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## Construction of the Red Hills-Kosciusko 161-kV Transmission Line Across the Natchez Trace Parkway

Environmental Assessment  
November 2017

### PROPOSAL

The National Park Service (NPS) is considering a proposal by the Tennessee Valley Authority (TVA) to construct a 161-kV transmission line (TL) within the boundaries of the Natchez Trace Parkway (Parkway). TVA plans to supply electric power to a substation in Kosciusko, Mississippi by constructing and operating a new 43-mile 161-kV TL to TVA's existing Red Hills 161-kV substation in Ackerman, Mississippi (Figure 1). The project would require the NPS to issue a right-of-way (ROW) permit and a Special Use Permit (construction permit) to authorize construction of a new TL.

Discussions between TVA and the NPS began in 2015, and the NPS became a formal cooperater with TVA in September 2016. TVA completed an Environmental Assessment (EA) under the National Environmental Policy Act of 1970 (42 U.S.C. § 1321 et seq.) for the 43-mile project area January 25, 2017 (see <https://www.tva.gov/Energy/Transmission-System/Transmission-System-Projects/Red-Hills-Leake-Transmission-Project-Southwest-Mississippi-Service-Area>). While TVA's EA focused on the broader impacts of the project, this tiered document will analyze the specific impacts to Parkway resources from the issuance of a ROW, construction of a new 161-kV transmission line across approximately 2,000 feet of NPS land, and associated mitigation. This EA is limited to discussion of impacts on NPS land; refer to the TVA EA for a broader discussion of the entire project.

### NEED FOR THE PROPOSAL

Central Electric Power Association (Central EPA), a rural electric cooperative, currently provides power to the area around the city of Kosciusko from a 46-kV substation. Power is presently supplied to this substation by a 21.7-mile, single-source 46-kV TL from TVA's Leake 161-kV substation. This TL was constructed in the 1960s with primarily wood pole structures that are now nearing the end of their useful life. The length and age of this TL causes the voltage at the Kosciusko 46-kV Substation to fall below acceptable TVA criteria when the power demand (or load) is at its peak. As a result, Central EPA will upgrade the Kosciusko 46-kV substation to a 161-kV substation. A Central EPA line currently crosses the Parkway at milepost 159.1 (Figures 2a and 2b).

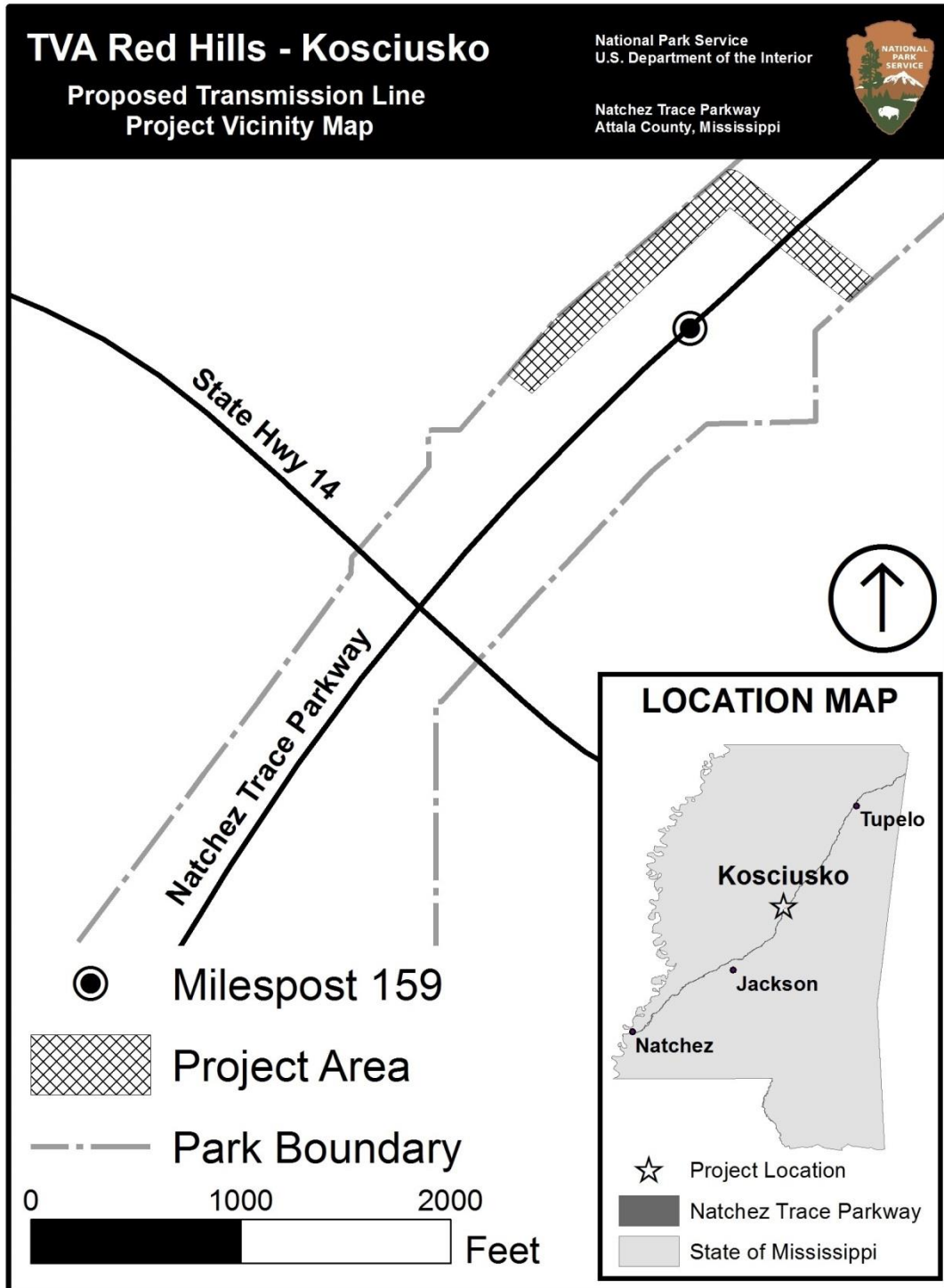


Figure 1. Vicinity map for the project area, located south of Kosciusko, MS.



Figure 2a. Existing Central EPA transmission line as viewed from the Natchez Trace Parkway looking west.



Figure 2b. Existing Central EPA transmission line as viewed from the Natchez Trace Parkway looking east.

In its EA, TVA determined that construction of a new TL to serve the Kosciusko 161-kV substation would best fulfill the purpose of addressing voltage problems and improving reliability in Central EPA's service area, thereby allowing TVA to meet North American Electric Reliability Corporation (NERC) reliability criteria. Additionally, the proposed



project would allow TVA to ensure the area is provided a reliable, affordable source of power for continued economic health and residential and commercial growth.

The Parkway was established as a unit of the NPS by an act of Congress in 1938 to commemorate the Old Natchez Trace, an overland route connecting Nashville, Tennessee and Natchez, Mississippi. As one of the oldest transportation routes in North America, its human use dates back to 8000 Before the Common Era (BCE). The modern day Parkway bisects the state of Mississippi<sup>1</sup> and passes through the town of Kosciusko. The Natchez Trace National Scenic Trail (NATT) is a separately designated unit of the National Park Service located within the boundaries of the Natchez Trace Parkway.<sup>2</sup> There are five sections of NATT totaling 65 miles that currently exist as trails parallel to the Parkway. The entire Parkway boundary is considered National Scenic Trail, even though the trail is only physically constructed for 65 of the 444 miles. For the purposes of this document, impacts to the Parkway and the NATT are considered co-extensively. Furthermore, there is no existing trail and no future plans to construct a section of trail at the project location. Overall, this project is considered to impact both the Parkway and the NATT<sup>3</sup>.

Although powerlines were in place before Congress established the Parkway and NATT as a units of the National Park System, this is the first new aerial powerline and associated ROW known to be proposed after its establishment as a national park. NPS Director's Order 53 (2010), and related NPS Management Policies, Section 8.6.4 (2006), state that a ROW may be issued only pursuant to specific statutory authority, and generally only if there is no practicable alternative to such use of NPS lands. The Parkway's enabling legislation allows the Parkway, acting under authority delegated by the Secretary, to "issue revocable licenses or permits for rights-of-way over, across, and upon parkway lands. . .for such purposes and under such nondiscriminatory terms, regulations, and conditions as he may determine to be not inconsistent with the use of such lands for parkway purposes."<sup>4</sup> 36 C.F.R. § 14.9 requires that an applicant for a right-of-way "agrees and consents to comply with and be bound by . . . State and Federal laws applicable to the project for which the right-of-way is approved, and to the lands which are included in the right-of-way, and lawful existing regulations

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<sup>1</sup> Because of the long and linear geometry of Parkway lands, it was foreseen that the Parkway would need the flexibility to grant ROWs to entities proposing to cross for the public good. Unlike most NPS units, the Parkway's enabling legislation allows for ROWs for roads, utilities and pipelines.

<sup>2</sup> The trail exists by statute, see 16 U.S.C. 1244. Most all of the sections are within the main boundary of the Parkway, except for the Potkopolu section near Parkway milepost 17; this section of trail leaves the main Parkway boundary but is still located on NPS land. See <https://www.nps.gov/natt> for more information.

<sup>3</sup> The Natchez Trace Parkway traverses the Mississippi Hills National Heritage Area (NHA) from Parkway milepost 158 through milepost 309. As a separate congressionally-designated unit, national heritage areas are places where natural, cultural, and historic resources form nationally important landscapes (see <https://www.nps.gov/articles/what-is-a-national-heritage-area.htm>) . This project is also considered co-extensively with impacts to the Parkway, the NATT, and the Mississippi Hills NHA.

<sup>4</sup> 16 U.S.C. § 460a.



thereunder.” TVA, a corporate agency of the United States, claims immunity from the application of Mississippi's state scenic vista law, which applies to structures over 35 feet within 1,000 feet of the NPS boundary<sup>5</sup>. The NPS considers the height and visual impact of these proposed structures as relevant factors in analyzing the significance of effects under the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) because construction of the aerial TLs, absent sovereign immunity, would violate state law.<sup>6</sup> The purpose of this document is to analyze the potential impacts of issuing a ROW to TVA on NPS property, which would allow for construction of the proposed TL.

## ALTERNATIVES

Two alternatives are being considered by the NPS in this EA, the No Action Alternative and the alternative for Issuance of a NPS ROW to TVA for Transmission Line Construction. Three other alternatives were considered but dismissed from full analysis for the reasons presented in the Alternatives Considered But Dismissed section.

### **No Action Alternative (Deny ROW Permit Application)**

The No Action Alternative consists of not issuing a ROW to TVA for the construction of the 161-kV transmission line within the Parkway boundaries. Under the No Action Alternative, TVA would not construct the proposed TL to serve Central EPA's 161-kV substation. No changes to Central EPA's line on NPS property would occur, and the existing 50 foot wide 46-kV line would remain.

Considering the mandate for TVA to provide reliable electric service and the necessity to cross the Parkway in order to do so, the No Action Alternative is not reasonable, as described in TVA's EA. The potential environmental effects of adopting the No Action Alternative, however, are considered in this EA<sup>7</sup> to provide a baseline for comparison with respect to the potential effects of implementing the proposed action.

### **Issuance of NPS ROW to TVA for Transmission Line Construction Alternative (Preferred Alternative)**

Under the Issuance of NPS ROW to TVA for Transmission Line Construction Alternative (referred to as the ROW Alternative from here forward), TVA would be granted a new ROW to construct a 161-kV TL across the Parkway to serve Central EPA's

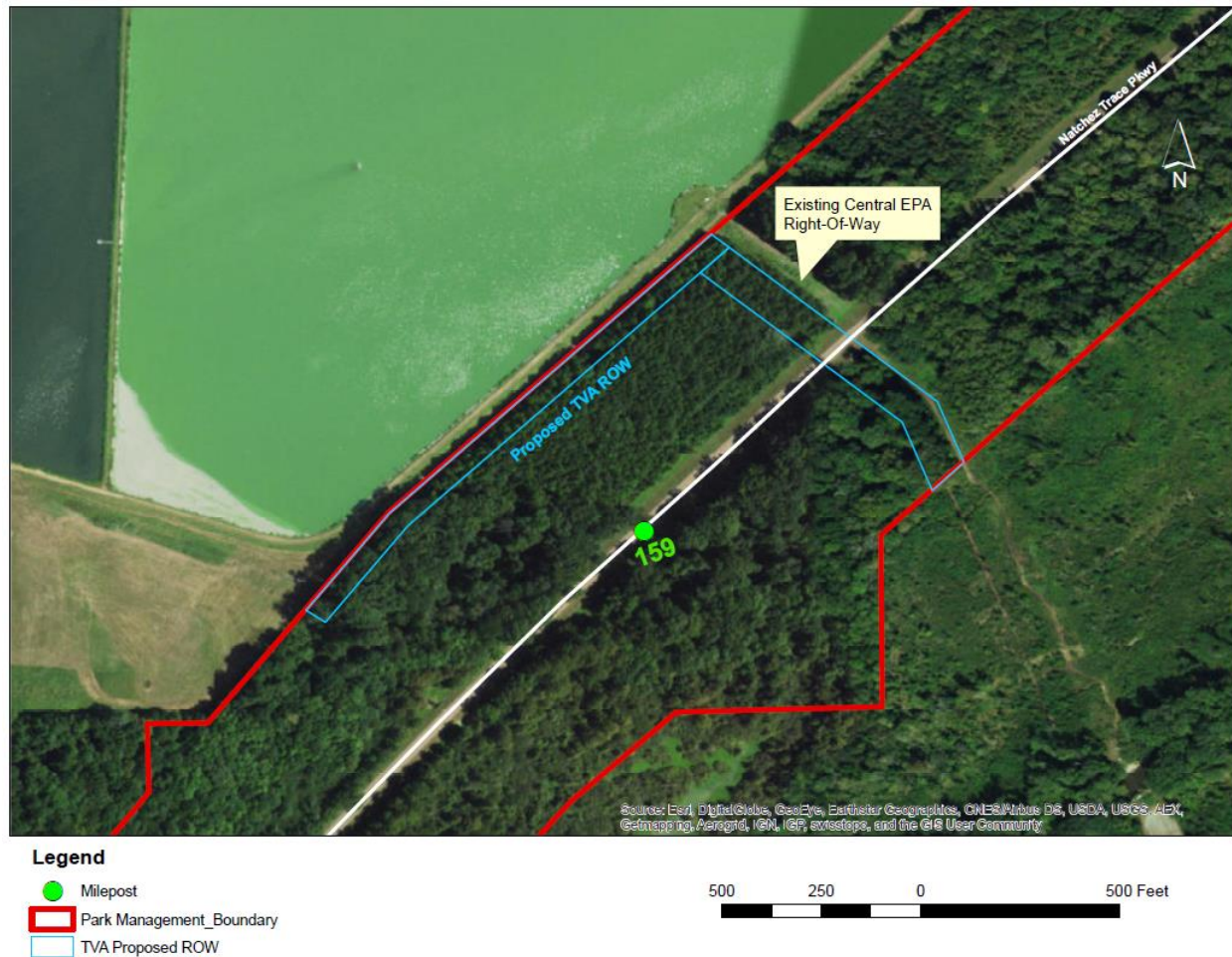
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<sup>5</sup> 2010 Mississippi Code 55-13-35

<sup>6</sup> See 40 C.F.R. 1508.27(b)(10).

<sup>7</sup> The No Action Alternative was also considered by TVA in their EA. See <https://www.tva.gov/Energy/Transmission-System/Transmission-System-Projects/Red-Hills-Leake-Transmission-Project-Southwest-Mississippi-Service-Area>.

substation. The new ROW would have a length of 2,000 feet within the Parkway for 100 feet in width, affecting a total of 4.13 acres of Parkway property (Figures 3 and 4). The new line would include an underbuild of the existing Central EPA line, meaning that once the TVA TL is constructed, all wires for Central EPA's line would be relocated to the TVA TL poles. Central EPA's original poles would be removed, and the abandoned ROW would be revegetated.



**Figure 3. Proposed TVA ROW along the boundary of the Natchez Trace Parkway and crossing over the motor road, adjacent to an existing Central Electric Power Association transmission line ROW.**

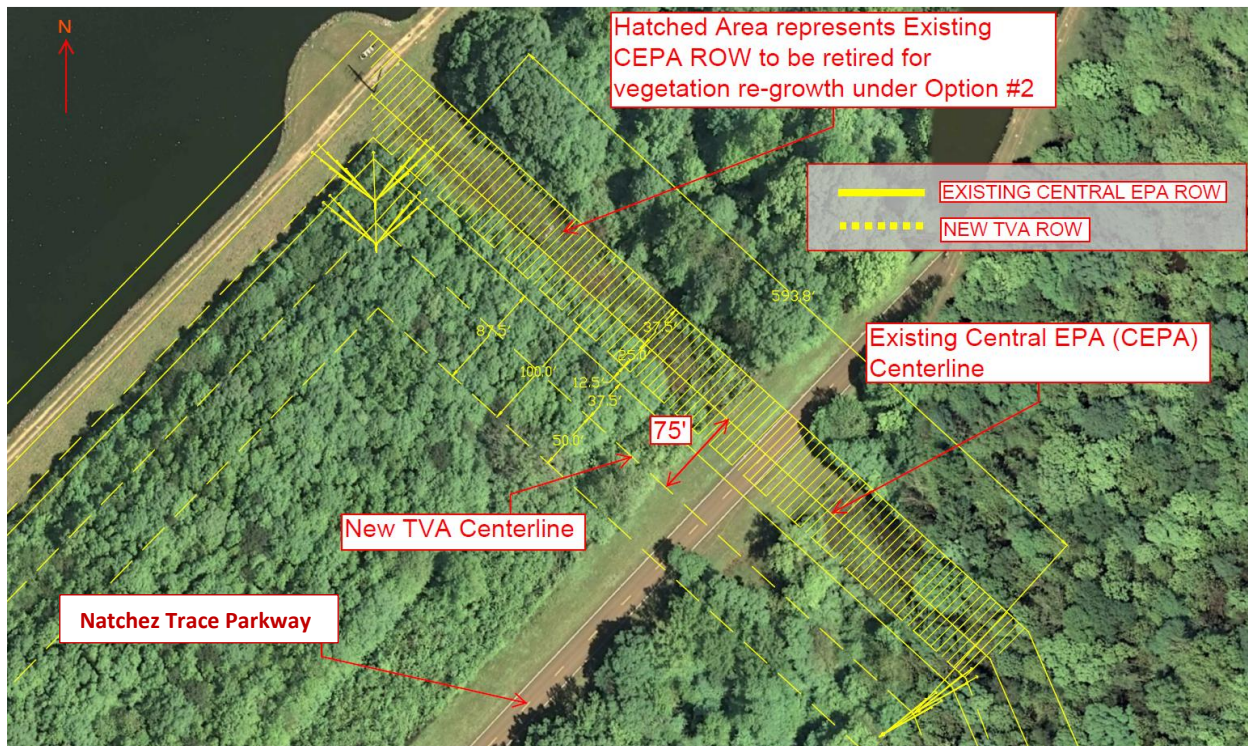


Figure 4. Detail of the ROW Alternative (TVA figure). The centerline of the TVA ROW would be located 75 feet west and parallel of the existing Central EPA transmission line. The existing Central EPA transmission line would be retired in the hatched section and re-built as an underbuild of the new TVA line. Only the section shown hatched (east and west of the Parkway) will be retired/re-built as an underbuild. The retired Central EPA ROW would be restored to forest.

The existing Central EPA line would remain in use while the TVA line is constructed and then removed from service once the upgraded TL in the expanded ROW is complete. The action proposed by the NPS would be to issue TVA a new ROW, requiring necessary mitigation to reduce the impacts to NPS resources from the TL construction and ROW maintenance.

The ROW Alternative would include the following actions. Note that specific impacts to resources are explained in the Environmental Consequences section.

1. Clearing of forest 75 feet west and parallel of the existing Central EPA transmission line impacting approximately 4 acres of forest.
2. Construction of the transmission line along the boundary and across the Parkway as indicated in Figure 3. This would include installation of 7 poles and 15 wire conductors. All construction would be limited to within the boundaries of the ROW; no access roads or other disturbance would take place on NPS lands



- outside the ROW area. Staging of equipment may be authorized within the mowline of the Parkway road shoulder, or within the existing Central EPA ROW.
3. The existing Central EPA transmission line would be retired and re-built as an underbuild of the new TVA line. The retired Central EPA ROW would be restored to forest.
  4. The new ROW would be maintained using NPS-approved herbicide and mechanical control methods as specified in Section 2.2.2.2 of TVA's EA.

## MITIGATION FOR PROPOSED ACTION

The NPS NEPA Handbook Section 4.3E and NEPA's implementing regulations 40 CFR § 1500.2 direct federal agencies to use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment. 40 CFR § 1508.20 further defines mitigation to include:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

Avoidance of a Parkway crossing was determined to be infeasible due to the 444-mile length of the Parkway. However, TVA avoided impacts to the architectural bridge at the originally proposed Highway 14 crossing location by agreeing to co-locate the proposed crossing with the Central EPA line. Because a TL crossing somewhere along the Parkway was unavoidable, the NPS and TVA have worked together to minimize the impacts of the ROW Alternative as follows:

1. Tower heights and ROW clearing widths would be reduced to the minimum requirements of safety regulations.
2. Towers would be colored to blend into the surrounding landscape as much as possible. The NPS would approve the pole color.
3. A native vegetative buffer of low-growing species would be planted along the mowline of the Parkway at the openings of the ROW to minimize the visibility of the expanded maintained ROW corridor from the perspective of the visitor.

## Mitigation of Cultural Landscape Impacts: Scenic Impacts

Mitigation will be required to offset the permanent impacts of a new TL to the designed cultural landscape and wetland/floodplain resources of the Parkway, as described in the Affected Environment section, which cannot otherwise be avoided or minimized. The NPS has also evaluated the ROW Alternative for scenic impacts and determined mitigation will be necessary to offset those impacts within the Parkway landscape and will include undergrounding three existing high priority TLs, thereby offsetting the impacts the new TL will have on the landscape. Undergrounding of other existing lines is needed to offset the impacts of the ROW Alternative to the cultural landscape and natural resources of the Parkway.

TVA was unable to identify any of its lines eligible for undergrounding, as described in its EA. Therefore, the NPS proposed the undergrounding of other non-TVA lines that currently impact the scenic viewshed of the Parkway, specifically three TLs owned and operated by Entergy<sup>8</sup>. Entergy and the NPS have previously worked collaboratively to reduce the scenic impacts from aerial TLs. More specifically, Entergy and the NPS have partnered on two occasions to underground multiple TLs. Entergy expressed willingness and provided commitment to underground specific existing TLs within the park, which it otherwise would not underground, to mitigate impacts from the ROW Alternative. Therefore, high priority existing TLs owned by Entergy were targeted as potential lines for undergrounding. The NPS proposes to work collaboratively with Entergy to underground lines using mitigation funds provided by TVA. The lines for undergrounding have been prioritized based on a 2008 viewshed analysis of scenic impact and proximity to the project site.

TVA is unable to use rate payer dollars to directly underground privately-owned lines; therefore, compensatory mitigation funds would be transferred from TVA to The Conservation Fund (TCF) to manage the financial aspects of undergrounding Entergy TLs. TCF is a respected non-profit organization with extensive experience partnering with the federal government and project proponents to find mitigation solutions. This mitigation would require TVA to enter into a general agreement with the NPS and TCF that provides TVA will transfer funds up to a maximum of \$1,975,000 for undergrounding the TLs. A 5% administrative fee would be assessed by TCF and added to the final mitigation amount. The NPS would enter into a separate agreement with TCF and Entergy to execute the undergrounding projects. Enforcement of the mitigation will be pursuant to these two general agreements. The NPS would work directly with Entergy to execute the undergrounding projects. NPS staff would review

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<sup>8</sup> Entergy Mississippi, Inc. is part of Entergy Corporation, an integrated energy company engaged primarily in electric power production and retail distribution operations. Entergy, Mississippi, Inc. (Entergy Mississippi) operates many powerlines crossing the Parkway

and approve the construction plans, conduct required compliance pursuant to NHPA and NEPA, and issue a special use permit for the undergroundings. The NPS would assume the costs of project monitoring as defined in the conditions of the permit.

