

2.0 ALTERNATIVES AND MITIGATION MEASURES

2.1 Introduction

The three alternatives assessed in the TVA EA are:

- **Alternative 1 - No Action Alternative** – Under Alternative 1, TVA and USACE would not issue Section 404, Section 10, or Section 26a permits for the community dock, boat launching ramp, and access road, and TVA would not approve deed modifications affecting about 14 acres to allow the construction of fill, 30 home sites/structures, and associated structures.
- **Alternative 2 - Applicant's Proposal** – Under Alternative 2, TVA and USACE would approve the applicant's request as originally proposed. This would include approval, under Section 26a, for the community dock and access walkway (i.e., catwalk), boat ramp, and portions of the clubhouse/deck, parking lot, and associated construction fill material placed below elevation 1044-foot msl. Also, TVA would approve an access road and a deed modification for fill, excavation, and structures below elevation 1044-foot msl affecting about 14 acres of the property.
- **Alternative 3 – Applicant's Proposal With Mitigation Resulting From the Section 26a and Land Use Review** – Under Alternative 3, TVA and USACE would approve TN Emmons' modified request with additional mitigation measures identified through the TVA review process, i.e., commitments to avoid or minimize impacts to the environment.

These alternatives are discussed in more detail in the following sections. The potential environmental consequences associated with each alternative are described in Chapter 4.

2.2 Alternative 1

Under Alternative 1, the No Action Alternative, TVA and USACE would not issue Section 404, Section 10, or Section 26a permits for the community dock, boat launching ramp, and access road, and TVA would not approve deed modifications affecting about 14 acres to allow the construction of fill, 30 home sites/structures, and associated structures. Land above elevation 1044-foot msl could be developed without TVA, USACE, or other federal permits or authorizations. Alternative access to the property is available by moving the east entrance road upslope or from the existing Norris Shores Subdivision adjacent to Sunset Bay on the opposite side of the same peninsula (Big Ridge).

2.3 Alternative 2

Under Alternative 2, the Applicant's Proposal, TVA and USACE would approve the project as proposed by the applicant. TVA would approve, under Section 26a, the community dock and access walkway (i.e., catwalk), boat ramp, and portions of the clubhouse/deck, parking lot, and associated construction fill material placed below elevation 1044-foot msl. USACE would approve these facilities, as applicable, under Section 10 of the River and Harbors Act and Section 404 of the Clean Water Act. Also, TVA would approve a deed modification for fill, excavation, and structures (i.e., home sites) below elevation 1044-foot msl, affecting about 14 acres of the private-property flowage easement land.

TN Emmons modified an earlier preliminary proposal to reduce the amount of TVA flowage easement land that would be disturbed associated with proposed home sites as well as the east entrance roadway. The developer changed the initial lot layout on two of the three deed modification areas (8 fewer i.e., 30 instead of 38, lots would be constructed on the two peninsulas) and has moved the east entrance road to minimize its effect on TVA flowage below elevation 1044-foot msl and TVA fee land below elevation 1020-foot msl. Here the developer would also remove the old road fill material and reestablish the original elevation 1020-foot msl contour. Approximately 141 cubic yards of old fill material lies within this area. In addition to Best Management Practices (BMPs), to further help curb erosion on the uplands, TN Emmons would also establish about 20 acres of “conservation buffer” where existing trees and brush would be retained.

Under this alternative, the following commitments would be implemented to minimize environmental impacts:

- Any future development proposed within the limits of the 100-year floodplain, elevation 1032-foot msl, must receive additional approval from TVA.
- All future development will be consistent with the requirements of TVA’s Flood Control Storage Loss Guideline.
- Lot numbers 388, 389, 390, 370, 371, 372, 373, 374, 375, 376, and 377 that adjoin the community outlot will be ineligible for individual water-use facilities or private docks. This information will be made available to prospective lot buyers in TN Emmons’ Interstate Exemption Statement (as a Vital Information Statement (VIS)) (Appendix E for Phases I and II). As soon as it is available, TN Emmons will provide TVA a copy of the additional Phase III VIS identifying the other lots where water-use facilities will be prohibited. This prohibition will be included in any future deed conveying the property.
- TN Emmons will mitigate the loss of a 0.25-acre wetland through acquisition of a 0.50-acre credit from the Indian Creek Wetland Mitigation Site in Roane County.
- TN Emmons will remove approximately 141 cubic yards of old road fill material from below elevation 1020-foot msl in order to construct the planned east entrance road.
- To avoid impacting Indiana bats, potential (dead or live trees greater than 6 inches dbh) bat roost trees may be removed between October 15 and March 31, when Indiana bats are not present. In the event TN Emmons seeks to remove potential bat roost trees between April 1 and October 14, a qualified biologist will be hired to identify and mark trees within the area. A report will be provided to TVA showing the location and number of roost trees. Removal of any such trees will require a biologist to monitor these trees using an ultrasound detector to identify bat echolocation calls. This monitoring shall occur from 30 minutes before dusk to 30 minutes after dark, screening a range of frequencies from 38 to 50 kHz. If no ultrasound calls are detected during one night of monitoring, the tree will be removed the following morning. Sunset Bay Architectural Review Committee (governed by the Homeowners Association) will also require approval of any potential bat roost trees removed by individual lot owners between April 1 and October 14. Reports from such lot owner projects will be submitted annually to TVA subsequent to tree removal.

