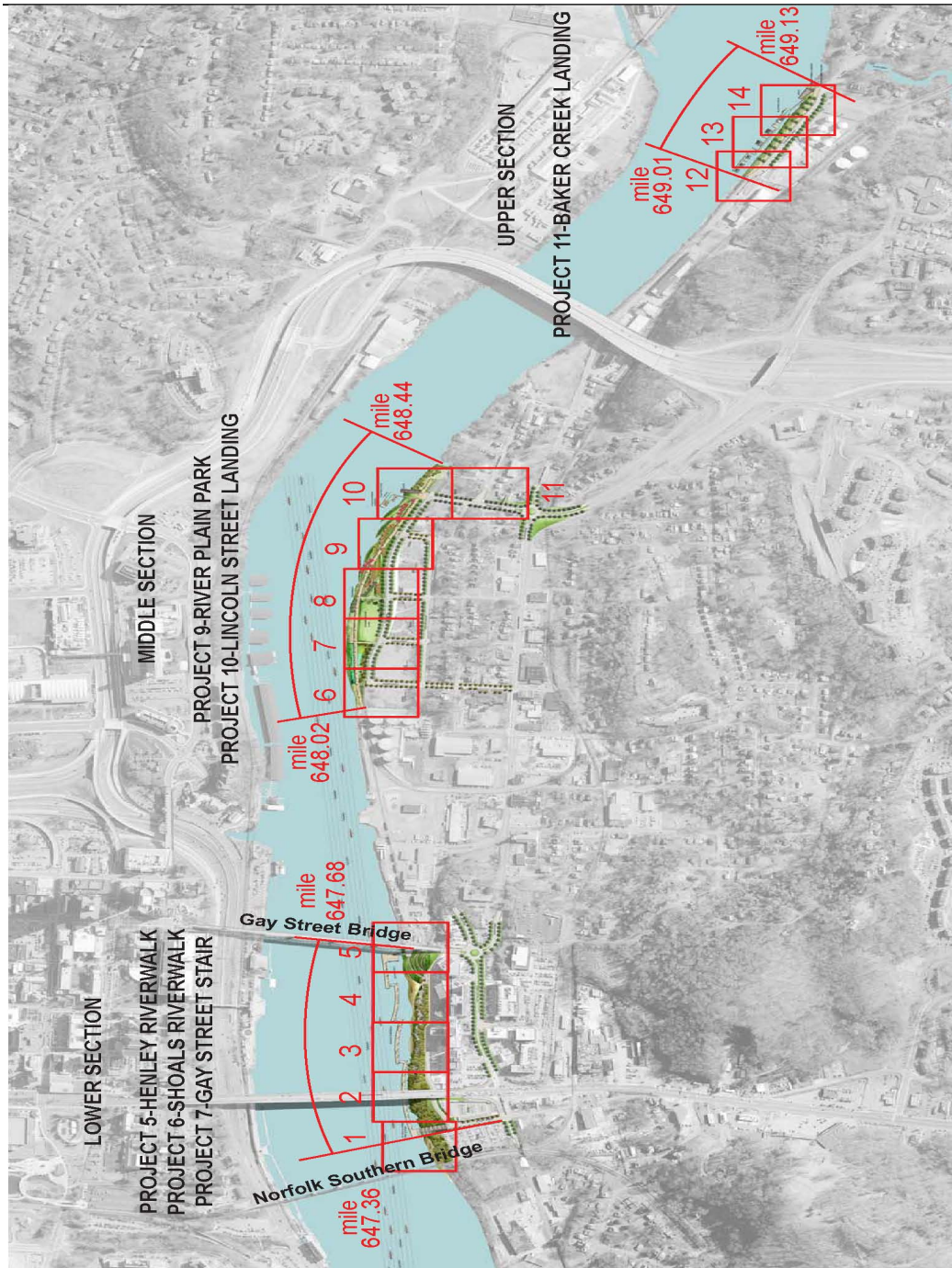


Figure 2. Sections, Projects, and Plan Areas of the Knoxville South Waterfront

1.2.1 Lower Section. The following are the proposed components of Projects 5 (Henley Riverwalk), 6 (Shoals Riverwalk), and 7 (Gay Street Stair) (see Plan Areas 1-5 in Figure 2) and would require TVA and/or USACE approval:

- Construction of a series of four 20-foot-wide pile-supported floating walkways spanning a total length of 1,544 feet from just east of the Norfolk Southern Railroad Bridge (TRM 647.36) to the Gay Street Bridge (TRM 647.68). The walkways would be supported by steel pipe guide piles anchored into the existing rock, with a top elevation of 827.00. At the western end of these walkways, a 95-foot by 64-foot floating dock would define a kayak training area located landward of the walkway. The docks would be connected to and accessed from the shore via **Americans With Disabilities Act (ADA)** accessible gangways. (Plan Areas 1-5)
- Excavation of the existing bank and construction of a concrete staircase, timber deck, and concrete landing. The staircase would connect the proposed St. Paul Street extension to the floating dock. The concrete landing would be constructed on a sheet pile wall and would be connected to the dock by an ADA-accessible gangway. Approximately 378 **cubic yards (CY)** of fill material would be placed riverward of the **normal summer pool (NSP)** shoreline to create the landing area. An additional 129 CY of fill material would be placed between the NSP (elevation 813) and the 100-year flood elevation (elevation 822). (Plan Area 1)
- Removal of invasive plant species from 2.35 acres of existing riverbank east of the Henley Street Bridge (TRM 647.45). Following removal, 830 feet of slope would be stabilized and planted with native woody species. (Plan Areas 2-4).
- Stabilization of 295 feet of riverbank in the vicinity of the riverside viewing area. The riverbank would be planted with grasses and native woody species mentioned above. (Plan Areas 4-5).
- Construction of an at-grade paved overlook in the vicinity of the Gay Street Bridge (TRM 647.69). The paved space would provide a landing point for an ADA-accessible gangway connecting to the floating dock. An at-grade walkway would provide water access for kayakers, and a flight of stairs would connect the area to the Gay Street Bridge. Approximately 635 CY of fill material would be placed riverward of the NSP shoreline. An additional 1,142 CY of fill material would be placed between NSP and the 100-year flood elevation. (Plan Area 5)

1.2.2 Middle Section. The following are the proposed components of Projects 9 (River Plain Park) and 10 (Lincoln Street Landing) (see Plan Areas 6-11) and would require TVA and/or USACE approval:

- Construction of approximately 1,920 feet of at-grade riverfront walkway at elevation 822.00 extending from the eastern boundary of Marathon Petroleum (TRM 648.02) to the proposed kayak landing north of Lincoln Street (TRM 648.44). (Plan Areas 6-10)
- Rehabilitation/enhancement of approximately 0.95 acre of existing degraded wetland. Exact acreages of enhancement would be determined following a comprehensive delineation of the existing wetland. Additional wetland areas would also be created adjacent to the existing wetland (exact acreages to be determined). The wetland would serve as a storm water retention facility capturing runoff from adjacent future streets and development as well as an ecological resource. (Plan Areas 6 and 7)

- Regrading of existing river floodplain to create a series of landforms and recreational lawn areas. In total, approximately 499 CY of material would be filled riverward of the existing NSP contour. In addition, 12,005 CY of material would be placed between the existing NSP contour and the proposed right-of-way. The area would be planted with native and ornamental tree species, grasses, and lawn. A 2,235-foot length of riverbank would be regraded, stabilized, and planted with native woody species. (Plan Areas 7-10)
- Construction of a 115-foot by 25-foot pile-supported timber pier and an 80-foot by 30-foot concrete kayak ramp. Approximately 106 CY of material would be placed riverward of the NSP contour behind a sheet pile wall to create the kayak ramp. The ramp would provide rowboat, kayak, and scull laydown facilities. Kayak storage would be created under the proposed pier. (Plan Area 10)
- Construction of a 30-foot by 120-foot pile-supported dock, connected to the proposed kayak ramp by an ADA-accessible gangway. The dock would allow for transient rowboat, scull, and kayak docking. A boathouse structure on the dock would provide storage for single sculls. (Plan Area 10)
- Construction of 1,600 feet of road and sidewalk running parallel to Langford Avenue and connecting to the northern end of Lincoln Street. In addition, Lincoln Street would be upgraded from Sevier Avenue north to the river, and a surface parking area for 20 cars would be constructed adjacent to the kayak landing. (Plan Area 11)

1.2.3 Upper Section. The following are the proposed components of Project 11 (Baker Creek Landing) (see Plan Areas 12-14) and would require TVA and/or USACE approval:

- Construction of a 20-foot by 94-foot 5-inch pile-supported fixed fishing deck. (Plan Area 14)
- Construction of 835 feet of at-grade walkway at the top of the existing riverbank (TRM 649.01 to 649.13) at elevation 827.50. The existing stabilized riverbank would be retained. Additional native planting on the slope is proposed. The adjacent road, Island Home Avenue, would be realigned and widened. (Plan Areas 12-14)

1.3 Project Changes

In response to questions and issues raised during the public involvement process (see Section 2), revised drawings and supplementary information were submitted to the USACE and TVA by Hargreaves Associates, a KSWD consultant. The information was provided in four separate letters dated 18 November 2008, 13 and 30 January 2009, and 12 March 2009.