Once funding to cover the costs of undergrounding the TLs and the attendant administrative fees has been transferred by TVA to TCF, the NPS would assume the responsibility for execution, monitoring, and enforcement of the undergroundings as stipulated in the general agreements. Previous undergrounding projects executed by Entergy and enforced and monitored by the Parkway have been highly successful, thereby forming the basis for the predicted success of this mitigation proposal.

*NPS Rationale for Scenic Impact Mitigation: Scenic Assessment of the TVA Transmission Line (ROW Alternative)*

In 2008, Parkway staff performed a scenic impact study of 26 existing Entergy lines to determine suitable mitigation for a high voltage TL upgrade proposed by Entergy.<sup>9</sup> This study was used as the basis to determine the mitigation necessary for the high voltage TL proposed by TVA (ROW Alternative). This consisted of the following three steps.

1. **Each Entergy line available for potential undergrounding identified in the 2008 study was ranked on a scale of 1 to 3 with 3 representing the highest<sup>10</sup> scenic impact.** The rankings of the scenic impact of these lines were used to determine what lines might be appropriate to underground to mitigate for the potential placement of the TVA TL. The scenic impact factors that were considered in these rankings were:
  - Visibility from visitor use areas
  - Visual impact to Parkway bridges
  - Width of maintained corridor
  - Length of line visible
  - Width of Parkway boundary
  - Degree of tree coverage
  - Pole size
  - Quantity and size of wires
  - Height of wires and poles

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<sup>9</sup> These lines did not include high voltage lines that Entergy was not willing to underground due either to being technically unfeasible or cost prohibitive.

<sup>10</sup> Highest impact in this context refers to the most scenically-detracting, or ‘worst’ impact.



2. **The NPS then assessed the scenic impact score of the ROW Alternative.** Similar to the Entergy line upgrade in 2008,<sup>11</sup> the TVA ROW Alternative TL is not comparable to the 26 lines in the 2008 study because it is a significantly larger line. Therefore, adjustments to the score were necessary to further compensate for the increased scale of the proposed line. TVA's proposed high voltage line was assessed a scenic impact score of 6 (twice the maximum impact of any of the lines in the study) based on the following:
  - a) Comparability in scenic impact to the previous Entergy line. Using the 2008 Entergy line upgrade project as a basis, the size and scope of the proposed action is significantly more impactful.
  - b) Incompatibility with the intent of the scenic vista law. The intent of the law is to limit structures located within 1000 feet of the NPS boundary to 35 feet.
  - c) Need for issuance of a new ROW. Any action requiring a new ROW is interpreted to be inherently more impactful to NPS resources.
3. **The number of lines needed to be undergrounded to reach the mitigation goal was determined.** The necessary mitigation goal was to obtain at least a 1:1 ratio (scenic impacts reduced vs scenic impacts proposed) or greater. Since the line associated with the ROW Alternative had a scenic impact score of 6, multiple lines were selected for undergrounding, providing the needed cumulative score of 6 or greater (Table 2).

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<sup>11</sup> The factors of the Entergy upgrade in 2008 that required further compensation included a significantly larger and taller structures and wires, increased right-of-way width to maintain (50 feet versus 100 feet for Entergy's proposed line) and violation of the Mississippi Scenic Vista Law. This resulted in an assessed score of 6.

Table 2. Transmission lines identified for undergrounding and the associated scenic impact score.

Transmission Line Owner	Location	Scenic Impact Score of Lines Available for Undergrounding	Rating Factors
Entergy	Milepost 107.7, South of Hoy Road	1	This line has four wires and crosses the Parkway motor road in an area with good tree coverage. The wires are high and therefore less visually distracting. Overall scenic impact: Low (1).
Entergy	Milepost 114.6, South of Highway 43	3	This line has three wires and crosses the Parkway motor road in an area with good tree coverage. This line also directly and severely impacts a constructed segment of the NATT, crossing the trail in two separate locations and paralleling the trail for approximately 300'. The corridor bisects the forest where it crosses the trail. Overall scenic impact: High (3).
Entergy	Milepost 165.6, Highway 12	2	This line has four wires and poles that are near the Parkway motor road. The line is highly visible since the line ROW parallels a wide highway corridor and the line crosses the Parkway diagonally (perpendicular crossing are typically less visible.) The visible width of the line within the park boundary is approximately 1450'. The vista is also compromised by the presence of Highway 12. Overall scenic impact: Medium (2).
	<b>TOTAL</b>	<b>6</b>	

Additional mitigation would be realized by reducing the scenic impacts of the Central EPA line (Table 3). The line was analyzed using the same evaluation parameters as the 2008 study.

Table 3. Scenic impact of Central EPA line.

Transmission Line Owner	Location	Scenic Impact Score	Rating Factors
Central EPA	Milepost 159.1	2	The existing Central EPA line has seven wires crossing the Parkway motor-road. The lines are low and very visible due to the number of wires. However, visible width is narrow due to good tree cover. Overall scenic impact: Medium (2).

TVA would add (underbuild) the existing Central EPA line onto the towers of the ROW Alternative. TVA provided a visual assessment of the proposed underbuild (Figure 5). The complete set of visual rendering images is included in Appendix 3. This would eliminate the maintained ROW of the Central EPA line along with the existing support structures. Although the wires would still be visible, this would reduce the overall scenic impact score of the line from a medium (2) impact to a low (1) impact. The result would be a scenic impact reduction score of 1.

The scenic impacts that would be reduced are 6 points from the Entergy line burials and 1 point from the Central EPA relocation for a total of 7 points. These actions would accomplish a visual impact mitigation ratio of 1.16 ( $7/6 = 1.16$ ). This would achieve the desired mitigation ratio of 1:1 (scenic impacts reduced vs scenic impacts proposed) or greater.

#### Mitigation Ratio Summary

<p>Scenic Impacts Reduced = 7</p> <p>(6 Entergy Line Underbuilds + 1 Central EPA TL Underbuild)</p>	<p>•</p> <p>•</p>	<p>Scenic Impact of Construction Alternative = 6</p>	<p>=</p>	<p>1.16 mitigation ratio</p>
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Similar strategies for undergrounding will be implemented if powerlines identified in Table 2.0 become problematic due to unforeseen resource impacts, engineering or financial constraints. In the event of a change in mitigation strategies, the NPS will ensure adequate mitigation is conducted by following the visual impact analysis utilized in this EA. Additionally, the NPS would continue to work to ensure that all mitigation measures are effective, feasible, monitored, and enforced.





Figure 5. Visual rendering of ROW Alternative showing underbuilt Central EPA line.

## Mitigation of Wetland Impacts

To compensate for clearing 3.7 acres of floodplain forest and the loss of wetland function resulting from 0.75 acre forested wetland clearing and 0.0006 acre of wetland fill on NPS property, TVA would implement a forest restoration plan within the adjacent and existing cleared Central EPA ROW. Because Central EPA's ROW would be abandoned to be underbuilt with ROW Alternative, there is opportunity to restore lost wetland function through enhancement activities immediately adjacent to the proposed impact. The existing Central EPA ROW contains 0.53 acre of emergent wetland habitat that would revert to forest. TVA would conduct onsite mitigation by planting native woody shrubs and saplings across the 0.53 acre wetland area to promote more rapid replacement of forested wetland function with desirable wetland species. Similarly, TVA would provide upland buffer plantings within 0.43 acre of Central EPA's ROW on NPS property to enhance upland forest habitat adjacent to the planted wetland areas. After Central EPA's line is replanted, the total acreage of floodplain allowed to reforest is 0.96 acres. TVA also proposes to control invasive Chinese privet (*Ligustrum sinense*) during the initial clearing phase within both ROWs. Additional information regarding the floodplain and wetland mitigation is described in the Parkway's Floodplain and Wetlands Statement of Findings for the Red Hills-Kosciusko 161kV Transmission Line (Appendix 1).

## ALTERNATIVES CONSIDERED BUT DISMISSED

Three additional alternatives for TL construction were considered and subsequently dismissed from further consideration.

### Highway 14 Crossing Right-of-Way

This alternative would issue a ROW to TVA which would use a portion of the ROW along Highway 14 for the establishment of the 161-kV powerline. This was an alternative identified early in the process through informal telephonic consultation by TVA with the NPS and was TVA's preferred crossing location. Once this alternative was investigated more thoroughly by the NPS, however, the NPS determined that this route would significantly impact the design features of the Highway 14 bridge that crosses over the Parkway.<sup>12</sup> The Parkway, as discussed in further detail below, is eligible for listing in the National Register of Historic Places as a designed cultural landscape. Bridges are contributing features to the landscape. A TL immediately adjacent to the Highway 14 bridge would be an adverse effect.

Furthermore, this alternative failed to consider the future impacts if Highway 14 were to expand to occupy the full extent of the existing Mississippi Department of Transportation ROW in which Highway 14 is currently located. If this expansion occurred, the result would be a significantly wider ROW to allow for both the TL and a widened highway. This could result in significant impact to Parkway resources. The adverse impact of a TL in the skyline at this location, in addition to the complexity associated with potential Highway 14 expansion, caused the NPS to dismiss this alternative.

### South Crossing Right-of-Way

A third crossing was initially proposed at Parkway milepost 157.2 adjacent to an existing TL. The area surrounding this line to the west of the Parkway is open field. Issuing an additional ROW to TVA in this area would be more visible to Parkway visitors than the ROW Alternative location. Furthermore, this location is within a wider section of the Yockanookany floodplain, and additional TL construction in this location would impact a greater area of floodplain. Therefore, this alternative was dismissed from further consideration.

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<sup>12</sup> This necessitated additional survey and engineering efforts by TVA.

## Underground Transmission Line Right-of-Way

In accordance with NPS Management Policies Section 9.1.5.3 (2006), The NPS discourages new aerial powerlines in order to limit impacts to visual and natural resources. The NPS considered resource impacts from the issuance of a ROW to TVA for an underground powerline. Due to the expansive Yockanookany River floodplain within the project area, the potential adverse environmental effects of constructing and operating a buried high-voltage TL in all the considered locations would be greater than impacts associated with a traditional aboveground TL. In consultation with TVA, the NPS dismissed undergrounding the proposed line because of the greater impact to natural resources, particularly wetlands and floodplains. Undergrounding the TL in any of the locations was eliminated from further consideration.

Figure 4 denotes the original three crossing locations considered, including the ROW Alternative (referred to as the North Crossing in Figure 6).



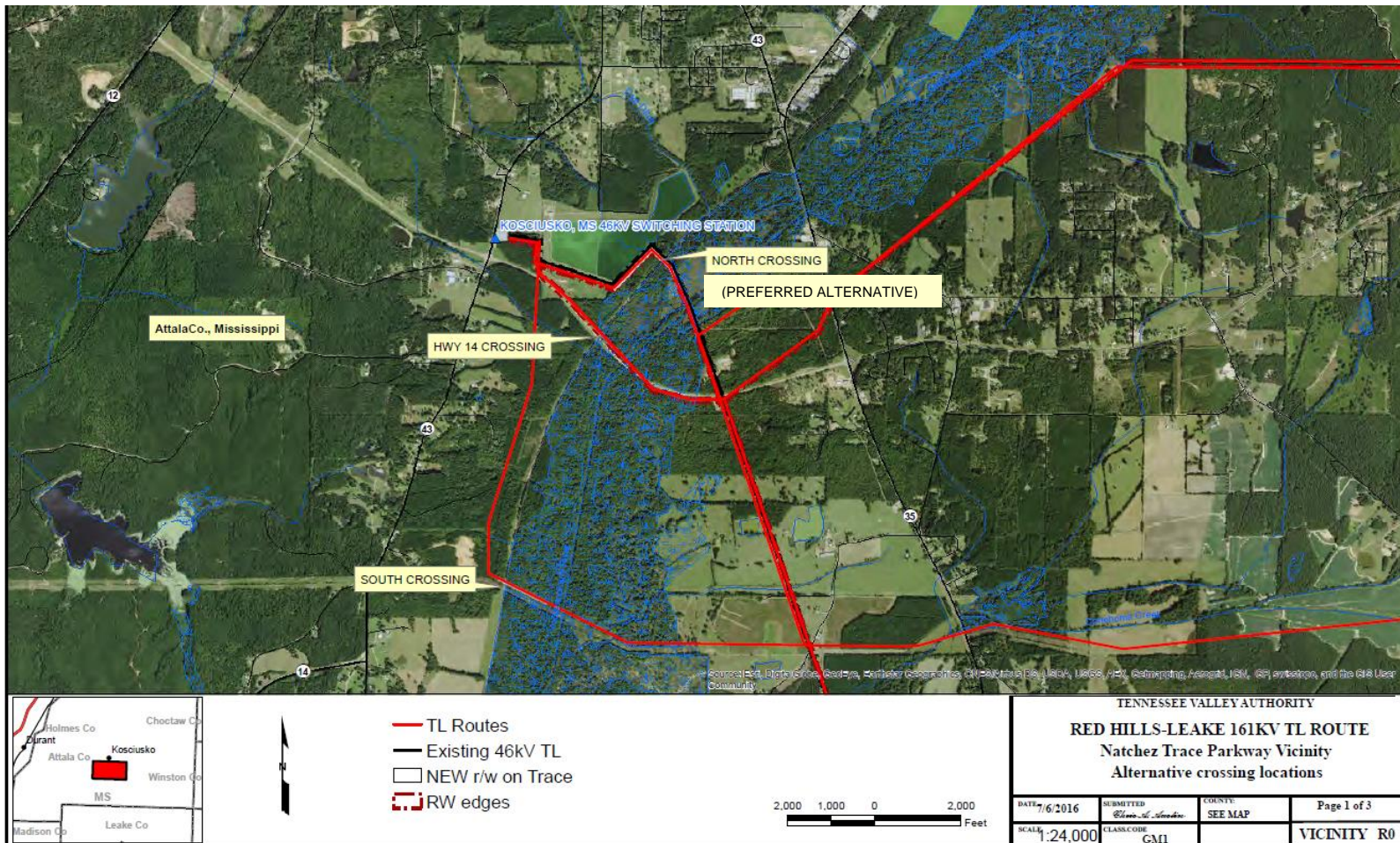


Figure 6. TVA's map denoting the three feasible crossing locations of the Natchez Trace Parkway. The North Crossing became the Preferred Alternative. The Highway 14 and South Crossing Alternatives were dismissed as described in the Alternatives Considered but Dismissed section.

## ISSUES AND IMPACT TOPICS

Issues and impact topics were identified and form the basis for environmental analysis in this EA. A brief rationale is provided in the following sections for each issue or topic that is analyzed in the environmental consequences section of this EA. Issues and topics considered but not addressed in this document are also identified. Topics that were not considered due to their non-applicability (such as prime unique farmland) or due to the inability to quantify or evaluate at this scale (such as climate change or migratory birds) are not identified.

### Issues and Impact Topics Considered

#### *Cultural Landscape*

The Parkway was designated an All-American Road in 1996, which means that it meets at least two of the six intrinsic qualities required for listing as a National Scenic Byway with scenic, historic, natural, cultural, archeological, and/or recreational values that are distinctive. In addition, the Parkway is eligible for listing on the National Register of Historic Places as a historic designed landscape. Historic designed landscapes are defined as a landscape consciously designed and laid out, having a historical association with a significant person, trend, or event (see [https://www.nps.gov/nr/publications/bulletins/nrb18/nrb18\\_2.htm](https://www.nps.gov/nr/publications/bulletins/nrb18/nrb18_2.htm) for more information).

The construction of a new aerial TL would impact the viewshed and the historic designed landscape. Therefore, this EA considers and analyzes the impacts to the historic designed landscape of the Parkway, which is referred to as the cultural landscape for the purposes of this EA.

#### *Vegetation*

The general habitat of the project site is composed of forested wetlands within the Yockanookany River floodplain. Approximately 3.7 acres of forest would be cleared for construction of the TL along the Parkway's northwest boundary and across the Parkway motor road. Vegetation within the ROW would be managed for the life of the TL to meet NERC safety standards. Since the project would result in both permanent and temporary impacts, this EA considers and analyzes the impacts to vegetation.

#### *Wetlands and Floodplains*

The entire project area of 4.13 acres lies within a floodplain with 0.99 acres delineated as wetlands. To establish the ROW, 3.7 acres of forested floodplain and 0.75 acres of forested wetlands would need to be cleared of forest vegetation to maintain the ROW.

Because there would be impacts to wetland resources with the implementation of the preferred alternative, a wetland statement of findings was also prepared in accordance with Executive Order 11988 (Floodplain Management); Executive Order 11990 (Protection of Wetlands); Director's Order #77-1; Director's Order (#77-2); and other NPS guidance documents.

### *Visitor Use and Experience*

Visitors experience the Parkway motor road in the project area primarily by bicycle, motorcycle, or by vehicles ranging from passenger sedans to large recreational vehicles. The presence of additional aerial electrical lines and larger transmission lines structures has the potential to impact how visitors experience the Parkway. Therefore, this EA examines potential impacts to visitor use and experience.

### **Impact Topics Dismissed from Detailed Analysis**

#### *Environmental Justice*

Environmental Justice – Executive Order 12898 (General Actions to Address Environmental Justice in Minority Populations and Low Income Populations) requires that all federal agencies incorporate environmental justice into their missions by identifying and addressing the disproportionately high and adverse health or environmental effects of their programs and policies on minorities or low income populations or communities. According to City-Data.com, the median household income for the Kosciusko, MS area was \$29,684 in 2015, compared with \$40,593 statewide. Further information regarding the socioeconomic of the larger project can be found in Section 4.2.12 of TVA's EA. The proposed action would have no direct or indirect impacts to individual residences or populations of such individuals and would not have a disproportionate adverse health or environmental effect on minority or low income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance.

#### *Indian Trust Resources*

Secretarial Order 3175 requires that any anticipated impacts to designated Indian Trust resources from a proposed action by Department of Interior agencies be explicitly addressed in the related environmental documents. The federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights. It represents a duty to carry out mandates of federal law with respect to American Indian and Alaskan Native tribes. The lands in proximity to the Parkway and proposed action are not held in trust by the Secretary of the Interior. Therefore, Indian Trust Resources is an impact topic not analyzed further.

### *Wildlife and Habitat*

The proposed action would remove 3.7 acres of existing forested wildlife habitat,<sup>13</sup> currently adjacent to an existing cleared ROW. Following completion of the project, the new and existing ROW would be maintained as an early successional herbaceous field that would provide habitat for wildlife. Wildlife currently inhabiting the project area may be displaced temporarily by increased levels of disturbance during construction actions, but it is mostly expected that they would return to the project area upon completion of construction. Long-term effects of the project on wildlife are expected to be negligible primarily because of the small project size and the availability of surrounding forested habitat on Parkway lands. In addition, mitigation for the proposed alternative includes allowing Central EPA's current ROW to revegetate, which would allow for reforested habitat and further reduce the impacts of the project.

### *Threatened and Endangered Species*

In accordance with federal and state requirements for special status species, TVA consulted with the US Fish and Wildlife Service (USFWS) under the Endangered Species Act Section 7(a)(2) on November 21, 2016. Letters of concurrence were received from USFWS on December 1, 2016, and January 12, 2017, concurring with TVA's findings that the proposed project may affect the northern long-eared bat, but that the proposed action would not result in prohibited incidental takes pursuant to the final 4(d) rule. The NPS defers to agency consultation performed by TVA, as outlined in their EA for the larger project. Refer to TVA's EA sections 3.6 and 4.2.6 for a more detailed discussion of impacts and consultations regarding threatened and endangered species. Since TVA consulted with the USFWS for the entire TL project, the NPS adopts the analysis from TVA's EA.

### *Noise*

The noise impacts from the action alternative would be short-term and only during the construction phase. Noise from clearing the ROW vegetation and construction equipment would be experienced and most impactful to wildlife that might leave the floodplain forest area until construction is completed. Any change in noise relative to current conditions was determined to be temporary and negligible.

### *Air Quality*

The nearest town, Kosciusko, MS, is currently within attainment for primary air quality standards established by the U.S. Environmental Protection Agency (see [air quality/greenbook/map/mapnpoll.pdf](http://airquality.greenbook/map/mapnpoll.pdf)). Air quality impacts from the construction of the

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<sup>13</sup> TVA consulted with United States Fish and Wildlife Service for the entire 43-mile project area. Refer to the Consultation section for information on special status species consultations.

transmission line would not measurably impact air quality standards and were therefore dismissed.

### *Night Sky and Lights*

TVA does not propose to use additional lighting, and construction and maintenance operations would only occur during daytime hours. Thus, the project will have no impact on night skies or lighting.

### *Parkway Operations*

Parkway operations were dismissed since TVA would maintain and repair the new TL. TVA will be required to obtain a ROW and construction permit from the NPS; these permits would further outline the roles and responsibilities of each agency relating to maintenance and repairs of the line.

### *Archeological Resources*

TVA contracted with Tennessee Valley Archaeological Research (TVAR) to conduct an archeological survey along the proposed ROW. In September 2016, TVAR conducted the survey under Archeological Resource Protection Act (ARPA) permit number NATR 2016-002. Shovel tests were systematically spaced at 20 meter intervals to a depth of 50 centimeters below the surface. A total of 46 tests were conducted on NPS property. No archeological resources were encountered. Furthermore, TVA will be required to follow a plan outlining procedures to follow for inadvertent discoveries which will require the TVA to stop work, notify park staff, and follow Parkway guidance if it discovers archeological materials or human remains while working on Parkway lands. Therefore, the project is not expected to impact archeological resources.

### *Ethnographic Resources*

Ethnographic resources, as defined in NPS Management Policies (2006), “are the cultural and natural features of a park that are of traditional significance to traditionally associated peoples. These peoples are the contemporary park neighbors and ethnic or occupational communities that have been associated with a park for two or more generations (40 years), and whose interests in the park’s resources began before the park’s establishment.”

TVA’s consultation with traditionally associated American Indian groups indicated that the proposed project will have no adverse effect on resources they hold significant. The Parkway has not documented additional ethnographic groups associated with its resource, but will consult with applicable tribes. Pending receipt of no new

information<sup>14</sup> as a result of these consultations, ethnographic resources are dismissed from further analysis.

List of tribes consulted:

- Absentee-Shawnee Tribe of Indians of Oklahoma
- Alabama-Coushatta Tribes of Texas
- Alabama-Quassarte Tribal Town
- Cherokee Nation
- Chitimacha Tribe of Louisiana
- Choctaw Nation of Oklahoma
- Eastern Band of Cherokee Indians of North Carolina
- Jena Band of Choctaw Indians
- Kialegee Tribal Town
- Mississippi Band of Choctaw Indians
- Muskogee (Creek) Nation
- Poarch Band of Creek Indians of Alabama
- The Chickasaw Nation of Oklahoma
- Thlopthlocco Tribal Town
- United Keetoowah Band of Cherokee Indians of Oklahoma

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<sup>14</sup> Tribes will be allowed at least 30 days for consultation; additionally, comments will be accepted through the closing date of the public scoping of this EA.



## AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

### Cultural Landscapes

The Parkway<sup>15</sup> was conceived and developed as a designed landscape that integrates a traditional rural, agrarian, southern landscape experience; facilitates leisurely and scenic travel; and links scenic, cultural, and natural features of interest. It is comprised of both hard and soft design features. Hard features include curvilinear road alignments, scenic overlooks, and stonework on bridges and culverts. Soft features include mowed areas and specimen trees. All features are drawn on the Parkway's Land Use and Maintenance Plans, which date from the mid-1940s to early 2000s.

The entire Parkway is eligible for listing in the National Register of Historic Places. It is eligible under Criteria A of the National Register Criteria for Evaluation since it is "associated with events that have made a significant contribution to the broad patterns of our history." It is also eligible under Criteria C since it embodies "the distinctive characteristics of a type, period, or method of construction." Although the last section of Parkway was completed in 2005, the National Register of Historic Places guidelines for evaluating significance of a property clearly state that if a property has gained significance within the last 50 years, "such properties will qualify if they are integral parts of districts that do meet the criteria. . . ." The definition of a district, according to the National Register of Historic Places guidelines, is as follows:

"A significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development."

The Parkway connects many sites that illustrate the landscape's history, including remnants of the original Old Trace, significant American Indian cultural sites, "stands" or travelers' stops from the 18th and 19th century, burials and commemorative markers, and historic buildings and structures associated with settlement by Euro-Americans. Visitor facilities, such as campgrounds, visitor centers, interpretive and scenic pullouts, and comfort stations, have been constructed along the Parkway.

