Reelfoot Lake Airport (0M2) Environmental Assessment for Obstruction Clearing

February 14, 2022

Prepared for:

Tennessee Department of Transportation – Aeronautics Division

Prepared by:

Stantec Consulting Services Inc.

Focused Environmental Assessment

FEDERAL AVIATION ADMINISTRATION
MEMPHIS AIRPORTS DISTRICT OFFICE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF AVIATION

TENNESSEE DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS

Airport Name: Reelfoot Lake Airport (0M2)
Proposed Project: Environmental Assessment for Obstruction Clearing
Date Submitted to TDOT: February 14, 2022

This environmental assessment becomes a Federal document when evaluated, signed, and dated by the responsible TDOT Official.

Revision	Description	Author		Quality Check		Independent Review	

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Prepared by _____
(signature)
Beck Hobneck AICP, EI

Approved by _____
(signature)
Ronnie Canups PE



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ABBREVIATIONS

AC	Advisory Circular
ADO	Airport's District Office
AIP	Airport Improvement Program
ARAP	Aquatic Resources Alteration Permit
ASL	Above Sea Level
BMP	Best Management Practices
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response and Liability Act
CEQ	Council of Environmental Quality
CGP	Construction Stormwater General Permit
CO	Carbon Monoxide
DNL	Day-Night Noise Level
DSWM	Division of Solid Waste Management
DWR	Division of Water Resources
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact



FPPA	Farmland Protection Policy Act
GIS	Geographic Information System
HD	Hydrologic Determination
IAP	Instrument Approach Procedure
IFR	Instrument Flight Rules
IPAC	Information for Planning and Consultation
LDA	Landing Distance Available
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NRHP	National Register of Historic Places
NRI	National River Inventory
NWSRS	National Wild and Scenic River System
$PM_{2.5}$	Particulate Matter
ROE	Right of Entry
SDWA	Safe Drinking Water Act
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
TAD	TDOT Aeronautics Division
TDEC	Tennessee Department of Environment and Conservation

TDOT	Tennessee Department of Transportation
TERPS	Terminal Instrument Procedures
THC	Tennessee Historical Commission
TN	Tennessee
TSS	Threshold Siting Surface
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VFR	Visual Flight Rules
WWC	Wet Weather Conveyance

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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to assist the Tennessee Department of Transportation's (TDOT) Aeronautics Division in the evaluation of the **Obstruction Clearing Project** at the **Reelfoot Lake Airport (0M2)** in Tiptonville, Tennessee. This EA will address possible environmental impacts due to the removal of trees obstructing the proposed Runway 1 and Runway 19 20:1 Threshold Siting Surface (TSS) and the 20:1 State Approach Surface

This EA is being prepared to meet the requirements of the National Environmental Policy Act (NEPA) of 1969 which was established to encourage harmony between man and the environment. The FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, provides regulation and guidance to ensure agency compliance with NEPA and the Council on Environmental Quality (CEQ; 40 Code of Federal Regulations 1500-1508). Additional guidance referred to in the preparation of this EA came from the FAA 1050.1F, *Desk Reference* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The Desk Reference was designed to complement FAA Order 1050.1F and is useful for defining all terms used in the Order and the Desk Reference itself. It also gives guidance on what information should be included in each of the environmental impact categories. Due to NEPA requirements, the EA must comply with all Federal requirements outlined in the aforementioned documents.

This EA will include the following sections:

- Introduction
- Purpose and Need
- Project Alternatives
- Affected Environment
- Environmental Consequences
- Agency Coordination and Public Participation
- Lead Agencies/List of Preparers and Reviewers

1.1 AIRPORT OVERVIEW

The Reelfoot Lake Airport (0M2) is a public airport owned by the TDOT Aeronautics Division (TAD). It is located nine miles northeast of the City of Tiptonville, Tennessee and is situated at an elevation of 289 feet above sea level (ASL). From Tiptonville, the Airport can be accessed by taking Tennessee (TN) State Highway 78 in a northeasterly direction towards TN State Highway 213. Following TN State Highway for approximately four miles, 0M2 is located on the left. Airport property is bordered in the north and west by agricultural property and to the east and south by forested lowland areas/swamps, wetlands and the Reelfoot National Wildlife Refuge and Reelfoot Lake State Park. The topography at and adjacent to airport

property is predominantly flat and other than a few local businesses and scattered residences, 0M2 is located in a rural setting. Major cities within 100 miles of the Reelfoot Lake Airport include Jackson, TN, 65 miles to the southeast; Memphis, TN, 100 miles to the southwest; Paducah, KY, 60 miles to the northeast; and Jonesboro, AR, 86 miles to the southeast.

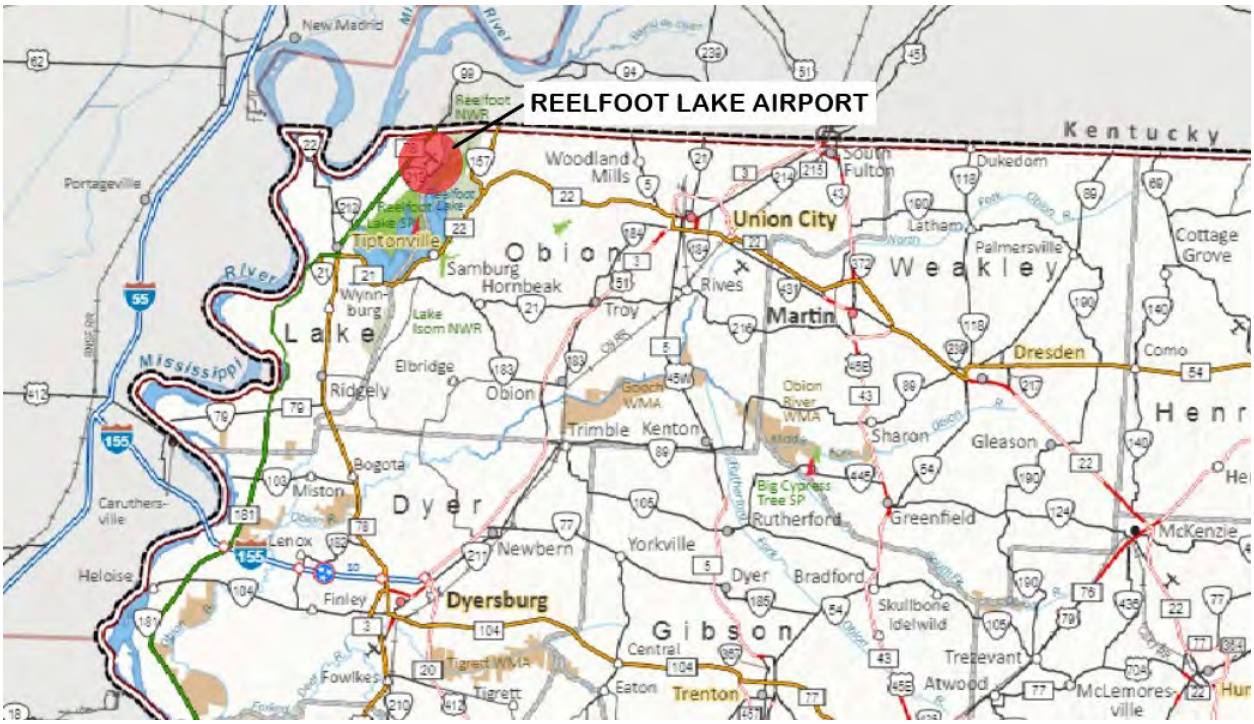


Figure 1.1 - Location Map Reelfoot Lake Airport (0M2)

The Airport serves the aviation needs of the City of Tiptonville, Lake County, and the surrounding communities. Due to its location near a Tennessee state park and federal wildlife refuge, airport operations are predominately recreational. Facilities at the Airport include Runway 1-19, which is 3,500 feet in length and 75 feet in width. The runway is supported by a partial taxiway and additional pavement at each runway end for aircraft taxiing. Since there are no established instrument approach procedures (IAPs) at the Airport, the runway is classified as a visual runway.

Facilities at the Airport include an aircraft parking apron that measures approximately 300 feet X 150 feet in size and provides six tie-downs for long term aircraft parking.

Lastly, the Airport has a terminal building that houses amenities for patrons that include flight planning room, restrooms, and vending. The online airport master record shows there is one based aircraft reported at the Airport, with aircraft operations averaging 54 a week[1.1].

[1.1]www.airportiq5010.com/5010Web/

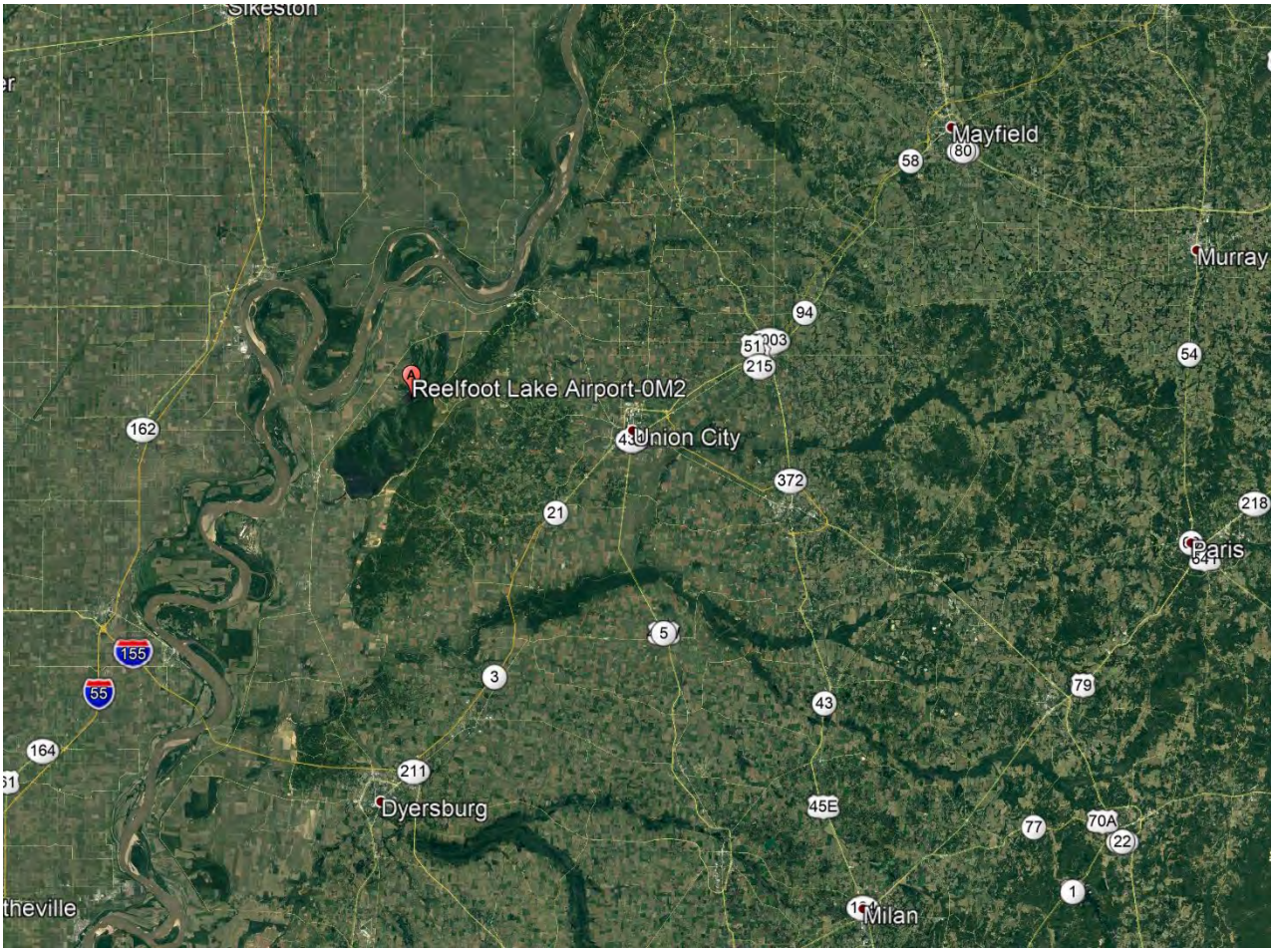


Figure 1.2 - Vicinity Aerial Map for Reelfoot Lake Airport (0M2) - Google Earth 2021

1.2 SCOPE OF ENVIRONMENTAL ASSESSMENT

TDOT Aeronautics Division, the sponsor of the Reelfoot Lake Airport, is pursuing an obstruction clearing project for Runway 1-19, which will allow for safer aircraft operations on the airfield, as well as provide more efficient use of the runway. An obstruction analysis has been completed to determine if penetrations exist and to what extent the objects penetrate the approach surfaces. This obstruction analysis included an aerial lidar survey to ensure that all obstructions were identified and going forward could be mitigated.



Figure 1.3 - Aerial Photo for Reelfoot Lake Airport (0M2) - Google Earth 2021

The approach surfaces analyzed as a part of this survey include the 20:1 TSS and the 20:1 State Approach Surface. The State Approach Surface is very similar to the 20:1 TSS approach surface that is described in the *Airport Design* Advisory Circular (AC)[1.2] and also protects the use of the runway during visual approaches. Dimensions of these approach surfaces and there use during analysis are described in further detail in Chapter two.

[1.2] FAA Advisory Circular 150/5300-13A, *Airport Design,* Section 303b and Table 3-2

With the completion of the obstruction analysis, the Airport sponsor can move forward with the EA, identifying and describing environmental impacts that would result from the proposed action. Ultimately, allowing the Airport to remove the identified penetrations to the Runway 1 and Runway 19 approaches.

1.3 STATE OF TENNESSEE PUBLIC AIRPORT LICENSE

Since the Reelfoot Lake Airport is classified as a public use airport within the state of Tennessee, it must maintain its Public Airport License. This license is issued by the Tennessee Department of Transportation and grants State of Tennessee approval for the public to use the Airport. The Public Airport License ensures the protection of the significant investment made by the state and local entities to preserve its airports, as well as to protect the public during its use of the airport. An applicant of this license must show that minimum airport standards, identified in Chapter 1680-1-2 of the Tennessee Secretary of State Official Compilation of Rules and Regulations[1.3], are being met. An applicant of this license is also subject to inspection at any time.