18 November 2008

- On Sheets 17, 23, and 30 of 53, dimensions on key plans were corrected to match the dimensions on detailed plans.
- On Sheets 35-44 of 53, dimensions were either added, revised, or both.
- Sheet S26A/404_SI_DWG 15 was created to show the floating dock at Baker Creek Landing and its location in relation to the shore and the channel buoy line.

13 January 2009

- The City revised cut and fill quantities.
- The City discussed with USACE alternative options to reduce cut/fill and aquatic habitat losses.
- The City revised Sheets 18, 21, 22, 24-28, and 33 of 53 to update site plans for Plan Areas 1 and 4-11.

30 January 2009

- Sheets 33 and 44 of 53 were updated to show a revised layout plan and section for Plan Area 14 eliminating the transient floating dock and replacing it with a reoriented fixed fishing pier. The proposed fishing pier design would not include mooring cleats and would neither encourage nor allow any docking, mooring, storing, or launching of boats and/or other watercraft.

For purposes of the evaluation contained in this document, KSWD's initial request (see Section 1.2) along with the project changes that have occurred (Section 1.3) are considered the "Applicant's Final Proposal." Revised drawings to the original JPA are presented in Appendix A.

12 March 2009

A boundary delineation was conducted revealing that the actual size of the existing wetland located within the proposed River Plain Park (Project 9 and Plan Areas 6 and 7) was 0.14 acre. As mitigation, KSWD proposes to create a new wetland, 0.4835 acre in size (i.e., 3.45:1 ratio), that would function as a storm water filtration system for street and park runoff. KSWD anticipates that the aquatic resource value of this new habitat would be significantly increased from its current degraded state.

1.4 Decision Required

1.4.1 U.S. Army Corps of Engineers. Section 10 of the Rivers and Harbors Act of 1899 prohibits the alteration or obstruction of any **navigable waters of the United States (NWUS)** unless authorized by the Secretary of the Army acting through the Chief of Engineers. The Tennessee River from its mouth to its head at TRM 652.1 is an NWUS as defined by 33 **Code of Federal Regulations (CFR)** Part 329. In addition, Section 301 of the **Clean Water Act (CWA)** prohibits the discharge of dredged or fill material into **waters of the United States (WUS)** unless authorized by the **Department of the Army (DA)** pursuant to Section 404 of the same act. The Tennessee River in its entirety is a WUS as defined by 33 CFR Part 328. Because the proposed action is located in both an NWUS and a WUS, a DA permit under Section 10 and Section 404 is required for the work.

1.4.2 Tennessee Valley Authority. Section 26a of the TVA Act (16 **United States Code [USC] Section [§]** 831y-1) requires that no dam, appurtenant work, or other obstructions affecting navigation, flood control, public lands or reservations be constructed and thereafter operated or maintained across, along, or in the Tennessee River or any tributaries, unless plans for such construction, operation, and maintenance have been submitted to and approved by TVA. Because TVA has jurisdiction over the area of the PPI project as a result of its flowage easement and the location of that area within the 100-year floodplain, TVA is required to either

issue 26a approval for the project proposed in the City's JPA or deny 26a approval. TVA is a cooperating agency in this jointly prepared EA.

1.4.3 Summary. DA permits and TVA 26a approval are required for the proposed work; therefore, the agencies must decide on one of the following:

- Issuance of a DA permit and 26a approval for the proposal
- Issuance of a DA permit and 26a approval with modifications or conditions
- Denial of the DA permit and 26a approval

1.5 Other Approvals Required

As required by the Tennessee Water Quality Control Act of 1977 (T.C.A. § 69-3-101 et seq.), authorization is necessary from the **Tennessee Department of Environment and Conservation, Division of Water Pollution Control (TWPC)**, for the proposed discharges of dredged or fill material into WUS. Specifically, a water quality certification is required from TWPC in accordance with Section 401(a)(1) of the CWA. A draft permit was made available to the public for a 30-day review and comment period on March 16, 2009. The public notice is presented in Appendix B. The final permit was issued on April 29, 2009. It is presented in Appendix C.

1.6 Scope of Analysis

The USACE must determine the proper scope of analysis for **National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act (ESA)**, and any other laws related to its permit actions. Once the scope of analysis is established, USACE can address the impacts of the specific activity requiring a DA permit and those portions of the entire project over which it has sufficient control and responsibility to warrant federal review. This is generally coincidental with the definition for "Permit Area." NEPA Implementation Procedures for the USACE Regulatory Program (33 CFR Part 325, Appendix B, Paragraph 7b) list the typical factors to be considered in determining whether sufficient control and responsibility exist to warrant federal review: (a) whether the regulated activity comprises merely a link in a corridor-type project, (b) whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity, (c) the extent to which the entire project would be within USACE jurisdiction, and (d) the extent of cumulative federal control and responsibility. In determining whether sufficient cumulative federal involvement exists to expand the scope of federal action outside the "Permit Area," the USACE should consider whether other federal agencies are required to take federal action under other environmental review laws and/or executive orders.

Once the scope of analysis is determined, the USACE must, in the appropriate NEPA analysis, analyze the alternatives to the proposed action and consider primary, secondary and cumulative impacts (see Section 3.5). However, when analyzing secondary impacts, the strength of the relationship between those impacts and the regulated portion of the activity should be considered, i.e., whether the impacts are likely to occur even if the permit is not issued, in deciding the level of analysis and what weight to give these impacts in the decision. This analysis should consider whether another project, not requiring a permit, could likely occur at the site or in the vicinity, and whether its impacts would be similar to impacts of the project requiring a permit.

The proposed activities consist of the construction of waterfront public improvements projects along the river to provide recreational opportunities to lake users and pedestrians. In light of the

above discussion, USACE has determined that the scope of analysis for this JPA should be limited to the "Permit Area," which includes the shoreline and near-shoreline affected by riprap placement and the construction of water use facilities and other structures as well as the immediate upland areas directly impacted by the construction of the parking lots, roads, and passive recreational facilities. TVA concurs with this approach.

1.7 Site Inspection

A site inspection is generally performed in connection with the processing of all standard DA permit applications. Several site visits have been conducted since 2006 by both USACE and TVA regulatory and navigation staffs. The last joint inspection conducted by these offices was on 16 October 2008; Debbie Ruth (TVA) and Wayne Ligon, Bob Taphorn, Cathy Elliott, and Ruben Hernandez (USACE) participated. An inspection report of the 16 October visit with representative photographs has been included under Appendix D.

CHAPTER 2.0 Public Involvement Process**2.1 General**

On 18 September 2008, USACE and TVA issued **Joint Public Notice (JPN)** No. 08-51 to advertise the proposed activities (see Appendix E). The JPN was distributed to a wide list of interested parties that included federal, state, and local agencies, elected officials, private/public organizations, news agencies, commercial navigation interests, adjacent property owners, and individuals.

A public open house meeting was hosted by KSWD on 16 October 2008 to discuss this proposal. The meeting was held at Knoxville South Elementary School. Only three members of the public attended the open house. Project Manager J. Ruben Hernandez represented USACE, while TVA was represented by Martin High, Janet Duffey, and Clay Guerry of the Little Tennessee Watershed Team, and Erin Pritchard (archaeologist). A member of the public asked both USACE and TVA if they would require a “no-wake zone” throughout the development area. The agencies indicated that authorizations for no-wake zones start with the **Tennessee Wildlife Resources Agency (TWRA)**, and if obtained, USACE and TVA would then have to evaluate/approve actual buoy placements and dimensions. A second question concerned the status of a small riverine wetland located in the vicinity of Plan Areas 6 and 7 (the 0.95-acre wetland mentioned in Sections 1.2.2 and 1.3). USACE advised that a final mitigation decision had not been made, and we could not comment on the final disposition of this resource. No other relevant questions or comments were directed at the agencies.

2.2 Public Notice Comments

Comments to the JPN were received from the **U.S. Fish and Wildlife Service (USFWS)**, **Tennessee Historical Commission (THC)**, **Knoxville Community Development Corporation (KCDC)**, **Ingram Barge Company (IBC)**, Magnolia Marine Transport Company, and six individuals (mostly area residents). The comments have been summarized below and a copy included in Appendix F. Where a response to a comment was warranted, one is provided to clarify the issue(s) raised.