The Parkway's designed landscape was part of a larger NPS initiative. With the authorization of the Blue Ridge Parkway and Natchez Trace Parkway in the 1930s, the NPS began designing a new type of park unit. The NPS viewed the two projects as

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<sup>15</sup> As described on page 4, the reader should note that all described impacts to the cultural landscape also include impacts to the Parkway, Natchez Trace National Scenic Trail, and Mississippi Hills National Heritage Area.

“pioneers in their respective fields of national recreational and historical motor travel.”<sup>16</sup> These new parkways were not designed as commuter routes or as merely a method of getting from Point A to Point B. They were elongated parks that spanned multiple states and connected cultural and natural resources together as a district for the enjoyment of the traveler.

In a 1938 statement to Congress, the Associate Director of the NPS described the design elements of a parkway and how these design elements differed from a highway<sup>17</sup>:

1. Designated for recreational use only; no commercial use allowed
2. Avoids unsightly roadside development
3. Built within a wider right-of-way to provide an insulating strip of land between the motor road and adjoining private property
4. Eliminated frontage, access rights and major at-grade crossings
5. Bypassed large communities and congestion
6. Entrance and exit points distantly spaced
7. Designed to take advantage of the best scenery through which it traversed; therefore the shortest and most direct route was not a primary consideration
8. Preserves natural scenic values

The Parkway was designed along those criteria to provide Park visitors with a recreational travel experience, highlighting traditional rural southern landscapes, scenic views, and natural and cultural resources.

Assessment of the Parkway requires a comprehensive understanding of how the Parkways’ movement, designer’s intent, natural resources, and the cultural landscape are related and interconnected.

#### *Direct and Indirect Impacts of the No Action Alternative on Cultural Landscapes*

For the No Action Alternative, no additional impact to the cultural landscape would occur because no ROW would be approved and no new TL would be constructed. The existing Central EPA line easement was approved in 1946 prior to the enactment of the NHPA. The existing Central EPA line was therefore not analyzed to determine its effects on the cultural landscape. However, if constructed today, it would be considered an adverse effect under NHPA.

#### *Direct and Indirect Impacts of the ROW Alternative on Cultural Landscapes*

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<sup>16</sup> As quoted in “Expansion of the National Park Service in the 1930s: Administrative History.” Chapter Four: New Initiatives in the Field of Recreation and Recreational Area Development, ([https://www.nps.gov/parkhistory/online\\_books/unrau-williss/adhi.htm](https://www.nps.gov/parkhistory/online_books/unrau-williss/adhi.htm)).

<sup>17</sup> Also cited in former Parkway Superintendent Bainbridge’s position paper on adjacent development on file at Natchez Trace Parkway, Tupelo, MS.

Consultation with the NPS Southeast Region Cultural Resource Management Team and the State Historic Preservation Office (SHPO) determined that the ROW Alternative would have an adverse effect on the Parkway as a property eligible or listed in the National Register of Historic Places. TVA's proposed line would alter the landscape's character defining features as defined by the NPS in 1938. It constitutes roadside development and it would alter the Parkway's natural scenic values. The scenic view would be degraded by the lines and poles that would be visible from the Parkway motor road. The vegetation clearing along the line's ROW would further interrupt the rural southern landscape and create an additional commercial component.

The Parkway's integrity of setting, feeling and design would be adversely affected by the introduction of the modern 161kV aerial powerline. The new ROW would physically impact an area measuring 100' x 2000' within the Parkway boundary. The ROW would be cleared of vegetation. New poles would be installed and aerial wires installed above the motor road.

In order to minimize the adverse effect on the cultural landscape, the NPS would require that the tower and conductor height be reduced to the minimum required to operate within established National Electric Safety Code (NESC) standards. The towers will be painted a color that blends with the environment as much as possible, and TVA will plant a low growing vegetation buffer adjacent to the Parkway mow line.

Despite these efforts, the project constitutes an adverse effect to the designed cultural landscape. This TL represents the first known new ROW consideration of an aerial crossing since the Parkway's establishment. Furthermore, the ROW Alternative is not consistent with the management history of limiting new aerial crossings. The project will double the number of wires and introduce considerably larger TL towers, while noticeably expanding the forest clearing at the crossing location. Therefore, substantial mitigation is necessary to compensate for the unparalleled effects of the proposed project to the cultural landscape. Appropriate mitigation for this project would include the undergrounding of three existing overhead utility lines as described in the Mitigation section. By eliminating the visual effect of the existing lines and their associated structures, the adverse effect of the proposed TVA project would be lessened but not eliminated. For details regarding the mitigation proposal, refer to the Mitigation of Cultural Landscape Impacts: Scenic Impacts section.

#### *Cumulative Effects of the ROW Alternative*

A cumulative impact as defined by NEPA is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-

Federal) or person undertakes such other actions.”<sup>18</sup> Any impact to the cultural landscape Parkway-wide potentially affects the eligibility for listing on the National Register of Historic Places. The effects must be evaluated for the Parkway as a whole district.

The major past actions affecting the designed cultural landscape of the Parkway include:

1. ROWs for three major roadways (Tennessee 840, Barnes Coley Road, and new Highway 6);
2. ROWs for two access roads (Rice Road and the Chickasaw Heritage Center);
3. Upgrades to multiple Entergy TLs in 2008 and 2016;
4. Adjacent development that has impacted the viewshed of the Parkway (i.e. Wal-Mart near Kosciusko) and structures incompatible with the viewscape described in enabling legislation for the Parkway (i.e. mobile homes);
5. ROWs for pipelines (Gulf South, Denbury);
6. Crossings that pre-date the establishment of the Parkway (this equates to approximately 1 crossing of some type each 1.4 miles along the Parkway);
7. WTV tower and cell phone towers;
8. Strip mining occurring within the viewshed at Little Mountain overlook;
9. Exceptions to the scenic vista law (i.e. athletic lighting at Tupelo High School and church steeple at Harrisburg Baptist Church in Tupelo);
10. Highway 84 crossing near Natchez.

Present and reasonably foreseeable actions that are sufficiently likely to occur and would affect the cultural landscape include:

1. A ROW has recently been tentatively proposed for the Southern Cross 500 kV TL approximately 25 miles north of the project area. If approved, this project would likely necessitate new vegetation clearing, installation of new poles, and aerial lines.
2. A ROW for Hwy 61 bypass around Port Gibson is being developed by the Mississippi Department of Transportation.
3. A ROW for Byrum-Clinton corridor, a roadway planned to cross the Parkway near Clinton, MS will likely be requested.
4. Continental Tire is planning to construct a tire plant near Clinton, MS, which is expected to increase commuter traffic on the Parkway (an indirect impact to the landscape).
5. Significant residential development planned near the northern terminus of the Parkway which will significantly impact the view of the agrarian landscape described in the Parkway’s enabling legislation (Rochford development).
6. A new access road to Emerald Mound is planned, and would include a new at-grade intersection near milepost 10.

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<sup>18</sup> 40 C.F.R. § 1508.7

The NPS recognized the potential impacts posed by aerial utility lines in an early document entitled National Parkways Handbook, in which the authors stated that “the most important consideration of overhead wire lines is their appearance from the parkway roads.” They further highlighted that “each crossing needs careful examination and planning.”<sup>19</sup> It is reasonably foreseeable that future projects have the potential to adversely affect the Parkway in a cumulative manner, and this will necessitate the determination by the NPS as to when the impacts of these future individual projects become cumulatively significant. Mitigation efforts associated with past and future ROW projects will need to continue to consider direct, indirect and cumulative effects.

In applying the criteria of adverse effect as noted in 36 CFR § 800.5(a)(1), the Parkway’s designed cultural landscape would be adversely affected by the proposed project, both directly and cumulatively. More specifically, the ROW Alternative represents a noticeable adverse increment to the cumulative adverse effect under NHPA Section 106. The addition of more wires, larger TL structures, and increased forest clearing all contribute to adverse effects to the designed cultural landscape, in addition to pre-existing impacts. The direct effects and the cumulative effects provided the basis for adverse effect determination and the associated significance of the ROW Alternative on the cultural landscape of the Parkway. Therefore, a Memorandum of Agreement with the Advisory Council on Historic Preservation outlining the mitigation under NHPA for the construction of the ROW Alternative would be required (refer to the Section 106 Consultation section).

## Vegetation

The general habitat of the project site is composed of mixed floodplain forest on flat terrain. The forested wetland is mapped as a mix of both Oak Bottomland and Floodplain Forest and Ruderal Mixed Floodplain Forest (Figures 7 and 8). There is also Ruderal Mixed Grassland within the existing Central EPA ROW. The forest canopy includes dominant species such as overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*) and slippery elm (*Ulmus americana*), with an understory of regenerating water oak and slippery elm saplings, switchcane (*Arundinaria tecta*), and invasive Chinese privet (*Ligustrum sinense*). The grassland vegetation is dominated by goldenrod (*Solidago* sp.) and invasive Vasey’s grass (*Paspalum urvillei*). The project area was disturbed by the installation and maintenance of Central EPA’s line and by construction of the Parkway. Approximately 3.7 acres of forest would be cleared adjacent to the existing Central EPA line and along the northwest boundary of the Parkway for the construction and establishment of the TL (Figure 7). Impacts to vegetation associated with floodplains and wetlands will be described in the Floodplains and Wetlands section.

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<sup>19</sup> National Parkways Handbook (National Park Service, 1964), p. 6

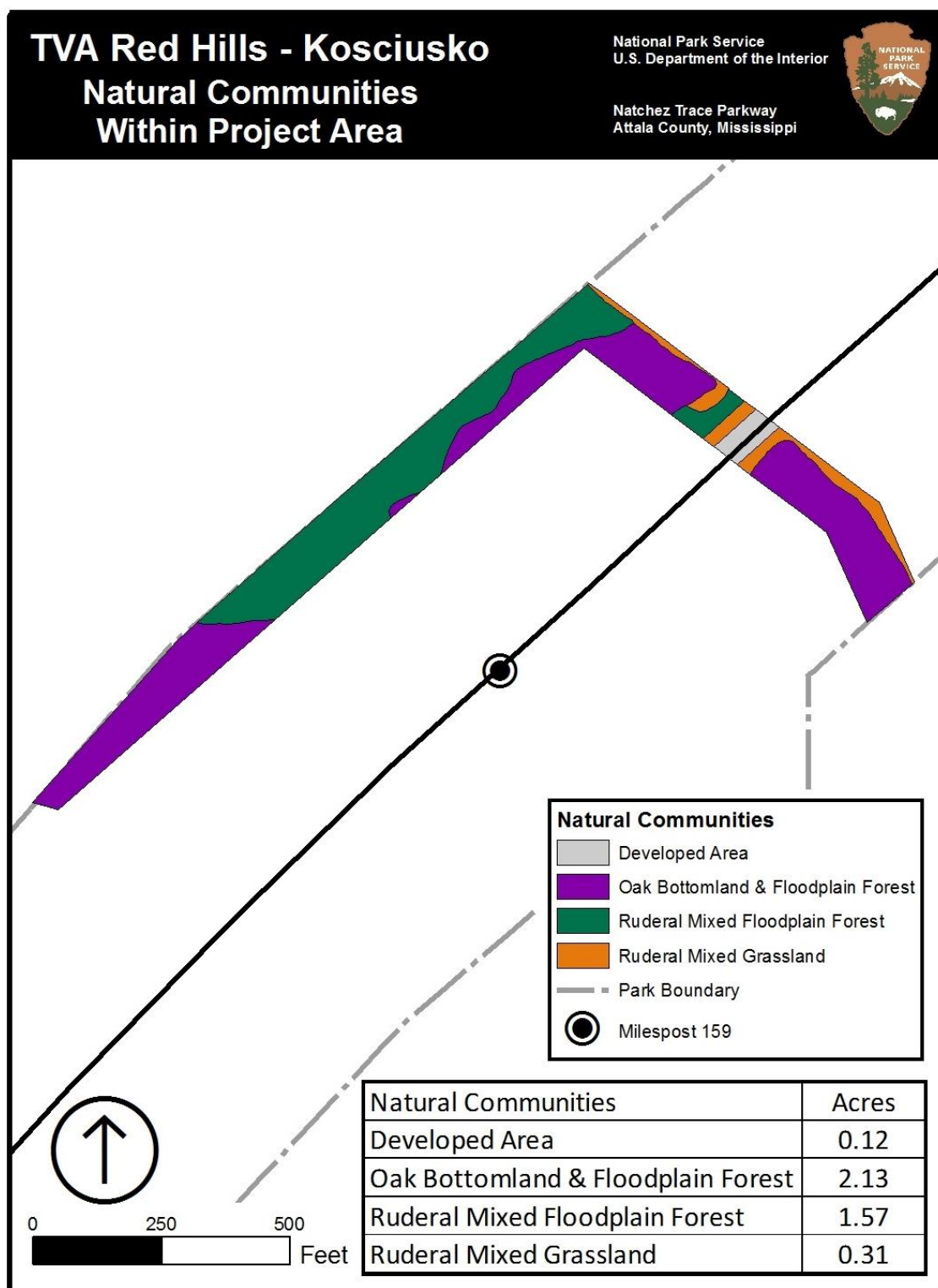


Figure 7. Vegetation within the project area. The total vegetated project area is 4 acres.



### *Direct and Indirect Impacts of the No Action Alternative on Vegetation*

For the No Action Alternative, no additional impacts to vegetation would occur because no ROW would be issued to TVA, and no vegetation cleared. The current forested vegetation within the existing easement would remain, and maintenance of the existing Central EPA easement would continue.

### *Direct and Indirect Impacts of the ROW Alternative on Vegetation*

To construct the TL, there would be both temporary and permanent impacts to vegetation. The permanent impacts would involve 3.7 acres of vegetation removal for the TL corridor, along the Parkway boundary and across the Parkway motor road (Figure 5). In addition, the TL corridor would require long-term vegetative maintenance within the corridor in compliance with the National Electric Safety Code (NESC) and to meet reliability standards set by NERC. Refer to TVA's EA Section 2.2.2.2 for more information regarding these requirements.

TVA typically uses a minimum ground clearance of 24 feet for a 161-kV TL. Vegetation management along the ROW would consist of felling hazard trees adjacent to the cleared ROW and controlling vegetation within the total width of the cleared ROW. These activities occur on approximately 3- to 5-year cycles. Therefore, long-term conversion of the vegetation type from forested to herbaceous would result from implementation of the ROW Alternative. Specifically, 2.13 acres oak bottomland forest and 1.88 acres of ruderal forest and grassland would be converted (Figure 8). By definition, this conversion means that the area would be managed to prevent the re-establishment of mature forest in perpetuity. The ROW Alternative therefore represents a permanent loss of the existing floodplain forest vegetation type, which is valued for its tree species, wildlife habitat, and ecosystem function. However, this vegetation type is considered common within the Parkway (refer to the Direct and Indirect Impacts of the ROW Alternative on Floodplains and Wetlands section), and the impacts would be limited in scope. Furthermore, the conversion associated with maintenance of the ROW could result in improved habitat for pollinator species.

Indirect impacts from the ROW Alternative on vegetation include possible vectors for exotic species from the disturbance of converting the forest to low growing vegetation and the maintenance activities that would occur in particular during an emergency when power needs to be restored quickly. However, this vegetation type is considered common within agricultural fields, the mowline, and within other ROWs along the Parkway. The incremental conversion of the forested area to grassland would be considered negligible because of the prevalence of this vegetation type along the Parkway, and because impacts would be limited in scope. A beneficial indirect impact is the possibility of providing native grass and wildflower habitat from the edge habitat created with the establishment of the new ROW.

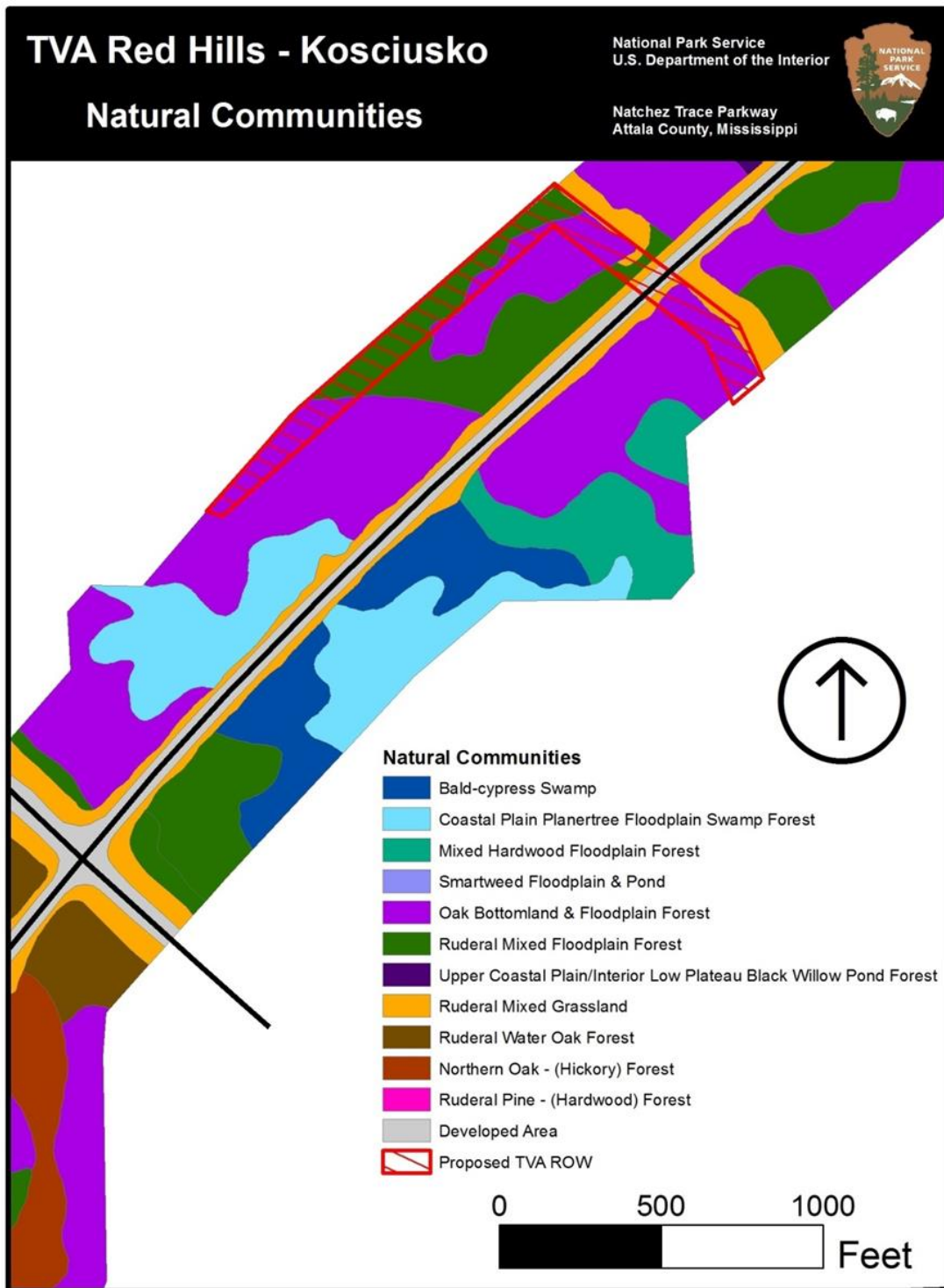


Figure 8. Vegetation map of areas surrounding the project area, located just south of the existing Central EPA easement. Proposed TVA line is indicated in red.

### *Cumulative Effects of the ROW Alternative on Vegetation*

The geographic scope of the cumulative effects analysis for vegetation is the existing forested vegetation types within the Parkway. According to the Parkway's vegetation map (United States Geological Survey, 2016), there are 38,207 acres<sup>20</sup> of forested habitat within the Parkway boundary. Powerline and pipeline ROWs require conversion from forests to grass cover types; for roads and highways, all vegetation types are cleared to establish the road surface. Parkway forests have been impacted in the past 10 years by several projects which cleared mature trees to construct a road or other ROW types. The major past actions affecting forest vegetation in the Parkway include:

1. ROWs for three major roadways (Tennessee 840, Barnes Coley Road, and new Highway 6)
2. ROWs for two access roads (Rice Road and the Chickasaw Heritage Center)
3. ROWs for oil and gas pipelines (Gulf South, Denbury)
4. Highway 84 crossing near Natchez

Past actions in this area include adjacent development and construction of the Parkway. In addition, the project area on the west side of the Parkway was previously a Parkway agricultural lease field, but was removed from the leasing program several years ago.

Present and reasonably foreseeable actions that are sufficiently likely to occur and would affect forested vegetation include:

1. A ROW has recently been tentatively proposed for the Southern Cross 500 kV TL approximately 25 miles north of the project area. If approved, this project would necessitate forest clearing.
2. A ROW for Hwy 61 bypass around Port Gibson is being developed by the Mississippi Department of Transportation, and would require forest clearing.
3. A ROW for Byrum-Clinton corridor, a roadway planned to cross the Parkway near Clinton, MS will likely be requested.
4. A new access road to Emerald Mound is planned, and would include forest clearing to develop a new route from the Parkway road to the site.

The ROW Alternative represents a limited adverse incremental impact in the cumulative impact scenario. However, the overall impact of this action relative to past and foreseeable future actions on vegetation is not considered significant because of the prevalence of the existing vegetation type, the limited size of the project and because this project and future clearings would likely involve mitigation for impacts to Parkway forests (see Mitigation section).

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<sup>20</sup> This figure was derived by subtracting the non-forest habitat types from the total 53,490 mapped acres of Parkway lands.

## Floodplains and Wetlands

The ROW Alternative would cross the Parkway within the Yockanookany River floodplain, which totals approximately 150 acres between MS State Highway 14 and Highway 19/35, according to the National Wetland Inventory (NWI). The affected wetlands are connected to a much larger wetland complex surrounding the ROW. The floodplain is situated in the larger Bokshenya-Yockanookany watershed (Hydrological Unit Code 12),<sup>21</sup> which contains an estimated 5,200 wetland acres according to the U.S. Fish and Wildlife Service NWI map. Of the wetland acreage within the sub-watershed, the NWI denotes approximately 160 wetland acres on NPS property, almost all of which is forested (Figure 9). This mapped wetland extent coupled with the typical vegetation composition of the affected wetlands indicate this wetland habitat is a common occurrence within the Natchez Trace Parkway and throughout this region.

### *Direct and Indirect Impacts of the No Action Alternative on Floodplains and Wetlands*

For the No Action Alternative, no additional impacts to floodplains or wetlands would occur because no ROW would be issued to TVA, and no forested floodplains or wetlands would be cleared. The Central EPA ROW would continue to be maintained in low growing vegetation as long as the TL is in operation.

### *Direct and Indirect Impacts of the ROW Alternative on Floodplains and Wetlands*

Floodplains within the Parkway were identified using a combination of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps and park Geographic Information System (GIS) data layers. The 4.13 acre project area within the NPS boundary is classified by FEMA as a flood zone A and lies within the Yockanookany River floodplain. Flood zone A is defined as areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Since detailed hydraulic analyses have not been performed, no Base

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<sup>21</sup> Hydrologic Unit Codes are a sequence of numbers used by the U.S. Geologic Survey to categorize watersheds nationwide.