One of the requirements outlined in Chapter 1680-1-2 adheres to the identification of hazards to its airspace. More specifically with hazard removal and mitigation. It requires the airport owner/sponsor to take appropriate action to clear its airspace in order to protect both instrument and visual flight operations. Therefore, the Reelfoot Lake Airport is required to maintain the Runway 1 and Runway 19 visual approaches free from all obstructions in order to maintain its Public Airport License

[1.3] Rules of the Tennessee Department of Transportation, Chapter 1680-1-2, *Licensing and Registration of Airports*

2.0 PURPOSE AND NEED

To fulfill the requirements of the purpose and need statement in an EA, the statement must meet criteria laid out in FAA Order 5050.4B.[2.1] It must describe any objectives related to the approval of the Airport sponsor's proposed action, as well as give a timeline for carrying out the action. Additionally, the purpose and need statement should include a summary of the benefits of the proposed action.

2.1 STATEMENT OF PURPOSE AND NEED

The purpose and need for the proposed project is to:

- Enhance the safety of aircraft operations (Visual Flight Rules (VFR).
- Remove penetrations to the 20:1 approach surfaces.
- Comply with requirements outlined in the Rules of the Tennessee Department of Transportation, Chapter 1680-01-02 in order to maintain the Public Airport License

Runway 1-19, at the Reelfoot Lake Airport has no published IAPs, and patrons currently using the runway must rely on good visibility and clear approaches in order to land safely. Therefore, TAD, the sponsor of the Reelfoot Lake Airport, is pursuing an obstruction clearing project at the Airport to clear the 20:1 approach surfaces that will enhance the safety of aircraft operations, as well as fulfill requirements to maintain its Public Use Airport License.

An obstruction analysis of both the Runway 1 and Runway 19 approach surfaces was completed in July 2020 to determine if any obstructions exist in the 20:1 approach path. This analysis was to be based on the 20:1 TSS approach surfaces (depicted in Figure 2.1) described in the *Airport Design* AC for a Runway Type 1.[2.2] However, since TAD has established slightly different criteria for the 20:1 State Approach Surface then are identified in the *Airport Design* AC, these dimensions (shown below) were ultimately used for the analysis.

A= 200'
B= 150'
C= 1,250'
D+E (length of approach surface)= 5,000'
Approach surface width at 1,000' in length= 370'
Approach slope= 20:1

[2.1] FAA Order 5050.4B, *NEPA*, Section 706b
[2.2]FAA AC 150/5300-13A, *Airport Design,* Table 3-2

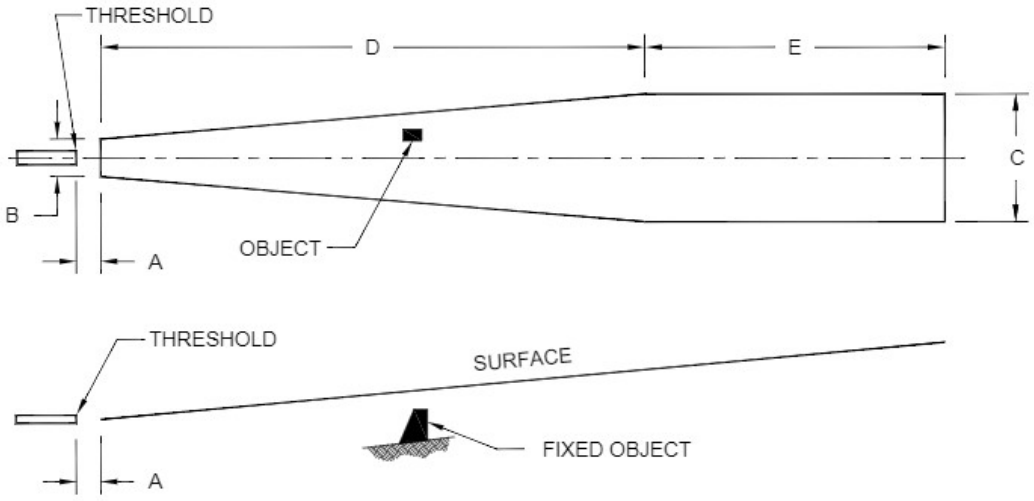


Figure 2.1 - Portion of Figure 3-2 from AC 150/5300-13A

The obstruction analysis included all objects penetrating the 20:1 approach surface or within 10 feet of penetrating the 20:1 surface. Aerial photography was also obtained to aid identification of the obstructions. During analysis, 57 objects were identified that met this criterion. More specifically, 21 individual trees were identified as penetrating the 20:1 surface and an additional 36 individual trees were within 10 feet of penetrating the 20:1 surface.

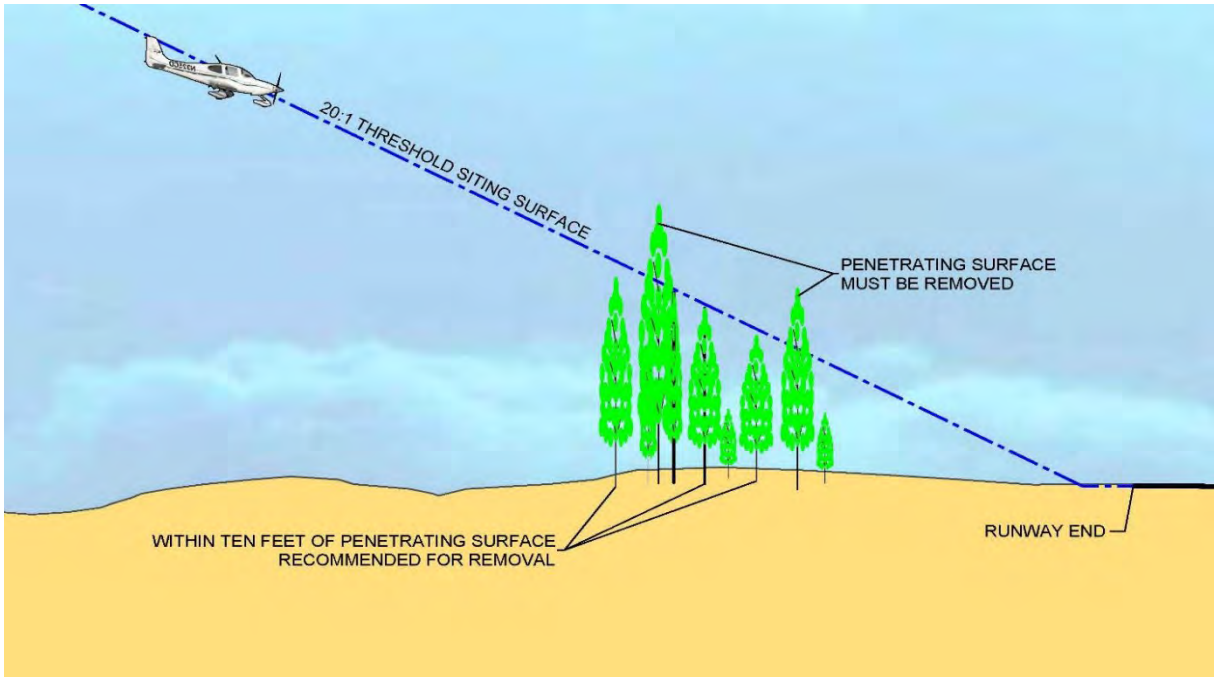


Figure 2.2 - Profile View of 20:1 Approach Surface

As such, the Airport sponsor, is proposing an **Obstruction Clearing Project** that will remove/mitigate all identified tree obstructions and trees that are within 10 feet of penetrating the 20:1 State Approach Surface.

Prior to the obstruction clearing project, the completion of this EA is necessary to determine the amount of impact the proposed action could have on the surrounding environment. Once completed, this EA will be reviewed by the responsible authorities and its approval will fulfill NEPA requirements.

2.2 PROPOSED ACTION

The proposed action for which the EA is being completed is to remove obstructions that were identified during the obstruction analysis. These obstructions include individual trees that penetrate the new approach surface, as well as individual trees that have the potential to obstruct the new surface given normal growth. In total, 57 individual trees were identified as exceeding the allowable height of the proposed approach surface or within ten feet of penetrating the approach surface. The Airport sponsor is proposing to remove all identified and potential obstructions. Prior to the construction phase, several ancillary components have to be completed, which include:

- Wetland Delineation
- Hydrologic Determination Report
- Environmental Assessment
- Public Review
- FONSI
- Environmental Permitting
- Obtain Right of Entry (ROE) Agreement/ Avigation Easement
- Migratory Bird Assessment /Mitigation[2.3]

The results of the first two items above are included in this document. Public participation for the EA and its approval is ongoing, as well as environmental permitting. Lastly, completion of the last two items are dependent upon approval of this EA, continued funding and the time of year obstruction clearing will occur.

[2.3]Further assessment and/or mitigation may be necessary if construction schedule interferes with breeding times of protected migratory birds

2.3 NEPA SCOPE

The primary purpose of the EA is to inform regulatory agencies and the public of the proposed action and any associated environmental consequences. In addition, the document must outline several viable alternatives and state the environmental consequences of each. NEPA regulations require that all federally funded proposed actions, once reviewed by the approving authority, be listed in one of three categories. These categories are as follows:

- Proposed actions that will normally be categorically excluded from further environmental review.
- Proposed actions that will require an Environmental Assessment.
- Proposed actions that will require an Environmental Impact Statement (EIS), a document that provides further analysis of the proposed action and its determined impacts.

In summary, TAD, the deciding authority on behalf of the FAA, will either issue a Finding of No Significant Impact (FONSI) or request the preparation of an EIS. The EA will provide the information necessary to determine whether any of the consequences associated with the proposed action will be a detriment to the environment and/or surrounding communities. If the proposed action is found to be detrimental to the environment by the deciding agency, then an EIS will be prepared.

Chapters 3-5 of the EA will discuss the evaluation of the alternatives that have been developed to meet the purpose and need, discuss the affected environment, and finally analyze potential impacts as a result of the action.

2.4 PROJECT SCHEDULE

The Draft EA was submitted to TAD for review on September 10, 2021. Comments and changes requested were received in November and the EA was updated in December 2021 and resubmitted as final in January 2022. After a final review, the EA will be made available for a 30-day public review period, expected to occur in February of 2022. During this time period, comments and/or a request for a public hearing can be made. Following the public review period, the Public Involvement section of the document will be updated and then submitted to TAD for final approval. A Finding of No Significant Impact (FONSI) is anticipated in the spring of 2022. Once a FONSI has been obtained, the Airport sponsor can begin the process of obtaining the necessary ROE agreements/avigation easements, which will allow them the ability to remove/mitigate all the Runway 1-19 obstructions in the fall of 2022.

3.0 PROJECT ALTERNATIVES

This chapter will discuss reasonable alternatives that have been developed throughout the process of this EA. FAA Order 5050.4B[3.1] requires that the Airport sponsor compare the no action, preferred action, and any other reasonable alternatives. It refers to this section of the EA as the "heart of the environmental document", and states that each alternative must be clear, concise, and provide the approving official a clear basis for differentiating between them. All alternatives must fulfill the Purpose and Need Statement. Additionally, each alternative must list and describe any expected environmental impacts, any statutory or regulatory requirements that would be applicable, and outline any necessary mitigations. Furthermore, when a considered alternative has been judged "not reasonable", the EA should concisely explain why the FAA or sponsor eliminated that alternative from further consideration. It should also contain guidance on any environmental consequences for the rejected alternative.

3.1 DESCRIPTION OF ALTERNATIVES

As described in Chapter 2, an obstruction analysis was completed in July 2020 to identity objects penetrating the approach surfaces for both Runway 1 and Runway 19. This included an airspace analysis of the 20:1 state approach surfaces, utilizing LIDAR and aerial photogrammetry, to aid in the identification of the obstructions.

Property research was also performed coinciding with the obstruction analysis to determine the owner of the parcels that contain the trees that are proposed to be removed. With the completion of the airspace analysis and property research, it has been determined that this obstruction clearing project will include:

Runway 1 End:

- Removal of 17 individual trees that are penetrating the 20:1 state approach surface.
- Removal of 8 individual trees that are within ten feet of penetrating the 20:1 state approach surface.

Runway 19 End:

- Removal of 4 individual trees that are penetrating the 20:1 state approach surface.
- Removal of 28 individual trees that are within ten feet of penetrating the 20:1 state approach surface (5 on private property[3.2])
- Right of Entry (ROE) Agreement, Clearing Easement, Land Acquisition, for approximately 5 individual trees to be cleared on private property

[3.1] FAA Order 5050.4B, *NEPA*, Section 706d
[3.2]Boundary survey is recommended to determine ownership of trees off Airport property in fence line

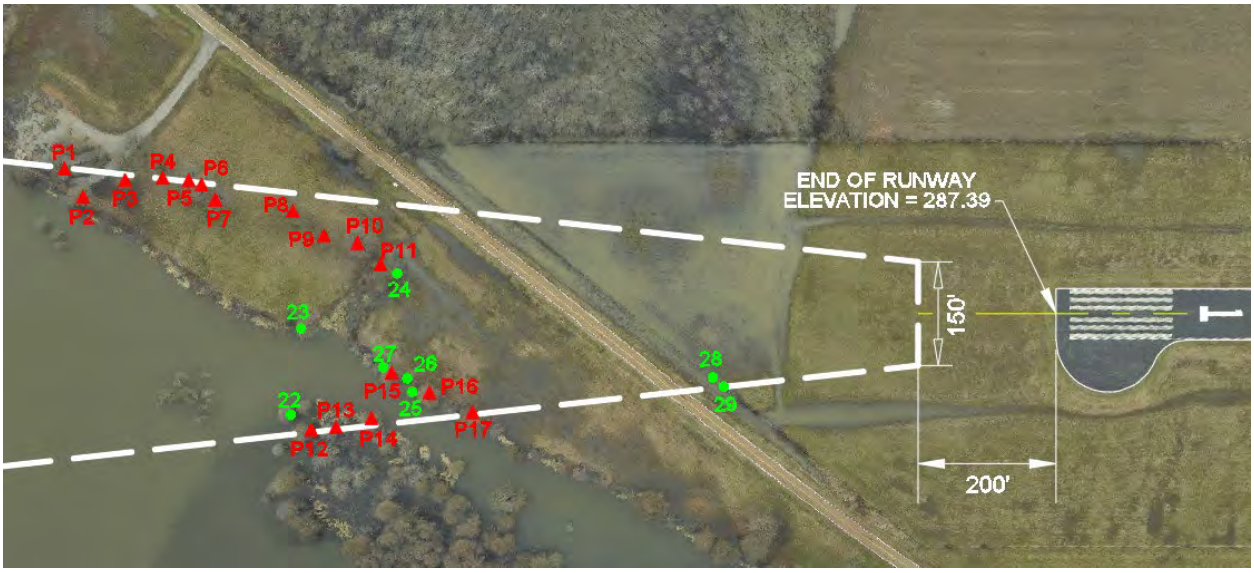


Figure 3.1 - Runway 1 End Project Area

Based on FAA regulations regarding removal/mitigation of safety hazards in approach surfaces, the alternatives considered for the proposed action would be limited to alternatives that physically remove all identified and potential obstructions from the proposed approach surface, or mitigate them by displacement of the runway threshold, or some combination of both. Additionally, the no action alternative should always be considered as a benchmark for any proposed action and has been included.