2.2.1 Agency Comments.

2.2.1.1 U.S. Fish and Wildlife Service. By letter dated 24 October 2008, the USFWS commented that it did not anticipate significant adverse impacts to fish and wildlife or their habitats and that ESA requirements under Section 7 of the act had been fulfilled. *Response:* No issues requiring a response were identified.

2.2.1.2 Tennessee Historical Commission. In a letter dated 30 September 2008, the THC concurred with USACE and TVA that in order to complete its review of the undertaking, an archaeological report of the **area of potential effect (APE)** will be necessary. By letter dated 2 October 2008, THC added that the agency needed a detailed and clearly marked topographic map showing the exact location of all project activities along with a clear project narrative. *Response:* A **Programmatic Agreement (PA)** is being executed for phased survey compliance regarding historical properties investigations.

2.2.1.3 Knoxville Community Development Corporation. By letter dated 15 October 2008, KCDC explained that it assists KSWD in administering redevelopment powers in this area. Services provided by KCDC include acquiring real property, redevelopment planning, market site analysis, relocation planning/services, building demolition and site clearance, environmental remediation, and tax increment financing, among others. In addition, specific

KSWD goals mandated by the City to be implemented by KCDC include uniting South Knoxville with Downtown Knoxville, new park development on the South Waterfront, increased boat accommodations, new private development opportunities, and South Waterfront vision implementation. KCDC stated full support for the redevelopment efforts and requested that the improvements be permitted by USACE and approved by TVA. Response: Comments noted.

2.2.2 Commercial Navigation Interests.

2.2.2.1 Ingram Barge Company. In a 23 October 2008 e-mail message, Mr. Joe Vancil, Manager Vessel Operations, listed two concerns regarding the KSWD proposal. The first concern was the use of the term “variable distance” on Exhibits G and I of the JPN. The second issue involved the location of the structures in Project 11, which would place them very near the Tennessee River navigation channel and could possibly restrict it. In addition, the direction of wheel wash from commercial craft may create a safety problem. Response: Based on information obtained from KSWD, USACE e-mailed a response to IBC on 17 February 2009 clarifying that the variable distances applicable to Exhibit G (i.e., Cross Section B) and Exhibit I (Cross Section D) were approximately 18 feet and 111 feet, respectively. USACE communicated that KSWD had withdrawn its request to build the transient floating dock at Project 11, and had reoriented the fishing pier to bring it closer to the shoreline and provide greater separation from the navigation channel (see Appendix A, Sheets 33 and 44 of 53). USACE also confirmed that a potential marina shown immediately adjacent to Project 11 on the JPN plans was not part of the current request. If an application for this marina were submitted in the future, USACE and TVA would coordinate the proposal with IBC and other barge transportation companies to obtain help in assessing the potential navigation effects. In a 17 February 2009 e-mail, IBC indicated that it was satisfied with the changes.

2.2.2.2 Magnolia Marine Transport Company. In an e-mail dated 23 October 2008, Captain Lester Cruse expressed the same concerns as Mr. Vancil of IBC. Of particular interest to Captain Cruse were the transient floating dock and fishing pier at Project 11. Company tows moving southbound with up to three jumbo empties (a type of barge, each measuring 297 feet long by 54 feet wide by 13 feet tall) could potentially collide with the structures. Magnolia Marine Transport Company would not object to the construction of these structures if protective cells were built around them to stop a barge before it could make contact with them. Response: These navigation safety issues are similar to those identified by IBC. See response provided to IBC's comments in Paragraph 2.2.2.1 above.

2.2.3 Adjacent Property Owners and Individuals. Two adjacent property owners and four interested individuals commented on the proposal. The four interested individuals, Messrs. Jim McAfee, Jeffrey G. Arbital, and Richard Belz Jr., and Ms. Marion L. Plemons, expressed full support for the revitalization effort and asked that the USACE permit and TVA Section 26a approval for the facilities be issued. One of the two adjacent property owners, Mr. W. Michael Conley, indicated support for permit issuance citing the following benefits: unity, connectivity, new park development, boating accommodations, and new private development opportunities. Mr. Ronald L. Conley, the second adjacent property owner, offered conditional support for the development because the City has not purchased or made offers for his property. He would like to receive assurance that granting of the DA permit would not place a binding limitation on the use and/or development of his property, which could include sale to others. Response: The comment is noted. In response to this comment, KSWD indicated that it understands that DA permits and TVA 26a approvals do not grant any property rights or exclusive privileges or authorize any injury to the property or rights of others.

2.2.4 Internal Comments. After participating in a 16 October 2008 joint boat inspection with TVA navigation staff, USACE's navigation staff contacted the IBC and Magnolia Marine Transport Company about their concerns for the location of the transient floating dock and fishing pier at Project 11 and the future marina just below the transient dock. USACE's navigation staff agrees that construction of structures at Project 11 could pose a potential navigation hazard. The river channel is narrow there, and the left limits are only about 250 feet from the left-descending shoreline. Furthermore, this project is on the outside of a bend where wheel wash from any vessel, especially a towboat, could be a problem. Fog and bad weather conditions could intensify already poor conditions. Finally, excessive wake and accumulation of trash and debris along the riverbank would likely be a continual problem. The project was changed on 30 January 2009 (see Section 1.3) to accommodate the barge companies' concerns while still implementing a project at the upper section of the proposed public improvements (Baker Creek Landing). TVA concurred with this approach. At a field inspection on 16 October 2008, navigation representatives from both the USACE and TVA agreed further that the docks and structures in the middle and lower sections of the PPIs would not extend an unacceptable distance into the river channel.

2.3 Applicant's Rebuttal

On 10 November 2008, USACE sent the comments/objections that were received in response to the JPN to KSWD for resolution or rebuttal. In a letter dated 3 December 2008 (Appendix G), KSWD addressed the substantive issues raised as follows:

2.3.1 Property Ownership. Since the JPN was issued, the City has made an offer and is currently negotiating with Mr. Ronald Conley and adjacent land owners to purchase their properties. The City hopes to complete property purchases in the coming months.

2.3.2 Cultural Resources and Floodplain Management. To comply with these requirements, KSWD indicated that it is working with TVA to provide the necessary reports, models, plans, and supplemental information to complete necessary evaluations.

2.3.3 Navigation Issues. The City is willing to revise the location of the courtesy dock shown in Plan Areas 12-14 based on USACE/TVA suggestions. In its letter, KSWD clarified that the marina location was provided only as information and is not a part of its application request.

2.4 Supplemental Public Notice

The basic precept of the public notice process is to include sufficient information to give a clear understanding of the nature and magnitude of the activity to generate meaningful comment. A supplemental notice must be issued whenever there is a change in the application data that would affect the public's review of the proposal or when the probable impacts to the aquatic environment resulting from the changes are substantially greater from those described in the original notice. The changes and/or commitments described in Section 1.3 would not increase the scope of work and are intended to address some of the issues that were identified during the public involvement phase. These changes/commitments would not result in additional project impacts. USACE believes that advertisement of the changes would not have substantially affected the public's review of the proposal. Therefore, issuance of a revised JPN for this purpose is not warranted. The environmental evaluation conducted in Section 3 of this document is based on the final proposal including all changes. TVA concurs with this approach.

CHAPTER 3.0 Environmental and Public Interest Factors Considered**3.1 Introduction**

Regulation 33 CFR 320.4(a) states that the decision whether to issue a DA permit would be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. All factors that may be relevant to the proposal must be considered (for full list see JPN 08-51, Appendix E). The following sections describe the relevant factors identified and provide a concise description of the probable impacts of the proposed action. The baseline data discussed in this section have been obtained from information provided by the applicant, other agencies, field investigations, input to the JPN, and other sources.

3.2 Physical/Chemical Characteristics and Anticipated Changes

The relevant blocks are checked with a description of the impacts. An unchecked block denotes that no adverse effects are expected.

(x) substrate – The existing substrate consists of sand, silty clay, and fine sediment, which provide shallow water habitat for fish spawning and feeding. The proposed activities would not include any excavation or dredging below NSP.

(x) currents, circulation, or drainage patterns – The proposed floating docks, piers, and kayak ramps would be exposed to high flows and to debris/drift accumulation. KSWD has stated that the design of these structures was carefully considered to reduce the opportunity for debris and drift accumulation. No considerable changes in water circulation are expected as a result of the proposed activities.