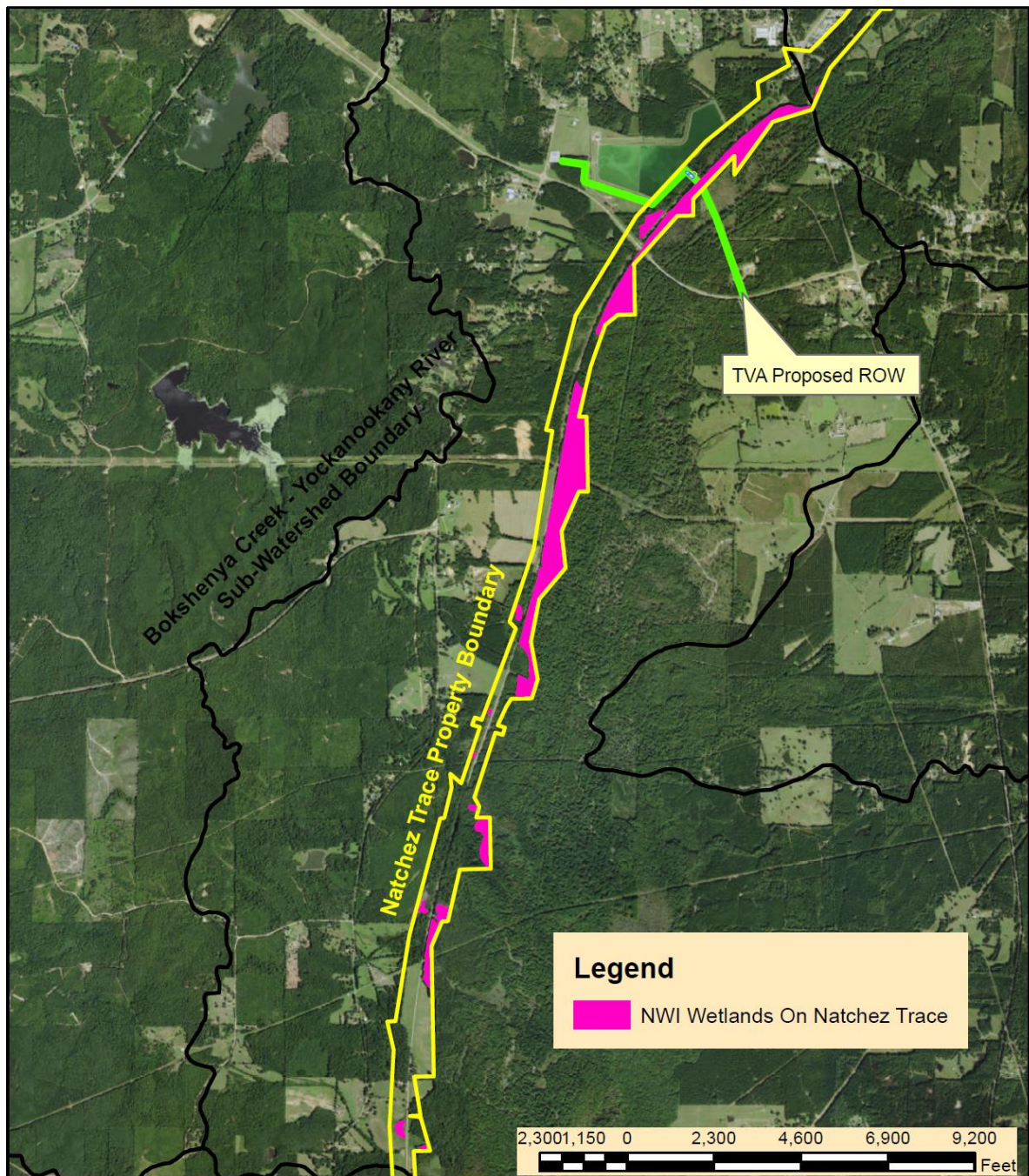


Figure 9. National Wetlands Inventory mapped wetlands within Parkway boundary.



### *Direct and Indirect Impacts of the No Action Alternative on Floodplains and Wetlands*

Flood Elevations (BFEs) or flood depths are shown. Overall, 3.7 acres of floodplain forest would be cleared with for the ROW Alternative (this acreage figure excludes the 0.44 acres of the Parkway motor road and mowline shoulder already cleared of trees).

Field surveys were conducted by TVA wetland biologists in July 2016 to map wetland areas in accordance with revised Cowardin Classification system (FGDC 2013), as referenced in the NPS DO #77-1: Wetland Protection Manual (NPS 2016). In accordance with section 4.1.1 in the manual, the wetlands located within the ROW contained soil, vegetation, and hydrology, of which attributes for all three parameters were utilized to identify wetland presence and extent. Furthermore, section 4.1.2 of the manual was followed for wetland determination within the ROW corridor across NPS property. The identified wetland areas all contained hydrophytic (wet-site) vegetation, hydric soil, and wetland hydrology. These wetland areas were categorized as palustrine, and are bound by upland on either side.

Using a TVA-developed modification of the Ohio Rapid Assessment specific to the TVA region (TVA Rapid Assessment Method or TVARAM)<sup>22</sup> wetlands were evaluated by their functions and classified into three categories: low quality, moderate quality, and superior quality. Low quality wetlands are degraded aquatic resources that may exhibit low species diversity, minimal hydrologic input and connectivity, recent or on-going disturbance regimes, and/or predominance of non-native species. These wetlands provide low functionality and are considered of low value. Moderate quality wetlands provide functions at a greater value due to a lesser degree of degradation and/or due to their habitat, landscape position, or hydrologic input. Moderate quality wetlands are considered healthy water resources of value.

Disturbance to hydrology, substrate and/or vegetation may be present to a degree at which valuable functional capacity is sustained and there is reasonable potential for restoration. Superior quality wetlands include those wetlands offering high functions and values within a watershed or are of regional/statewide concern. Superior quality wetlands may exhibit little, if any, recent disturbance, provide essential and/or large scale cumulative stormwater storage, sediment retention, and toxin absorption, contain mature vegetation communities, and/or offer habitat to rare species. Conditions found in superior quality wetlands often represent restoration goals for wetlands functioning at a lower capacity.

Two wetland areas were identified on NPS property within the proposed ROW, totaling 0.99 acres, of which 0.75 acre is forested. These wetlands are located in the

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<sup>22</sup> Refer to the TVA EA at <https://www.tva.gov/Energy/Transmission-System/Transmission-System-Projects/Red-Hills-Leake-Transmission-Project-Southwest-Mississippi-Service-Area> ) and the NPS Wetland Statement of Findings (Appendix A) for more detailed information regarding wetland classifications.

Yockanookany River floodplain, inside the Bokshenya Creek-Yockanookany River watershed within the Pearl River watershed basin. These wetlands provide moderate functions and quality to the surrounding landscape (Table 1).

Table 1. Wetland area in Proposed ROW on Parkway property.

Wetland Identifier	Wetland Type <sup>1</sup>	TVARAM <sup>2</sup> Existing Functional Capacity (Score)	Total Wetland Acres	Forested Wetland Clearing/ Conversion	Wetland Fill
W101a	PFO1E	Moderate (46)	0.35	0.35	0.0003
W101b	PEM1E	Moderate (46)	0.15	0	0.0003
W102a	PFO1E	Moderate (46)	0.40	0.40	0
W102b	PEM1E	Moderate (46)	0.09	0	0
Total Acres			0.99	0.75	0.0006

<sup>1</sup>Classification codes as defined in Cowardin et al. (1979): E = Seasonally flooded/saturated; EM1=Emergent, persistent vegetation; FO1=Forested, broadleaf deciduous vegetation; P=Palustrine; <sup>2</sup>TVARAM = A TVA Rapid Assessment Method that categorizes wetland quality by their functional capacity.

Palustrine forested wetlands are characterized by woody vegetation that is at least 20 feet tall. Forested wetlands usually possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer. The forested wetland is mapped as mix of both Oak Bottomland and Floodplain Forest and Ruderal Mixed Floodplain Forest. There is also Ruderal Mixed Grassland within the existing Central ROW. The forest canopy included dominant species such as overcup oak, sweetgum, and slippery elm with an understory of Chinese privet, regenerating water oak, slippery elm saplings, and switchcane. The grassland vegetation was dominated by hydrophytic goldenrod (*Solidago* sp.) and Vasey's grass (*Paspalum urvillei*), an invasive species.

#### *Cumulative Effects of the ROW Alternative on Floodplains and Wetlands*

The geographic scope of the cumulative effects analysis for vegetation is the Bokshenya-Yockanookany watershed (12-HUC), which contains an estimated 5,200 wetland acres according to the U.S. Fish and Wildlife Service, NWI, Wetlands Mapper. The watershed is primarily oak bottomland and floodplain forest with areas of ruderal (human-impacted) hardwood-pine mixed forest, agricultural tracts, and developed lands. Past actions in this area include adjacent development surrounding Kosciusko, installation of the Central EPA TL, and construction of the Parkway. Foreseeable actions affecting

vegetation include a ROW permit tentatively proposed for the Southern Cross 500 kV TL, located approximately 25 miles north of the project area. If approved, this project would likely necessitate new vegetation clearing, installation of new poles, and aerial lines. This foreseeable project would be impactful, would represent an additional adverse incremental impact in the cumulative impact scenario relative to the ROW Alternative, but would not affect wetlands or floodplains because the proposed project areas are not located within wetlands or floodplains. The overall impact of the ROW Alternative relative to past and foreseeable future actions on wetlands and floodplains is not considered significant because of the prevalence of the existing vegetation type and the limited size of the project. Furthermore, the contribution of adverse impact from the ROW Alternative when considered with the foreseeable future actions that could impact floodplains and wetlands, is further reduced due to mitigation that would occur from impacts to floodplains and wetlands (see Mitigation section).

## Visitor Use and Experience

The Parkway represents a continuous green corridor that serves as a scenic route for millions of annual visitors. Two general groups use the Parkway: some as a way to get from one destination to another (non-recreational visitors such as commuters), while others come to observe its scenery and participate in available opportunities (recreational visitors). Currently, visitors experience the project area primarily by vehicle or bicycle<sup>23</sup>. The view when within the existing Central EPA ROW is shown in Figures 2a and 2b. There are no visitor facilities or interpretive opportunities within the project area; therefore, the visitor experience is primarily characterized by a transient view of seven aerial lines across the Parkway.

Aerial electrical or phone lines or underground pipeline crossings are common along the Parkway. However, almost all of these lines existed before the establishment of the Parkway, such as the Central EPA TL.

### *Direct and Indirect Impacts of the No Action Alternative on Visitor Use and Experience*

For the No Action Alternative, no additional impacts to visitor use and experience would occur because no ROW would be issued to TVA, and no additional lines would be viewable by visitors. The Central EPA ROW would continue to be maintained in low growing vegetation as long as the TL is in operation.

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<sup>23</sup> Occasionally visitors may hike through the project area, but hiking along the Parkway is not a frequent occurrence.

### *Direct and Indirect Impacts of the ROW Alternative on Visitor Use and Experience*

Additional lines and larger transmission structures associated with the ROW Alternative may negatively affect visitor experience by further interrupting the Parkway's natural and cultural landscape. It is anticipated, however, that the proposed action would only have minor negative impacts to visitor experience because the exposure is transient in nature and would not measurably affect recreational opportunities or Parkway access. Therefore, the NPS does not expect ROW Alternative to materially impact how visitors use and experience this area of the Parkway.

The clearing and construction for the ROW Alternative is expected to occur over a series of five weeks. Depending on the phase of work, visitors may be temporarily impacted by slower traffic patterns due to equipment and material delivery, removal of vegetation from the ROW, or constructing the transmission cable. Extended lane closures, however, are not anticipated. Traffic safety signs and flaggers will be used to manage any intermittent blockage of traffic within the Natchez Trace Parkway to facilitate access of one side of the ROW to the other. TVA will apply for a Construction Special Use Permit from NPS and operate within the parameters detailed therein. Due to the short duration of the work within the Natchez Trace, and the planned traffic control measures during time periods that necessitate a crossing, impacts to visitors are projected to be insignificant.

### *Cumulative Effects of the ROW Alternative on Visitor Use and Experience*

The geographic scope of the cumulative effects analysis is defined as the average length of Parkway traveled without an interruption by an electrical, phone, or pipeline crossing. In between the views of these various utility crossings, the visitor travels through rural areas with forests, open grasslands, and agricultural fields as they encounter interpretive pull-offs, American Indian mounds, and many other historical educational opportunities. In the metropolitan areas, the visitor experiences typical urbanization associated with human development. On average, the visitor experiences a crossing of some type each 1.5 miles traveled along the Parkway. Past actions within three miles of the project area (1.5 miles south and 1.5 miles north) included construction of the Parkway and the Central EPA line.

The majority of visitors are assumed to prefer the Parkway's natural and pastoral landscape without powerlines impacting the scenic viewshed. The existing cumulative impact to the viewshed is encompassed by the existing utility crossings each 1.5 miles. The degree to which the ROW Alternative would affect the visitor experience is not well-quantified, but logic dictates that larger crossings with wider ROW widths, larger towers and multiple wires are more noticeable to visitors than smaller crossings (such as a telephone ROW). The ROW Alternative represents an incremental adverse impact to the viewshed cumulative impact scenario, affecting visitor use by further disrupting the pastoral scene and reducing the overall aesthetic enjoyment when visiting the Parkway.

However, undergrounding three other lines in more highly-used visitor areas would achieve an overall benefit to visitor experience. Therefore, the cumulative impact from the ROW Alternative, when considered with the foreseeable future actions that could visitor use and experience, is not considered significant.

## **CONSULTATION**

As defined in the NPS NEPA Handbook, scoping is “an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action” The scoping process includes both internal and external (other agency and public) elements and continues throughout the planning and early stages of preparation of an EA. Internal scoping was conducted by NPS staff to accomplish the outcomes discussed above. As cooperating agencies, the NPS and TVA conducted extensive scoping. Public scoping refers to the engagement of the interested and affected public early in the process on matters related to the proposed action, environmental issues that should be addressed, potential alternatives, and sources of data that should be considered. The NPS defers to the external public scoping and agency consultation performed by TVA, as outlined in their EA Section 1.5 for the larger project.

### **Section 7 Consultation**

In accordance with federal and state requirements for special status species, TVA consulted with the US Fish and Wildlife Service (USFWS) under the Endangered Species Act Section 7(a)(2) on November 21, 2016. Letters of concurrence were received from USFWS on December 1, 2016, and January 12, 2017, concurring with TVA’s findings that the proposed project may affect the northern long-eared bat, but that the proposed action would not result in prohibited incidental takes pursuant to the final 4(d) rule.

Refer to TVA’s EA sections 3.6 and 4.2.6 for a more detailed discussion of impacts and consultations regarding threatened and endangered species. According to Parkway records, there are no known threatened, endangered species, or species of management concern within the project area. The NPS defers to agency consultation performed by TVA, as outlined in their EA for the larger project.

### **Section 106 Consultation**

In compliance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR, Part 800), the NPS consulted separately with the Mississippi SHPO and 15 tribes. The responses received to date are located in Appendix 2. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to



comment. Because the ROW Alternative would be an adverse effect, a Memorandum of Agreement with the Advisory Council on Historic Preservation (ACHP) will be required. This agreement would record the agreed upon resolution for the ROW Alternative impacts, and document the mitigation performed to reduce the impacts of the project. However, the ACHP has determined their participation is not needed to resolve the adverse effects identified for the ROW Alternative (Appendix 2).

All consulting agencies and the public would have an opportunity to further comment on the EA during the public review period. Any responses received would be included in the appendix to this EA.

### **Public Involvement**

The DOI NEPA regulations require that public notification and public involvement be conducted to the “extent practicable” when an EA is being prepared. TVA conducted public meetings and scoping for the development of the transmission line construction EA. In addition, the NPS provided a 30 day public review period for this EA from November 3, 2017 to December 2, 2017.

### **List of Preparers**

U.S. Department of the Interior, National Park Service

Deanna Boensch, Natural Resource Specialist, Natchez Trace Parkway  
Lisa McInnis, Chief of Resource Management, Natchez Trace Parkway  
Christina Smith, Cultural Resource Specialist, Natchez Trace Parkway  
Greg Smith, Landscape Architect, Natchez Trace Parkway

### **List of Reviewers**

U.S. Department of the Interior, National Park Service

Bryan Faehner, Energy and Environmental Protection Specialist, Southeast Region  
Jami Hammond, Environmental Protection Specialist, Southeast Region

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**Appendix 1**  
**Wetland/Floodplain Statement of Findings**

**STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988:  
FLOODPLAIN MANAGEMENTEXECUTIVE ORDER 11990: WETLANDS PROTECTION,**

**Red Hills-Kosciusko 161kV Transmission Line**

Natchez Trace Parkway  
Attala County, MS

**Recommended:**

\_\_\_\_\_  
Superintendent, Natchez Trace Parkway      Date

**Certified for Technical Adequacy and Servicewide Consistency:**

\_\_\_\_\_  
Chief, NPS Water Resources Division      Date

**Approved:**

\_\_\_\_\_  
Director, Southeast Region      Date

## **INTRODUCTION**

Executive Order (EO) 11988 (Floodplain Management) and EO 11990 (Protection of Wetlands) require the National Park Service (NPS) and other federal agencies to evaluate the likely impacts of actions in floodplains and wetlands. The objective of EO 11988 is to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. EO 11990 was issued to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid new construction in wetlands wherever there is a practicable alternative. National Park Service (NPS) procedures for complying with the wetland Executive Order are outlined in Procedural Manual 77-1. This Statement of Findings (SOF) documents compliance with NPS wetland protection management procedures. This document has been prepared in conjunction with an environmental assessment to analyze potential impacts under the National Environmental Policy Act of 1969.

## **PURPOSE AND NEED FOR ACTION**

The Tennessee Valley Authority (TVA), is proposing a project to construct a 161-KV transmission line (TL) within the boundaries of the Natchez Trace Parkway (Parkway) to supply electric power to a substation in Kosciusko Mississippi by constructing and operating approximately 43 miles of new 161-kV TL to TVA's existing Red Hills 161-kV Substation in Ackerman, Mississippi. To cross NPS lands, TVA is required to obtain a right-of-way (ROW) permit from the NPS authorizing the TL installation and long-term maintenance. In addition, a construction permit is needed from the Natchez Trace Parkway to authorize the TL construction.

Central Electric Power Association (Central) currently serves the area around the city of Kosciusko from its 46-kV Substation. Power is presently supplied to this substation by a 21.7-mile, single source 46-kV TL from TVA's Leake 161-kV Substation. This TL was constructed in the 1960s with primarily wood pole structures which are nearing the end of their useful life. The length and age of this TL causes the voltage at the Kosciusko 46-kV Substation to fall below acceptable TVA criteria when the power demand (or load) is at its peak. As a result, Central will be upgrading the Kosciusko 46-kV Substation to a 161-kV Substation.

The construction of TVA's new TL to serve the Kosciusko 161-kV Substation would address voltage problems and improve reliability in Central's service area, thereby allowing TVA to meet North American Electric Reliability Corporation (NERC) reliability criteria. Additionally, the proposed project would allow TVA to ensure the area is provided a strong, affordable source of power for continued economic health and residential and commercial growth.

The Natchez Trace Parkway bisects the state of Mississippi and passes through the town of Kosciusko. The enabling legislation allows for the issuance of new right-of-way permits in accordance with applicable state and federal laws. Although powerlines were present before the Parkway was established, this is the first known new aerial powerline and associated ROW proposed to be constructed within the Parkway.



## **SITE DESCRIPTION**

The new ROW for the TL will cross the Natchez Trace Parkway within the Yockanookany River floodplain, which totals an estimated 150+ acres between MS State Highway 14 and Highway 19/35, according to the National Wetland Inventory (NWI). The affected wetlands are connected to a much larger wetland complex surrounding the ROW. The floodplain area is situated in the larger Bokshenya-Yockanookany watershed (12-HUC), which contains an estimated 5,200 wetland acres according to the U.S. Fish and Wildlife Service, NWI, Wetlands Mapper. Of the wetland acreage within the sub-watershed, the NWI indicates approximately 160 wetland acres on NPS property, almost all of which is forested (Figure 1). This mapped wetland extent coupled with the typical vegetation composition of the affected wetlands indicate this wetlands habitat is a common occurrence within the Natchez Trace Parkway throughout this region.

TVA wetland biologist staff conducted data gathering for the site and all delineations of wetlands. The project was led by a wetland scientist, certified by the Society of Wetland Scientists, and all field staff had completed 38 hours of wetland delineation training from the US Army Corps of Engineers, in addition to having past experience with wetland delineations. These qualifications meet the NPS requirements of Procedural Manual #77-1, Section 5.3.5.2, which requires verification that wetland delineation/mapping work has been performed by a qualified wetland professional.

## **AFFECTED FLOODPLAINS**

Floodplains within the Parkway were identified using a combination of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps and park Geographic Information System (GIS) data layers. (Figure 2). The 4.13-acre project area within the NPS boundary is part of the Yockanookany River floodplain and classified by FEMA as a flood zone A, which is defined as areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Since detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Overall, 3.7 acres of floodplain forest will be cleared for the project.

Figure 1. TVA ROW and NPS Wetlands Vicinity Map

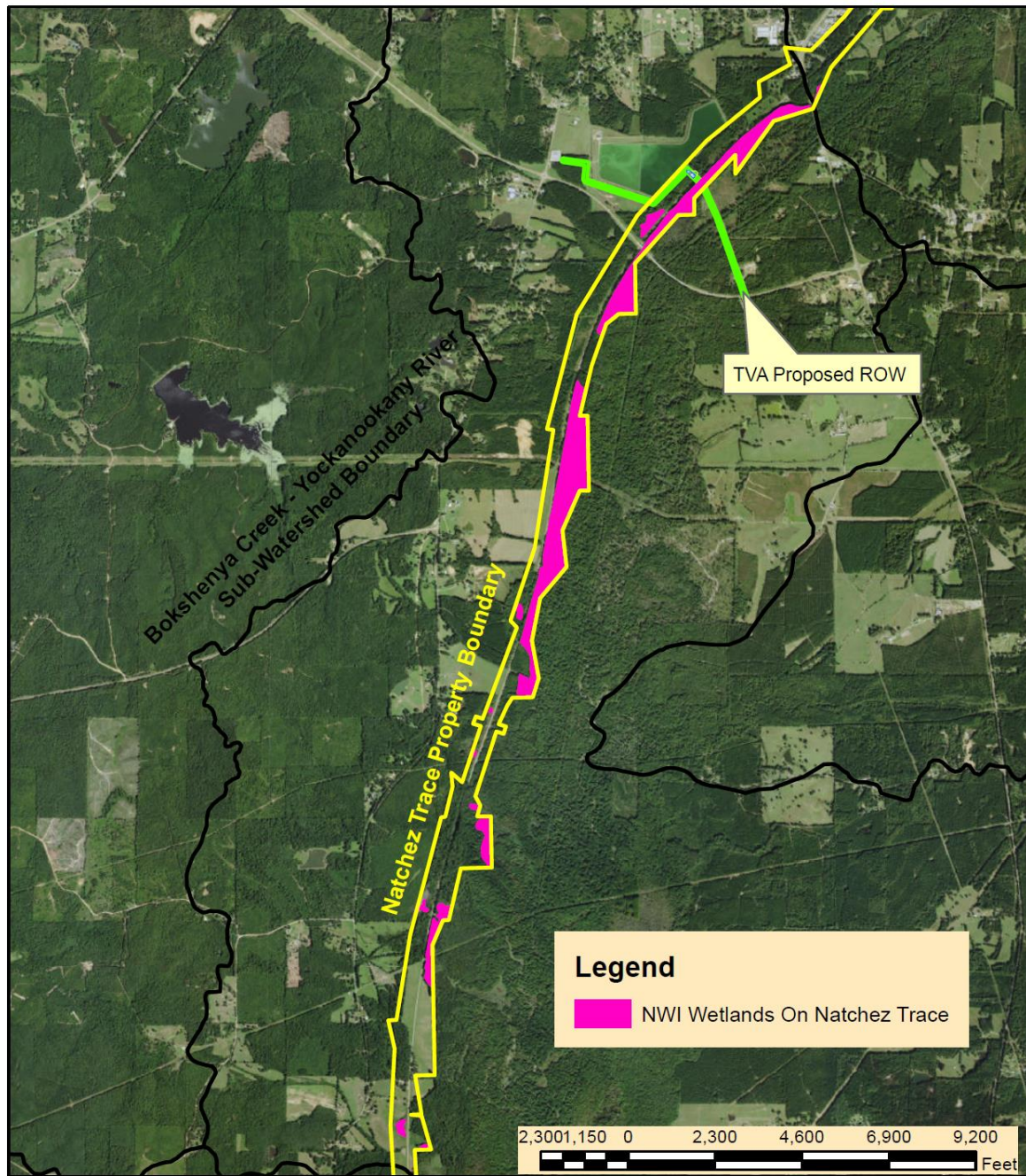
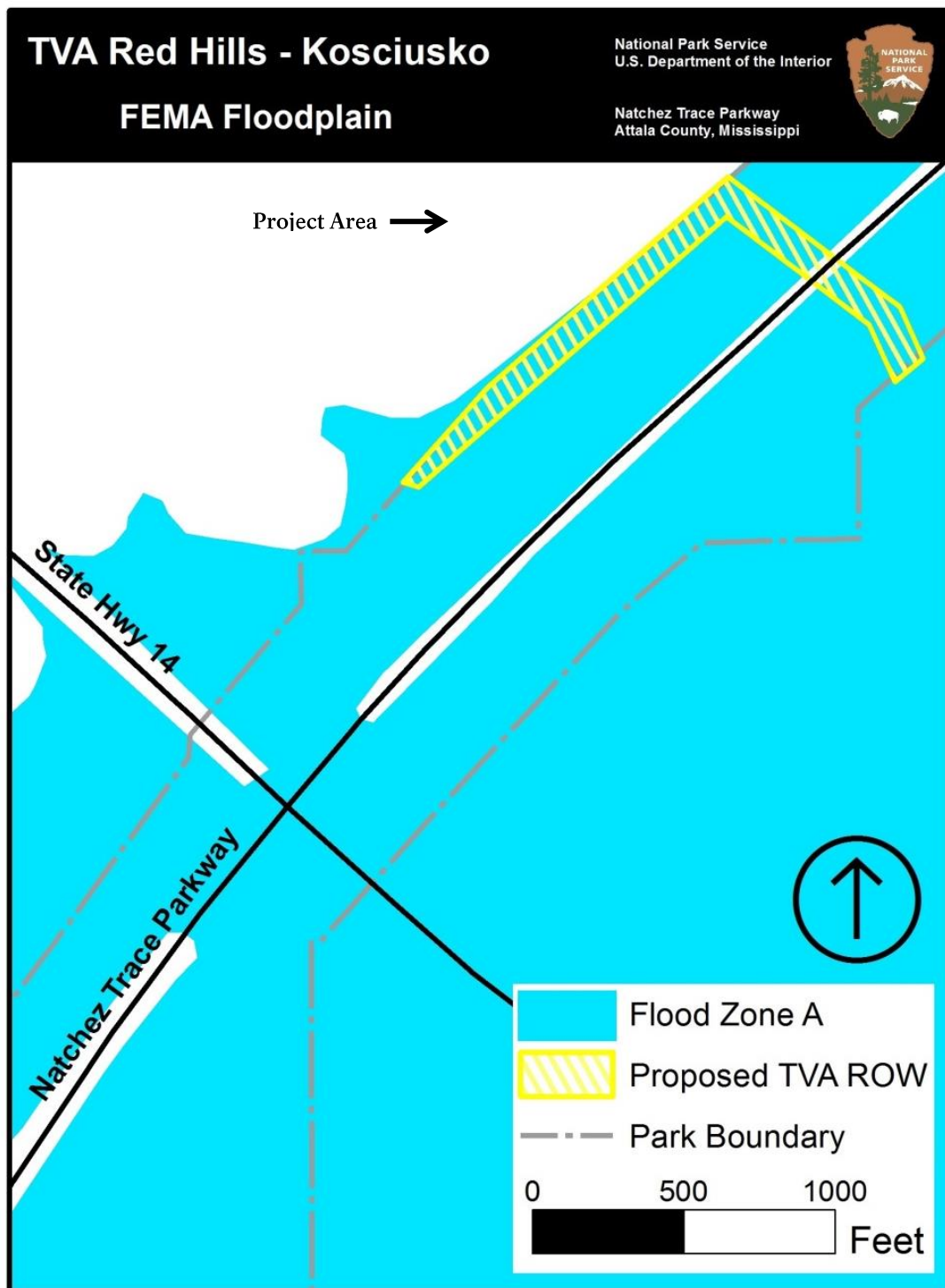