In total, the **No-Action** and four other alternatives were considered for this EA. These include the **Displace Runway Thresholds Alternative, Clear Existing and Future Obstructions Alternative, Clear Existing Obstructions Alternative,** and lastly **Tree Topping/Trimming Existing Obstructions Alternative**. A detailed analysis was performed for each of these and is discussed in the upcoming sections. A summary of the project alternatives can be found in Table 3.1 on the following pages.

Table 3.1 - Summary of Project Alternatives

	No Action	Displace Runway Thresholds	Clear Existing and Future Obstructions	Clear Existing Obstructions	Tree Topping/Trimming Existing Obstructions
Number of Impacted Parcels	------	------	3	2	2
Number of Impacted Parcels (private property)	------	------	1	------	------
Obstructions to be Removed (# of Individual Trees)	------	------	21	21	21
Potential Obstructions to be Removed (# of individual trees)	------	------	36	------	------
Disturbed area* (acres)	------	------	1.7	1.3	------
Obstructions to Remain (# of individual trees)	21	21	------	------	------

* Approximated based on preliminary analysis

Table 3.1 - Summary of Project Alternatives (cont.)

	No Action	Displace Runway Thresholds	Clear Existing and Future Obstructions	Clear Existing Obstructions	Tree Topping/Trimming Existing Obstructions
Potential Obstructions to Remain (# of individual trees)	36	36	------	36	36
Potential Wetland Impacts* (acres)	------	------	1.6	1.3	------
Potential Stream Impacts* (LF)	------	------	230	------	------
Runway Re-marking	------	Yes	No	No	No
Useable Runway Length	3,500 feet	2,590 feet	3,500 feet	3,500 feet	3,500 feet
Meets FAA Airspace Requirements	No	Yes**	Yes	Yes**	Yes**

* Approximated based on preliminary analysis

** May not meet Airspace requirements with 3-5 years of normal tree growth patterns

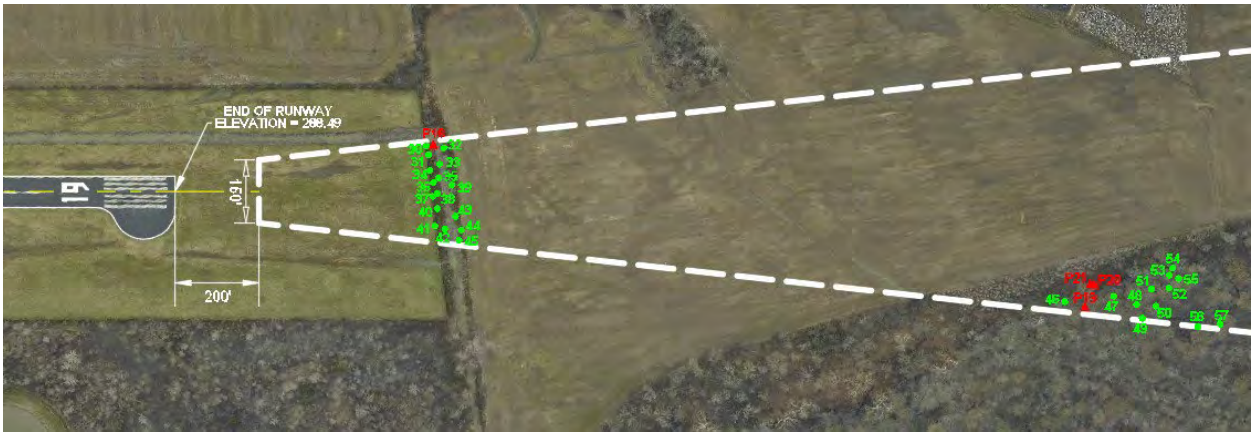


Figure 3.2 - Runway 19 End Project Area

3.2 ALTERNATIVES CONSIDERED

To remain compliant with regulations for preparing EAs, several alternatives were analyzed at the onset of this project. Guidelines established in FAA Order 1050.1F[3.3] were followed that state that the EA should include logical alternatives that would be considered by the approving agencies. The EA should describe the anticipated effects if "no action" is taken, as well as identify a preferred alternative and explain the reason why any alternatives were dismissed from further review. Alternatives that have been considered as a part of this process are described in detail in the following paragraphs.

3.2.1 No-Action Alternative

The **No-Action** alternative has been implemented into the NEPA process to serve as a baseline against which all proposed federal actions can be evaluated. In some cases, the no action alternative may cause less harm to the environment then the proposed action may benefit the greater good. Additionally, FAA Order 5050.4B[3.4] states that the alternative section of the EA should compare the no action with the proposed action and any other reasonable alternatives that have been discovered. For these reasons, the no action alternative should always be taken into consideration as a part of the environmental process.

The Reelfoot Airport consists of one runway, Runway 1-19, that is 3,500 feet in length and 75 feet in width. Currently, only visual approaches are available for aircraft operations on this runway. An airspace analysis identified several obstructions to the 20:1 state approach surfaces.

[3.3] FAA Order 1050.1F- *Environmental Impacts: Policies and Procedures,* Section 6-2.1d
[3.4] FAA Order 5050.4B, *NEPA*, Section 706.d

The No-Action alternative entails that nothing will be done to remove/mitigate the obstructions identified and aircraft operations will continue in an unsafe manner. It could also put the Airport at risk of losing its Public Airport License.

Additionally, since the TDOT Aeronautics Division generally will not provide funding towards revenue building and/or development construction projects at an airport until actions that seek to fix safety issues have been fulfilled prior, the adoption of this alternative will have significant ramifications for the future of the Reelfoot Lake Airport. Not only would this alternative allow for the continuation of unsafe use of the runway, but it could also set in motion the closure of the facility altogether.

While the "No-Action" alternative would have no impact on the environment, it does not satisfy the objectives that were identified in the purpose and need statement.

3.2.2 Alternative 1a and Alternative 1b - Displace Runway Thresholds

Alternative 1a and Alternative 1b, **Displace Runway Thresholds**, consider the displacement of both the Runway 1 end and the Runway 19 end. As a part of Alternatives 1a and 1b, the runway would be marked accordingly with displaced threshold markings that would eliminate the use of a determined amount of the pavement currently available at the Reelfoot Airport. However, these displaced thresholds would mitigate all the existing obstructions to the approaches. Alternatives 1a and 1b have been identified as, Displacing Runway 1 by 450 feet to clear the 20:1 and Displacing Runway 19 by 460 feet in order to clear the 20:1. Details of these alternatives are described in the following paragraphs.

3.2.2.1 Alternative 1a - Displacing Runway 1 Threshold 450 feet

This alternative would involve the displacement of the existing Runway 1 threshold 450 feet, resulting in the necessity to impose declared distances. The new runway length available for approaches would become 3,050 feet. This alternative would eliminate all the identified obstructions without creating any impacts to the natural environment. Additionally, it would not impact adjacent property owners and would allow the Airport the ability to maintain their public airport license without the cost of a clearing project, possible easement, or ROE agreement. Also, the time for design and construction of a runway re-marking project to implement a displaced threshold could be completed within the same year as the approval of this EA document.

While this alternative would have a lower upfront cost, from both an economical and environmental viewpoint, it would only be a short-term solution as the trees will continue to grow and either a future obstruction removal project or a longer displacement would be required. At a standard rate of growth of three feet per year for the average tree, the runway could require further displacement and/or obstruction removal in as little as three years.

Furthermore, the approval of this alternative would impact the existing runway length available for approaches on the Runway 1 end. To start the Runway 1 end would be displaced 450 feet and the usable pavement for approaches on that end would then be reduced to 3,050 feet. A reduced runway length of

3,050 feet (or landing distance available (LDA)) is right at the threshold recorded for small aircraft and going forward could require further displacement with the trees being left to grow. Therefore, this could limit the type of aircraft that could safely utilize Runway 1 for landing. Additionally, certain pavement conditions could severely impact a safe landing.

In summary:

With approval granted to impose declared distances, displacing the Runway 1 end 450 feet would eliminate all existing and potential obstructions on that runway end. As such, this alternative does meet the purpose and need statement discussed in the previous section. However, displacing the threshold would severely impact runway length available for approaches on the Runway 1 end and the identified obstructions would continue to grow causing future obstruction removal and/or displacement projects.

3.2.2.2 Displacing Runway 19 Threshold 460 feet

This alternative would involve the displacement of the existing Runway 19 threshold 460 feet, resulting in the necessity to impose declared distances. The new runway length available for approaches would become 3,040 feet for this alternative. Like the alternative described in 3.2.2.1, displacing Runway 19 would eliminate all the identified obstructions without creating any impacts to the natural environment. Additionally, this alternative would not impact the adjacent private property owner and would allow the Airport to maintain their public airport license without the cost of ROE agreements or avigation easements. It would also carry the same benefits as described above, a low upfront cost and the runway marking project could be completed concurrently with the approval of the EA document.

However, as described above in Alternative 1a, a runway displacement of 460 feet would only be a short-term solution and the establishment of declared distances impacts the existing runway length available for approaches on the Runway 19 end, which would limit the type of aircraft that could safely utilize Runway 19 for landing. Also, the need for further displacement of the runway threshold and/or future clearing project may be necessary in as little as three years as the obstructions would remain and continue to grow.

In summary:

Displacing the Runway 19 end 460 feet would eliminate all obstructions that were identified during the obstruction analysis to that runway end. Therefore, this alternative does meet the purpose and need statement discussed in the previous section. However, displacing the threshold would severely impact runway length available for approaches on the Runway 19 end.

Note: Alternative 1a and Alternative 1b could be implemented together or be selected in tandem with other alternatives. An example would be to displace the threshold for one runway end where tree removal would be more invasive and complete an obstruction removal project at the other runway end. However, in order to maintain public airport license both runway ends must be cleared.

3.2.3 Alternative 2 - Clear Existing and Future Obstructions

This alternative, **Clear Existing and Future Obstructions**, will involve tree removal in three different areas, two areas north of the Runway 19 end and one area south of the Runway 1 end.

Off the Runway 1 end, it will include removal of 17 individual trees that have been identified as penetrating the 20:1 approach surface. Eight additional trees were also identified during the aerial survey that are within 10 feet of penetrating the approach surface. It is anticipated that with normal growth patterns these trees



Figure 3.3 - Tree Removal Areas

will also penetrate the 20:1 approach surface within 3-5 years. As a part of this alternative these trees will also be removed.

On the Runway 19 end, this alternative will include removal of four individual trees that have been identified as penetrating the 20:1 approach surface and 28 individual trees that were identified as within 10 feet of penetrating the approach surface.



Figure 3.4 - Tree Removal Area One

Tree Removal Area One is located approximately 600 feet from the Runway 19 end in a fence line that separates Airport property from private property and will impact two parcels. (Airport property- State owned and Margaret Donnell property). This area can be accessed via Phillippy Road and Airport property. The tree removal in this area consists of 17 individual trees that will be removed by felling trees at ground level, removing all woody debris off site, grubbing out the stumps to below ground surface, re-grading the ground surface with topsoil and seeding/mulching the disturbed areas.

Tree Removal Area Two is located further northeast of the Runway 19 end approximately 2,200 feet and will impact one parcel that is owned by the State of Tennessee. This area can be accessed via Airport Road and Fraley Lane. Tree removal will include 15 individual trees that will be removed by felling the trees approximately six inches above the ground and leaving the stump in place. Woody debris will also remain in place.

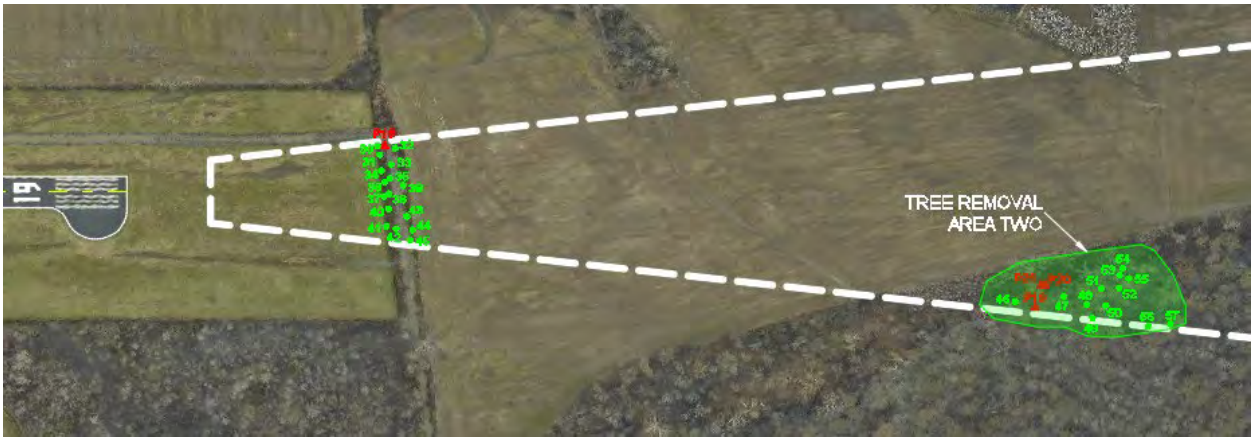


Figure 3.5 - Tree Removal Area Two

Tree Removal Area Three is located south of the Airport approximately 1,000 feet from the Runway 1 end and will impact one parcel that is owned by the State of Tennessee. This area can be accessed via Phillippy Road south of the Airport. Tree removal here will include 23 individual trees that will be removed by felling the trees approximately six inches above the ground and leaving the stump in place. Woody debris will also remain in place. 2 individual trees that are located in the fence line nearer the runway end will be removed by cutting them to ground level, removing all woody debris off site, grubbing out the stumps to below ground surface, re-grading the ground surface with topsoil, and seeding/mulching the disturbed areas.