(x) suspended particulates, turbidity – The proposed activities do not include any dredging that would result in substantial short-term impacts on turbidity. Filling and bank excavation operations would result in minor temporary impacts. Best management practices would be used during construction to reduce these impacts to a minimum, and turbidity levels would likely return to normal after construction ceases. KSWD has stated that whenever practical, excavation would be carried out during winter pool, and silt control structures would be installed prior to any soil-disturbing activities. In addition, floating silt screens extending from the water surface to the bottom of bank would be installed prior to activities. Finally, silt control measures would be left in place until sediment has visibly settled.

(x) water quality (temperature, color, odor, nutrients, etc.) – Water quality on Fort Loudoun Reservoir from the dam up to the headwaters of the Tennessee River was assessed by the **Tennessee Department of Environment and Conservation (TDEC)** in reporting year 2006. For the 2006 reporting year, TDEC classified Fort Loudoun Reservoir according to six possible uses: domestic water supply, fish and aquatic life, industrial water supply, irrigation, livestock watering and wildlife, and recreation. The reservoir supported all of its uses except recreation. Recreation was listed as impaired due to the presence of legacy polychlorinated biphenyls (PCBs) in reservoir sediments.

The proposed activities do not include any dredging that would result in major short-term water quality impacts. Filling and bank excavation activities would have a minor temporary impact on water quality. Best management practices would be used during construction to reduce these impacts to a minimum (see measures outlined in the *suspended particulates, turbidity* paragraph above), and water quality would likely return to normal condition post construction. KSWD proposes storm water retention facilities to improve the quality of runoff prior to

discharge into the river. In addition, storm drainage best practices are proposed for City storm drains discharging into the river within the project area.

(x) flood control functions – The proposed project involves the construction of floating docks, decks, storage structures, ramps, staircases, walkways, bank stabilization, and other recreational amenities within the 100-year floodplain. Consistent with **Executive Order (EO) 11988**, these are considered repetitive actions. To reduce adverse impacts to a minimum, special conditions would be added to any permit issued requiring that the applicant securely anchors all floating facilities to prevent them from floating free during major floods.

(x) storm, wave, and erosion buffers – The existing and proposed bank stabilization would serve as an erosion buffer. Motorboat use would be restricted at the proposed docks and landings by allowing only transient boat use of the docks and landings. Therefore, only a minor increase in wave action is anticipated in these areas. The proposed construction of docks, boathouses, piers, ramps, and floating walkways is not expected to have any noticeable effect on wave action or erosion intensity.

(x) shore erosion and accretion patterns – KSWD indicates that severe shoreline erosion has occurred in much of the area being considered. If any accretion pattern exists currently, it would likely not be affected by the presence of the water use facilities or riprap placement. Throughout the project, approximately 3,455 feet of riverbank would be stabilized, and riprap would be installed below elevation 818 to protect the riverbank from erosion. TVA concurs.

() baseflow -

3.3 Biological Characteristics and Anticipated Changes

The relevant blocks are checked with a description of the impacts. An unchecked block denotes that no adverse effects are expected.

(x) special aquatic sites (wetlands, mudflats, pool and riffle areas, vegetated shallows, sanctuaries, and refuges, as defined in 40 CFR 230.40-45) – A functionally limited 0.14-acre scrub-shrub wetland area is located within the River Plain Park area (Project 9). The site is adjacent to the Tennessee River and was specifically a sump on an old Texaco property. Dominant plant species include black willow, grasses, sedges, and rushes. Development of the park would require the elimination of the wetland. As mitigation, KSWD proposes to create a new wetland that would function as a storm water filtration system for street and park runoff. KSWD anticipates that the aquatic resource value of this new habitat would increase from its current degraded state. The original plan was to mitigate the wetland loss by offering a 4:1 creation ratio. However, due to property size and geometry constraints, the designers were able to achieve only a 3.45:1 ratio, i.e., a 0.4835-acre wetland. After carefully considering all available design options, KSWD determined that it would not be able to further increase the size of the wetland on such a constrained site without compromising the overall design, aims, and programmatic requirements of the park. USACE and TVA consider that the 3.45:1 mitigation ratio is adequate given the limited functional capacity of the existing wetlands.

(x) habitat for fish and other aquatic organisms – Fort Loudoun Reservoir comprises approximately 360 miles of shoreline and about 14,600 acres of water surface. The lake's fish population contains species such as bluegill, black bass, largemouth bass,

smallmouth bass, striped bass, white bass, crappie, black crappie, white crappie, channel catfish, sauger, walleye, and others. Aquatic habitat in the area has been slightly to moderately disturbed by the presence of recreational and commercial activities associated with nearby barge terminals, marinas, and community docks. A number of mud/sand flats and shoals along the shoreline provide habitats and feeding and spawning areas for fish and other aquatic organisms. The construction of the kayak landings and regrading of the riverbank would adversely impact 1,420 feet of shallow water habitats. The loss of shallow-water habitat could negatively affect fish and benthic organisms within the area of the PPIs. To mitigate for the loss of 1,420 feet of shallow-water habitat in Fort Loudoun Reservoir, spawning benches would be installed as required by TWRA, USFWS, and USACE public comments, at a recommended 32 benches per acre of disturbed spawning habitat.

This impact would be temporary, as aquatic organisms would soon recolonize after construction. Installation of riprap along the riverbank would provide 3,455 feet of additional potential habitat for aquatic species. The proposed floating docks and piers would also provide additional attachment surfaces and shading for fish and aquatic organisms.

(x) wildlife habitat – A substantial portion of the project site has been in industrial use for several decades. The surrounding area is also mainly industrial and residential in nature. As a result of continued human activity in the area, wildlife habitat values are low. Migratory songbirds, muskrats, water snakes, great blue herons, Canada geese and green herons are all common in the area of the PPIs. None of the habitats observed during ecological research present favorable habitats for any protected species listed by the USFWS and TDEC Division of Natural Areas. As part of the proposed riverbank activities, 3.45 acres of native woody vegetation would be planted along the shoreline to provide additional potential wildlife habitat.

(x) endangered or threatened species – No federally or state-listed endangered or threatened species, or potential critical habitats for listed species, have been observed or are known to exist on the project site. Based on the response from the USFWS (Section 2.2.1.1) and information obtained from USACE files, the USACE has determined that the proposal would have no effect on these species or their designated critical habitats. TVA concurs.

(x) biological availability of possible contaminants in dredged or fill material – No dredging is planned in connection with this project. No contaminants would be suspected in any fill material. However, the origin of new fill material would be identified and verified to be free of contaminants prior to placing at any of the project sites.

3.4 Human Use Characteristics and Anticipated Impacts

The relevant blocks are checked with a description of the impacts. An unchecked block denotes that no adverse effects are expected.

(x) existing and potential water supplies; water conservation – USACE's permit database records five municipal or industrial raw water intake sites in the main stem of Fort Loudoun Reservoir. The industrial intakes are located at TRM 640.9, right bank (R), 646.9, left bank (L), and 647.8L. In addition, two City municipal intakes exist at TRMs 646.4R and 649.1R. The upstream-most municipal intake is located at TRM 649.1R slightly upstream and across from the Project 11 area (Baker Creek Landing). The downstream-most municipal intake is located at TRM 646.4R, approximately 1 mile below the beginning of the project. Water

conservation (storing, saving, reducing, or recycling water) would not be affected by the proposed action.

(x) water-related recreation – The PPIs are located along the upper reaches of Fort Loudoun Reservoir. The setting of this portion of the reservoir, which roughly extends from TRM 642 (Sequoyah Hills) to TRM 652 (just downstream of the confluence of the French Broad and Holston rivers) is mainly urban in character and generally receives light to moderate recreational boating use. Commercial barge traffic also passes through this section of the reservoir. Navigation is addressed in the next section. Boating traffic along this section of the waterway can become heavy and sometimes congested during special events such as UT home football games, the annual “Boomsday” fireworks display, and rowing regattas. During some of these events, the TWRA and other organizations monitor and regulate boating activity to maintain safe conditions.

A total of seven water-oriented public parks and one commercial marina are located on this segment of the reservoir. Park facilities include picnic tables and pavilions, trails and riverside walkways, fishing piers, play equipment, and boat launching ramps. Four paved boat ramps with parking for about 70 vehicles and trailers are available. The commercial marina provides wet slip storage for 120 boats. Other recreation-related resources in the general area include the Forks of the River Wildlife Management Area, Ijams Nature Center, and the lower sections of the French Broad and Holston Rivers, both of which are included in the Nationwide Rivers Inventory.

Existing recreation activity in the vicinity of the six proposed South Waterfront projects is limited. Although some informal use such as bank fishing occurs within the proposed Baker Creek Landing project, the remaining five proposed projects are virtually inaccessible to the general public. A rowing course has been established on the water surface adjacent to the proposed Henley Riverwalk, Shoals Riverwalk, and Gay Street Stair projects. The course is used by members of the UT rowing club and other organizations.