Figure 2. FEMA Flood Zone A Map



## AFFECTED WETLANDS

TVA wetland biologists, conducted field surveys in July 2016 to map wetlands in accordance with revised Cowardin Classification system (FGDC 2013), as referenced in NPS DO #77-1: Wetland Protection Manual (NPS 2016). In accordance with manual section 4.1.1, wetlands located within the ROW contained wetland soil, vegetation, and hydrology, and attributes were utilized to identify wetland presence and extent. Section 4.1.2 of the manual was adhered to for wetland determination, regardless of jurisdiction, within the ROW corridor across NPS property. The identified wetland areas all contained hydrophytic (wet-site) vegetation, hydric soil, and wetland hydrology (USACE 2010; Environmental Laboratory 1987; Lichvar et al. 2014). These wetlands were labeled palustrine, as they are bound by upland on either side.

Using a TVA-developed modification of the Ohio Rapid Assessment Method (Mack 2001) specific to the TVA region (TVA Rapid Assessment Method or “TVARAM”) wetlands were evaluated by their functions and classified into three categories: low quality, moderate quality, and superior quality. Low quality wetlands are degraded aquatic resources which may exhibit low species diversity, minimal hydrologic input and connectivity, recent or on-going disturbance regimes, and/or predominance of non-native species. These wetlands provide low functionality and are considered of low value.

Moderate quality wetlands provide functions at a greater value due to a lesser degree of degradation and/or due to their habitat, landscape position, or hydrologic input. Moderate quality wetlands are considered healthy water resources of value. Disturbance to hydrology, substrate and/or vegetation may be present to a degree at which valuable functional capacity is sustained and there is reasonable potential for restoration.

Superior quality wetlands are those wetlands offering high functions and values within a watershed or are of regional/statewide concern. Superior quality wetlands may exhibit little, if any, recent disturbance, provide essential and/or large scale cumulative stormwater storage, sediment retention, and toxin absorption, contain mature vegetation communities, and/or offer habitat to rare species. Conditions found in superior quality wetlands often represent restoration goals for wetlands functioning at a lower capacity.

Two NPS wetland areas were identified within the proposed ROW, totaling 0.99 acres, of which 0.75 acre is forested. These wetlands are located in the Yockanookany River floodplain, inside the Bokshenya Creek-Yockanookany River watershed within the Pearl River watershed basin, and provide moderate functions and values to the surrounding landscape (Table 1).

**Table 1. Wetland area in Proposed ROW on NT-NPS property.**

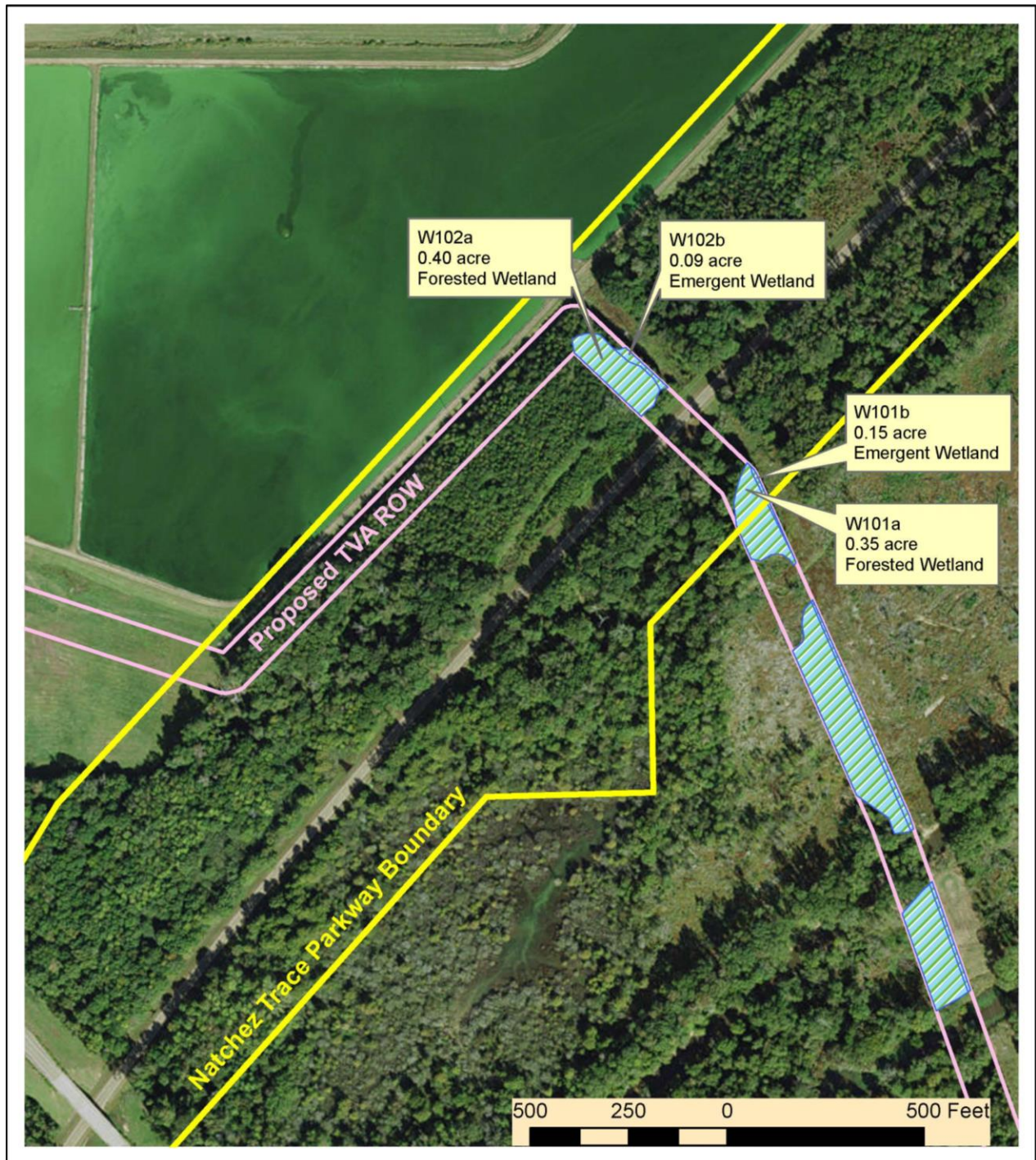
Wetland Identifier	Wetland Type <sup>1</sup>	TVARAM <sup>2</sup> Existing Functional Capacity (Score)	Total Wetland Acres	Forested Wetland Clearing/ Conversion	Wetland Fill
W101a	PFO1E	Moderate (46)	0.35	0.35	0.0003
W101b	PEM1E	Moderate (46)	0.15	0	0.0003
W102a	PFO1E	Moderate (46)	0.40	0.40	0
W102b	PEM1E	Moderate (46)	0.09	0	0
<b>Total Acres</b>			<b>0.99</b>	<b>0.75</b>	<b>0.0006</b>

<sup>1</sup>Classification codes as defined in Cowardin et al. (1979): E = Seasonally flooded/saturated; EM1=Emergent, persistent vegetation; FO1=Forested, broadleaf deciduous vegetation; P=Palustrine;

<sup>2</sup>TVARAM = A TVA Rapid Assessment Method that categorizes wetland quality by their functional capacity.



Figure 3. Delineated Wetland Map



Wetland W101a is comprised of oak forest bottomland wetland, totaling 0.35 acre on NPS property, and extending further south outside the NPS boundary. This wetland area exhibited two primary wetland hydrology indicators, drift deposits (B3) and oxidized rhizospheres along living roots (C3) and two secondary hydrology indicators, drainage patterns (B10) and crayfish burrows (C8). These findings confirm presence of wetland hydrology. The soil texture was a silt loam. The matrix (80%) had a Munsell soil color of 10YR 6/2 and the remaining 20% was comprised of redox concentrations (10YR 5/6). This soil met the criteria for the depleted matrix (F3) indicator, which confirms presence of hydric soils. Vegetation was dominated by hydrophytic species including overcup oak (*Quercus lyrata*) and water oak (*Quercus nigra*). The understory contained Chinese privet (*Ligustrum sinense*), a hydrophytic invasive, regenerating water oak saplings, and switchcane (*Arundinaria tecta*). The plant community met the hydrophytic vegetation dominance test.

Wetland W101b is located adjacent to W101a, but along Central's existing utility ROW where vegetation is maintained at an emergent stature. W101b totals 0.15 acre located on NPS property. This wetland exhibited the primary wetland hydrology indicator of oxidized rhizospheres along living roots (C3), and a secondary indicator of drainage patterns (B10), which confirms the presence of wetland hydrology. The soil texture was a silt loam. The matrix (80%) had a Munsell color of 10 YR 6/2 and the remaining 20% was comprised of redox concentrations (10YR 5/6). The soil met the criteria for the depleted matrix (F3) indicator, which confirms presence of hydric soils. Vegetation was dominated by hydrophytic species including giant goldenrod (*Solidago gigantea*) and Vasey's grass (*Paspalum urvillei*), an invasive facultative species. The plant community met the hydrophytic vegetation dominance test.

Wetland W102a is comprised of forest bottomland wetland, totaling 0.40 acre on the proposed ROW entirely on NPS property. This wetland area exhibited three primary wetland hydrology indicators; sediment deposits (B2), drift deposits (B3), and oxidized rhizospheres along living roots (C3). These findings confirm presence of wetland hydrology. The soil texture was a silt loam. The matrix (80%) had a Munsell soil color of 10YR 7/2 and the remaining 20% was comprised of redox concentrations (10YR 4/6). The soil met the criteria for the depleted matrix (F3) indicator, which confirms presence of hydric soils. Vegetation was dominated by hydrophytic species including sweetgum (*Liquidambar styraciflua*) and American elm (*Ulmus americana*). The understory contained Chinese privet, a hydrophytic invasive, and regenerating American elm saplings. The plant community met the hydrophytic vegetation dominance test.

Similar to W101b, W102b is located adjacent to W102a, but along the same existing utility ROW where vegetation is maintained at an emergent stature. W102b totals 0.09 acre within the ROW entirely on NPS property. This wetland exhibited the primary wetland hydrology indicator of oxidized rhizospheres along living roots (C3), and a secondary indicator of drainage patterns (B10), which confirms the presence of wetland hydrology. The soil texture was a silt loam. The matrix (80%) had a Munsell soil color of 10YR 5/2, with the remaining 20% comprised of redox concentrations (10YR 4/6). The soil met the criteria for the depleted matrix (F3) indicator, which confirms presence of hydric soils. Like W101b, vegetation was dominated by hydrophytic giant goldenrod and Vasey's grass, an invasive facultative species. The plant community met the hydrophytic vegetation dominance test.

Activities in wetlands are regulated under Section 401 and 404 of the Clean Water Act (CWA) and are addressed by EO 11990 (Protection of Wetlands). Section 401 of the CWA requires water quality certification by the state for projects permitted by the federal government (Strand 1997). CWA Section 404 implementation requires activities resulting in the discharge of dredge or fill into waters of the U.S. to be authorized through a Nationwide General Permit or Individual



Permit issued by the USACE. EO 11990 requires federal agencies to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

The proposed overhead transmission line ROW construction project across NPS property would require tree clearing within the full extent of the ROW, and future maintenance of low-stature vegetation to accommodate clearance and abate interference with overhead wires. As such, the 0.24 acre of emergent wetland habitat would be maintained in its current condition and habitat. No impacts are anticipated to this wetland habitat, as it is already maintained within an existing ROW. Therefore, existing functions and values would be sustained.

The trees comprising the 0.75 acre of moderate quality forested wetland area within the proposed ROW on NPS property would be cleared, and the habitat permanently converted and maintained as emergent or scrub shrub wetland to accommodate overhead conductor clearance. Forested wetlands in general have deeper root systems and contain greater biomass (quantity of living matter) per area than emergent and scrub-shrub wetlands which do not grow as tall. As a result, forested wetlands provide higher levels of wetland functions, such as sediment retention, carbon storage, and pollutant retention and transformation (detoxification), all of which support better water quality (Wilder and Roberts 2002; Ainslie et al. 1999; Scott et al. 1990). However, moderate quality forested wetlands, such as W101a and W102a, have experienced some level of disturbance to their habitat. In this situation, landscape position, hydrologic influence, extended size, and/or intact upland buffers drive the moderate level of function and value these wetlands provide. Although functional loss from habitat conversion would occur, these other factors would remain intact, including naturalized lower stature wetland vegetation, to support continued functional capacity within the range typical of moderate quality wetlands. Therefore, existing functions and values provided by the 0.75 acre of moderate quality wetlands across W101a and W102a are expected to diminish but remain within the calculated range used to classify moderate quality wetlands. Similarly, forested wetland conversion does not constitute wetland loss. The functions and values associated with a forest's water storage, uptake, assimilation, filtration, and transpiration of storm water run-off would be provided at the reduced level facilitated by lower stature vegetation.

## **HYDROLOGIC ASSESSMENT OF AFFECTED WETLANDS**

Wetland W101a/b is located south of the Parkway, whereas W102a/b is located to the north. Both wetland areas are part of the Yockanookany River floodplain, and maintain surface water hydrologic connectivity. The Yockanookany River floodplain totals an estimated 150+ acres in the immediate vicinity between MS State Highway 14 and Highway 19/35. Therefore, W101a/b and W102a/b are located adjacent, connected, or within a much larger wetland complex extending outside the ROW. This floodplain area is situated in the larger Bokshenya - Yockanookany watershed (12-HUC), which contains an estimated 5,200 wetland acres according to the U.S. Fish and Wildlife Service National Wetland Inventory (NWI) Wetlands Mapper. Of this wetland acreage within the sub-watershed, the NWI maps approximately 160 wetland acres on NPS property, almost all of which is forested. Although the functional capacity of the 0.75 acre of converted forested wetland area within the ROW on NPS property would diminish, naturalized lower stature vegetation would persist, and the wetland basins at-large would remain intact and continue providing valuable wetland functions to the landscape. Therefore, the functions and values of W101a and W102a would be provide at the level typical of emergent and scrub-shrub habitat in the same landscape setting, while the unaffected

wetland area outside the ROW on NPS property sustains existing functions within the larger wetland complex.

## FUNCTIONAL ASSESSMENT OF AFFECTED WETLANDS

### ***Impacts on Biotic Functions***

Palustrine wetlands are found throughout the Parkway, and they provide wildlife habitat that is considered common habitat in the Park and region (see descriptions above). No threatened, endangered, or special status species have been recorded in the project area<sup>1</sup>. Temporary and permanent impacts to wetlands associated with the preferred alternative would have a limited effect on habitat due to the small project size and the rapid succession/recolonization of the area after the project. Sedimentation control practices would be utilized during construction, with post-project mitigation which includes planting to the adjacent powerline that will be abandoned after the underbuild. Impacts are estimated to be unmeasurable relative to current conditions and are therefore characterized as negligible.

### Palustrine Forested Wetlands-Plants

Palustrine forested wetlands are characterized by woody vegetation that is at least 20 feet tall. Forested wetlands usually possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer. The forested wetland is mapped as mix of both Oak Bottomland and Floodplain Forest and Ruderal (human impacted) Mixed Floodplain Forest. There is also Ruderal Mixed Grassland within the existing Central ROW. The forest canopy includes dominant species such as overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*) and American elm (*Ulmus americana*), with an understory of Chinese privet (*Ligustrum sinense*), regenerating water oak and American elm saplings, and switchcane (*Arundinaria tecta*). The grassland vegetation was dominated by giant goldenrod (*Solidago gigantea*) and Vasey's grass (*Paspalum urvillei*), an invasive facultative species.

### Palustrine Forested Wetlands-Wildlife

Palustrine forested wetlands, also known as bottomland hardwood forests, provide wildlife habitat in their overstory, understory, and also on the forest floor where small depressions may form as a result of flood water scouring and sediment deposition. Bottomland hardwood forests provide important breeding habitat for a variety of migratory and resident bird species. High water levels may provide high quality habitat for wintering waterfowl, yet diminish habitat suitability for numerous woodpeckers and other woodland species. During periods of low water levels, bottomland hardwoods may be utilized by several wading birds, including the great blue heron (*Ardea herodias*) and the white ibis (*Eudocimus albus*), and acorn-caching species, such as the red-headed woodpecker (*Melanerpes erythrocephalus*) (ABC, 2001a).

Southern bottomland hardwood forests also support a diverse array of nearctic migrants and year-round resident birds during the winter months (ABC, 2001a). Nearctic migrants account for about 55% of the bird community in southern bottomland hardwood forests. Typical nearctic species in southern bottomland hardwood forests include the ruby-crowned kinglet (*Regulus satrapa*), yellow-rumped warbler (*Dendroica coronata*), white-throated sparrow (*Zonotrichia*

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<sup>1</sup> TVA conducted the special status species consultation for this project. Refer to the TVA Environmental Assessment at <https://www.tva.gov/Environment/Environmental-Stewardship/Environmental-Reviews/Red-HillsKosciusko-161kV-Transmission-Line> for more information.

*albicollis*), brown creeper (*Certhia americana*), and yellow-bellied sapsucker (*Sphyrapicus varius*) (ABC, 2001a), almost all of which are known to occur on the Parkway and potentially occur in the project area. During high water levels, bottomland hardwoods may also support many wintering waterfowl species, including the wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), and hooded merganser (*Lophodytes cucullatus*).

Southern bottomland hardwood forests also support numerous species of year-round resident birds. Year-round resident species comprise about 35-55% of seasonal bird communities. Common southern bottomland hardwood forest resident species are the white-breasted nuthatch (*Sitta carolinensis*), pileated woodpecker (*Dryocopus pileatus*), downy woodpecker (*Picoides pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), tufted titmouse (*Baeolophus bicolor*), Carolina wren (*Thryothorus ludovicianus*), and Carolina chickadee (*Parus carolinensis*) (ABC, 2001a), all of which are known to occur on the Parkway and potentially occur in the project area.

Southern bottomland hardwood forests are renowned for supporting large numbers of breeding bird species. While many resident and wintering species are found in a variety of forested habitats, many breeding species either breed exclusively in bottomland forests or have highest densities and/or reproductive success in these areas. Several species are considered forested wetland specialists, including the prothonotary warbler (*Protonotaria citrea*) and the swallow-tailed kite (*Elanoides forficatus*). The prothonotary warbler is known to occur on the Parkway (ABC 2001a) and potentially occurs in the project area.

The Avifauna Inventory (ABC, 2001a) and Reptile and Amphibian Inventory (ABC, 2001b) studies included two general habitat types, the bottomland hardwood woodland habitat type and the riparian woodland habitat type, which are considered to be part of the bottomland hardwood designation used above. Sixty-five species of birds were found in the bottomland hardwood general habitat, and 80 species of birds were found in the riparian woodland general habitat as part of the sampling for the Natchez Trace Parkway Avifauna Inventory Project (ABC, 2001a).

Shallow depressions in bottomland hardwood forests, sometimes known as vernal ponds, seasonal, or temporary wetlands, can provide important habitat for amphibians. These depressions will often fill with water during the spring or fall and dry up during the remaining seasons. Fish are not able to become established due to the temporary nature of surface water in the wetland. This makes depressional habitat especially important as breeding and rearing habitat for not only amphibians, but also crustaceans and insects (Biebighauser 2003). Approximately one-half of all frogs and one-third of all salamander species rely on seasonal or temporary wetlands for development. Three species of amphibians, the spring peeper (*Hyla crucifer*), the northern cricket frog (*Acris crepitans*), and the southern cricket frog (*Acris gryllus*), were found in the bottomland hardwood general habitat, and 12 species were found in the riparian woodland general habitat as part of the sampling for the Natchez Trace Parkway Amphibian and Reptile Inventory Project (ABC, 2001b).

### **Impacts on Chemical and Geomorphological Functions**

The construction of the powerline is not anticipated to impact the chemical or geomorphological functions of the wetlands.

### **Impacts on Hydrologic Functions**

The palustrine forested wetlands in the project area function as flood water storage and wildlife habitat. They are considered to provide moderate wetland function due to the proximity to an existing powerline, the Parkway motoroad, and the city sewage treatment plant adjacent to the

boundary. However, the forested wetlands in the area that would be permanently disturbed by the preferred alternative as the forested area currently provide groundwater recharge, retaining water to provide time for infiltration to occur. The 0.75 acre of converted forested wetland area within the ROW on NPS property would allow for lower stature vegetation to persist, and since Central's adjacent 56 kV powerline will be underbuilt after construction of the new ROW, restored and allowed to revegetate, the impacts are estimated to be minor relative to current conditions.

### ***Impacts on Cultural Values***

There are no known archeological, ethnographic, or Native American resources present, and the area has had an archeological survey. The NPS considers the entire Natchez Trace Parkway eligible for listing on the National Register of Historic Places. Consultation with the NPS Southeast Region Cultural Resource Management Team and the State Historic Preservation Office (SHPO) determined that the project will have an adverse effect on properties eligible or listed in the National Register of Historic Places.

### ***Impacts on Research, Economic, Recreational, or Aesthetic Values***

With regard to scientific use value, there are no known attributes of concern for the project area. The project will improve the reliable electric power service to the City of Kosciusko, and is predicted to have a beneficial economic impact to the city allowing for increased growth and expansion for business and home developments. With regard to recreational or aesthetic values, there are no known attributes of concern for the project area.

## **WETLAND IMPACTS**

### **Preferred (Action) Alternative**

The preferred alternative is to issue a ROW permit to TVA and allow for the construction for a new 161 kV transmission line adjacent to a current 56 kV line operated by Central. Once the TVA line is in place, Central's line will be underbuilt and the old ROW will be restored with plantings and allowed to revegetate. Impacts to wetlands will be mitigated with plantings and exotic vegetation treatments.