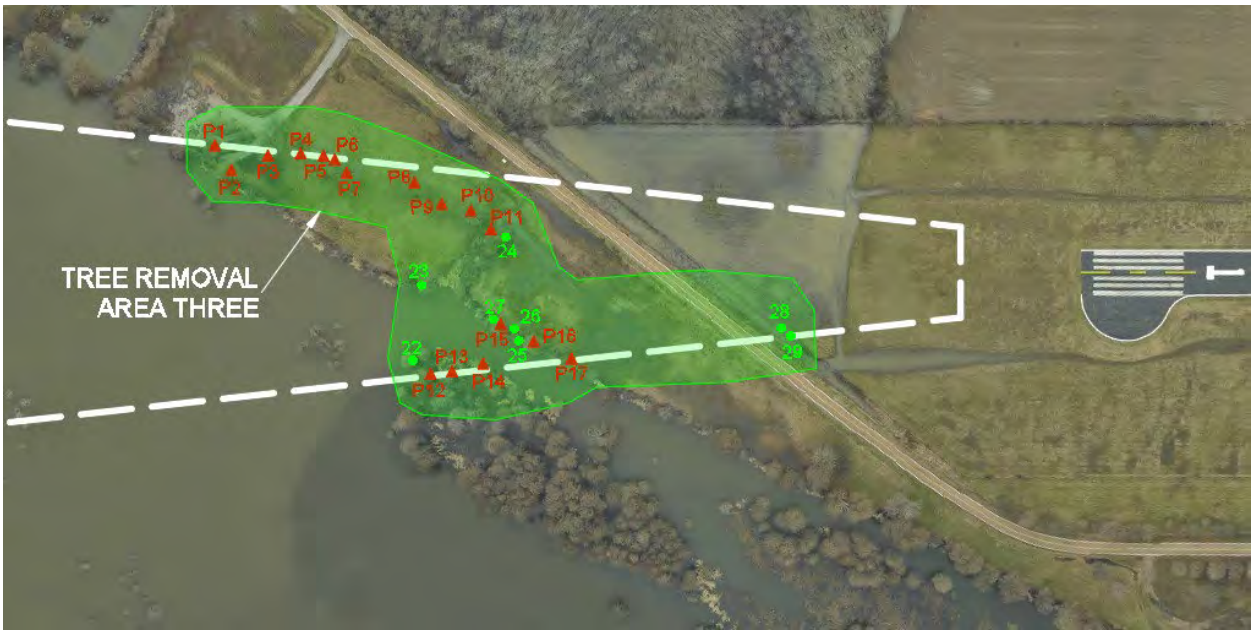


Figure 3.6 - Tree Removal Area Three

In total, this alternative will eliminate the 21 individual trees that were identified as obstructing the approach surfaces, as well as the 36 individual trees that will likely obstruct the approach surfaces with normal growth. Since this alternative will impact privately owned property, some form of agreement (ROE contract, avigation easement, land acquisition) will need to be established with the property owner prior to removal.

Table 3.2 - Impacted Parcels

Parcel Owner	Parcel ID	Parcel Acreage*	Impacted Acreage**	Obstruction	Proposed Mitigation
State of Tennessee	014 003.00	244.8	1.30	Tree(s) (39 approx.)	Clear individual trees
Margaret Donnell and Anne Jonas	005 011.00	154.0	.10	Tree(s) (5 approx.)	Clear individual trees
State of Tennessee	041 001.00	12,100.0	.27	Tree(s) (15 approx.)	Clear individual trees

*Approximated – Obtained from Tennessee Property Viewer online database
**Approximated – Based on measurements using CAD software

3.2.3.1 State of Tennessee Parcel (Parcel ID 014 003.00)

This parcel has been identified on the Tennessee Property Viewer (online database) as Parcel ID 014 003.00 and is owned by the State of Tennessee. It is located in a rural area northeast of Tiptonville on State Route 213 and is adjacent to Reelfoot Lake and the Reelfoot National Wildlife Refuge. Most of the property has been developed for airport use and is comprised of maintained grasslands, herbaceous lands, wetland areas, lake, and some forested uplands. Two separate areas on the parcel have been identified for tree clearing. One of which is located along the northern boundary of the parcel in a fence line. The other area is located near the southern boundary of the parcel and south of Phillipy Road and in a swampy, wetlands area containing large trees. The type of wetlands here consists of deepwater habitat and is a part of the Upper Blue Basin.

The size of the tree removal in this area is estimated to be 1.30 acres and contains 39 trees.

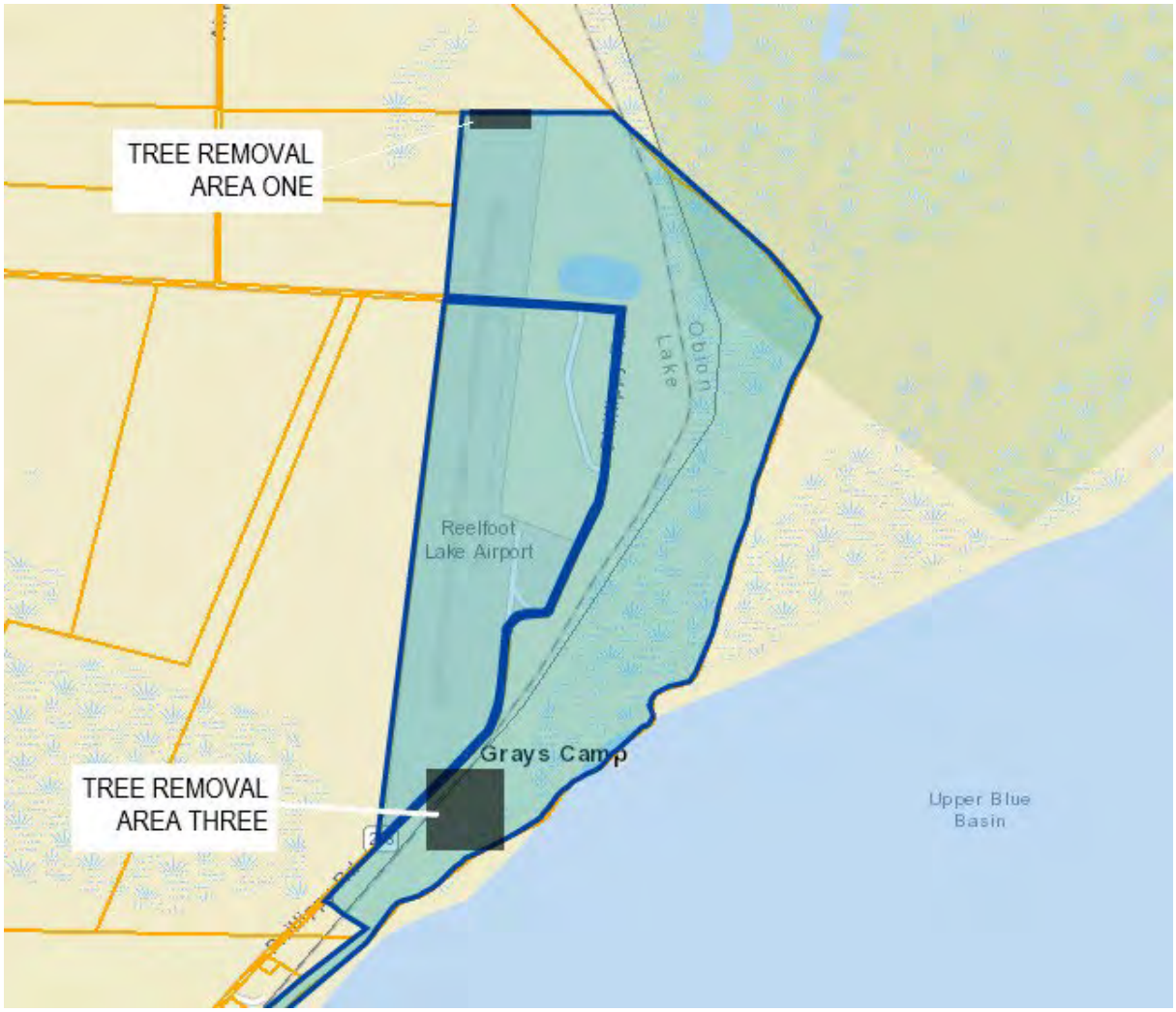


Figure 3.7 - Parcel 014 003.00

3.2.3.2 Margaret Donnell and Anne Jonas Parcel (Parcel ID 005 011.00)

This parcel has been identified on the Tennessee Property Viewer (online database) as Parcel ID 005 011.00 and is owned by Margaret Donnell and Anne Jonas. It is located north and west of Airport property and the Runway 19 end. The property can be accessed by taking Airport Road to Pigeon Roost Road and Fraley Lane. It is identified as containing 154 acres that is predominantly being used for agricultural activities. A small portion of the parcel along the southern boundary contains forested areas and is the area that has been identified for tree clearing. Tree removal on this parcel was estimated to include approximately 5 individual trees of which are located on a boundary fence at the edge of the property. It is anticipated that discussions with the property owner will begin during the public review period and a ROE contract or easement will be obtained prior to the removal project. All contact/discussions/coordination with the property owner will be included in Appendix E. This section will be updated as coordination takes place.

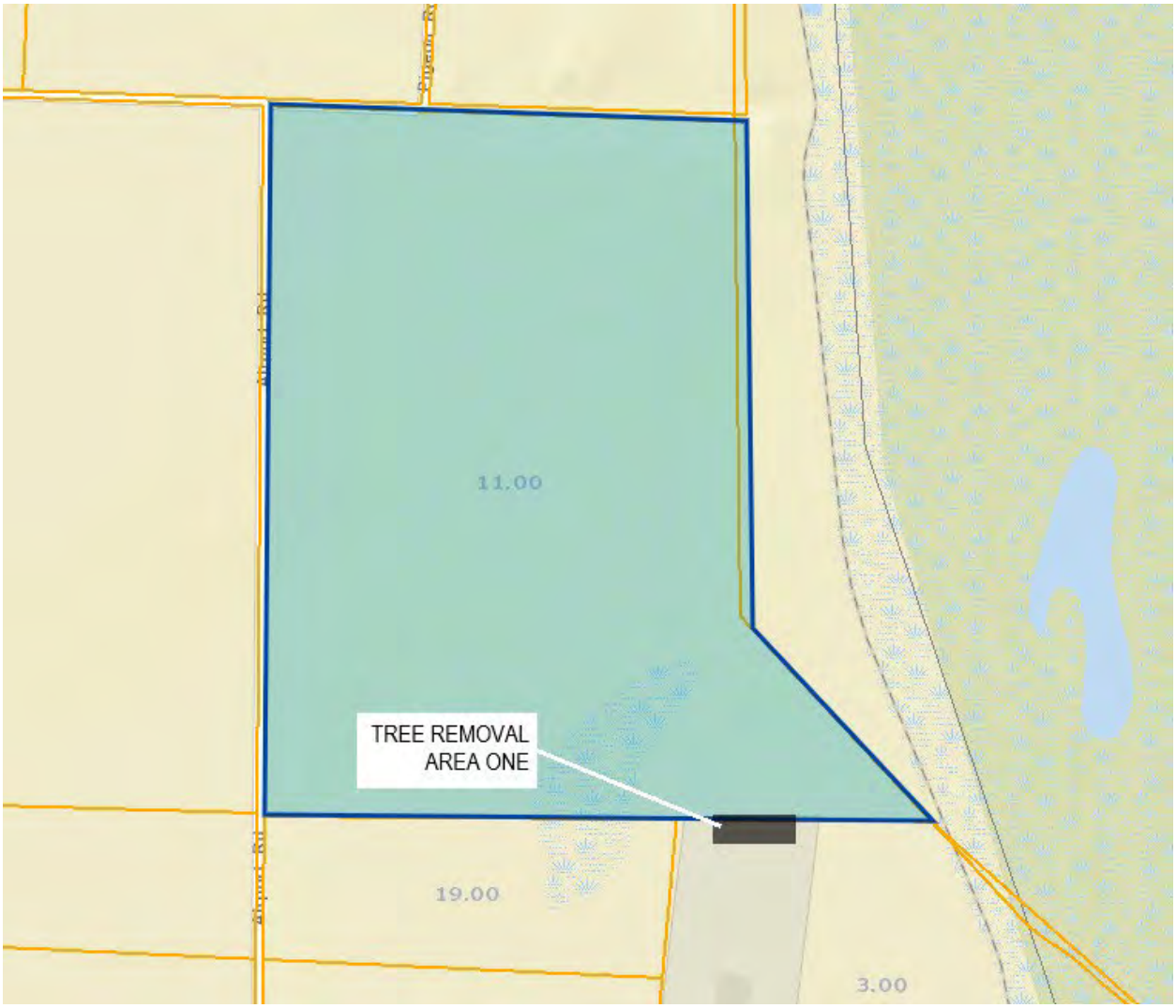


Figure 3.8 - Parcel 005 011.00

3.2.3.3 State of Tennessee Parcel (Parcel ID 041 001.00)

This parcel has been identified on the Tennessee Property Viewer (online database) as Parcel ID 041 001.00 and is owned by the State of Tennessee. This property includes land that is part of the Reelfoot Lake State Park and Reelfoot National Wildlife Refuge and is not maintained or developed. Features of the property include swampy and forested wetlands, lakes, herbaceous lands and forested areas. The property is located adjacent to Airport property and the portion where tree removal has been proposed is located northeast of the Runway 19 end and. This area is comprised of forested wetlands and is estimated to be approximately .27 acres in size and contain 15 trees.