- TN Emmons will conduct no activities within the shoreland areas proposed for these facilities until such time as TN Emmons has completed an archaeological survey to identify and evaluate historic properties within the area of potential effect; submitted documentation of the survey to the TVA and the SHPO, and the requirements for phased compliance under Section 106 of the NHPA have been met. This includes the vicinity of the community dock and east entrance road from elevation 1015.6 to 985.0-foot msl which was submerged during initial surveys conducted in April and May, 2002.
- Sewage treatment facilities will be built and maintained in accordance with any applicable county and state requirements.
- The community dock will be managed as a private facility and not a commercial marina. Consequently, TN Emmons agrees that there will be no fuel sales, boat/motor repair or sales, materials or provisions sales and other amenities at the community dock which are typically provided by commercial marinas.

2.4 Alternative 3

Under Alternative 3, Applicant's Proposal with Mitigation Resulting from the Section 26a and Land Use Review, TVA and USACE would approve TN Emmons' proposed development with additional protective mitigation measures (i.e., commitments) to avoid or minimize impacts to the environment. These mitigation measures are in addition to those identified under Alternative 2. This includes the following measures:

- Any future facilities or equipment subject to flood damage will be located above or flood-proofed to the 500-year flood elevation of 1035-foot msl.
- TN Emmons will rigorously implement BMPs prior to, during, and after establishment of construction, fill, and borrow activities in all phases of the development. In particular, any fill placed below elevation 1044-foot msl will be stabilized with at least a temporary erosion control mat planted to suitable permanent vegetation. Along the shore to the top of the wave impact zone (below elevation 1023-foot msl) at full pool, fill will be covered with riprap (rock) large enough to prevent washout. Such rock will be underlain with suitable filter fabric or granular filter. Upland property will be indefinitely maintained to prevent erosion.
- To insure that the 20.2 acres of "40-foot-wide conservation buffers" are designed, constructed, and maintained to prevent long-term erosion and potential water quality impacts, TN Emmons will: (a) design surface storm water drainage channels using channel shape (e.g., v-shape, parabolic, trapezoidal, etc., included in the Storm Water Pollution Prevention Plan), linings (rock, grass, or permanent fabric), grade-control structures, or other methods as appropriate to withstand the increased post-development discharges, (b) insure long-term maintenance by repairing erosion that might occur to these channels, (c) connect "buffers" to other vegetated areas such as those retained or created in association with the 2 commitments below, and (d) incorporate language in sales agreements that will prohibit new landowners from excavating soil or removing or damaging trees in these buffer areas. Landowner conformance with this condition will become a responsibility of the Architectural Review Committee of the Sunset Bay Homeowners Association.

- TN Emmons will establish greenbelt/shoreline management zones to protect and enhance existing tree cover along the Sunset Bay development, as described in A and B below. In accordance with these requirements, language will be incorporated in the property sales agreements that will require new landowners to coordinate and obtain approval from the Architectural Review Committee of the Sunset Bay Homeowners Association before any trees are damaged or removed in the greenbelt areas.
 - A. The greenbelt includes the area between elevations 1020-foot msl and 1036-foot msl around the two peninsulas (Tract XNR-721, Parcels 2 and 3, within portions between TVA corners 66-11 and 66-16; and 66-1 and 66-2, respectively), in front of the property (totaling 14-acres) affected by the proposed deed modifications. In addition, for each of the 30 lots in the area of deed modification, TN Emmons will plant and maintain at least 12 native deciduous and evergreen trees at a ratio of 3:1. At planting, the deciduous trees will be at least 1.5 inch caliper and evergreens will be at least 6 feet tall. Where lots have existing trees, required trees will be used to supplement greenbelt planting on the other lots nearby. Tree planting will be done during Phase I of the overall development for maximum buffer growth prior to construction.
 - B. The greenbelt includes the areas between elevation 1020-foot msl and 1044-foot msl of Tract XNR-721 along Parcel 5 (between TVA corners 65-14 and 65-15), along Parcel 6, (between TVA corners 65-1 and 65-4), and along Parcel 1, from TVA corner 66-20R north to the end of the wooded shoreline (about Clinch River Mile 102.9). No tree planting would be required on these parcels.
- TN Emmons will plant and maintain a similar buffer of predominantly evergreen trees to permanently screen views of the community dock parking area from the reservoir area. Plants will be of sufficient size and spacing to fully screen the parking within three years after planting.
- TN Emmons will establish standards to use only darker tones of muted natural colors (e.g., dark gray-green, brown, black, etc.) for the structures and roofs associated with the community water-use facility.
- At completion of construction in order to treat or remove sediment, nutrient, metals, or other potential pollutants from surface drainage prior to entering the reservoir, TN Emmons will convert temporary sediment traps or basins to permanent storm water treatment/detention structures by cleaning out accumulated sediment and planting the basins to appropriate vegetation, preferably native grasses and forbs. Any additional storm water treatment structures required by state or county requirements will be constructed in accordance with those requirements. Maintenance will become a responsibility of the Sunset Bay homeowners' organization.
- TN Emmons will construct a maximum of 236 covered community dock slips with a winter configurations of 118 slips. These slips will be permanently moored, moved out and back as the reservoir fluctuates, and remain afloat in summer and in winter when the reservoir elevation ranges between 1020-foot and 974-foot msl.
- Signage must be placed at the community boat ramp to inform users of the existence of the 20 percent grade and to encourage them to take all necessary precautions to ensure safe operation at the ramp.

- To reduce potential water quality impacts, TN Emmons will manage the community dock facility based on the *Tennessee Valley Clean Marina Guidebook*.

2.5 Preferred Alternative

Alternative 3 is preferred because it meets the objectives for the developer while also meeting TVA's objectives for protection of shoreline and water resources. TVA believes this alternative would better protect water quality, aquatic ecology, visual resources, the safety of community ramp users as well as concerns of possible affects on reservoir operations and possible navigation hazards from slips breaking away from the community dock as previously designed. This alternative is consistent with standards approved in the SMI FEIS.

USACE is prevented by regulations from being for or against an applicant's proposal during permit or approval evaluations.