### **No Action Alternative**

Under the No Action Alternative, no additional wetland acreage would be disturbed. This alternative would not authorize a ROW for TVA and prohibit the required transmission line upgrade needed for the higher capacity substation.

### **Alternatives Considered But Dismissed**

The environmental assessment entitled "Construction of the Red Hills-Kosciusko 161-kV Transmission Line Across the Natchez Trace Parkway" (NPS 2017) describes two additional action alternatives that were considered as possible routes. Both alternatives were dismissed because they were determined to have greater natural, cultural or scenic impacts, including impacts to wetlands relative to the preferred alternative.

## JUSTIFICATION FOR USE OF WETLANDS

This project is proposed to allow the establishment of a new ROW for TVA to install a 161-kV TL. It is not possible to construct a powerline in this location for the citizens of Kosciusko without crossing the Parkway and impacting wetlands of the Yockanookany River floodplain. The new ROW will impact 0.99 acres of wetlands, of which 0.75 acres will be converted from forested to emergent wetlands and remain cleared throughout the operation of the TL. The overall impact is minor, and mitigation will be implemented to improve wetland functions in the area.

## WETLAND MITIGATION ACTIONS

After TVA's ROW is established, the adjacent Central 56 kV powerline will be underbuilt to TVA's line and the Central ROW will be restored with plantings and allowed to reforest. This will result in 0.53 acres of restored wetlands from emergent vegetation type to forested. An additional 0.43 acres of upland floodplain will also be replanted and allowed to reforest. Overall the 0.99 acres of impact from the new ROW will be offset by a total of 0.96 acres in restoration. This will be accomplished by non-native Chinese privet (*Ligustrum sinense*) eradication in adjacent palustrine forested wetlands as described below in the Wetland Compensation Plan section. This will result in at least one acre of Chinese privet treatment in a nearby in-kind wetland. TVA will be the agency responsible for funding all mitigation work.

### ***Wetland Compensation Plan***

To compensate for loss of wetland function from clearing 0.75 acre of forest and 0.0006 acre of wetland fill on the NPS property, TVA would fund and implement a forest restoration plan within the adjacent and currently cleared Central ROW. Because Central's ROW will be abandoned to collocate with TVA's, there is opportunity to restore lost wetland function through enhancement activities immediately adjacent to the proposed impact. The Central ROW contains 0.53 acre of emergent wetland habitat that would revert to forest. TVA would install native woody shrubs and saplings across the 0.53 acre wetland area to promote more rapid replacement of forested wetland function with desirable native woody wetland species. Similarly, TVA would fund the compensation work for upland buffer plantings within 0.43 acre of Central's ROW on NPS property to enhance upland forest habitat adjacent to the planted wetland areas.

TVA also proposes to institute Chinese privet (*Ligustrum sinense*) control during ROW clearing activities within both the TVA and Central ROWs and an adjacent, parallel 80' wide corridor along the northeast side (Table 2, Figure 4, Figure 5).

**Table 2. TVA ROW Mitigation Sites on Parkway property.**

Wetland Identifier	Wetland Type <sup>1</sup>	Existing Habitat Type <sup>1</sup>	Proposed Restoration Habitat Type <sup>1</sup>	Total Restored Wetland Acres	Total Restored Upland Buffer Acres	Total Restored Area
W101b	Central-ROW	PEM1E	PFO1E	0.33	0	0.33
W101b-buffer	Central ROW	Upland, Cleared	Upland, Forest	0	0.13	0.13
W102b	Central-ROW	PEM1E	PFO1E	0.20	0	0.20
W102b-buffer	Central-ROW	Upland, Cleared	Upland, Forest	0	0.30	0.30
<b>Total Acres</b>				<b>0.53</b>	<b>0.43</b>	<b>0.96</b>

<sup>1</sup>Classification codes as defined in Cowardin et al. (1979): E = Seasonally flooded/saturated; EM1=Emergent, persistent vegetation; FO1=Forested, broadleaf deciduous vegetation; P=Palustrine;

### ***Invasive Species Control***

To encourage growth of planted and opportunistic native vegetation within the Central-ROW reforestation corridor, TVA would implement Chinese privet control (Figure 4). A one-time herbicide application for Chinese privet would be conducted within the TVA and Central-ROWs, and an 80' wide corridor adjacent and parallel to the northeast side of the Central ROW, which will treat approximately 4 acres of forest. Privet control would be accomplished per current herbicide specifications as outlined by the NPS (<https://www.nps.gov/plants/alien/pubs/midatlantic/control-shrubsandsubshrubs.htm>) and TVA's BMP manual (Appendix C).

### ***Vegetation Specifications***

The reforestation areas would be planted with a minimum diversity of three tree and three shrub species from the list below, depending on availability (Table 3, Figure 5). All native plants would be obtained from an approved native plant nursery, preferably propagated from seed, rather than cloned, for improved genetic diversity. Planting would take place in early Fall (October 1- November 15) to maximize establishment potential before the dry summer months. This would occur in the year 2019 or 2020 following the underbuild and pole removal of Central's powerline. Trees would be planted with a minimum spacing of 30' apart, and shrubs would be planted with a minimum spacing of 10' apart. Existing soil properties on site are anticipated to sustain necessary attributes for establishment and growth of planted trees and shrubs.



Figure 4. Wetland Mitigation – Exotic Plant Treatment Map



**Table 3. Planted Vegetation Specifications**

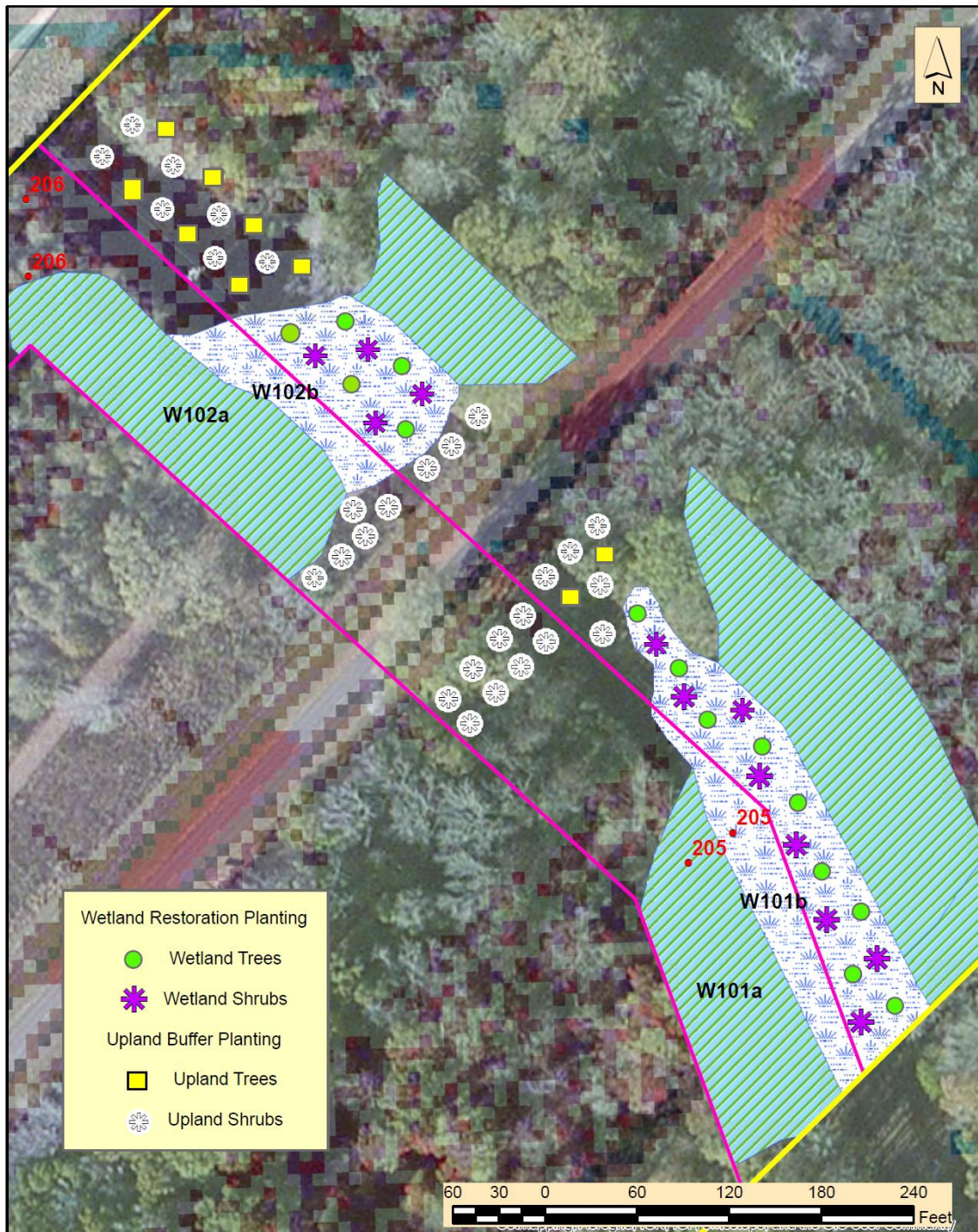
Location	Trees (T) and Shrubs (S)	Scientific Name	Plant Material Type	Spacing	Stipulations
W101b and W102b in CEPA-ROW	Overcup Oak (T)	<i>Quercus lyrata</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	Cherrybark Oak (T)	<i>Quercus pagoda</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	Red Maple (T)	<i>Acer rubrum</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	American Elm (T)	<i>Ulmus americana</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	Deciduous holly (S)	<i>Ilex decidua</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
	Possumhaw (S)	<i>Viburnum nudum</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
	Swamp privet (S)	<i>Forestiera acuminata</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
	Elliot's blueberry (S)	<i>Vaccinium ellioti</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
Upland Buffers in CEPA ROW	Beech	<i>Fagus grandifolia</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	White Oak (T)	<i>Quercus alba</i>	3+ gallon container	>30'	>20' from TVA RHL-ROW
	Pignut Hickory (T)	<i>Carya glabra</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	Mockernut Hickory (T)	<i>Carya tomentosa</i>	3+ gallon container	>30'	>25' from TVA RHL-ROW
	Oakleaf hydrangea (S)	<i>Hydrangea quercifolia</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
	Red buckeye (S)	<i>Aesculus pavia</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
	American beautyberry (S)	<i>Callicarpa americana</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW
	Flowering dogwood (S)	<i>Cornus florida</i>	1-2 gallon container	>10'	>15' from TVA RHL-ROW

**Screening**

TVA proposes native flowering shrub plantings in the RHL-ROW at the Natchez Trace crossing to enhance the visual aesthetics of the ROW. A minimum of two upland shrub species (1-2 gallon containers) from the list above would be installed at >10' spacing within the RHL-ROW at the intersection with the Natchez Trace roadway (Figure 5).



Figure 5. Wetland Mitigation – Native Tree Planting Map



### ***On-Site Monitoring and Maintenance***

Monitoring will be conducted by Parkway Personnel for the restoration after the underbuild of Central's TL is completed and the herbicide treatments and restoration plantings are implemented. Qualified Parkway personnel will conduct monitoring surveys after the first growing season or approximately 1-year after restoration. Status/documentation of vegetation, photographs, wildlife, and general weather will be documented at the restoration site. Photo-monitoring of the area (beginning pre-treatment) will be conducted to document the progress of the restoration efforts and to document the success of Chinese privet reduction and reforestation efforts. All reports will be kept on file at Parkway headquarters. Any issues that arise, or corrective action that needs to be taken, will also be included in the monitoring reports. Observations of vegetation will be made from fixed locations to ensure identical sampling procedures throughout the time-zero and the subsequent reporting cycles. Costs associated with monitoring are minimal and will be provided by base funding of the Resource Management program at the Parkway. Identified needs for additional restoration will be at the expense of the NPS.

### ***Mitigation Success Criteria***

The mitigation will be considered successful when the mitigation area contains no more than 10% total cover of Chinese privet and when plantings have a 70% survival rate. NPS will be responsible for any additional corrective action necessary to achieve the success rates described above.

## **CONCLUSION**

The NPS concludes there is no practical alternative for an ROW would meet the purpose and need of the project and have less impact on wetlands. The wetland enhancement compensation meets the NPS no-net-loss of wetlands policy. Therefore, the NPS finds the Preferred Alternative to be acceptable under EO 11988, and under EO11990 for the protection of wetlands.

## **COMPLIANCE**

### ***National Historic Preservation Act (NHPA)***

The project area was surveyed for cultural resources in 2016, and the report is on file at the Natchez Trace Parkway. Per the provisions of Section 106 of the National Historic Preservation Act, consultation was initiated with the State Historic Preservation Office (SHPO) and 15 associated tribes. Consultations resulted in an adverse effect determination. Mitigation for project impacts and associated consultation responses is outlined in the NPS for this project, entitled "Construction of the Red Hills-Kosciusko 161-KV Transmission Line Across the Natchez Trace Parkway" (NPS 2017); this Statement of Findings is an appendix to this document.

### ***Clean Water Act Section 401 and Section 404, and National Pollution Discharge Elimination System (NPDES)***

A permit would be required from the State of Mississippi Department of Environmental Quality (MDEQ) and/or the local municipality for the discharge of construction site storm water associated with the construction of the powerline. TVA would prepare the required erosion and sedimentation control plans and coordinate them with the appropriate state and local authorities in accordance with the Mississippi Water Pollution Control Law (Section 49-17-1 et seq.), Mississippi Code of 1972, and the regulations and standards adopted and promulgated

thereunder, and under the authority granted pursuant to Section 402(b) of the Federal Water Pollution Control Act.

TVA consulted with the Army Corps of Engineers (USACE) for permit requirements for regulated activities for the Red Hills-Kosciusko 161-kV Aerial Transmission Line Project. Their determination, relative to Section 404 of the Clean Water Act, was that a Department of the Army permit will be authorized by Nationwide Permit No. 12; as specified in the January 6, 2017 Federal Register, Issuance and Reissuance of Nationwide Permits; Final Rule; Notice (82 FR 1860-2008), provided that TVA ensures all activities within conditions and authorizations of the Nationwide Permit.

***National Environmental Policy Act***

TVA completed an environmental assessment (EA) for the entire project entitled “Red Hills-Kosciusko 161-KV Transmission Line” (TVA 2017), however the TVA document did not adequately address NPS resources. Impacts to the environment that would occur on NPS property as a result of this project are analyzed in an EA entitled “Construction of the Red Hills-Kosciusko 161-KV Transmission Line Across the Natchez Trace Parkway” (NPS 2017). The NPS EA and this SOF will be open for public comment from August 21 through September 18, 2017. Once complete, this section will be updated to reflect the determination for compliance with Executive Orders 11990, 11988, and the National Environmental Policy Act relative to this project.

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**Appendix A**  
**TVARAM Functional Assessment Form**

Site: W100-rr, W101-rr, W102-rr Red Hills-Leake

Rater(s): Headwaters, Inc.

Date: 7/14/2016

6

max 6 pts.

6

subtotal

## Metric 1. Wetland Area (size)

Select one size class and assign score.

- ☒ >50 acres (>20.2 ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- ☐ 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- ☐ 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- ☐ 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- ☐ 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- ☐ <0.1 acre (0.04 ha) (0)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Sources/assumptions for size estimate (list):

-GIS measurements based on Aerial imagery, quadrangle maps and LiDAR

7

max 14 pts.

13

subtotal

## Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- ☒ High. Urban, industrial, open pasture, row cropping, mining, construction (1)

17.5

max 30 pts.

30.5

subtotal

## Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3) [BR/CM (5)]
- ☒ Precipitation (1) [unless BR/CM primary source (5)]
- ☐ Seasonal/intermittent surface water (3)
- ☒ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 m (27.6 in.) (3)
- ☐ 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- ☒ <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100-year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g., forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3) [BR/CM (4)]
- ☒ Seasonally inundated (2) [BR/CM (4)]
- ☒ Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

Check all disturbances observed

- ☒ ditch
- ☒ tile (including culvert)
- ☐ dike
- ☐ weir
- ☐ stormwater input
- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☒ road bed/RR track
- ☐ dredging
- ☐ other \_\_\_\_\_

8.5

max 20 pts.

39

subtotal

## Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☒ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- ☒ mowing
- ☐ grazing
- ☒ clearcutting
- ☐ selective cutting
- ☐ farming
- ☐ toxic pollutants
- ☒ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ woody debris removal
- ☐ sedimentation
- ☐ dredging
- ☐ nutrient enrichment

39

Site: W100-rr, W101-rr, W102-rr Red Hills-Leake

Rater(s): Headwaters, Inc.

Date: 7/14/2016

39

subtotal previous page

0

max 10 pts.

39

subtotal

0

raw score\*

## Metric 5. Special Wetlands

\*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- ☐ Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq.m, sphagnum or other moss (5); muck, organic soil layer (3)
- ☐ Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- ☐ Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- ☐ Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- ☐ Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- ☐ Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- ☐ Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- ☐ Ecological community with global rank (NatureServe): G1\*(10), G2\*(5), G3\*(3) [\*use higher rank where mixed rank or qualifier]
- ☐ Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1\*(10), G2\*(5), G3\*(3) [\*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- ☐ Superior/enhanced habitat/use: migratory songbird/waterfowl (5); in-reservoir buttonbush (4); other fish/wildlife management/designation (3)
- ☐ Cat. 1 (very low quality) : <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

7

max 20 pts.

46

subtotal

## Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water <20 acres (8 ha)
- ☐ Moss/lichen. Other \_\_\_\_\_

6b. Horizontal (plan view) interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high (4) [BR/CM (5)]
- ☒ Moderate (3) [BR/CM (5)]
- ☐ Moderately low (2) [BR/CM (3)]
- ☐ Low (1) [BR/CM (2)]
- ☐ None (0)

6c. Coverage of invasive plants.

Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15 cm (6 in.)
- ☐ Standing dead >25 cm (10 in.) dbh
- ☐ Amphibian breeding pools

### Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre

[For BR/CM <0.04 ha (0.1 acre)]

1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality

2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality

3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

### Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species

mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species

high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

### Mudflat and Open Water Class Quality

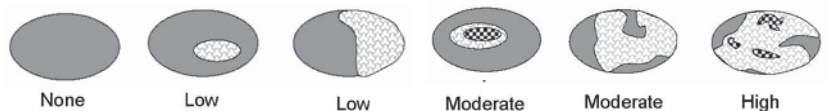
0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]

1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]

2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]

3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

### Hypothetical Wetland for Estimating Degree of Interspersion



### Microtopography Cover Scale

0 = Absent

1 = Present in very small amounts or if more common of marginal quality

2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality

3 = Present in moderate or greater amounts and of highest quality

46

**GRAND TOTAL**  
(max 100 pts)

0- 29 = Category 1, low wetland function, condition, quality\*\*  
30- 59 = Category 2, good/moderate wetland function, condition, quality\*\*  
60-100 = Category 3, superior wetland function, condition, quality\*\*

\*\*Based on ORAM Score Calibration Report for the scoring breakpoints between wetland categories: <http://www.epa.state.oh.us/dsw/401/401.html>

**Appendix B**  
**USACE Wetland Determination Forms**

# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Red Hills to Leake 161kV Transmission Line City/County: Attala County Sampling Date: 7/14/16  
 Applicant/Owner: Tennessee Valley Authority State: MS Sampling Point: W101a-rr  
 Investigator(s): Headwaters, Inc. Section, Township, Range: Section 33, T 14 N, R 7 E  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P Lat: 33.028473 Long: -89.587906 Datum: WGS 84  
 Soil Map Unit Name: Rosebloom-Arkabutla association NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		<b>Wetland Hydrology Present? Yes <u>X</u> No _____</b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION (Four Strata) – Use scientific names of plants.**

 Sampling Point: W101a-rr

Tree Stratum (Plot size: <u>1/10 acre</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus lyrata</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>Quercus nigra</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Ulmus americana</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>55</u> = Total Cover 50% of total cover: <u>27.5</u> 20% of total cover: <u>11</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>1/10 acre</u> )</b>				
1. <u>Ligustrum sinense</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Quercus nigra</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>35</u> = Total Cover 50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<b>Herb Stratum (Plot size: <u>1/10 acre</u> )</b>				
1. <u>Arundinaria tecta</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>20</u> = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
<b>Woody Vine Stratum (Plot size: _____ )</b>				
1. <u>Smilax rotundifolia</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Campsis radicans</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15</u> = Total Cover 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>				
Remarks: (If observed, list morphological adaptations below).				



# SOIL

Sampling Point: W101a-rr

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-12	6/2 10YR	80	5/6 10YR	20	C	PL	Silt loam

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**

- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Red Hills to Leake 161kV Transmission Line City/County: Attala County Sampling Date: 7/14/16  
 Applicant/Owner: Tennessee Valley Authority State: MS Sampling Point: W101b-rr  
 Investigator(s): Headwaters, Inc. Section, Township, Range: Section 33, T 14 N, R 7 E  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P Lat: 33.028672 Long: -89.587745 Datum: WGS 84  
 Soil Map Unit Name: Rosebloom-Arkabutla association NWI classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Emergent wetland within semi-maintained electrical ROW.	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <u>X</u> Depth (inches): _____		<b>Wetland Hydrology Present? Yes <u>X</u> No _____</b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION (Four Strata) – Use scientific names of plants.**

 Sampling Point: W101b-rr

Tree Stratum (Plot size: <u>1/10 acre</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum (Plot size: <u>1/10 acre</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: _____ 20% of total cover: _____				
Herb Stratum (Plot size: <u>1/10 acre</u> )				
1. <u>Solidago gigantea</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Paspalum urvillei</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Cyperus rotundus</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	
4. <u>Cyperus pseudovegetus</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
5. <u>Persicaria pensylvanica</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				
Woody Vine Stratum (Plot size: _____ )				
1. <u>Rubus argutus</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>				
Remarks: (If observed, list morphological adaptations below).!				

10/26/2017 updated - previously *Solidago* spp. and *Rubus* spp. listed, Victor Maddox verified species on 10/26/2017 as *Solidago gigantea* and *Rubus argutus*.

# SOIL

Sampling Point: W101b-rr

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-12	6/2 10YR	80	5/6 10YR	20	C	PL	Silt loam

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |   |  |
|---|--|
| <input type="checkbox"/> Histosol (A1)                                | <input type="checkbox"/> Polyvalue Below Surface (S8) <b>(LRR S, T, U)</b>                 |
| <input type="checkbox"/> Histic Epipedon (A2)                         | <input type="checkbox"/> Thin Dark Surface (S9) <b>(LRR S, T, U)</b>                       |
| <input type="checkbox"/> Black Histic (A3)                            | <input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(LRR O)</b>                           |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                        | <input type="checkbox"/> Loamy Gleyed Matrix (F2)  |
| <input type="checkbox"/> Stratified Layers (A5)                       | <input checked="" type="checkbox"/> Depleted Matrix (F3)                                   |
| <input type="checkbox"/> Organic Bodies (A6) <b>(LRR P, T, U)</b>     | <input type="checkbox"/> Redox Dark Surface (F6)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) <b>(LRR P, T, U)</b> | <input type="checkbox"/> Depleted Dark Surface (F7)  |
| <input type="checkbox"/> Muck Presence (A8) <b>(LRR U)</b>            | <input type="checkbox"/> Redox Depressions (F8)  |
| <input type="checkbox"/> 1 cm Muck (A9) <b>(LRR P, T)</b>             | <input type="checkbox"/> Marl (F10) <b>(LRR U)</b>   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)            | <input type="checkbox"/> Depleted Ochric (F11) <b>(MLRA 151)</b>                           |
| <input type="checkbox"/> Thick Dark Surface (A12)                     | <input type="checkbox"/> Iron-Manganese Masses (F12) <b>(LRR O, P, T)</b>                  |
| <input type="checkbox"/> Coast Prairie Redox (A16) <b>(MLRA 150A)</b> | <input type="checkbox"/> Umbric Surface (F13) <b>(LRR P, T, U)</b>                         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) <b>(LRR O, S)</b>   | <input type="checkbox"/> Delta Ochric (F17) <b>(MLRA 151)</b>                              |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                     | <input type="checkbox"/> Reduced Vertic (F18) <b>(MLRA 150A, 150B)</b>                     |
| <input type="checkbox"/> Sandy Redox (S5)                             | <input type="checkbox"/> Piedmont Floodplain Soils (F19) <b>(MLRA 149A)</b>                |
| <input type="checkbox"/> Stripped Matrix (S6)                         | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) <b>(MLRA 149A, 153C, 153D)</b> |
| <input type="checkbox"/> Dark Surface (S7) <b>(LRR P, S, T, U)</b>    |  |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Red Hills to Leake 161kV Transmission Line City/County: Attala County Sampling Date: 7/14/16  
 Applicant/Owner: Tennessee Valley Authority State: MS Sampling Point: W102a-rr  
 Investigator(s): Headwaters, Inc. Section, Township, Range: Section 33, T 14 N, R 7 E  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P Lat: 33.029505 Long: -89.589078 Datum: WGS 84  
 Soil Map Unit Name: Ariel silt loam NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? XYes No       
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>    </u>
Hydric Soil Present? Yes <u>X</u> No <u>    </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u>    </u>	
Remarks:	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> Water Table Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> Saturation Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> (includes capillary fringe)		<b>Wetland Hydrology Present? Yes <u>X</u> No <u>    </u></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

# VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W102a-rr

Tree Stratum (Plot size: 1/10 acre )	Absolute % Cover	Dominant Species?	Indicator Status		
1. Liquidambar styraciflua	20	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. Ulmus americana	20	Yes	FAC		
3. Quercus phellos	10	No	FACW		
4. Fraxinus pennsylvanica	10	No	FACW		
5. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____	
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
60 = Total Cover					
50% of total cover: 30 20% of total cover: 12					
<b>Sapling/Shrub Stratum (Plot size: 1/10 acre )</b>					
1. Liquidambar styraciflua	10	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. Ulmus americana	10	Yes	FAC		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
20 = Total Cover				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
50% of total cover: 10 20% of total cover: 4					
<b>Herb Stratum (Plot size: 1/10 acre )</b>					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
<b>Woody Vine Stratum (Plot size: _____ )</b>					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Remarks: (If observed, list morphological adaptations below).					