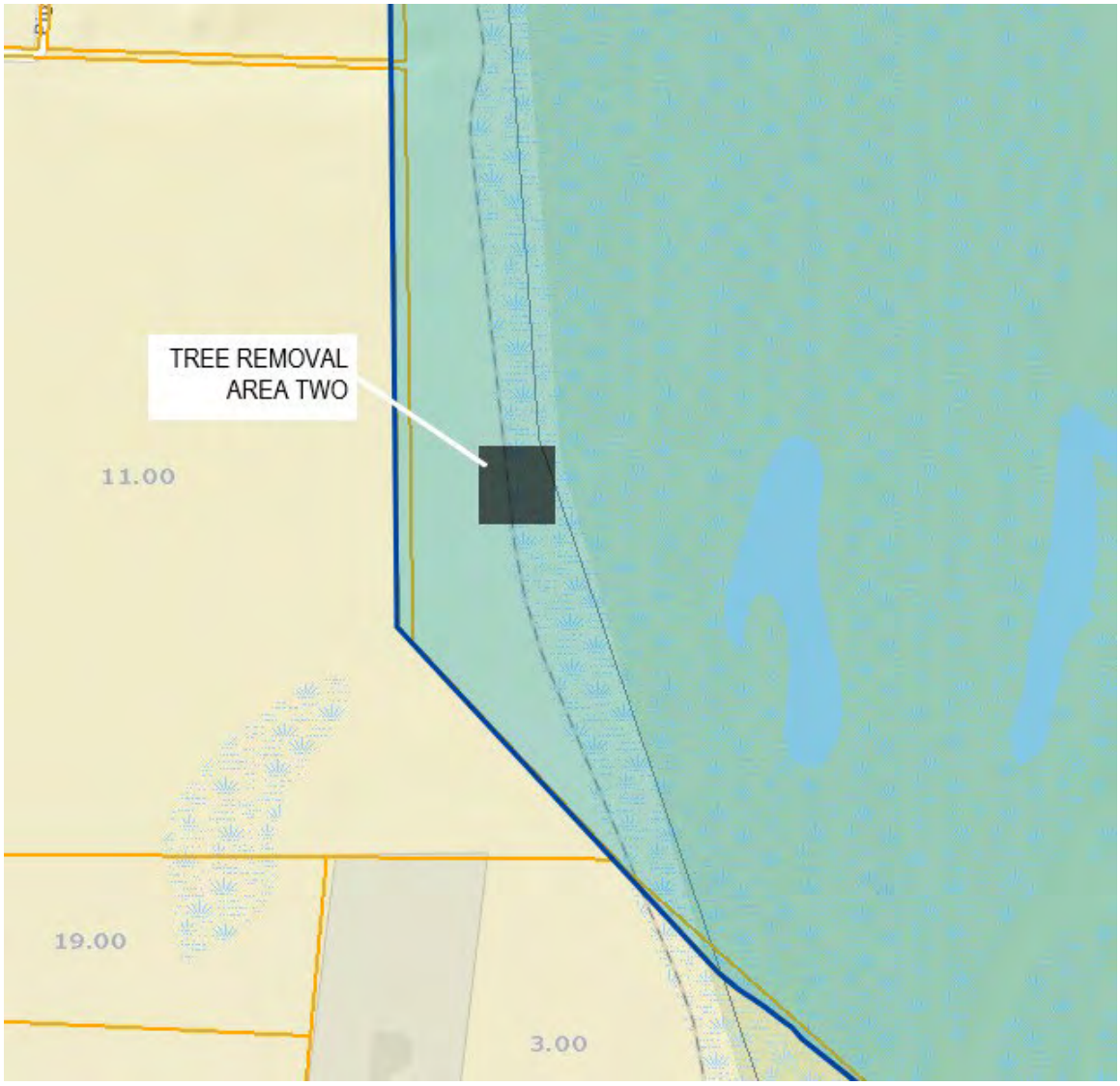


Figure 3.9 - Parcel 041 001.00

In summary, the **Clear Existing and Future Obstructions** alternative eliminates the 21 identified tree obstructions from the 20:1 approach surface. As a part of the obstruction removal project, 36 additional trees will be cleared, that with normal growth patterns, are likely to obstruct the surface within 3-5 years of the completion of the obstruction removal project.

By removing all identified obstructions to the approach surface, the Airport sponsor will then be able to maintain their Public Use License. Additionally, clearing all identified obstructions will allow the Airport sponsor to maintain their current runway length and not facilitate the necessity to displace the runway thresholds going forward. Clearing the additional 36 trees, that are within ten

feet of obstructing the approach surface, will eliminate the need for successive obstruction removal projects. Overall, this will be less impactful to environmental resources identified within the project area, as well as be financially beneficial for the Airport sponsor.

As such, this alternative meets the purpose and need statement discussed in the previous section and satisfies FAA requirements pertaining to obstruction removal, while also minimizing environmental impacts.

3.2.4 Alternative 3 - Clear Existing Obstructions

This alternative, **Clear Existing Obstructions**, will include removal of 21 individual trees that have been identified as penetrating the Runway 1 and 19 approach surfaces. Similarly, to Alternative 2, the **Clear Existing Obstructions** alternative will include obstruction removal in all three of the identified tree removal areas and impact two of the parcels listed in Table 3.2. The impacts to each, as a part of this alternative, are described below:

Tree Removal Area One:

Tree removal in this area will consist of one tree, located on airport property, that will be removed by cutting it at ground level, removing all woody debris, grubbing out the stump to below the ground surface, re-grading the ground surface with topsoil and seeding/mulching the disturbed area. This tree removal will take place on Parcel ID 014 003.00.

Tree Removal Area Two:

Tree removal in this area will include 3 individual trees that will be removed by felling the trees approximately six inches above the ground and leaving the stump in place. Woody debris will also remain in place. This tree removal will take place on Parcel ID 041 001.00 owned by the State of Tennessee.

Tree Removal Area Three:

Tree removal here will include 17 individual trees that will be removed by felling the trees approximately six inches above the ground and leaving the stump in place. Woody debris will also remain in place. This tree removal will take place on Parcel ID 014 003.00 owned by the State of Tennessee.

In summary, the Clear Existing Obstructions alternative will eliminate all identified obstructions from the Runway 1 approach surface and Runway 19 approach surface. This alternative will not include clearing the 36 additional trees that were identified as within ten feet of penetrating the state approach surfaces. While this alternative, at implementation, can ensure the Airport sponsor will have unobstructed approach surfaces, it may require the need for additional clearing projects and/or initiating displaced thresholds to maintain the Airport's Public Use License.

This alternative does meet the purpose and need statement discussed in the previous section and satisfies FAA requirements pertaining to obstruction removal, while also minimizing environmental impacts and therefore was carried forward for further analysis.

3.2.5 Alternative 4 - Tree Topping/ Trimming Existing Obstructions

This alternative, **Tree Topping/ Trimming Existing Obstructions**, will include crown reduction of the 21 individual trees that have been identified as penetrating the state approach surface. This alternative will impact the three parcels listed in Table 3.2 and will include reducing the heights of the identified trees.

In summary, this alternative will eliminate all identified obstructions from the Runway 1 and Runway 19 approach surfaces. However, all trees will remain and over time will grow to heights that penetrates the airspace. Therefore, while this alternative at implementation can ensure the Airport sponsor will have unobstructed approaches, going forward it may require the need for additional clearing projects and/or initiating displaced thresholds to maintain the new approaches.

Since this alternative does meet the purpose and need statement discussed in the previous section and satisfies FAA requirements pertaining to obstruction removal, while also minimizing environmental impacts it was carried forward for further analysis.

3.3 SUMMARY OF ALTERNATIVES UNDER ACTIVE CONSIDERATION

After preliminary analysis, all four options were under active consideration. The No-Action alternative, while it does not meet the stated purpose and need, must be carried forward throughout the process of the EA. NEPA requires that the No-Action alternative serve as a baseline for all other alternatives. Alternatives 1 through 4 were found to meet the purpose and need statement and were considered for further analysis. A summary table of the analysis of all four options can be found in Table 3.3 below.

Table 3.3 - Comparison of Alternatives Under Active Consideration

	No Action	Displace Runway Thresholds	Clear Existing and Future Obstructions	Clear Existing Obstructions	Tree Topping/Trimming Existing Obstructions
Preliminary NEPA Environmental Requirements	None	None	Wetland Delineation, Hydrologic Determination	Wetland Delineation, Hydrologic Determination	Wetland Delineation, Hydrologic Determination
Ground Survey Required	No	No	Yes	Yes	Yes

	No Action	Displace Runway Thresholds	Clear Existing and Future Obstructions	Clear Existing Obstructions	Tree Topping/Trimming Existing Obstructions
Runway Displacement	No	Yes	No	No	No
Construction Impacts	None	Runway Markings, Runway Lighting	Tree Removal, Ground Disturbance	Tree Removal, Ground Disturbance	Ground Disturbance (short-term)
Meets Purpose and Need	No	Yes	Yes	Yes	Yes

3.4 PREFERRED ALTERNATIVE

After review of all alternatives that were considered, the preferred alternative is **Alternative 2 – Clear Existing and Future Obstructions,** as it removes all identified obstructions and all the potential obstructions to both the Runway 1 and Runway 19 approach surfaces. This alternative fulfills the purpose and need statement outlined in Chapter 2 and is the only option that doesn't result in displacement of the runway and/or successive obstruction removal projects.

For the reasons listed below these alternatives were removed after further consideration:

Alternative 1a and Alternative 1b - Displace Runway Thresholds

Initially, this alternative appeared to be the better option since it would have no impact on the environment and economically it would carry the lowest initial cost. However, it was determined that this alternative could be detrimental for long-term development at the Airport, as the displaced thresholds would severely limit the amount of useable runway pavement for approaches. Additionally, this alternative could require the runway to be further displaced, since it leaves current and potential obstructions within the approaches that will continue to grow. Taking this into consideration, Alternative 1a and 1b has the potential to negatively impact the way the Airport is developed and may not meet requirements for the Airport to maintain its Public Use License going forward.

Alternative 3 – Clear Existing Obstructions

While this alternative will clear all 21 identified obstructions and allow the Airport to maintain their Public Use License, it would leave 36 potential obstructions. These potential obstructions were identified during an aerial survey that took place in July 2020 and with the tree removal project tentatively scheduled for fall of 2022 some or all of these could have grown to a height that penetrates the 20:1 approach surfaces at the time of obstruction removal. Taking this into consideration, this alternative would not meet the Public Use License requirements going forward and would likely require successive clearing projects.

Alternative 4 – Tree Topping/Trimming Existing Obstructions

This alternative was removed for similar reasons to Alternative 3, as it would involve the need for successive obstruction removal projects, runway threshold displacements, or combination of both, going forward. Therefore, it was removed after further consideration.

The project boundaries will be analyzed in Chapter 4 – Affected Environment to identify potentially impacted environmental resources, and the preferred alternative will be analyzed in detail in Chapter 5 – Environmental Consequences. As stated above, the No-Action alternative, must be carried forward throughout the process of the EA, since NEPA requires that the No-Action alternative serve as the baseline for all alternatives. Therefore, the No-Action Alternative will be used in Chapter 5 for comparison purposes.

4.0 AFFECTED ENVIRONMENT

Guidance established in FAA Order 5050.4B[4.1] requires that existing environmental conditions within the project area be documented. This helps to establish a baseline condition to evaluate the impacts that the preferred alternative (and the no-action) will have on the environment. Therefore, at the onset of this EA, the natural and physical characteristics of the proposed project area, along with the airport and surrounding vicinity, were analyzed. Data utilized during the analysis included online maps, aerial photos, community information, as well as preliminary scoping with federal, state, and local agencies. Based on this analysis, potential environmental resources that could be impacted as a result of this proposed action have been identified and will be discussed in this chapter.

4.1 PROJECT AREA/BOUNDARIES

The Reelfoot Lake Airport (0M2) is located nine miles northeast of the City of Tiptonville, Tennessee and is situated at an elevation of 289 feet ASL. Located within Lake County, Airport property is bordered in the north and west by agricultural property and to the east and south by forested lowland areas/swamps, wetlands and the Reelfoot Lake State Park and the Reelfoot National Wildlife Refuge. The project area includes land on Airport property, as well as adjacent property. More specifically tree removal will occur in three different areas: the most southern portion of the project area, on the Airport northern boundary and in the northeast corner of the project area. Figure 4.1 depicts an aerial photo of the proposed project area.

The project area is situated within the Mississippi Alluvial Plain physiographic region of Tennessee, which is the largest land region in the state, in terms of area. This area is sometimes referred to as the Delta Region and its elevation is less than 300 feet ASL. The predominant landscape includes lowlands, flood plains and swamps.

The proposed action will call for tree clearing activities to occur on Airport property (state owned) and two adjacent parcels, one that is privately owned and another that is owned by the State of Tennessee. In total, three different parcels will be impacted by proposed obstruction removal activities. The impacted parcels can be characterized as rural land that is comprised of agricultural fields, forested, swampy lowlands, wetlands, herbaceous lands.

[4.1] FAA Order 5050.4B, *NEPA*, Section 706e



Figure 4.1 – Aerial Imagery of Project Boundaries

4.2 CLEARING AGREEMENTS

Since the preferred alternative will involve removing obstructions both on and off airport property, some form of agreement must be reached with the impacted property owner prior to off-airport obstruction removal. It is the intent of the Airport Sponsor (TDOT Aeronautics Division) to obtain ROE either through a formal agreement or some form of a clearing/avigation easement/acquisition. This will be finalized prior to the construction phase of the obstruction removal project. Discussions with the property owner will likely occur during the public involvement period of this EA.

4.3 LAND USES WITHIN PROJECT AREA

Land uses within the project boundaries include airport use, land for agricultural purposes, and unmaintained, undeveloped land intended for both recreational use, and for the benefit of the existing wildlife and vegetative communities. The tree clearing will occur in three different areas: the northern end of Airport property, located adjacent to the boundary fence; south of Airport property on state-owned property and within a wetland area; and north of Airport property, also on state-owned property and within a forested wetland area. The obstruction removal project is not expected to interfere with any of the impacted parcels' current land uses. In fact, it would enhance one primary land use objective, specifically airport operations by providing safer landing and departure conditions for pilots utilizing the Airport.

4.4 SUSPECTED ENVIRONMENTAL IMPACTS

The FAA 1050.1F, *Desk Reference* provides explanation for how to perform an environmental impact analysis. Environmental categories that are analyzed include historic resources, biological resources, wetlands, floodplains, agricultural resources, community outlook, and others. Since the FAA requires compliance with NEPA, an environmental impacts analysis must be completed as a part of the EA process.

Therefore, at the onset of this EA, preliminary correspondence was submitted to regulating federal, state and local agencies to solicit comments on potential environmental impacts. Additionally, site visits and online resources were important to help determine if any natural and special environmental resources existed within the project area. The following paragraphs discuss the findings of this preliminary environmental review. Information received supplemented the review of environmental data obtained from online resources and field surveys. Table 4.1, on the following page, provides a list of agencies that were sent scoping letters and summarizes comments received. Appendix B contains the scoping letters submitted and the agency responses.