The environmental consequences of the available alternatives to the proposed action have been considered. Under the No Action Alternative, the proposed project would not be implemented, and no change in recreation use patterns would occur on the project areas. Under the Proposed Action Alternative, development of the proposed initiatives would complement other water-oriented recreation facilities in the area and provide additional opportunities for public access to the downtown Knoxville waterfront area. The development of kayak access facilities in the Gay Street Stair project would lead to some increase in nonmotorized boating activity along this stretch of the river. However, this increase should not have a significant impact on overall boating patterns and other recreation activities in the area. Finally, under the Proposed Action With Added Special Conditions Alternative, similar recreational benefits to the Proposed Action Alternative would be experienced but with decreased potential navigation impacts and additional safeguards.

Cumulative impacts were also considered. While the proposed public improvements currently under consideration are viable as a stand-alone project, the City’s long range plans for the south Waterfront includes potential future phases of waterfront development over the next 20 years. The most prominent feature related to recreational boating would be an additional potential 225-slip marina/community dock to serve future waterfront area residents. The addition of this potential facility would add to overall recreational boating activity and density in the area. However, not all boats kept at this potential facility would be on the reservoir at the same time. Based on observations of similar facilities across the Tennessee River system, TVA

assumes that only about 25 percent of stored boats are likely to be in use during a typical summer weekend day and 35 percent on a peak-use holiday weekend. Therefore, the potential marina would result in up to 56 additional boats on the reservoir during a typical weekend day during the boating season and 79 additional boats during a holiday weekend.

The South Waterfront area would be situated in a section of Fort Loudoun Reservoir that contains about 1,169 surface acres of reservoir usable for recreational boating. Public and private community boat ramps, commercial and community marinas, and private boat access facilities are also located in this same section of the reservoir. With the potential 225-slip marina, and based on projections of the resulting recreation development and boating use estimates, it appears this section of Fort Loudoun could accommodate typical summer weekend day boating activity without exceeding generally accepted recreational boat thresholds of 6.0 to 7.6 surface acres per boat (TVA 2008). Boating density factoring in the potential 225-slip marina was computed to be 6.9 surface acres per boat on a typical summer weekend day. The spreadsheet used to compute the boating density is shown in Appendix H.

However, there is heavy recreational boat traffic in this area, especially on fall weekends when the UT plays home football games. Additional boating traffic resulting from future boating facilities in the area could increase boating congestion and safety concerns. As a result, efforts by TWRA and others would continue in order to support safe boating during these events.

(x) navigation – Commercial navigation on Fort Loudoun is an important component of the transportation infrastructure of East Tennessee and the regional economy. Typically, between 500,000 and 600,000 tons of material are moved by barge in the Knoxville area each year. In 2006, some 573,000 tons of commodities moved by barge on Fort Loudoun Reservoir. These shipments included asphalt, salt, sand and gravel, chemicals, and scrap metal. USACE reported that 206 commercial tows passed through Fort Loudoun Lock in 2006. The use of the waterway rather than truck or rail saved area shippers and their business partners an estimated \$5.3 million in transportation costs. Additionally, 1,935 recreational vessels passed through Fort Loudoun Lock during 2006 according to USACE's Web site for Fort Loudoun Lock (<http://www.lrn.usace.army.mil/locks/fortloudoun/statistics.htm>, accessed January 23, 2009).

The location of the proposed activities, between TRM 647.36L and 649.13L, is about 40 miles upstream from Fort Loudoun Dam. The reservoir behaves much like a river at the site of the PPIs. Barge traffic is light in this section of the river. The closest barge terminal is located at the Marathon asphalt plant, which is located about 1,000 feet upstream of the site of the PPIs. The next closest commercial terminal is located about 2,500 feet downstream of the PPIs.

The environmental consequences of the available alternatives to the proposed action have been considered. Under the No Action Alternative, TVA would not issue Section 26a approval; USACE would not issue Section 10 and 404 permits. Land would remain in its current use. As stated in its application, the City would not pursue any of the work described therein. Under the No Action Alternative, there would be no additional impacts to navigation beyond those that already occur under current conditions. Under the Proposed Action Alternative, TVA would issue Section 26a approval; USACE would issue Section 10 and 404 permits. The City would construct the walkways, landings, and water use facilities as described in Sections 1.2 and 1.3 of this EA. If the public improvements are constructed as proposed, there would be no significant impact on the navigation channel, and no new navigation aids would be required.

Finally, under the Proposed Action With Added Special Conditions Alternative, TVA would issue Section 26a approval for KSWD's proposal; USACE would also issue Section 10 and 404 approvals for the proposal. However, approval would be subject to the special conditions listed in Section 4.3.3. The City would construct the walkways, landings, and water use facilities as described in the Applicant's Final Proposal (see Section 1.3).

(x) aesthetics – The PPIs are located in a primarily industrial riverfront area. The planned activities would transform these areas into visually attractive public open spaces. Associated redevelopment of the surrounding areas that would likely occur as a result of these public improvements would add to the visual appeal of the waterfront. The back-lying properties and projects potentially proposed for them may or may not be subject to the jurisdiction of either TVA Section 26a or USACE Sections 10 and 404 permits.

(x) traffic/transportation patterns – As part of the proposed project, a new road would be constructed to provide access to the proposed public park and kayak landing and to future mixed use developments associated with the redevelopment of this area. Local streets leading to the recreation facilities would experience a slight increase in traffic. These access streets would be upgraded as part of the proposed project to accommodate traffic increases. On-street parking and a 20-car parking area would provide for visitors' parking needs. The proposed upgrades and parking proposals were developed in a number of traffic and transportation studies carried out as part of the initial master planning process.

() energy consumption or generation -

(x) safety – This project is not likely to result in any unsafe watercraft-related situations. The location of proposed kayak landings and floating docks has been carefully considered to reduce conflicts with recreational boaters and river traffic to a minimum. The floating dock between the Henley and Gay Street bridges maintains a minimum distance of approximately 50 feet from the existing rowing lanes. Motorboat usage of the floating docks and ramps would be restricted to only transient use, to further avoid conflicts between boat users. The detailed design of the floating walkways would be carefully considered to create a safe environment for all users. The width of the floating walkways appears sufficient to allow adequate space for pedestrian traffic and reduce any potential conflicts between users. All floating facilities would be securely anchored into existing rock using steel pipe guide piles extending to elevation 827. These piles would provide stability under normal conditions and prevent the facilities from floating free during floods. Floor elevations would be a minimum of 2 feet above the NSP elevation of 813. A safety kick rail would be installed along the length of the floating walkways, and handrails would be installed on bridges and gangways connecting the floating walkways. Safety measures such as life rings and help phones would be installed at the City's discretion. Therefore, potentially unsafe conditions that could affect general public safety have been reduced to a minimum.

(x) air quality – USACE has analyzed KSWD's PPIs for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. The PPIs would not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR § 93.153. In addition, any later indirect emissions are generally not within USACE's continuing program responsibility, and cannot be practically controlled by the agency. For these reasons, a conformity determination is not required for this permit. TVA concurs.

(x) noise – Noise levels would increase slightly during construction. Following construction there would be a minor long-term increase above background levels due to increased recreational usage of the area. Considering the existing commercial and recreational uses within the Knoxville waterfront and present levels of marine traffic, the short- and long-term effects would be minimal.

(x) historic properties and cultural values – For at least 12,000 years, the lands along the Tennessee and French Broad rivers have been an area for human occupation that became more intense through succeeding cultural periods. The Paleo-Indian Period (10,000-8000 BC) represents the documented first human occupation of the area. The settlement and land use pattern of this period was dominated by highly mobile bands of hunters and gatherers. The subsequent Archaic Period (8000-1200 BC) represents a continuation of the hunter-gatherer lifestyle. Through time, there was increasing social complexity and the appearance of horticulture late in the period. The settlement pattern during this period was characterized by spring and summer campsites. Increased social complexity, reliance on horticulture and agriculture, and the introduction of ceramic technology characterized the Woodland Period (1200 BC-AD 1000). The increased importance of horticulture was associated with a less mobile lifestyle as suggested by semipermanent structures. The Mississippian Period (AD 1000-1500), the last prehistoric period in East Tennessee, was associated with the pinnacle of social complexity in the southeastern United States. This period was characterized by permanent settlements, maize agriculture, and chiefdom-level societies. The Protohistoric-Contact Period (AD 1500-1750) consisted of the effects of European contact in the region. During this period, European contact arose through trade and construction of European settlements along the borders of Native American territory. European-American settlement increased in the early 19th century as the Cherokee were forced to give up their land.