## SOIL

Sampling Point: W102a-rr**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-12	7/2 10YR	80	4/6 10YR	20	C	PL	Silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                         | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)                 |
| <input type="checkbox"/> Histic Epipedon (A2)                  | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)                       |
| <input type="checkbox"/> Black Histic (A3)                     | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)                           |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                 | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                                   |
| <input type="checkbox"/> Stratified Layers (A5)                | <input checked="" type="checkbox"/> Depleted Matrix (F3)                            |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)     | <input type="checkbox"/> Redox Dark Surface (F6)                                    |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7)                                 |
| <input type="checkbox"/> Muck Presence (A8) (LRR U)            | <input type="checkbox"/> Redox Depressions (F8)                                     |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)             | <input type="checkbox"/> Marl (F10) (LRR U)   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)     | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)                           |
| <input type="checkbox"/> Thick Dark Surface (A12)              | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)                  |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)                         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)   | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151)                              |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)              | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)                     |
| <input type="checkbox"/> Sandy Redox (S5)                      | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)                |
| <input type="checkbox"/> Stripped Matrix (S6)                  | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)    |   |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |  |
|--|
| <input type="checkbox"/> 1 cm Muck (A9) (LRR O)                        |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR S)                       |
| <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)    |
| <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Anomalous Bright Loamy Soils (F20)            |
| <b>(MLRA 153B)</b>   |
| <input type="checkbox"/> Red Parent Material (TF2)                     |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12)              |
| <input type="checkbox"/> Other (Explain in Remarks)                    |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Red Hills to Leake 161kV Transmission Line City/County: Attala County Sampling Date: 7/14/16  
 Applicant/Owner: Tennessee Valley Authority State: MS Sampling Point: W102b-rr  
 Investigator(s): Headwaters, Inc. Section, Township, Range: Section 33, T 14 N, R 7 E  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR P Lat: 33.029582 Long: -89.588749 Datum: WGS 84  
 Soil Map Unit Name: Ariel silt loam NWI classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? XYes No       
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u>    </u> Hydric Soil Present? Yes <u>X</u> No <u>    </u> Wetland Hydrology Present? Yes <u>X</u> No <u>    </u>	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No <u>    </u>
Remarks: <b>Emergent wetland within maintained electrical ROW.</b>	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Surface Water (A1)  <input type="checkbox"/> High Water Table (A2)  <input type="checkbox"/> Saturation (A3)  <input type="checkbox"/> Water Marks (B1)  <input type="checkbox"/> Sediment Deposits (B2)  <input type="checkbox"/> Drift Deposits (B3)  <input type="checkbox"/> Algal Mat or Crust (B4)  <input type="checkbox"/> Iron Deposits (B5)  <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)  <input type="checkbox"/> Water-Stained Leaves (B9)         </div> <div style="width: 50%;"> <input type="checkbox"/> Aquatic Fauna (B13)  <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>  <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  <input type="checkbox"/> Presence of Reduced Iron (C4)  <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)  <input type="checkbox"/> Thin Muck Surface (C7)  <input type="checkbox"/> Other (Explain in Remarks)         </div> </div>	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> Water Table Present? Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u> Saturation Present? (includes capillary fringe) Yes <u>    </u> No <u>X</u> Depth (inches): <u>    </u>	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No <u>    </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:	

**VEGETATION (Four Strata) – Use scientific names of plants.**

 Sampling Point: W102b-rr

Tree Stratum (Plot size: <u>1/10 acre</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: _____ 20% of total cover: _____				
<b>Sapling/Shrub Stratum</b> (Plot size: <u>1/10 acre</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: _____ 20% of total cover: _____				
<b>Herb Stratum</b> (Plot size: <u>1/10 acre</u> )				
1. <u>Paspalum urvillei</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Solidago gigantea</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Cyperus rotundus</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Cyperus pseudovegetus</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
5. <u>Juncus effusus</u>	<u>5</u>	<u>No</u>	<u>OBL</u>	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Rubus argutus</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____				
Remarks: (If observed, list morphological adaptations below).  10/26/2017 updated - previously <i>Solidago</i> spp. and <i>Rubus</i> spp. listed, Victor Maddox verified species on 10/26/2017 as <i>Solidago gigantea</i> and <i>Rubus argutus</i> ; <i>Cyperus rotundus</i> corrected to be included as a dominant.				

# SOIL

Sampling Point: W102b-rr

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-12	5/2 10YR	80	4/6 10YR	20	C	PL	Silt loam

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |   |  |
|---|--|
| <input type="checkbox"/> Histosol (A1)                                | <input type="checkbox"/> Polyvalue Below Surface (S8) <b>(LRR S, T, U)</b>                 |
| <input type="checkbox"/> Histic Epipedon (A2)                         | <input type="checkbox"/> Thin Dark Surface (S9) <b>(LRR S, T, U)</b>                       |
| <input type="checkbox"/> Black Histic (A3)                            | <input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(LRR O)</b>                           |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                        | <input type="checkbox"/> Loamy Gleyed Matrix (F2)  |
| <input type="checkbox"/> Stratified Layers (A5)                       | <input checked="" type="checkbox"/> Depleted Matrix (F3)                                   |
| <input type="checkbox"/> Organic Bodies (A6) <b>(LRR P, T, U)</b>     | <input type="checkbox"/> Redox Dark Surface (F6)   |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) <b>(LRR P, T, U)</b> | <input type="checkbox"/> Depleted Dark Surface (F7)  |
| <input type="checkbox"/> Muck Presence (A8) <b>(LRR U)</b>            | <input type="checkbox"/> Redox Depressions (F8)  |
| <input type="checkbox"/> 1 cm Muck (A9) <b>(LRR P, T)</b>             | <input type="checkbox"/> Marl (F10) <b>(LRR U)</b>   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)            | <input type="checkbox"/> Depleted Ochric (F11) <b>(MLRA 151)</b>                           |
| <input type="checkbox"/> Thick Dark Surface (A12)                     | <input type="checkbox"/> Iron-Manganese Masses (F12) <b>(LRR O, P, T)</b>                  |
| <input type="checkbox"/> Coast Prairie Redox (A16) <b>(MLRA 150A)</b> | <input type="checkbox"/> Umbric Surface (F13) <b>(LRR P, T, U)</b>                         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) <b>(LRR O, S)</b>   | <input type="checkbox"/> Delta Ochric (F17) <b>(MLRA 151)</b>                              |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                     | <input type="checkbox"/> Reduced Vertic (F18) <b>(MLRA 150A, 150B)</b>                     |
| <input type="checkbox"/> Sandy Redox (S5)                             | <input type="checkbox"/> Piedmont Floodplain Soils (F19) <b>(MLRA 149A)</b>                |
| <input type="checkbox"/> Stripped Matrix (S6)                         | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) <b>(MLRA 149A, 153C, 153D)</b> |
| <input type="checkbox"/> Dark Surface (S7) <b>(LRR P, S, T, U)</b>    |  |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

**Appendix C**  
**TVA Best Management Practices**  
**in Wetlands (Excerpt from Muncy 2012)**

#### **4 - C. In-Wetland Clearing, Construction, and Restoration Techniques**

The most desirable BMP pertaining to wetland areas is avoidance of wetlands and leaving intact naturalized wetland buffers. Once all avoidance strategies are explored, employed, and/or eliminated due to other constraints, then properly and carefully implemented BMPs are to be used to minimize wetland impacts and protect important wetland functions during transmission line construction and maintenance.

The following material describes the methods to be used to minimize impacts of clearing and transmission line construction in wetland areas. Work in wetland areas may be subject to approval from local, state, and/or federal regulatory agencies. Use of these methods may be subject to approval by the appropriate regulatory agencies (Corps, state water pollution control agency, etc.) and must be carefully selected on a site-by-site basis. Any of these methods may be modified or eliminated by a regulatory agency at any time.

To evaluate the appropriate BMPs to be implemented, the following approach is in place.

1. Identify and delineate wetland area on-site, according to current acceptable definitions.
2. Evaluate alternatives; implement wetland and wetland buffer avoidance strategies to the extent practicable; determine wetland area/location/type of unavoidable wetland impact(s).
3. Map wetland area on all site plans and include a minimum 50 foot wetland buffer.
4. Implement a site specific clearing/construction/restoration plan designed by a qualified wetland biologist for each project which involves work in wetlands. This plan would outline the selected BMPs that would be used as the project proceeds.
5. Incorporate Integrated Vegetation Management strategies in cleared wetland areas on new lines, wherever practicable, to reduce maintenance costs in the long-term.

##### **General Rules for BMPs for work in wetlands**

Pre-job briefing would be conducted such that TVA employees, TVA contractors, and/or TVA subcontractors will know where wetland resources are located within the project footprint, how activities will be conducted in wetlands and wetland buffers, and/or how wetlands will be crossed.

Silt fence installation and/or weed free bale barrier (staked straw bales) (one or both, depending on the specifications of the project) is installed where soil disturbance is proposed within 50 feet of wetland buffer. Silt fence and/or staked straw bales are installed along wetland buffer or limits of soil disturbance (whichever is further from wetland boundary) where disturbance takes place within 50 feet of wetland buffer. Silt fence should not constrict flow. Refer to Silt Fence section for more information.

Adhere to a dry season schedule for work activities in wetlands (September to mid-November), when practicable.

Only low ground pressure equipment or other vehicles such as those with rubberized tracks, wide tires, or lightweight equipment (ATVs) should enter delineated wetland areas. Matting should be used when heavy equipment entry is necessary.

Woody debris should be removed a minimum of 50 feet outside any wetland boundary or drainage feature when possible and damage to the wetland will not occur. When necessary to

minimize soil disturbance and water quality impacts, woody debris may be allowed to remain in the wetland. In these circumstances, the Corps would be contacted if necessary.

Woody vegetation should be cut less than 12 inches from ground level.

Stumps are not removed or grubbed unless stated otherwise according to approved project specifications.

Where potential for soil ruts greater than 12 inches deep is present, temporary wetland crossings are to be used for equipment access: wood mats, pipe mats, panels or pallets, metal grating, cut-and-cross lay road, pole road, etc. All temporary crossings should be removed following completion of work.

Flow into or out of the wetland should not be restricted during work activities, unless stated otherwise according to approved project specifications.

All contours or elevations within wetland and wetland buffer are to be restored to preconstruction specifications unless stated otherwise according to approved project specifications.

No mechanical bed preparation or fertilization for restoration purposes should take place in wetlands unless stated otherwise according to approved project specifications.

All disturbed and exposed soils within wetland or wetland buffers should be seeded with the approved and appropriate vegetation seed mix within 14 days of exposure or immediately after the cessation of work activities, whichever comes first.

Only aquatic approved herbicides will be used within wetlands and wetland buffers. Refer to Herbicide section for more information.

### **Possible Wetland and Wetland Buffer Clearing Methods (WCM)**

#### **WCM-1: *Wetland Avoidance***

The wetland and wetland buffer is a scrub-shrub, emergent, or grazed wetland with no clearing required, and all vehicular traffic can navigate around the wetland. No heavy equipment would be used in the site.

#### **WCM-2: *Manual Clearing Using Hand Carried Tools (selective)***

Using hand carried tools, brush and timber would be cut less than 12 inches from ground level or trimmed to a height which eliminates electrical clearance and safety problems. Timber would be removed by standard forestry practices with minimal ground disturbance (no rutting deeper than 12 inches). Woody stumps would be treated with an approved herbicide to prevent re-sprouts. A follow-up restoration plan may be necessary to establish an early successive herbaceous/scrub-shrub vegetative community in order to minimize long term maintenance efforts and associated costs.

#### **WCM-3: *Clearing Using Low Ground Pressure Equipment (non-selective)***

Using low-ground pressure equipment, brush & timber would be cut less than 12 inches from ground level or trimmed to a height which eliminates electrical clearance and safety problems. Timber would be removed by standard forestry practices with minimal ground disturbance (no



rutting deeper than 12 inches). Woody stumps would be treated with an approved herbicide to prevent re-sprouts. A follow-up restoration plan may be necessary to establish an early successive herbaceous/scrub-shrub vegetative community and deter long term maintenance efforts and associated costs.

*WCM-4: Herbicide Application, Individual Stems (selective)*

Using an approved herbicide, individual brush and timber within the wetland and wetland buffer would be selectively treated with herbicide such that electrical clearance and safety problems are eliminated and a low growing vegetative community is maintained. A follow-up restoration plan may be necessary to establish an early successive herbaceous/scrub-shrub vegetative community and deter long term maintenance efforts and associated costs.

*WCM-5: Herbicide Application, Broadcast (non-selective)*

Using an approved herbicide, the wetland and wetland buffer within the ROW would receive broadcast herbicide such that electrical clearance and safety problems are eliminated and a low growing vegetative community is maintained. A follow-up restoration plan may be necessary to establish an early successive herbaceous/scrub-shrub vegetative community and deter long term maintenance efforts and associated costs.

*WCM-6: Herbicide Application, Aerial Spray (non-selective)*

Using an approved herbicide, the wetland and wetland buffer within the ROW would be receive broadcast herbicide such that electrical clearance and safety problems are eliminated and a low growing vegetative community is maintained. A follow-up restoration plan may be necessary to establish an early successive herbaceous/scrub-shrub vegetative community and deter long term maintenance efforts and associated costs.

**Possible Wetland Access Methods (WAM) \_**

*WAM-1: Wetland Avoidance*

No access will be conducted across wetland areas.

*WAM-2: Cut and Cross-lay (Pole) Road*

Cut and cross-lay (pole) road may be constructed for clearing and line construction or re-clearing and maintenance access. If a cut and cross-lay road is constructed, the road should be removed once line construction or maintenance is. The cut and cross-lay road may be allowed to remain based upon the Corps' District determination in order to minimize soil disturbance and water quality impacts.

*WAM-3: Temporary Crossings - Matting*

Wood mats, pipe mats, panels or pallets, metal grating, or similar materials may be laid for temporary crossings or access through wetlands. All temporary crossings are removed following completion of work.

**Possible Wetland and Wetland Buffer Structure Placement Methods (WSP)**

*WSP-1: Wetland and Wetland Buffer Avoidance*

No structures will be located within the boundaries of the wetland or wetland buffer.

*WSP-2: Low Ground Pressure Equipment*

Structure placement would be accomplished using low ground pressure equipment. Rutting would not exceed 12 inches within the boundaries of the wetland. Visual inspections of

soil/hydraulic conditions will be used to determine appropriate times for ingress and egress.

*WSP-3: Standard Construction with Matting*

Structure placement will be accomplished using standard construction techniques, with access accomplished from upland sites. Matting would be used to minimize soil disturbance in immediate vicinity of structure. When the ground is not saturated and when rutting would be less than 12 inches, mats may be omitted from use.

*WSP-4: Helicopter*

Structure placement would be accomplished using a helicopter. Excavation would be accomplished by hand, pneumatic power equipment, or some other method not requiring ingress & egress of heavy equipment/large vehicles.

**Possible Wetland and Wetland Buffer Restoration Methods (WRM)**

*WRM-1: Re-grading*

Following vegetation clearing and soil disturbance, the original contours would be restored. All separated top soil would be placed on top of excavated/restored soils.

*WRM-2: No Vegetation Restoration*

Brush and timber clearing does not result in soil disturbance, such that understory vegetation is allowed to remain and gaps are allowed to be filled in with naturalized vegetation present in the seed banks.

*WRM-3: Temporary Vegetation Restoration*

Approved species (See Appendix TEMPORARY SEED MIXTURE for WETLANDS) are hand or broadcast seeded or hydroseeded and seed-free mulched to encourage establishment and prevent erosion during temporary exposure of disturbed soils.

*WRM-4: Permanent Vegetation Restoration*

Approved native species (See Appendix PERMANENT SEED MIXTURE for WETLANDS) are hand or broadcast seeded or hydroseeded followed by seed-free mulch to encourage establishment and prevent erosion once construction has ceased. No mechanical seedbed preparation (disking) would be done, and no fertilizer would be used, unless approved and permitted by the Corps.

*WRM-5: Integrated Vegetation Management*

A detailed wetland restoration plan developed and approved by a qualified wetland biologist is implemented to incorporate Integrated Vegetation Management and reduce long-term costs associated with ROW maintenance. The restoration plan includes a low-growing herbaceous or scrub-shrub community within the wire zones (below the wires and 10 feet out), and a small tree or scrub-shrub community outside the wire zone within the ROW. Wetland and wetland buffer vegetation is established via re-growth from existing seed bank, introduction of native seed (hand, broadcast, hydroseeding), and/or installation of bare root or balled and burlapped woody wetland species.

**Possible Structure Retirement (Demolition) Methods (WSR):**

WSR-1: The existing transmission line would be retired (demolished) by using a low-ground pressure equipment and labor crews. If soil rutting potential is greater than 12 inches, other wetland access BMPs would be in place to minimize wetland impacts.

WSR-2: Conventional equipment (dozers, trucks, etc.) would be used to take down the existing line. If heavy equipment is required to enter delineated wetland area and soil rutting potential is greater than 12 inches, wetland access BMPs would be in place to minimize wetland impacts.

WSR-3: Precision cutting and helicopter removal would be used to remove the line. No wheeled equipment would be allowed in the wetland area.

## **Appendix D**

### **Department of the Army Preliminary Jurisdictional Determination**



## DEPARTMENT OF THE ARMY

VICKSBURG DISTRICT, CORPS OF ENGINEERS

4155 CLAY STREET

VICKSBURG, MISSISSIPPI 39183-3435

REPLY TO  
ATTENTION OF:

April 18, 2017

Operations Division

SUBJECT: Permit Requirements for Regulated Activities Associated with the Proposed Red Hills – Kosciusko 161-KV Aerial Transmission Line Project, Located in Choctaw, Attala, and Winston Counties, Mississippi

Mr. Douglas Bailey, Jr.  
Tennessee Valley Authority  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Dear Mr. Bailey:

Based upon the information furnished (enclosure 1), it appears that Department of the Army permit requirements for regulated activities associated with the approximate 43-mile aerial transmission line project, will be authorized by Nationwide Permit No. 12; as specified in the January 6, 2017, *Federal Register*, Issuance and Reissuance of Nationwide Permits; Final Rule; Notice (82 FR 1860-2008), provided the activity complies with the Special Conditions (enclosure 2), the General Conditions (enclosure 3), and the Regional Conditions (enclosure 4). It is your responsibility to read and become familiar with the enclosed conditions in order for you to ensure that the activity authorized herein complies with the Nationwide Permit.

Based upon the information provided in your application, it is our understanding that the proposed land-clearing activities within jurisdictional wetlands and other waters of the U.S. will not result in a discharge of dredged or fill material. Please be advised if you undertake activities and they result in an unauthorized discharge, you will be out of compliance with the Department of the Army permit and subject to review for an enforcement action.

In advance of the continued consultation with the National Park Service and the Mississippi Department of Archives and History (MDAH), and subsequent execution by all involved parties, no construction shall take place within the Natchez Trace Parkway area of interest as indicated in the April 10, 2017 email, the Natchez Trace Parkway Boundary Map and the December 8, 2016 MDAH letter (enclosure 5).

This verification is valid until March 18, 2022, unless the Nationwide Permit is modified, suspended, or revoked. Activities which are under construction or that are under contract to commence in reliance upon a Nationwide Permit will remain authorized, provided the activity is completed within 12 months of the date of any subsequent modification, expiration, or revocation of the Nationwide Permit. Upon completion of the activity authorized by this Nationwide Permit, please fill out the enclosed certification of compliance (enclosure 6) and return it to our office.

This verification was based upon a preliminary determination that there appear to be jurisdictional areas on the property subject to regulation pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act. An appeals form has been enclosed for your review (enclosure 7).

This verification of Department of the Army regulatory requirements does not convey any property rights, either in real estate or material or any exclusive privileges, and does not authorize any injury to property or invasion of rights or local laws or regulations, or obviate the requirement to obtain State or local assent required by law for the activity discussed herein.

Thank you for advising us of your plans. If you change your plans for the proposed work, or if the proposed work does not comply with the conditions of the Nationwide Permit, please contact Mr. Bryan Williamson, telephone (601) 631-5292, or e-mail address: Bryan.Williamson@usace.army.mil. In any future correspondence concerning this project, please refer to Identification No. MVK-2016-1032.

I am forwarding a copy of this letter to Ms. Emily Willard, Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801; Ms. Florance Bass, Mississippi Department of Environmental Quality, Post Office Box 2261, Jackson, Mississippi 39225-2261; Ms. Mary Risser, Natchez Trace Parkway, National Park Service, 2680 Natchez Trace, Tupelo, Mississippi 38804; Ms. Deanna Boensch, Natchez Trace Parkway, National Park Service, 2680 Natchez Trace, Tupelo, Mississippi 38804; and Mr. Steve Sample, Department of Defense Siting Clearinghouse, 3400 Defense Pentagon, Washington, D.C. 20301.

Sincerely,



Cori Carraway  
Chief, Permit Section  
Regulatory Branch

Enclosures  
CF:  
CEMVK-EC-E





Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

February 2, 2017

Ms. Cori Carraway  
Regulatory Division  
U. S. Army Corps of Engineers  
4155 East Clay Street  
Vicksburg, Mississippi 39183

Dear Ms. Carraway:

TENNESSEE VALLEY AUTHORITY (TVA) – RED HILLS - KOSCIUSKO 161-KV  
TRANSMISSION LINE - PRE-CONSTRUCTION NOTIFICATION FOR WORK UNDER  
NATIONWIDE PERMIT 12

This pre-construction notification is being submitted so TVA can construct the subject transmission line in Choctaw, Attala and Winston Counties, Mississippi. Enclosed is a pre-construction notification package explaining the work to take place, including a description of our construction methods within aquatic resources, a site map, and TVA's aquatic resource report.

We are requesting your concurrence that the above-mentioned work would be approved under Nationwide Permit 12 guidelines. I am the permittee for this activity. TVA appreciates your expeditious review and handling of this pre-construction notification. If you have any questions or need additional information to support this request, please contact Mrs. Emily Willard at (423) 751-3320 or by e-mail at [epwillard@tva.gov](mailto:epwillard@tva.gov).

Sincerely,

Douglas H. Bailey, Jr.  
Vice President, Transmission  
Construction and Maintenance

Enclosures

1" RECEIVED FEB 03 2017

MVK-2016-1032

**PRE-CONSTRUCTION NOTIFICATION NWP No. 12  
RED HILLS - KOSCIUSKO 161-KV TRANSMISSION LINE**

**Project Description**

Central Electric Power Association (Central EPA) plans to upgrade its existing Kosciusko 46-kilovolt (kV) Substation in Kosciusko, Mississippi, to a 161-kV substation. The Tennessee Valley Authority (TVA) proposes to supply electric power to this substation by constructing and operating approximately 43 miles of new 161-kV transmission line as shown in Figure 1 to connect the planned substation (Latitude: 33.030474, Longitude -89.601212) to TVA's existing Red Hills 161-kV Substation in Ackerman, Mississippi (Latitude: 33.375418, Longitude: -89.21706).