4.4.1 Biological Resources

Biological resources are described in FAA 1050.1F, *Desk Reference* as being valued for their intrinsic, aesthetic, economic, and recreational qualities. Categories of biological resources typically include terrestrial and aquatic plant and animal species, special status species (state, or federally-listed threatened or endangered species, species of concern, migratory birds, or marine mammals), game and non-game species, and any environmentally sensitive critical habitats.[4.2] Since the proposed action includes tree removal, the project could potentially involve the clearing of critical habitat or habitat that is being utilized by any of the biological resources listed above.

[4.2] FAA 1050.1F *Desk Reference*, Chapter 2, Biological Resources

Preliminary Scoping Agency List	Agency Response
Lake County Planning Office	No comments received
Natural Resources Conservation Service	This project is not subject to Farmland Protection Policy Act since no federal funding will be utilized.
Reelfoot National Wildlife Refuge	The Refuge had no concerns regarding the tree removal itself but wanted to be informed of the type of permission obtained to remove the trees on Refuge lands.
Tennessee Department of Economic and Business Development	No comments received.
Tennessee Department of Health and Environment	No comments received.
Tennessee Division of Air Quality	Lake County is in Attainment for all Air Quality Standards. The proposed project is not expected to adversely impact local air quality provided adequate measures are employed to control fugitive dust emissions and waste is properly disposed.
Tennessee Division of Solid Waste Management	No evidence of any significant solid or hazard waste related issues within the site locations specified.
Tennessee Division of Water Resources	The project will require a Construction Stormwater Permit (CGP) and an Aquatic Resources Alteration Permit (ARAP). Depending on the amount of wetlands disturbed, further mitigation may be required.
Tennessee Historical Commission	It is our opinion that there are no National Register of Historic Places listed or eligible properties that would be affected by this undertaking.

Table 4.1 - Preliminary Scoping / Agency Coordination

Preliminary Scoping Agency List	Agency Response
Tennessee Wildlife Resources Agency	No objections or concerns regarding the proposed project.
United States Army Corps of Engineers	Tree cutting is not a regulated activity. Provided that the project does not involve the discharge of dredged or fill material into waters of the US, no permit would be required under Section 404 of the Clean Water Act.
United States Environmental Protection Agency, Region 4	No comments received
United States Fish and Wildlife Service	No adverse effects anticipated as a result of the proposed action. National Wetlands Inventory Maps indicate that wetlands are present. If wetlands impacts would occur, TDOT should coordinate with the US Army Corps of Engineers, Memphis District, Regulatory Branch

Table 4.1 - Preliminary Scoping / Agency Coordination (cont.)

Therefore, this section discusses the existing vegetation, and any federal or state-listed threatened or endangered species, species of special concern and migratory birds that are assumed to occur or have the potential to occur within the project boundaries.

4.4.1.1 Existing Vegetation

The following vegetative communities were identified during a field survey and are listed in the Hydrologic Determination Report[4.3] completed in June, 2021.

- Maintained Herbaceous Land
- Forested Land
- Agricultural Fields
- Palustrine Forested Wetlands
- Lacustrine Wetlands

[4.3] Hydrologic Determination Report, Appendix C

4.4.1.2 Wildlife

Resources that were utilized to identify wildlife species of concern included:

- Information for Planning and Consultation (IPAC) Database[4.4]
- USFWS Environmental Conservation Online System[4.5]
- TDEC Division of Heritage Rare Species Database[4.6]

After review, wildlife species of concern that may occur within the project boundaries or that have the potential to occur included the federally listed Indiana bat (endangered), Northern Long-eared Bat (threatened) and the state-listed Palid Sturgeon (endangered), Interior Least Tern (endangered), Blue Mud Plantain (threatened), Bristly Sedge (threatened), Yellow Water Crowfoot (threatened), and the Copper Iris (threatened).

Certain species of birds that are protected under the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act included the American Golden-plover, Bald Eagle, Kentucky Warbler, Le Conte's Sparrow, Lesser Yellowlegs, Prothonotary Warbler, Red-headed Woodpecker, Rusty Blackbird, Semipalmated Sandpiper, and the Wood Thrush. If tree removal activities cannot be scheduled outside of the identified breeding season of these protected species, then further assessment may be necessary.

A preliminary scoping letter discussing the project and its potential impacts to biological resources was submitted to the TWRA and the USFWS (see Appendix B).

The TWRA responded to the initial scoping letter after their review that they have no objections or concerns regarding the proposed project.

The USFWS stated that, "Upon review of our database, we would not anticipate adverse effects to any federally listed or proposed species as a result of clearing activities." However, additional information was requested from USFWS since it had been stated in preliminary coordination that the construction phase could be scheduled around the breeding season of the ten species of migratory birds. It is now anticipated that the construction phase would occur in the fall of 2022, during the breeding season for the Bald Eagle. After consideration of the updated construction timeline, the USFWS confirmed that, "Since last coordinated with our office on December 9, 2020, the timeframe for tree removal has been determined as likely to occur between late September and early November. The purpose of this re-coordination is to ensure that our comments and project clearance provided on January 5, 2021, are still valid. Upon review of our database and the information provided, our January 5, 2021, response remains valid. We have no additional concerns or comments at this time." (See Appendix B for email dated Jan 5, 2022 from Mr. John Griffith to Beck Hobneck)

[4.4] https://ecos.fws.gov/ipac/
[4.5] https://ecos.fws.gov/ecp/
[4.6] https://dataviewers.tdec.tn.gov

4.4.1.3 Summary

After preliminary review it is not anticipated that the proposed obstruction removal activities will impact any federal, state listed species or their habitat. However, depending on the proposed schedule of tree removal activities, the proposed project could impact migratory birds. Due to this, further assessment (habitat study) and/or mitigation may be necessary. Environmental Consequences related to this impact category as a result of the preferred alternative (and the no-action) will be assessed further in Chapter 5.

4.4.2 Water Resources

As described in Chapter 14 of the Desk Reference, water resources are important in providing drinking water and in support of recreation, agricultural, transportation, commerce, aquatic ecosystems, and industry. As a part of NEPA, water resources analyzed include wetlands, surface water, floodplains, ground water, and wild and scenic rivers.

4.4.2.1 Wetlands

Wetlands typically include swamps, marshes and bogs, but can be any area that is generally saturated/inundated with water at a frequency and/or duration that allows for support of vegetation of a type that are adapted for life in saturated soil conditions. In Tennessee, wetlands are protected both by federal and state regulations. Depending on the impact, permits obtained from the State may also fulfill federal regulations.

Due to the topography of the project area, it was anticipated that wetlands would likely be present within the proposed tree removal areas. Therefore, a preliminary review was conducted of the USFWS online mapper.[4.7]

It was determined that several acres of previously delineated wetlands were located within the project boundaries. The different types of wetlands identified included:

- Palustrine, Forested, Broad-Leaved Deciduous, Temporary-Flooded
- Lacustrine, Littoral, Unconsolidated Bottom, Permanently-Flooded
- Palustrine, Unconsolidated Bottom, Permanently-Flooded
- Riverine, Intermittent, Streambed, Seasonally-Flooded
- Palustrine, Forested, Deciduous, Semipermanently-Flooded

[4.7] www.fws.gov/wetlands/

A preliminary scoping letter was submitted to the United States Army Corps of Engineers (USACE), the USFWS, and the Tennessee Department of Environment and Conservation (TDEC) - Division of Water Resources (DWR) with request for review and comment. The following paragraphs summarize comments received from these agencies.The USFWS stated in their response that, “The National Wetlands Inventory maps provided indicate that wetlands are present within the runway clear zones. If wetlands impacts would occur, TDOT should coordinate with the U.S. Army Corps of Engineers, Memphis District, Regulatory Branch to address concerns.” (see Appendix B)

The USACE stated that, “Tree cutting is not a regulated activity. Provided that the project does not entail the discharge of dredged or fill material into waters of the United States, no permit would be required from the Corps of Engineers under Section 404 of the Clean Water Act. However, if design plans do change resulting in a discharge of fill material (including fills associated with temporary access) a permit may be required.” (see Appendix B)

Lastly, TDEC DWR reviewed the proposed obstruction removal project and stated that, “From the submittal, it appears the project will disturb more than one acre of land, which will include clearing, grading, or other similar activities, as well as staging areas. This project will require a Construction Stormwater General Permit (CGP) based on the disturbance of more than one acre. Some of the trees identified are in a wetlands adjacent to Reelfoot Lake. This project will require a Hydrologic Determination (HD) to assess the potential impacts on water resources/ wetlands during this project. All of the cut zones should be ground-truthed to make sure there aren’t any more wetlands or streams. From the information submitted and the wetlands identified in our GIS coverage, an Aquatic Resources Alteration Permit (ARAP) will be required. Depending on the amount of wetlands disturbed, mitigation may be required.” (See Appendix B)

Therefore, further coordination will be necessary regarding wetlands, as well as completion of the HD and obtaining the listed permits. Environmental consequences to wetlands as a result of the preferred alternative (and the no-action) will be discussed in Chapter 5 of this document, along with the results of the HD and any potential mitigation measures.

4.4.2.2 Surface Water

According to the Desk Reference, surface waters can include streams, rivers, lakes, estuaries, ponds, and oceans.[4.8] During preliminary analysis, one stream channel was identified along the northern boundary of Airport property and the Upper Blue Basin of Reelfoot Lake is located in the southern limits of the project boundaries. These water resources were further analyzed during completion of the HD and will be discussed in the water resources section in Chapter 5 Environmental Consequences.

4.4.2.3 Floodplains

A floodplain is an area of land that is prone to flooding. Typically, floodplains occur in flat areas that are adjacent to rivers, lakes, or other bodies of water. Floodplains are described in Chapter 14.2 of the Desk Reference as being important for providing natural flood protection and erosion control, as well as their enhancement of biological productivity.

[4.8] FAA 1050.1F Desk Reference, Chapter 14.3, Surface Waters

Floodplains are discussed in terms of the 100-year flood, which is a flood having a 1% chance of occurring in any given year. The Federal Emergency Management Agency (FEMA) has been responsible for mapping known floodplains and publishing these maps called Flood Insurance Rate Maps (FIRMs). The National Flood Insurance Act established the National Flood Insurance Program (NFIP), a voluntary floodplain management program within communities and implemented by FEMA that requires that any action taking place within a FEMA-mapped floodplain within a participating community is subject to their FEMA-approved floodplain management guidelines.

As a part of the EA process, a review of FIRMs for Lake County was conducted and FEMA-mapped floodplain areas were found to be within the project boundaries. Therefore, Chapter 5 will discuss potential impacts to the 100-year floodplain as a result of the preferred (and the no-action) alternative.

4.4.2.4 Groundwater

The Desk Reference defines groundwater as subsurface water that occupies the space between sand, clay and rock formations and an aquifer as the geologic layers that have the ability to store or transmit groundwater to wells, springs and other water sources.[4.9] The USAEPA has designated certain aquifers as sole source aquifers and if impacts are anticipated to a sole source aquifer, then the EPA regional office must be consulted with as required by the Safe Drinking Water Act (SDWA).

To remain compliant with NEPA, the project boundaries were analyzed for EPA-designated sole source aquifers. None were identified.

4.4.2.5 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 was created to protect those rivers that exhibited remarkable scenic, recreational, geological, fish, wildlife, or cultural values. If a proposed action would impact or encroach upon a river of this stature, then there may be consultation requirements. Upon preliminary review no rivers protected by the Wild and Scenic Rivers Act were found to occur within the project boundaries.

4.4.3 Historical, Architectural, Archaeological and Cultural Resources

The Desk Reference discusses historical, architectural, archaeological, and cultural resources as a range of sites, properties, and physical resources relating to societies, communities, and cultures of the past.[4.10] Historic, architectural, archeological, and cultural resources can be any site, building, or object of a particular age that includes materials, design, or workmanship from the past or has association with significant persons in our past.

[4.9] FAA Order 1050.1F, Desk Reference, Chapter 14.4, Groundwater
[4.10] FAA Order 1050.1F, Desk Reference, Chapter 8, Historical, Architectural, Archeological, and Cultural Resources

The Section 106 process was established as a part of the National Historic Preservation Act (NHPA), to help protect our cultural and historic background by requiring a thorough analysis of any historic, architectural, archeological, and cultural resources identified within the confines of the proposed project location. The lead agency, under NEPA regulations, is responsible for analyzing the impacts of its action on any of the resources. Section 106 regulations focus on a specific subset of historic, architectural, archeological, and cultural resources that are listed on or meet the eligibility criteria for the National Register of Historic Places (NRHP) and Section 106 criteria is implemented for any undertaking such as a project, activity or program, that will be funded with federal dollars and carried out on behalf of a federal agency.

While NEPA and Section 106 are two differing review processes, they both require similar scoping and consultation. Since this project involves obstruction removal, there will be some ground disturbance in the form of clearing and grubbing that could possibly impact underground resources. Additionally, visual impacts to above ground resources could exist due to the different topography after tree removal occurs.

A scoping letter was submitted to the Tennessee Historical Commission (THC) for their review and comment. Prior to this consultation, a preliminary review was done for previously identified historic resources within the project area on the THC online database.[4.11] No resources were identified within the project area. The nearest resource listed on the THC database is approximately 4,300 feet from the southernmost tree removal area and 2,800 feet away from the nearest tree removal area located adjacent to the Runway 19 end. This resource is identified on the THC online database as a single-family dwelling of a plain/traditional style build with no date of construction given. However, this resource could not be seen from aerial maps. It does not appear that this resource would be visible from any of the tree removal areas.

After their review, the THC submitted a formal response that stated that, “After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking’s area of potential effects, the specific location, size, scope, and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties, the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register, or it will not alter an eligible Historic Property’s location, setting, or use. We have no objections to you proceeding with your undertaking.” (See Appendix B). With the completion of this review, it is unlikely that this project will have a negative impact to historical, architectural, archeological, or cultural resources and no further review was necessary.

Notes: If any modifications to the proposed action occur or discoveries of any archaeological remains are uncovered during the construction phase the THC must be contacted to determine what further action, if any, will be necessary to comply with Section 106.

[4.11] https://tnmap.tn.gov/historicalcommission/

4.4.4 Farmlands

Chapter 6 in the Desk Reference describes farmlands as any agricultural area considered to be prime, unique, or of statewide or local importance. These areas are protected by federal, state, and local regulations in some cases.[4.12]

The Farmland Protection Policy Act (FPPA) regulates all federal actions that have the potential to convert farmland to non-agricultural uses. More specifically it regulates farmland that has been identified as prime, unique, or of statewide or local importance.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) acts as the oversight agency and has the final authority for designating farmlands. Additionally, they maintain a database of all farmlands for each state and provide an online Web Soil Survey that depicts soil types within a user specified location.