With the expansion of the United States, this location became part of Tennessee. Initially the project area was part of Sevier and Knox counties (1792-1933), but presently all of the project area is within Knox County. The Tennessee and French Broad rivers became part of a significant transportation and trade network throughout the region. By the mid 1800s, railroads were constructed and a passable roadway system connected Knoxville to Charleston, South Carolina, and other prominent cities at that time (McArthur 1976). All of these developments solved a number of economic needs for Knoxville residents and brought more settlers and skilled workers to the area. With this advantage, East Tennessee had a more mixed economic base than the middle and western portions of the state by 1860. When the Civil War developed, East Tennessee was generally not supportive of the Secessionist movement because of a low slave population and a diverse economy (D'Angelo 2002). Although a number of significant Civil War battles occurred in the region, no skirmishes are recorded in the project area. After the Civil War, East Tennessee had social and economic instability, as did most of the confederate states. However, the Knoxville economy slowly began to recover through manufacturing and mechanical businesses. Outside of Knoxville, little had changed since the Civil War. Most of the area relied on agriculture and farming. With the development of TVA in 1933, the economy and life ways changed with the wide availability of low cost electrical services. Electricity, in turn, brought about successful ventures in economic development and recreation to Knoxville and the surrounding communities.

The initial APE for the Knoxville South Waterfront Project is the proposed development except for Project 4 area (Riverwalk and West Blount Avenue at City View, formerly the Knoxville Glove Factory), which was previously investigated by Koch (2005) and no historic properties were identified. Investigations were conducted in recent years for other projects in this same local

geographic area (D'Angelo 2002; Joseph et al. 2008), but those projects were not part of the proposed South Waterfront JPA. However, the information contained in those reports applies to the Knoxville South Waterfront PPIs as described in the JPA.

For purposes of the historic architecture/site survey, the APE is defined as the project areas plus any areas containing historic resources from which the project areas would be visible. The size of the APE beyond the actual PPIs would depend on such factors as topography and vegetation (line of sight) or half-mile radius boundary, whichever is closer.

TVA, designated lead federal agency responsible for matters pertaining Section 106 of the NHPA, consulted with the **TSHPO**, and the TSHPO recommended a PA for phased survey compliance of the APE. The PA would also include procedures for identification, evaluation, and treatment of historic properties that are eligible for inclusion in the NRHP. A draft PA has been sent to consulting parties for comment. USACE is an invited signatory party to the PA.

No formal aboveground historic properties survey has been conducted in the APE. Surveys of historic districts/structures within a half-mile radius of the development are to be scheduled to assess the potential effects of this undertaking.

Portions of the APE have already been surveyed for archaeological resources. Cherokee Trail Connector (Project 1), Springs Water Center (Project 12), and Baker Creek Landing (Project 11) were investigated for archaeological resources (Joseph et al. 2008). Projects 1 and 12 were removed from the JPA prior to its submission and are not discussed further in this EA. However, in the same undertaking, investigators studied land that *is* part of the JPA, hence the mention here of Projects 1 and 12. One archaeological site, consisting of abandoned railroad line (40KN299), was identified and recommended ineligible for listing in the **National Register of Historic Places (NRHP)**. TVA agreed with this finding. Unfortunately, the archaeological consultants were not granted access to a small area within Project 1, and this area will require investigations prior to construction. In Project 12, additional historic background research regarding the quarry may be necessary. The quarry is depicted on a 7.5-minute planimetric quadrangle from 1936.

The environmental consequences of the available alternatives to the proposed action have been considered. Under the No Action Alternative, no permits or Section 26a approval would be issued, and no undertaking would occur. This would have no effect on historic properties. Under the Proposed Action Alternative and the Proposed Action With Added Special Conditions Alternative, additional historic properties studies would be necessary before effects on historic properties can be determined within the APE. A PA would be executed to allow for phased survey compliance for identification, evaluation, and treatment of historic properties that are eligible for inclusion in the NRHP. The TSHPO has concurred with this approach.

(x) land use classification – A mix of commercial and industrial land uses exist on the properties affected by the PPIs. Following implementation of the PPIs, the land would be reclassified for public use as open space.

(x) conservation – The functionally limited 0.14-acre scrub-shrub wetland mentioned earlier in this section may also be viewed as a conservation use. The wetland would be improved both in size and in functional quality, preserving and enhancing its place in the South Knoxville ecosystem. No dredging is planned. Therefore, shallow-water habitat elimination due to the placement of fill for bank stabilization and the construction of ramps,

storage areas, decks, docks, etc., would be minimal. No critical habitats for listed species would be affected by this proposal.

(x) economics – The PPIs are part of the first phase of the Knoxville South Waterfront Project, a 20-year revitalization plan. They would complement the development of the area around the south side of the waterfront, including possible developments such as residential, retail, entertainment, hotel, and office. The area directly affected by these projects is a portion of Fort Loudoun Reservoir and an adjacent narrow strip of land, less than 2 miles in length, at the south end of downtown Knoxville. Downtown Knoxville has seen extensive revitalization and population increase in recent years. The City has an estimated population of 183,546, as of 2007 (www.census.gov). The population of Knox County, in which Knoxville is located, is estimated to be 423,874, with total personal income over \$14.1 billion in 2006 (www.bea.gov).

As noted above, the PPIs would directly affect only a short section of the South Waterfront and a narrow strip of adjacent land. The impacts would be positive, but small. However, they would complement the larger plan, which includes an estimated total of \$139 million in public improvements. The plan anticipates that the public open space improvements would encourage private investment in the area, generating up to \$814 million (Hargreaves Associates et al. 2006).

As a result, in part, of the PPIs, more commercial and residential development could occur in and around the area, with long-term benefits from increases in tax revenues, employment, and property values. No significant negative social or economic impacts are expected. The larger Knoxville South Waterfront Project could also result in displacement of some residences, either by decisions to sell prompted by higher property values or by eminent domain if necessary to accommodate other aspects of the plan. Under the larger Knoxville South Waterfront Project, the character of the neighborhoods in the vicinity of Blount, Langford, Phillips, and Sevier avenues would change.

() food and fiber production -

(x) general environmental concerns – This is a broad factor almost synonymous with the area's quality of life. All of the relevant issues encompassed by this heading have been evaluated in this document. Few comments/concerns were expressed during the public interest review process associated with these PPIs. Special conditions have been added to reduce the unavoidable adverse environmental impacts identified to a minimum.

() mineral needs -

(x) consideration of private property – USACE regulations at 33 CFR 320.4(g) state that authorization of work by the DA does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations. The same regulation also states that a riparian landowner has a general right of access to NWUS. However, this right of access is weighed through the DA public interest review process against the similar rights of access held by nearby riparian landowners and to the general public's right of navigation on the water surface. TVA has a flowage easement up to elevation 822 at this site. Consent to apply for the DA permit and 26a approval has been received from all landowners affected by the proposed activities.

(x) floodplain values – The area impacted by the proposed waterfront development extends from TRM 647.36 to 649.13 on Fort Loudoun Reservoir in Knoxville,

Tennessee. The 100-year floodplain on Fort Loudoun Reservoir is the land area that would be under water in a 100-year-frequency flood. The 100-year flood elevations for the Tennessee River vary from elevation 821.5 feet above msl at TRM 647.36 to elevation 822.7 feet msl at TRM 649.13. The **Flood Risk Profile (FRP)** elevations for the river vary from elevation 827.5 feet msl at TRM 647.36 to elevation 829.1 feet msl at TRM 649.13. All elevations are referenced to the National Geodetic Vertical Datum of 1929.

At the proposed South Waterfront Project locations, the FRP elevations are the same as the 500-year flood elevations and are used to control flood-damageable development for TVA projects and on TVA lands. The City participates in the National Flood Insurance Program, and any development must be consistent with these regulations. The floodway adopted by the City is that portion of the Tennessee River channel and floodplain that must remain open and unobstructed to allow passage of floodwaters in order to prevent increases in upstream flood elevations.

The environmental consequences of the available alternatives to the proposed action have been considered. Under the No Action Alternative, the proposed waterfront development would not occur. No floodplains would be affected. Under the Proposed Action Alternative, construction of floating docks, floating walkways and boathouse, fixed fishing pier, land-based walkway, a road, sidewalks, a parking area, playground, stairs, shoreline stabilization, and fill would occur. The floating docks, floating walkways and boathouse, fixed fishing pier, land-based walkway, stairs, sidewalks, shoreline stabilization, and a portion of the fill would be located within the 100-year floodplain. Consistent with EO 11988, floating docks, floating walkways and boathouse, fixed fishing pier, land-based walkway, stairs, sidewalks, and shoreline stabilization are considered repetitive actions in the 100-year floodplain. The proposed road, playground, and parking area would be located outside the 100-year floodplain.