Figure 1: Red Hills - Kosciusko 161-kV TL Preferred Route



The ROW to be used for this project is as follows:

- Approximately 3.2 miles of new 100-foot-wide ROW from the Red Hills 161-kV Substation to the Red Hill-Sturgis No. 1 (Tap to Weir) 161-kV TL (Structure 523).
- Approximately 5.2 miles of *existing* 100-foot-wide TVA ROW between Structures 523 and 572 on the Red Hill-Sturgis No. 1 (Tap to Weir) 161-kV TL.
- Approximately 34.8 miles of new 100-foot-wide ROW from the Weir 161-kV Substation to the upgraded Kosciusko 161-kV Substation.

The new TL would be constructed using steel-pole structures. The TL route, structures, aquatic resources, and areas for access are included in the attached vicinity maps. The project will require clearing trees within the TL right-of-way (ROW), which will be maintained as such long term.

### Wetlands Delineation

Multiple field surveys were conducted between February and August 2016 to delineate wetland areas within the proposed TL new ROW and temporary access roads. 102 wetlands were identified in the proposed new TL ROW and associated access roads, and thirteen within the existing TL ROW (see Tables 1 and 2 in attached Aquatic Resource Report for summary). The attached Aquatic Resource Report includes maps showing the wetland locations along the proposed new TL and the wetland determination forms.

Clearing the proposed TL ROW will convert approximately 44.49 acres of forested wetlands to scrub-shrub or emergent vegetation.

### Less than 1/10-acre Loss

Plans indicate 29 structures will be located within wetlands will require a small amount of concrete backfill due to poor soil conditions. Final engineering is not yet complete, but conservatively overestimating that *each* of these structures would be a high-class single-pole structure (140' tall, 72" diameter H6 Class Pole), TVA would expect to impact 0.01885 acres of wetland. Cumulatively, even with the conservative overestimation in structure type, the total fill in wetlands along the entire 43-mile TL is nominal and under the 1/10-acre threshold. The access depicted on the attached vicinity maps show the *paths* taken to reach individual structures and are not actual constructed roadways. No fill will be placed in wetlands identified along TVA's proposed temporary access. Access routes were planned to avoid streams where practicable.

Table 1: Temporary Culvert Locations Associated With Access Routes

Resource ID	Stream Type	Notes	X	Y	Culvert
SMZ 002 (Category A 50 ft)	Intermittent	Intermittent, 2'w 6"d strong bed/bank, gravel/sand substrate	-89.2196	33.3575	Temporary
SMZ 003 (Category A 50 ft)	Perennial	Perennial, swamp draining into main channel, 3'w 1'd gravel/sand substrate. crawfish observed	-89.2193	33.3563	Temporary
SMZ 007 (Category A 50 ft)	Perennial	Perennial, 5'w 6-12" d sand gravel main substrate, defined bed and bank	-89.2644	33.2743	Temporary
SMZ 008 (Category A 50 ft)	Perennial	Perennial 6'w 6-12"d. San/clay primary substrate	-89.2636	33.2703	Temporary



SMZ 010 (Category A 50 ft)	Perennial	Perennial 3'w 6"d, strong bed and bank, below root line, clay/sand substrate	-89.2629	33.2667	Temporary
SMZ 011 (Category A 50 ft)	Intermittent	Intermittent 5'w 5'd, strong bed and bank, clay/sand primary substrate	-89.2591	33.2469	Temporary
SMZ 012 (Category A 50 ft)	Intermittent	Intermittent. 6'w 3'd, Strong bed and bank. Sand/gravel as primary substrate	-89.2588	33.2449	Temporary
SMZ 013 (Category A 50 ft)	Intermittent	5-15'w 6-12"d clay/mud as substrate. flowing into wetland	-89.2579	33.2410	Temporary
SMZ 016 (Category A 50 ft)	Intermittent	Intermittent. Highly eroded, strong bed and bank 2.5w 4.5d clay/sand	-89.2562	33.2308	Temporary
SMZ 017 (Category A 50 ft)	Perennial	Perennial, Strong bed and bank braided channel. below root wad. sand 3.5w 3.5d	-89.2570	33.2247	Temporary
SMZ 018 (Category A 50 ft)	Intermittent	Intermittent gravel 2'w 4" deep	-89.2695	33.2141	Temporary
SMZ 019 (Category A 50 ft)	Perennial	Perennial, fast flowing well defined bed and bank. runs/riffles bedrock/gravel	-89.2720	33.2127	Temporary
SMZ 020 (Category A 50 ft)	Perennial	Perennial sand/ gravel bedrock. Strong bed and bank 4'w 6"d	-89.2744	33.2003	Temporary
SMZ 021 (Category A 50 ft)	Perennial	Perennial clay/gravel 4'w 3'd strong bed and bank wetland around	-89.2742	33.1876	Temporary
SMZ 022 (Category A 50 ft)	Intermittent	Intermittent Clay/sand strong bed and bank 3'w 2.5'w	-89.2813	33.1792	Temporary
SMZ 024 (Category A 50 ft)	Intermittent	Intermittent. Aquatic insects observed , pool-riffle 3'w 6"d clay/sand	-89.3004	33.1729	Temporary
SMZ 025 (Category A 50 ft)	Intermittent	Intermittent. benches and bars aquatic insects observed 3'w 2'd sand/clay	-89.3004	33.1683	Temporary
SMZ 026 (Category A 50 ft)	Intermittent	Intermittent water/flowing, sand/clay 3'w 6"d aquatic insects observed.	-89.3003	33.1672	Temporary
SMZ 027 (Category A 50 ft)	Intermittent	Intermittent large headcut pool riffle 3'w 3-7"d	-89.3003	33.1534	Temporary
SMZ 028 (Category A 50 ft)	Intermittent	Intermittent 4'd 4'w run/riffle observed, sand/clay	-89.3033	33.1398	Temporary
SMZ 030 (Category A 50 ft)	Intermittent	Intermittent headcuts and grade controls flowing water 2'w 1.5'd clay/sand	-89.3177	33.1146	Temporary
SMZ 031 (Category A 50 ft)	Intermittent	Intermittent 2'w 3-10"d aquatic insects observed clay/sand substrate	-89.3180	33.0907	Temporary
SMZ 032 (Category A 50 ft)	Perennial	Perennial strong bed and bank. benches present sand primary substrate 4'w 1.5'd	-89.3197	33.0786	Temporary
SMZ 033 (Category A 50 ft)	Intermittent	Intermittent 5'w 4"d clay/mud aquatic insects observed	-89.3314	33.0768	Temporary
SMZ 037 (Category A 50 ft)	Intermittent	Intermittent sand/silt 3'w 3-10"d pool-riffle present with aquatic insects	-89.3579	33.0751	Temporary
SMZ 041 (Category A 50 ft)	Intermittent	Intermittent 3'w 1'd aquatic insects gradecuts sand/clay	-89.3897	33.0714	Temporary
SMZ 043 (Category A 50 ft)	Intermittent	Intermittent water flowing 3'w 2'd wetland around clay/mud	-89.4118	33.0686	Temporary



SMZ 045 (Category A 50 ft)	Intermittent	Intermittent, scattered pools, 5ft x 5 ft	-89.4653	33.0615	Temporary
SMZ 046 (Category A 50 ft)	Perennial	Perennial, several streams drain to stream, minnows observed, 8ft x 6 ft	-89.4655	33.0612	Temporary
SMZ 048 (Category A 50 ft)	Intermittent	Intermittent, Pools scattered, 4ft x 3ft	-89.4655	33.0569	Temporary
SMZ 052 (Category A 50 ft)	Perennial	Perennial, Minnows Observed, Steep Banks, 6ft x 3ft	-89.5234	33.0488	Temporary

As a result of field reviews, Streamside Management Zones (SMZs) are to be established on both sides of perennial and intermittent streams and along the margins of bodies of open water where extra precaution is used in carrying out construction activities to protect stream banks and water quality (Table 2).

Table 2: Streamside Management Zone

SMZ Category	% Slope of Adjacent Lands				
	1-10	11-20	21-30	31-40	41+
SMZ Width each side					
A - Standard	50	70	90	110	130
B - Important	70	90	110	130	150
C - Unique	90	110	130	150	170

(SMZ width increases 20 ft for each 10% increase in slope)

SMZs are designed to slow and spread surface water flow, trap and filter out suspended sediment before particulates reach the stream channel, protect stream bank and floodplain integrity, protect stream water temperature for aquatic ecosystems and improve impacts from biological pollution agents.

TVA's normal practices for ROW clearing and TL construction in SMZs and wetlands include:

- During line clearing, construction, and maintenance, identified wetlands, streams, and drainage-ways would not be modified so as to alter their natural hydrological patterns.
- Hydric soils would not be disturbed or modified in any way that would alter their hydrological properties.
- Initial ROW clearing within the forested wetlands would be accomplished using accepted silvicultural practices for timber or vegetation harvesting within wetlands.
- Within streamside or riparian zones (e.g., Streamside Management Zone) and wetlands, trees would be cut just above the ground line and stumps would not be uprooted or removed.

Clearing in SMZs and wetlands will be accomplished using a feller-buncher. This method has been selected based on site-specific conditions and topography such that the below-ground root crowns will not be disturbed or soil displaced. Felled trees will then be moved to a non-jurisdictional area for staging an ultimate disposal. TVA has found that in many cases, using a



low ground pressure feller-buncher to cut and remove trees results in less ground disturbance than cutting trees with chainsaws and dragging them out of the SMZs and wetlands.

#### **Consultation with United States Fish & Wildlife Service (USFWS)**

To fulfill the Agency's obligations under the Endangered Species Act (ESA), TVA entered into consultation with USFWS by way of the attached November 21, 2016 letter. TVA reviewed species listed as threatened, endangered, or delisted and monitored within the project area in Choctaw, Attalla, and Winston Counties, Mississippi. These species include two birds (red-cockaded woodpecker and wood stork) and one mammal (northern long-eared bat - NLEB) that have the potential to occur within the project action area; based on historic range, proximity to known occurrence records, biological characteristics, and/or physiographic characteristics.

TVA concluded no suitable nesting and foraging habitat for red-cockaded exists within the project area. Although the proposed project ROW includes suitable habitat for the wood stork, it is in an area that contains an existing transmission line. Expanding the existing ROW may remove some roost trees, but would likely increase foraging habitat for this species in the project action area. Wood storks are rare in the region and are not anticipated to be encountered within the project action area. TVA has determined that construction and operation of this proposed transmission line would have no direct, indirect, or cumulative impacts on red-cockaded woodpecker or wood stork.

Suitable NLEB foraging habitat exists over ponds, streams, and wetlands within the proposed right-of-way. Suitable summer roosting habitat for northern long-eared bat exists within several forested sections of the project area. While the USFWS has determined that this species has the potential to occur within the northern half of Mississippi; however, no records are known from Attala, Choctaw, or Winston counties (USFWS 2014). TVA has committed to seasonal clearing restrictions to avoid all potential for direct impacts to NLEB would be avoided. Further, TVA determined that while removal of suitable roosting habitat could have indirect adverse effects on NLEB and result in 'take' as defined in the Endangered Species Act (ESA), this 'take' is excepted from ESA Section 9 Take Prohibitions. Determinations regarding potential effects on NLEB were made per the Key to Northern Long-Eared Bat 4(d) Rule for Federal Actions that May Affect Northern Long-Eared Bats (USFWS - January 2016) and the Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions (2016 BO).

TVA received the attached concurrence from USFWS regarding ESA matters on December 1, 2016.

#### **Section 106 Consultation**

To initiate the Agency's Section 106 of the National Historic Preservation Act obligations, TVA notified and solicited comments on the proposed Red Hills-Kosciusko 161-kV Transmission Line Project from Mississippi Department of Archives and History (MDAH) and four federally recognized Tribes on May 19 and 25, 2016. TVA invited the National Park Service (NPS) to become a Cooperating Agency in the development of the project Environmental Assessment on July 29, 2016, as the proposed transmission line would require a Special Use permit to cross a 2,036-foot section of the Natchez Trace Parkway. Over the following months TVA corresponded with MDAH, the Tribes, and the NPS regarding the project affects (see Appendix A of the Environmental Assessment ([https://www.tva.gov/file\\_source/TVA/Site%20Content/Environment/Environmental%20Stewardship/Environmental%20Reviews/Red%20Hills%20Kosciusko%20161kV%20Transmission%20Line/RedHills-Kosciusko%20TL\\_FEA\\_25Jan17.pdf](https://www.tva.gov/file_source/TVA/Site%20Content/Environment/Environmental%20Stewardship/Environmental%20Reviews/Red%20Hills%20Kosciusko%20161kV%20Transmission%20Line/RedHills-Kosciusko%20TL_FEA_25Jan17.pdf) for project correspondence).



Waters_Narr_Name	Activity	Resource_I	Permar	Impact_Duration	Initially_Proj	Proposed_F	Authorized_U	Units_Are	Area_Type
SMZ 002	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	50	50	50	Square Fe Fill
SMZ 003	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 007	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	125	125	125	Square Fe Fill
SMZ 008	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	150	150	150	Square Fe Fill
SMZ 010	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 011	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	250	250	250	Square Fe Fill
SMZ 012	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	150	150	150	Square Fe Fill
SMZ 013	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	250	250	250	Square Fe Fill
SMZ 014	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	500	500	500	Square Fe Fill
SMZ 015	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	500	500	500	Square Fe Fill
SMZ 016	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	62.5	62.5	62.5	Square Fe Fill
SMZ 017	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	87.5	87.5	87.5	Square Fe Fill
SMZ 018	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	50	50	50	Square Fe Fill
SMZ 019	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	500	500	500	Square Fe Fill
SMZ 020	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	100	100	100	Square Fe Fill
SMZ 021	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	100	100	100	Square Fe Fill
SMZ 022	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 024	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 025	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 026	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 027	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 028	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	100	100	100	Square Fe Fill
SMZ 030	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	50	50	50	Square Fe Fill
SMZ 032	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	100	100	100	Square Fe Fill
SMZ 033	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	125	125	125	Square Fe Fill
SMZ 037	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 041	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 043	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	75	75	75	Square Fe Fill
SMZ 045	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	125	125	125	Square Fe Fill
SMZ 048	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	100	100	100	Square Fe Fill
SMZ 053	Temp Culvert	Discharge of fill	ma	River/Stream NO	Temporary	300	300	300	Square Fe Fill
W007	Temporary access	Discharge of fill	ma	Non-Tidal V NO	Temporary	0.023	0.023	0.023	Acres
W008	Temporary Access	Discharge of fill	ma	Non-Tidal V NO	Temporary	0.023	0.023	0.023	Acres
W017	Structure Installation	Discharge of fill	ma	Non-Tidal V YES	Permanent	0.000365	0.000365	0.000365	Acres
W017	Structure Installation	Discharge of fill	ma	Non-Tidal V YES	Permanent	0.000365	0.000365	0.000365	Acres
W018b	Structure Installation	Discharge of fill	ma	Non-Tidal V YES	Permanent	0.000451	0.000451	0.000451	Acres
W023	Structure Installation	Discharge of fill	ma	Non-Tidal V YES	Permanent	0.000288	0.000288	0.000288	Acres
W023	Structure Installation	Discharge of fill	ma	Non-Tidal V YES	Permanent	0.000288	0.000288	0.000288	Acres

W032	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000221	0.000221	0.000221	Acres	Fill
W054	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000288	0.000288	0.000288	Acres	Fill
W060	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000288	0.000288	0.000288	Acres	Fill
W060	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000365	0.000365	0.000365	Acres	Fill
W064	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000545	0.000545	0.000545	Acres	Fill
W084b	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000365	0.000365	0.000365	Acres	Fill
W085	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000451	0.000451	0.000451	Acres	Fill
W086	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000365	0.000365	0.000365	Acres	Fill
W086	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000545	0.000545	0.000545	Acres	Fill
W095a	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000451	0.000451	0.000451	Acres	Fill
W095a	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000451	0.000451	0.000451	Acres	Fill
W095a	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000451	0.000451	0.000451	Acres	Fill
W095b	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000451	0.000451	0.000451	Acres	Fill
W101a-rr	Structure Installation	Discharge of fill mē Non-Tidal V YES	Permanent	0.000288	0.000288	0.000288	Acres	Fill



[illegible]

[illegible]

**Appendix 2**  
**SHPO, Tribal and ACHP Consultation Responses**



GWYD D3P  
**CHEROKEE NATION®**  
P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • [cherokee.org](http://cherokee.org)

**Office of the Chief**

Bill John Baker  
*Principal Chief*  
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S. Joe Crittenden  
*Deputy Principal Chief*  
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June 23, 2017

Mary Risser, Superintendent  
United States Department of the Interior  
National Park Service  
Natchez Trace Parkway  
2680 Natchez Trace Parkway  
Tupelo, MS 38804

Re: H20 (NATR)

Ms. Mary Risser:

The Cherokee Nation (CN) is in receipt of your correspondence about **H20 (NATR)** in regard to Tennessee Valley Authority's request to a right-of-way across the Natchez Trace Parkway in Attala County, MS, and appreciates the opportunity to provide comment upon this project. The CN maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office reviewed this project, cross referenced the project's legal description against our information, and found no instances where this project intersects or adjoins such resources. Thus, the CN does not foresee this project imparting impacts to Cherokee cultural resources at this time. However, the CN requests that the National Park Service (NPS) halt all project activities immediately and re-contact our Offices for further consultation if items of cultural significance are discovered during the course of this project.

Additionally, we would request NPS conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the CN databases or records. If you require additional information or have any questions, please contact me at your convenience.

Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs, Special Projects Officer  
Cherokee Nation Tribal Historic Preservation Office  
[elizabeth-toombs@cherokee.org](mailto:elizabeth-toombs@cherokee.org)  
918.453.5389

CC: Dr. Christina Smith



7/18/2017

DEPARTMENT OF THE INTERIOR Mail - Fwd: ROW across Natchez Trace Parkway in Attala County, MS



McInnis, Lisa <lisa\_mcinnis@nps.gov>

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## Fwd: ROW across Natchez Trace Parkway in Attala County, MS

1 message

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**Smith, Christina** <christina\_smith@nps.gov>  
To: Lisa McInnis <Lisa\_McInnis@nps.gov>

Fri, Jul 14, 2017 at 4:05 PM

----- Forwarded message -----

From: **Section106** <[Section106@mcn-nsn.gov](mailto:Section106@mcn-nsn.gov)>  
Date: Fri, Jul 14, 2017 at 3:59 PM  
Subject: ROW across Natchez Trace Parkway in Attala County, MS  
To: "Christina\_Smith@nps.gov" <[Christina\\_Smith@nps.gov](mailto:Christina_Smith@nps.gov)>

Ms. Smith,

Thank you for contacting the Muscogee (Creek) Nation concerning TVA requesting ROW cross the Natchez Trace Parkway in Attala County, Mississippi. Upon review, it was noted that the project area lies outside of our historic area of interest. We respectfully defer to the other Tribes that have been contacted about this project. Should further information or comment be needed, please do not hesitate to contact me at (918) 732-7852 or by email at [lwendt@mcn-nsn.gov](mailto:lwendt@mcn-nsn.gov)

Thank you,

LeeAnne Wendt

**LeeAnne Wendt**

Historic and Cultural Preservation Department, Tribal Archaeologist

Muscogee (Creek) Nation

P.O. Box 580 / Okmulgee, OK 74447

T 918.732.7852

F 918.758.0649

[lwendt@MCN-nsn.gov](mailto:lwendt@MCN-nsn.gov)

<http://www.muscogeenation-nsn.gov/>



Smith, Christina &lt;christina\_smith@nps.gov&gt;

---

**Re: TVA's Requested Right-of Way Across the Natchez Trace**

2 messages

---

**Ian Thompson** <ithompson@choctawnation.com>  
To: "Smith, Christina" <christina\_smith@nps.gov>

Wed, Jul 26, 2017 at 2:30 PM

The Choctaw Nation of Oklahoma thanks the Natchez Trace Parkway for consulting with us about the above-referenced undertaking. The Choctaw Nation is culturally affiliated with the Natchez Trace. In the Choctaw Language, it was known as "Nahchi Hina". We would like to be involved in this consultation

**Ian Thompson** PhD, RPA

Tribal Historic Preservation Officer,

Senior Director

Historic Preservation Dept.

Wheelock Academy,

Tuskahoma Capitol Museum.

Choctaw Nation of Oklahoma

PO Drawer 1210

Durant, OK 74701

1-800-522-6170 ext. 2216

[www.choctawnationculture.com](http://www.choctawnationculture.com)

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MISSISSIPPI DEPARTMENT *of* ARCHIVES AND HISTORY



HISTORIC PRESERVATION DIVISION  
P. O. BOX 571  
Jackson, MS 39205-0571  
Phone 601-576-6940 Fax 601-576-6955  
Website: [mdah.ms.gov](http://mdah.ms.gov)

June 23, 2017

Mary Risser, Superintendent  
Natchez Trace Parkway  
2680 Natchez Trace Parkway  
Tupelo, Mississippi 38804

RE: Proposed construction of a 161-kV transmission line across the Natchez Trace Parkway  
by Tennessee Valley Authority, (NPS) MDAH Project Log #06-085-17, Attala County

Dear Ms. Risser:

We have reviewed your request for a cultural resource assessment, received on June 21, 2017, for the above referenced project in accordance with our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After reviewing the information provided, we concur that the construction of a transmission line across the Natchez Trace Parkway would have an adverse effect on the Parkway's designed cultural landscape.

I am including a copy of our December 8, 2016, letter to TVA for the above referenced project, recommending consultation with the NTP and our office. If you need more information, please feel free to contact us.

Sincerely,

Hal Bell  
Review and Compliance Officer

FOR: Katie Blount  
State Historic Preservation Officer



December 8, 2016

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


RE: A Phase I Cultural Resources Survey of the Red Hills-Kosciusko Transmission Line Project, MDAH Project Log #11-093-16 (Report #16-0417), Attala, Choctaw and Winston Counties

Dear Mr. Jones:

We have reviewed the cultural resources report by Hunter B. Johnson, Principal Investigator, received on November 16, 2016, for the above referenced undertaking, pursuant to our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After review, we concur that sites 22Ch874, 22Ch876, 22Ch1189, 22Ch1190 and 22At540 (the portion within the APE) are ineligible for listing in the NRHP. We also concur that sites 22At571, 22Ch875 and 22Ch877 are of undetermined eligibility and concur with the proposed avoidance these sites. For architectural resources, we concur that IS-1 through IS36 are ineligible for listing in the NRHP and that 019-ACK-5007 and 019-ACK5051 are outside the viewshed. We also concur that the Natchez Trace Parkway (NTP) is a National Register-eligible resource and that the proposed undertaking would create an adverse effect on the NTP. As such, we recommend continued consultation with the NTP and our office to determine an appropriate minimization or mitigation to resolve the adverse effect to the Parkway

There remains the possibility that unrecorded cultural resources may be encountered during the project. Should this occur, we would appreciate your contacting this office immediately in order that we may offer appropriate comments under 36 CFR 800.13. If you need further information concerning archaeological sites, please contact Patty Miller-Beech, MDAH Staff Archaeologist, at 601-576-6944 or for historic structures Bill Gatlin, National Register Coordinator, at 601-576-6951.

Sincerely,

  
Jim Woodrick  
Acting Review and Compliance Officer

FOR: Katie Blount  
State Historic Preservation Officer



Preserving America's Heritage

February 16, 2017

Marianne Shuler  
Archaeologist  
Tennessee Valley Authority  
400 W. Summit Hill Drive  
Knoxville, TN 37902

Ref: *Proposed Red Hills-Kosciusko 161-kV Transmission Line Project*  
*Choctaw, and Winston Counties, Mississippi*

Dear Ms. Shuler:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Mississippi State Historic Preservation Office (SHPO), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Ms. Najah Gabriel at 202-517-0210 or via e-mail at [ngabriel@achp.gov](mailto:ngabriel@achp.gov).

Sincerely,

Artisha Thompson  
Historic Preservation Technician  
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION  
401 F Street NW, Suite 308 • Washington, DC 20001-2637  
Phone: 202-517-0200 • Fax: 202-517-6381 • [achp@achp.gov](mailto:achp@achp.gov) • [www.achp.gov](http://www.achp.gov)



**Appendix 3**  
**Visual Renderings for ROW Alternative**