At the onset of the EA, the Web Soil Survey was utilized to identify soil types within the project boundaries Soil types included Iberia silty clay loam, Reelfoot silt loam, Reelfoot silty clay loam, and Sharkey clay, which all are considered to be prime farmland.

A project proposal was also submitted to the USDA-NRCS local office and after review of the project they submitted a formal response that stated that since this project will not be funded using federal dollars it is exempt from FPPA and therefore no further review would be necessary. (See Appendix B)

4.4.5 Construction Impacts

Any construction impacts as a result of the tree removal project would be short-term. These could include potential air quality impacts due to emissions from construction equipment and dust from exposed soil, water quality as a result of soil erosion and sedimentation, and lastly temporary noise increases from work vehicles and equipment. All these will be further discussed in Chapter 5 Environmental Consequences.

4.4.6 Department of Transportation Act, Section 4(f) Resources

As described in Chapter 5 of the Desk Reference, Section 4(f) properties include significant:

- Parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public.
- Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public.

[4.12] FAA Order 1050.1F, Desk Reference, Chapter 6, Farmlands

- Historic sites of national, state or local significance in public or private ownership regardless of whether they are open to the public.

During the process of this EA, it was determined that there are Section 4(f) resources located within the project boundaries that include the following:

- Reelfoot Lake State Park
- Reelfoot Lake National Wildlife Refuge

Based on this, the proposed action would not have any impact on historic sites of national, state, or local significance, but it does have the potential to impact parks, recreation areas, and wildlife refuges. As a result, potential impacts from tree removal actions will be assessed further in Chapter 5 Environmental Consequences.

4.5 CONCLUSION OF AFFECTED ENVIRONMENT

The presentation of the affected environment in this chapter was to provide understanding and clarity of the natural and/or special environmental resources that may be impacted negatively because of this obstruction removal project, as well as to identify possible areas where mitigation might be needed. With the completion of the preliminary site investigation and early coordination with regulating federal, state, and local entities, it has been determined that the proposed project would not affect the following environmental resource categories:

- Historical, Architectural, Archeological and Cultural Resources
- Farmlands

All other suspected environmental impacts that have been identified in this chapter will be further addressed in detail in Chapter 5 Environmental Consequences.

5.0 ENVIRONMENTAL CONSEQUENCES

This chapter will identify and evaluate potential environmental consequences due to the preferred alternative, **Alternative 2 – Clear Existing and Future Obstructions**. However, per guidelines identified in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures,* the **No-Action** alternative will also be discussed as it relates to each environmental impact category.

Environmental impact categories include:

- Air Quality
- Noise and Compatible Land Use
- Land Use
- Farmlands
- Biological Resources
- Water Resources
- Climate
- Coastal Resources
- Department of Transportation, Section 4(f)
- Historical, Architectural, Archeological, and Cultural Resources
- Natural Resources and Energy Supply
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
- Visual Effects
- Construction Impacts

An examination for each has been provided in the following sections to determine if the preferred alternative would cause impacts that are significant under NEPA and/or any special purpose laws. As discussed in the conclusion of Chapter 4, two of the resource categories (Historical, Architectural, Archaeological, and Cultural Resources; and Farmlands) required no further analysis and therefore will not be included in this chapter.

5.1 AIR QUALITY

Impacts to air quality must be considered under both the Clean Air Act (CAA) and NEPA, as a part of FAA requirements. Air quality assessments are required for any proposed action that is to be funded with federal dollars. What type of air quality assessment is typically dependent on the scope and scale of the proposed action.

5.1.1 Regulatory Setting

The CAA required the United States Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These six common pollutants of concern are Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Lead (Pb), ground-level ozone (O_3), and particulate matter (PM-2.5). The USEPA also enforces the policies and designates an area as meeting (i.e. “in attainment”) or not meeting (i.e. “nonattainment”) these set standards.

Federal actions in nonattainment areas can include general conformity, emissions and dispersion modeling, or other emissions modeling software that would help determine conformity with CAA regulations. At the state level, the Division of Air Pollution Control, which is housed within the Tennessee Department of Environment and Conservation (TDEC) is responsible to:

- Ensure that all proposed actions adhere to all applicable federal and state statutory and regulatory requirements.
- Monitor Tennessee’s existing air quality
- Ensure that new permits are protective of Tennessee air quality
- Enforce compliance and air quality standards
- Participate in programs that are implemented to improve Tennessee’s air quality.

5.1.2 Significant Impact Threshold

Identified in FAA Order 1050.1F,[5.1] the FAA provides the significance threshold for air quality as:

The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.

[5.1] FAA Order 1050.1F, *Environmental Impacts*, Exhibit 4.1

5.1.3 Analysis of Air Quality

The proposed project location and Airport are in Lake County, TN, which is in attainment for all six of the common criteria pollutants listed above. Discussed in Section 1.3 of the 1050.1F, *Desk Reference* for NEPA documents, very small projects typically will not require a quantitative, project-specific air quality assessment, and since the Airport is in an attainment area, it is not expected that the proposed action would result in an impact that would cause Lake County to have a change of status. However, to remain compliant with NEPA regulations, possible air quality impacts were taken into consideration at the onset of this EA.

The first step in an air quality analysis is to determine the type of assessment that will be appropriate for the proposed action. For ease in determining the type of air quality assessment necessary, the FAA has included a flowchart[5.2] in the *Aviation Emissions and Air Quality Handbook, Version 3, Update* 1 that should be used. This flowchart starts with a determination of whether the proposed action will cause or create a reasonably foreseeable emission increase.

FAA guidance requires both the no-action alternative and the preferred alternative to be analyzed for the possibility of exceeding the significant impact threshold that has been identified above. The following paragraphs summarize the analysis for both these alternatives.

5.1.3.1 No-Action Alternative

As a part of the no-action alternative, no obstruction removal will be completed. This would result in zero change to the existing emission levels for all six of the common criteria pollutants identified above for the Lake County attainment area. As such, the no-action alternative would not impact air quality, no further analysis would be necessary, and mitigation efforts would not be required.

5.1.3.2 Preferred Alternative

Since the proposed action at the Reelfoot Lake Airport is merely being pursued for safety reasons and to maintain the Airport's Public Use License, it will not on its own, create additional emissions at the Airport. As such, a qualitative air quality assessment is justifiable based on the Air Quality Assessment Decision Flow Diagram (Figure 4.3 in the *Aviation Emissions and Air Quality Handbook*). This means that the air quality assessment can be qualitative in nature and not require an emissions inventory.

The project proposal was also submitted to the TDEC Division of Air Pollution to ensure state and local regulations were met. After review, they stated, "Please note that Lake County is currently in Attainment for all Air Quality Standards in accordance with Rules of the Tennessee Department of Environment and Conservation Bureau of Environment/Division of Air Pollution Control Chapter 1200-03-03 Ambient Air Quality Standards. The Environmental Protection Agency (EPA) has designated Lake County as Attainment for the National Ambient Air Quality Standards. Sufficient information is not available to indicate projected emissions from the Lake County / Reelfoot Lake Airport obstruction removal project; however, the proposed project is not expected to adversely impact the local air quality provided adequate measures are employed to control fugitive emissions, and waste is properly disposed." (See Appendix B)

[5.2] *Aviation Emissions and Air Quality Handbook*, Version 3 Update 1, Figure 4.3

In summary, after analysis of federal, state and local requirements the preferred alternative would not result in air emissions that would exceed general conformity levels as outlined in the CAA or cause ongoing air quality issues within the area adjacent to the airport. Additionally, it is not expected that this proposal will have any change to the county's attainment status. Air Quality assessments were not required because this proposal will not significantly alter long-term pollutant levels that have been established in the NAAQS. Impacts to the local air quality could also occur during the construction phase of the obstruction removal project. Short-term impacts as a result of construction will be discussed in a later section.

5.2 NOISE AND NOISE-COMPATIBLE LAND USE

Noise, as defined in the *Desk Reference*[5.3] is any sound that could potentially disturb any activity and be a nuisance. Of all the adverse effects related to airport activity, it can be argued that noise is one of the most noticeable for the nearby communities. To understand the effect that differing types/levels of airport noise have on people, it is necessary to understand what noise is and how it is measured. As briefly described above, noise is any unwanted sound, and sound is the natural occurrence of pressure fluctuations that travel through the air and are then have the ability of being picked up by the human ear. At the point that sounds are annoying to the human ear is generally the transitional point from a sound becoming noise. The strength or loudness of a sound wave is measured using decibels on a logarithmic scale. Noise generated by the operation of aircraft is measured cumulatively, which provides a single measurement of the average sound levels over the course of any given day.

Regarding, compatible land uses, compatibility of existing and planned uses near an airport is generally associated with the extent of the airport's noise impacts for noise sensitive areas such as schools, churches, and nearby residences.

5.2.1 Regulatory Setting

The standard measurement for aircraft noise is the Day-Night Noise Level (DNL). The DNL metric considers that frequent medium intensity noise events are more impactful than high intensity noise events at a very low frequency. It also penalizes any aircraft noise activity generated at nighttime (10 pm- 7 am). The FAA has laid out criteria in both FAA Orders 1050.1F and the 5050.4B regarding the environmental impact category that involves both noise and noise-compatible land use. To determine if a noise analysis would be required for the proposed action, Section 11.1.2. of the Desk Reference was referred to. It outlines projects or proposed actions not requiring a noise analysis, as projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations).

[5.3] FAA 1050.1F, *Desk Reference*, Chapter 11, Noise and Noise-Compatible Land Use

5.2.2 Significant Impact Threshold

If a proposed action will require further noise analysis, per the guidance described above, then the determination of significance must be obtained using noise contours and local land use information. Chapter 11.3 of the Desk Reference states that significant impacts would occur if the proposed action increases noise levels by DNL 1.5 dB or more for an area designated as a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB, due to an increase of DNL 1.5 dB or greater.

5.2.3 Analysis of Noise and Noise-Compatible Land Use

Airport master records were obtained for the Reelfoot Lake Airport and annual aircraft operations listed through the time period ending December 2018 were approximately 8 operations daily, which is well below the threshold of 247 daily operations.

5.2.3.1 No-Action Alternative

The no-action alternative will not involve any tree removal, nor will it necessitate the need for construction to occur in the area. As a result, there are no impacts to noise and noise compatible land use.

5.2.3.2 Preferred Alternative

Since the preferred alternative will not:

- Increase the number of annual aircraft operations.
- Change the current aircraft fleet mix.
- Change the current runway threshold locations or use.

A noise analysis is not required and there would be no noise impacts as this project is being pursued to provide safe aircraft approaches. Short-term noise increase, resulting from the physical removal of the vegetation will be discussed in the construction impacts section.

5.3 LAND USE

An airport's compatibility with surrounding land uses is typically associated with the magnitude of the airport's noise impacts. As such, any proposed action at an airport that is expected to alter the existing fleet mix, have an increase in operations, or change the configuration of the airfield should be analyzed regarding its compatibility as these changes can greatly impact noise levels. Commonly, if the noise analysis associated with the proposed action concludes that there are no significant impacts, then a similar conclusion can be presented with regards to compatible land use. However, in addition to noise-compatible

land use, some proposed actions may exhibit land use ramifications unrelated to noise, such as disruption of communities, relocation of businesses or residences, any induced socioeconomic impacts, or land uses that may be protected under Section 4(f). These types of compatible land use impacts, if any, are discussed in the following paragraphs.

5.3.1 Regulatory Setting

Exhibit 9-1 in Chapter 9 of the Desk Reference lists the regulations, Executive Orders, and statutes that may be relevant to the proposed project. These include the Airport and Airway Improvement Act of 1982, which is regulated by the FAA, Airport Safety Protection with regards to landfills, regulated by the EPA and any State and local regulations if applicable.

5.3.2 Significant Impact Threshold

The FAA has not established a significance threshold for land use. However, if the proposed action would result in impacts to other resource categories that would then create land use impacts, such as the disruption of communities and socioeconomic impacts, then land use should be analyzed as it relates to that resource.

5.3.3 Analysis of Land Use

This proposal seeks to remove obstructions to enhance the safety of the runway approaches, as well as to allow the Airport to maintain their Public Airport License. While this proposed action could instigate further development at the Airport, the main purpose of the proposed action is to allow for safer and more efficient aircraft operations. Existing land uses near the Airport include rural, agriculture, recreation, airport, and some residential and commercial.

5.3.3.1 No-Action Alternative

The no-action alternative will not change the existing or future land uses surrounding the Airport. As a result, it will have no impacts on land use.

5.3.3.2 Preferred Alternative

The Reelfoot Lake Airport is located approximately nine miles northeast of Tiptonville, TN off State Highway 213. As mentioned above, the Airport and obstruction removal areas are surrounded by rural landscape Land uses in this area include airport use, recreational use, agricultural use, along with some scattered residential and commercial businesses. The following paragraphs provide detail of each of these land uses with regard to the preferred alternative:

Airport Land Use

The preferred alternative would not impact this land use. With the removal of obstructions to the runway approaches the Airport would benefit from a safety standpoint.

Recreational Land Use

The project area encompasses property located within both the Reelfoot Lake State Park and the Reelfoot National Wildlife Refuge. During analysis of the preferred alternative, it was determined that 23 trees (Tree Removal Area Three) scheduled for removal are located within the State Park and 15 trees (Tree Removal Area Two) scheduled for removal are located within the Wildlife Refuge. Since these areas are both environmentally sensitive, construction methods for removing the trees will include felling the trees, approximately six inches above the ground. Tree stumps would remain in place, along with all woody debris. Since no clear cutting will result as a part of this obstruction clearing project, all low growing trees and brush will remain and the viewshed will be relatively unchanged. Therefore, it will not impact the ability for the public to re-create in these two areas as they had prior to the obstruction clearing project.