The fill in the 100-year floodplain would either be associated with a repetitive action, or it would be used to create a series of raised landforms to function as spectator viewing areas for river-based events and activities. KSWD has evaluated alternatives to the proposed floodplain fill and provided documentation to support a no practicable alternative determination for the fill. The project would result in the loss of about 1.0 acre-foot of flood control storage and 1.0 acre-foot of power storage. An acre-foot is an expression of volume equivalent to an acre of land covered by water to a depth of 1 foot. TVA believes the amount of displaced flood control storage has been minimized while achieving the objective of the PPIs. Therefore, the proposed project complies with the TVA Flood Control Storage Loss Guideline.

The proposed shoreline stabilization and a portion of the fill would also be located within the published floodway. A "No Rise" Certification for Floodway Encroachment was completed for the project on December 5, 2008. The Knoxville Department of Engineering approved the certification on January 23, 2009. Therefore, the project would comply with local floodplain regulations. The "No Rise" Certification is provided as Appendix I.

3.5 Cumulative and Secondary Impacts

The Council on Environmental Quality regulations define cumulative impact as "the environmental impact which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." The USACE considers every DA permit application on its own merits and assesses its environmental impacts within the proper scope of review for NEPA purposes.

There are approximately seven active barge terminals along the Knoxville urban area waterfront that extend from TRM 646.0 to TRM 652.0 and beyond, up to Mile 1.0 of the French Broad River. Several marinas, municipal parks (e.g., Scottish Pike River Park at TRM 646.4L), sports event venues (Neyland Stadium, Lindsey Nelson Stadium, Thompson-Boling Arena, etc.), and other recreational areas exist along the Knoxville waterfront. Commercial and/or community boat docks are also present: Volunteer Landing Marina at TRM 648.0R, City View at Riverwalk at TRM 647.2L (under construction), and Tennessee River Condominium Development Company community dock at TRM 646.3L. Other private and public docks nearby include Calhoun's Restaurant (TRM 647.6R) and UT docks (TRM 647.4R and 647.3R). In addition, the UT boathouse and the former World's Fair dock are located at TRM 647.1R. The nearest public boat ramp is located at TRM 648.7R.

Relatively few permits for marinas, community boat docks, and boat ramps have been issued in this area of Fort Loudoun Reservoir in the last 20 years. Other than future phases of the Knoxville South Waterfront Public Improvements Project, the USACE is not aware of any additional future development along the south and north banks of the Tennessee River. TVA concurs. Any future construction of community docks, marinas, public ramps, and any other water use facility would be evaluated by the USACE and TVA for environmental and socioeconomic impacts through their respective permit review processes.

The proposed activities included in this JPA are the first foreseeable projects with landowner consent of the Phase 1 Knoxville South Waterfront Public Improvements Project. The projects create new waterfront open space for both the local and wider community. Additional kayak landings and docks, bank stabilization, at grade walkways, road improvements, and a pedestrian bridge are included in later first phase projects. In addition, a private property owner may propose a 225-slip marina in the vicinity of the proposed Baker Creek Landing. Collectively, the projects would improve pedestrian riverfront access and water-based recreation facilities on this stretch of river. The overall 20-year improvement plan for the Knoxville South Waterfront aims to create a continuous riverfront walkway from Goose Creek to Baker Creek allowing access to water-based recreational facilities including kayak/boat docks, piers, and marinas. The proposed plans would have positive socioeconomic and environmental impacts. Water traffic on this stretch of river would increase as a result. However, careful planning during the design and public review processes of future projects would limit the conflicts between various types of water traffic. As mentioned in Section 3.4, the character of the neighborhoods in the vicinity of Blount, Langford, Phillips, and Sevier avenues would change.

The scope of analysis for this DA permit application is limited to the Permit Area, i.e., the shoreline and near-shoreline affected by riprap placement and the construction of water use facilities and structures (Section 1.6). In addition, the Permit Area includes the immediate upland areas directly impacted by the construction of the parking lots, roads, and passive recreational facilities. For purposes of Section 106 of the NHPA, the APE can be defined differently and may not be synonymous with the Permit Area for NEPA purposes. The APE was described in the cultural resources topic in Section 3.4.

The Permit Area impacts described in this document would result in minimal adverse cumulative impacts on areas within our NEPA scope of review. A discussion of these impacts has been presented in Section 3.0. If a decision were made to issue the required DA permit and 26a approval, special permit conditions would be incorporated to reduce the identified impacts to a minimum. When considering the impacts from past, present, and reasonably foreseeable future proposals, the cumulative and secondary impacts from this proposal are considered minor.

CHAPTER 4.0 Alternatives**4.1 Introduction**

This section discusses alternatives as required by USACE and TVA regulations and by NEPA. USACE requirements about consideration of alternatives are found at 33 CFR 320.4 (a)(2). The relevant environmental issues identified in Section 3.0 were used to formulate the alternatives. The alternatives considered in detail are described in Section 4.2 and their impacts are compared in Section 4.3. Other alternatives not considered in detail are discussed in Section 4.4.

4.2 Description of Alternatives

4.2.1 No Action. This alternative results in no construction or work requiring a USACE permit or TVA approval. No Action would occur by denial of the permit/approval or withdrawal of the permit application.

4.2.2 Applicant's Proposed Action. This alternative consists of the initial proposal and project changes described in Sections 1.2 and 1.3.

4.2.3 Applicant's Proposed Action With Added Special Conditions. This alternative consists of the Applicant's Proposed Action identified in Section 4.2.2 above with the inclusion of special conditions to further minimize/mitigate unavoidable environmental impacts to the maximum extent practicable.

4.3 Comparison of Alternatives

4.3.1 No Action. The No Action Alternative would be brought about by a denial of the JPA by either the DA or TVA. The potential environmental impacts described in Section 3.0 would not occur. Conversely, the expected socioeconomic benefits also described in that section would not be achieved. No Action would not satisfy KSWD's stated purpose and need.

4.3.2 Applicant's Proposed Action. The proposed action described in Sections 1.2 and 1.3 would potentially have various adverse and beneficial environmental and socioeconomic effects. These potential effects have been listed in Section 3.0 above.

4.3.3 Applicant's Proposed Action With Added Special Conditions. This alternative would result in similar impacts and benefits to the alternative described in Section 4.3.2 above. Special permit conditions have been developed for incorporation into the permit (see Section 5.4). The special conditions are reasonably enforceable and would afford appropriate and practicable environmental protection. Some of the conditions are necessary to satisfy legal and public interest requirements. Conditions have been specifically added to reduce adverse impacts on navigation, water quality, and the aquatic environment.

4.4 Alternatives Not Considered in Detail

Other practicable alternatives involving different designs (size, shape, height), materials (metal, composites, etc.), or sites exist. However, the resultant degree of impact would be commensurate with the impacts of the proposed action. All of the alternative designs would require DA/TVA permits/approval and would be subject to the agencies' review processes. These alternatives might not satisfy the applicant's purpose and need.

CHAPTER 5.0 Other Considerations**5.1 Section 404(b)(1) Guidelines Determination**

5.1.1 General. The purpose of Section 404(b)(1) of the CWA is to restore and maintain the chemical, physical, and biological integrity of the WUS through the control of discharges of dredged or fill material. Controls are established through restrictions placed on the discharges in guidelines published in 40 CFR 230.

5.1.2 Restrictions on the Discharge. Section 230.10 requires that the discharge meet certain restrictions in order to be authorized. The project is to be evaluated and must comply with the following restrictions: (a) there would be no other practicable alternatives to the proposal that would have less adverse impacts on the aquatic environment; (b) the discharge would not adversely impact water quality, violate state water quality standards or toxic effluent standards, or jeopardize the continued existence of a threatened or endangered species as identified under the ESA; (c) the discharge would not cause or contribute to the significant degradation of WUS; and (d) the project would be designed in such a manner as to minimize to the extent practicable the adverse impacts on the aquatic environment.

5.1.3 Factual Determination. Based on the probable impacts addressed above, compliance with the restrictions, and all other information concerning the fill materials to be used, the proposed work complies with the guidelines and the intent of Section 404(b)(1) of the CWA. A guidelines compliance checklist has been included in Appendix J.

5.2 Clean Air Act Determination

USACE has analyzed KSWD's project for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. The proposed activities would not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. In addition, any later indirect emissions are generally not within USACE's continuing program responsibility, and cannot be practically controlled by the agency. For these reasons, a conformity determination is not required for this permit.

5.3 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Through our public involvement process, we have offered government agencies, elected officials, adjacent property owners, and the public (includes, if applicable, low-income and minority populations) an opportunity to comment on matters that affect the citizenry's welfare. The Lower Section impact area west of the Henley Street Bridge (Chapman Highway) is in Census Tract 24, Block 1000. There are no residents in that block or in the immediate area. The Lower Section impact area east of the Henley Street Bridge is in Census Tract 8, Block 1029; the population in this area in 2000 was 50 persons, of which 8 percent were minorities. The Middle Section is located in Census Tract 8, Block 1001. The population of this area in 2000 was 35, of which about 26 percent were minorities; these homes are generally located south and west of the project site. The Upper Section is located in Census Tract 8, Blocks 1000 and 1007, which have no residents. Poverty data are not available for individual blocks. Census Tract 24, Block Group 1, where the Lower Section west of the Henley Street Bridge is located, had a poverty level of 35.7 percent in 1999, well above the national level of 12.4 percent, the state level of 13.5 percent, the Knox County level of 12.6 percent, and the city of Knoxville level at 20.8 percent (www.census.gov). The population in this area is removed from the site and would

not be directly affected by the project. The remainder of the project is located in Census Tract 8, Block Group 1, which had a poverty level of 29.6 percent in 1999, somewhat higher than the city average. However, almost all of the population in these areas is somewhat removed from the affected sites and generally would not likely be directly impacted. Based on the information available to USACE and TVA, the PPIs would not displace any minority or low-income group. Therefore, these segments of the population would not be disproportionately impacted by the PPIs. Several federal, state, and local government agencies, commercial marine transportation companies, and several individuals commented on the proposal regarding matters unrelated to environmental justice. No one identifying himself/herself as being of a low-income or minority group has indicated any objection to the work. Therefore, the USACE and TVA have concluded that the proposal would satisfy the requirements of EO 12898.

5.4 Special Conditions to Minimize Adverse Impacts

Special permit conditions have been developed for incorporation into the permit (see below). The special conditions are reasonably enforceable and would afford appropriate and practicable environmental protection. Some of the conditions are necessary to satisfy legal and public interest requirements. Conditions have been specifically added to minimize adverse impacts on navigation, water quality, and the aquatic environment.

- The work must be in accordance with any plans attached to this permit. *Justification: Clarify permit application.*
- You 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.*
- Your 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.*
- A preconstruction meeting must be held among representatives of the USACE Nashville District, TVA, permittee, and contractor(s) to discuss the conditions of this permit. The contractor(s) must present their method of operation for the work at this meeting. If the method of operation includes additional work such as temporary access pads/fills, structures, etc., below elevation 813, another permit may be required before you start construction. You should contact J. Ruben Hernandez of this office, telephone number (615) 369-7519, to arrange the required meeting. *Justification: Clarify permit application.*
- The fill created by the discharge shall be properly maintained to prevent erosion and other nonpoint sources of pollution. *Justification: Minimize impacts on water quality and the aquatic environment.*

- You would identify the origin of fill material and verify it to be free of contaminants prior to placing at any of the project sites. *Justification: Minimize impacts on water quality and the aquatic environment.*
- The disturbance to riparian vegetation shall be kept to a minimum during construction. *Justification: Minimize impacts on wildlife habitat, water quality, and the aquatic environment.*
- Siltation and erosion-control methods, including rock check-dams, entrenched silt fences, and staked hay bales, shall be utilized and in place prior to commencement of any work. All site preparations shall be conducted in a manner that minimizes any siltation of the river. Riparian-zone vegetation disturbance shall be kept to a minimum and in the direct vicinity of the actual crossing. Trucks and equipment shall enter and depart the work area via the one access point to minimize runoff and erosion. *Justification: Minimize impacts on water quality and the aquatic environment.*
- Riprap material shall be quarry-run stone (adequate size distribution and weight) or its equivalent, i.e., clean material free of waste metal products, organic materials, unsightly debris, etc. *Justification: Minimize impacts on water quality and the aquatic environment.*
- You are required to notify this office, in writing, by completion of the enclosed "Navigation Data Sheet" at least 10 working days in advance of any work in the waterway related to the construction of the floating walkways herein approved. You must also notify us if construction of the approved boathouses, floating docks, and fixed piers would require use of floating plant (barges, decks, vessels, etc.). Failure to comply with this requirement may result in revisions or delays of work schedules to allow adequate time for notification of navigation interests utilizing the waterway. *Justification: Public interest requirement (navigation safety).*
- You must install and maintain, at your expense, any safety lights and signals prescribed by the **United States Coast Guard (USCG)**, through regulations or otherwise, on your authorized facilities. The USCG may be reached at the following address and telephone number: Commander, Eighth Coast Guard District, Attn.: Prevention Division, Hale Boggs Federal Building, 500 Poydras Street, New Orleans, LA 70130, (504) 671-2117. *Justification: Public interest requirement and recommended at 33 CFR 325, Appendix A.*
- You hereby recognize the possibility that the structures permitted herein may be subject to damage by wave wash and possible collision damage from passing vessels. The issuance of this permit and 26a approval does not relieve you from taking all proper steps to ensure the integrity of the structure and the safety of boats moored thereto from damage by wave wash or collisions, and you shall not hold the United States liable for any such damage. *Justification: Public interest requirement (navigation safety).*
- No boats will be moored on the outside of the floating walkways or to the Baker Creek Landing fixed fishing pier at any time. In addition, the fixed fishing pier will not be equipped with any boat cleats. *Justification: Public interest requirement (navigation safety).*
- The floor elevation of all fixed docks must be a minimum of 2 feet above normal summer pool, elevation 813. *Justification: Public interest requirement (navigation safety).*
- All floating facilities must be securely anchored to prevent them from floating free during major floods. *Justification: Public interest requirement (navigation safety).*

- You must not install "no-wake" zones or buoys at any of the authorized facilities. *Justification: Public interest requirement (navigation safety).*
- Wetland impacts will be compensated by creating a total of 0.4835 acres (21,063 square feet) of wetlands at two locations within the River Plain Park area (Project 9). The wetlands will be monitored for five years. The monitoring plan will include vegetation, hydrology, and soils assessments. You will prepare annual reports and include adequate photographic documentation. The monitoring report will be used to adjust the site mitigation strategy as needed to achieve the proposed results. *Justification: Public interest review (special aquatic sites) and satisfy legal requirements.*
- You must agree to protect the mitigation areas in perpetuity using the standard TDEC land use restrictions language. *Justification: Public interest review (special aquatic sites) and satisfy legal requirements.*
- To ensure that the proposed development would not adversely impact floodplains and flood control, TVA would include the following conditions in the 26a approval letter: for purposes of shoreline bank stabilization, all portions will be constructed or placed, on average, no more than 2 feet from the existing shoreline at normal summer pool elevation. *Justification: Public interest requirement (navigation safety).*

FOR THE COMMANDER:

Date

Forrest E. McDaniel
Chief, Eastern Regulatory Section
Regulatory Branch
Operations Division

CHAPTER 6.0 References

D'Angelo, J. J., 2002. *Phase I Cultural Resources Survey of Four Tracts Along Fort Loudon Lake and the French Broad River in Knox County, Tennessee*. Submitted to TVA. Atlanta, Ga.: TRC Garrow Associates Inc..

Hargreaves Associates, Chan Krieger & Associates, Kennedy, Coulter, Rushing & Watson, Development Strategies, Moffat & Nichols, Glatting Jackson, Jordan, Jones & Goulding, Studio Four Design, Arcadis G&M, Duvall & Associates. 2006. *Knoxville South Waterfront – Establishing Actions, Priorities, Roles & Responsibilities – Action Plan Draft Report*. Available from <http://www.ci.knoxville.tn.us/southwaterfront/ordinances/draft_action_plan.pdf> (accessed April 30, 2009).

Joseph, J. W., D. Price, R. J. Windham, H. B. Matternes, and B. Botwick. 2008. *Cultural Context, Archaeological Research Design and Phase I Survey Results for Cherokee Trail Connector/Spring Water Center and Baker Creek Landing, Knoxville South Waterfront Project, City of Knoxville, Knox County, Tennessee*. Submitted to the City of Knoxville by New South and Associates (Technical Report #11591).

Koch, C. P. 2005. *Phase I Archaeological Survey of the Knoxville Glove Factory, Knoxville, Knox County, Tennessee*. Submitted to TVA by Terracon.

McArthur, William J., Jr. 1976. "Knoxville's History: An Interpretation," pages 1-67 in *Heart of the Valley: A History of Knoxville, Tennessee*. Edited by Lucille Deaderick, East Tennessee Historical Society.

Tennessee Valley Authority. 2008. *Boating Density Analysis - A Comparison Among Tennessee Valley Authority and Other Federal, State, and Investor-Owned Utilities Technical Report*. Prepared by Jerry Fouse, TVA, Office of Environment and Research. TVA Electronic Document Management System Item No. 090120279.