Several attempts were made to notify the Reelfoot Lake Wildlife Refuge of the proposed action. This included mailed and emailed correspondence, and phone calls to the main office and to the Refuge Manager. No comments were received at the time of submittal of the EA to TDOT Aeronautics in September 2021. Follow up coordination was then submitted on December 22, 2021, with a request to provide comment within 30 days. Prior to this deadline, coordination/comments were received via phone call between Beck Hobneck (Stantec) and Mr. Randy Cook (Manager, West Tennessee National Wildlife Refuge Complex). Mr. Cook requested copies of documentation sent to the USFWS, along with the prepared HD report. He had no issues with the tree removal itself. However, he expressed concern regarding the type of permission TAD would need in order to access and remove the trees on Refuge leased lands. He requested to be informed as discussions occurred between TDOT's Right-of-Way Department and the Reelfoot National Wildlife Refuge. (See consultation with the Refuge included in Appendix B)

Agricultural Land Use

Agricultural land uses do exist directly adjacent to the tree removal areas north and east of the Airport and on private property. However, the obstruction clearing project will not impact this land use as the trees will be removed within the fence line/property line separating Airport property from the Donnell property and then further northeast of the Airport on Reelfoot National Wildlife Refuge (depicted in Figures 3.4 and 3.5)

Residential & Commercial Business Land Use

Since the viewshed will remain relatively unchanged and no persons or businesses are being relocated there will be no impacts to this land use as a result of this obstruction clearing project.

5.4 BIOLOGICAL RESOURCES

As described in Chapter 2 of the Desk Reference, biological resources are valued for their intrinsic, aesthetic, economic, and recreational qualities. These resources are protected by federal, state, and local regulations, Executive Orders, and statutes.

5.4.1 Regulatory Setting

Exhibit 2-1 in the Desk Reference depicts the various statutes, regulations and Executive Orders that have been adopted in order to protect biological resources. Federally, these include:

- Bald and Golden Eagle Protection Act
- Endangered Species Act
- Fish and Wildlife Coordination Act
- Migratory Bird Treaty Act

The United States Fish and Wildlife Service (USFWS) enforces these at a national level, while the Tennessee Wildlife Resources Agency (TWRA) enforce regulations at the state level. Additionally, TDEC Division of Rare Species tracks over 1100 rare and endangered species and hundreds of conservation sites across the state.

5.4.2 Significant Impact Threshold

Based on guidance outlined in FAA Order 1050.1F, a significant impact would occur if the USFWS or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a Federally-listed threatened or endangered species or would result in the destruction or adverse modification of federally-designated critical habitat. The FAA has not established a significance threshold for non-listed species.

5.4.3 Analysis of Biological Resources

At the onset of the EA, the USFWS's IPAC database[5.4] was used to determine if any federally endangered/threatened plants and/or animals may be present within or near the proposed tree clearing area. No critical habitat was listed as occurring in the project area. However, two federally endangered/threatened species (mammals) were found to potentially occur within the project area. These included the Indiana Bat (endangered) and the Northern Long-eared Bat (threatened)

[5.4] https://ecos.fws.gov/ipac/

Additionally, ten species of birds were assumed to be within the project area, including the Bald Eagle, which is protected under the Bald and Golden Eagle Protection Act. Guidance was given about scheduling construction activities around breeding season for the ten species of migratory birds. At the state level, the TDEC Division of Rare Species online database[5.5] was utilized to determine if any state listed species of concern were known to be within the project boundaries.

Seven different species were identified, which included the Palid Sturgeon (endangered), the Interior Least Tern (endangered), the Blue Mud-plaintain (threatened), the Bristly Sedge (threatened), the Yellow Water-crowfoot (threatened), and lastly the Copper Iris (threatened). With the results of the online record review, both the USFWS and TWRA were sent scoping letters that outlined the project in detail and requested comments.

5.4.3.1 No-Action Alternative

The no-action alternative would not change existing site conditions or habitats. As such, there would be no impacts to biological resources.

5.4.3.2 Preferred Alternative

Since the preferred alternative includes changes to the existing habitat (removal of 57 trees) it will change site conditions. However, due to the sensitive environment, the majority of trees to be removed (38 of the total 57 trees) will be felled but left in place. This method of tree removal was determined to be less impactful to biological resources within the project area. Also, when taking into consideration the size of the project area (changed habitat- 1.7 approximated acres) with similar adjacent habitat it was thought that while it may impact the protected species identified in Section 5.4.3 it is not to anticipated that it will adversely impact biological resources.

Scoping letters were submitted to both the USFWS and the TWRA outlining the above determination with a request for their review and response.

The TWRA responded to the initial scoping letter that they have no objections or concerns regarding the proposed project.

The USFWS stated that, “Upon review of our database, we would not anticipate adverse effects to any federally listed or proposed species as a result of clearing activities.” However, additional information was requested from USFWS biologists since it was stated in preliminary coordination (dated December 8, 2020) that the construction phase could be scheduled around the breeding season of the ten species of migratory birds and now it is anticipated that obstruction removal would occur in the fall of 2022 during the breeding season for the Bald Eagle.

[5.5] https://dataviewers.tdec.tn.gov/pls/enf_reports/f?p=9014:3:3080195236593:::::

After consideration of the updated construction timeline, the USFWS confirmed that, "Since last coordinated with our office on December 9, 2020, the timeframe for tree removal has been determined as likely to occur between late September and early November. The purpose of this re-coordination is to ensure that our comments and project clearance provided on January 5, 2021, are still valid. Upon review of our database and the information provided, our January 5, 2021, response remains valid. We have no additional concerns or comments at this time." (See Appendix B for email dated Jan 5, 2022 from Mr. John Griffith to Beck Hobneck)

5.5 WATER RESOURCES

This environmental impact category includes wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. Because the potential exists for the degradation of local water quality during construction, it is necessary to evaluate and assess the risk of impact to all nearby and adjacent water sources. This can include any ground surface waters, as well as any local surface water bodies. Each of these categories is discussed in the following paragraphs.

5.5.1 Wetlands

Most Tennessee wetlands are of a palustrine type and can include rivers and lakes, swampy areas, bottom-land hardwood forests, and small ponds. Wetlands are defined as any area that is saturated by surface or ground water to the degree that it supports vegetation types that thrive in saturated soil conditions.

5.5.1.1 Regulatory Setting

Wetlands have been federally characterized by their vegetation, hydrology, and soils and are regulated by the USACE. Section 404 of the federal Clean Water Act (CWA) is the basis for all federally regulated wetland areas. The State of Tennessee has not adopted its own wetland regulations; however, if an alteration to a federally regulated wetland will occur as a part of a proposed action, then an Aquatic Resources Alteration Permit (ARAP) must be obtained from TDEC. The State of Tennessee may require an ARAP even if the project doesn't necessitate the federal 404 permit. However, if a federal permit is required from the USACE, then a Section 401 Water Quality Certification (WQC) must be obtained first from the State. This ensures that the proposed action would not be in violation of Tennessee's water quality standards. Lastly, the USACE and TDEC may require compensatory mitigation for certain permitted impacts to Tennessee's wetlands.

5.5.1.2 Analysis of Wetlands

No-Action Alternative

No tree removal would occur. Therefore, no impacts to wetlands would occur.

Preferred Alternative

During a preliminary review of the project site, the National Wetlands Inventory Mapper[5.6] (NWIM) was used to determine if any wetland areas had been previously documented within or nearby the proposed tree removal areas and several documented wetlands were believed to be within the project boundaries. These include wetlands of the type Freshwater Forested/Shrub Wetland and Riverine within the northern tree removal areas and wetland type Freshwater Forested/Shrub Wetland and Lake in the southern tree removal area. This type of wetlands is dominated by trees, shrubs, emergent, mosses or lichens. Figure 5.1 depicts the project boundaries overlain on the NWIM map.

[5.6] https://www.fws.gov/wetlands/data/mapper.html

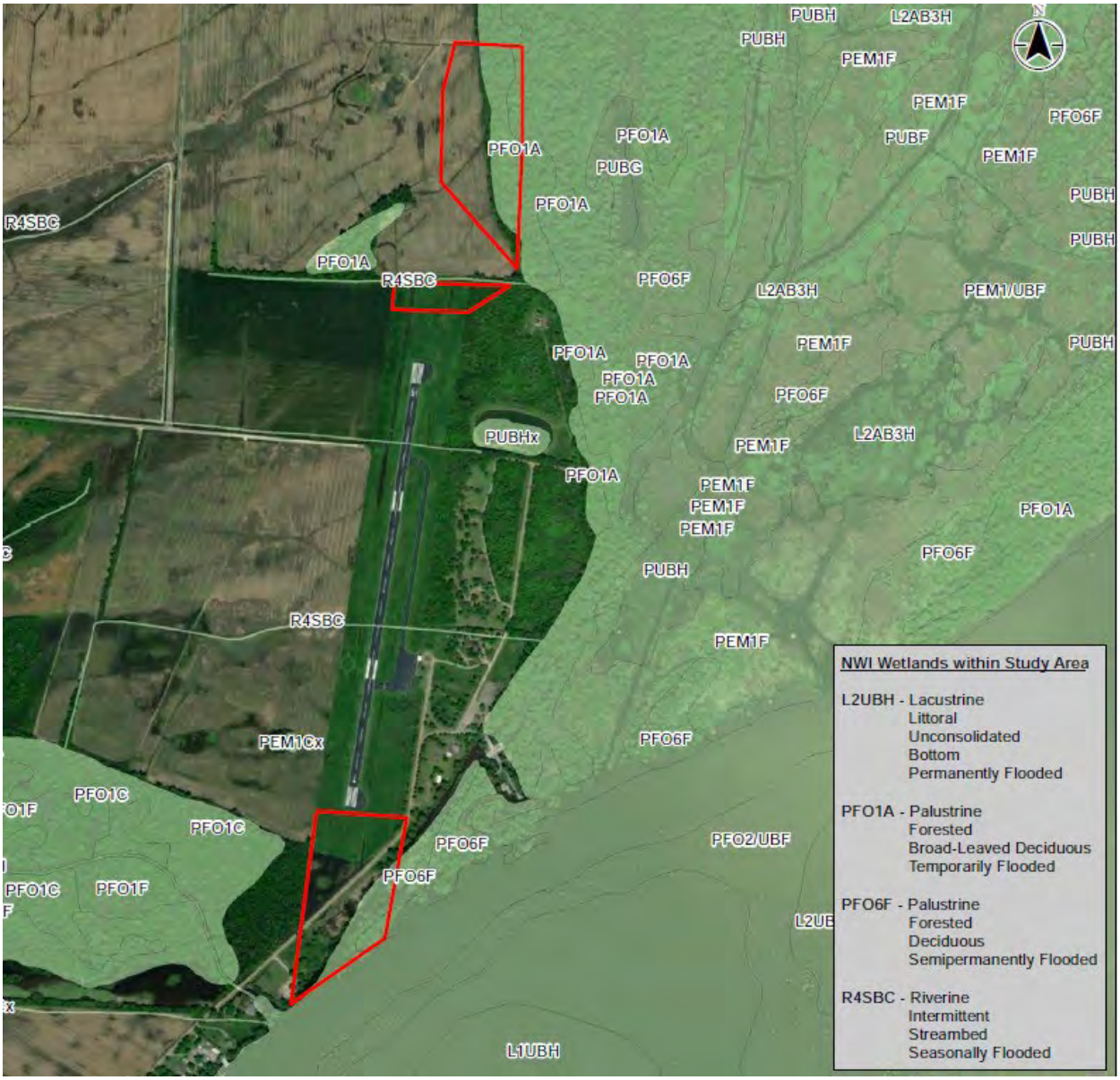


Figure 5.1 - NWIM Map of the Project Boundaries

With potential wetlands present within the tree removal areas, as well as to ensure that the proposed action would not adversely affect any wetlands or alter an identified wetland's hydrological functions, a project proposal was submitted to all federal and state regulating agencies that would have jurisdiction. In accordance with NEPA requirements, the USACE, USFWS and TDEC DWR were sent correspondence detailing the proposed action. After their review of the proposed action, the USFWS stated that, "The

National Wetlands Inventory maps provided indicate that wetlands are present within the runway clear zones. If wetland impacts would occur, TDOT should coordinate with the U.S. Army Corps of Engineers,

Memphis District, Regulatory Branch to address concerns." (See Appendix B) Therefore, the Memphis District of the USACE was coordinated with and after review they stated that, "Tree cutting is not a regulated activity. Provided that the project does not entail the discharge of dredged or fill material into waters of the United States, no permit would be required from the Corps of Engineers under Section 404 of the CWA." (See Appendix B) Since the preferred alternative does not require any discharge of dredged or fill material into waters of the United States no further consultation or permit is necessary under Section 404.

Lastly, after their review of the project proposal, TDEC DWR responded that, "From the submittal, it appears the project will disturb more than one acre of land, which will include clearing, grading, or other similar activities, as well as staging areas. This project will require a Construction Stormwater Permit (CGP) based on the disturbance of more than one acre. Some of the trees identified are in a wetlands adjacent to Reelfoot Lake. This project will require a hydrologic determination to assess the potential impacts on water resources/ wetlands during this project. All of the cut zones should be ground-truthed to make sure there aren't any more wetlands or streams. From the information submitted and the wetlands identified in our GIS coverage, an Aquatic Resources Alteration Permit Alteration Permit (ARAP) will be required. Depending on the amount of wetlands disturbed, mitigation may be required." (See Appendix B)

Per the request, an HD was performed of the study area on May 5, 2021 and May 6, 2021 to identify if potentially jurisdictional water resources were located within the project boundaries. This HD utilized all applicable State and Federal rules and regulations. The results of the HD identified and delineated eleven features. These included two streams, one wet weather conveyance (WWC), and eight wetlands. Neither of the streams are depicted as blue-line streams on topographic maps. However, during field work there was flow in both. Likewise, flow was present within the WWC, but was suspected to be due to recent rains as no ground water connection was observed. All eight of the wetland areas were delineated in the field and the boundaries were flagged, with the exception of wetland sections that extended into Reelfoot Lake. The HD is included in Appendix C.

The HD was submitted to TDEC DWR for review and comment. Formal response was received in July, 2021 that stated that, "The Division of Water Resources has reviewed the documentation submitted on June 22, 2021 seeking concurrence with the Hydrologic Determinations conducted at the Reelfoot Lake Airport and adjacent properties. We are in concurrence with the hydrologic determinations (2 streams, 8 wetlands and 1 wet weather conveyance) as detailed in your submittal. Please be advised that the U.S. Army Corps of Engineers should be consulted regarding "waters of the United States" jurisdictional status. In addition, coverage under the TN Construction General Permit will be required for any construction activity

that results in one or more acres of earthen disturbance." (See Appendix D for the response from TDEC DWR)

5.5.1.3 Impacts to Wetlands

The preferred alternative is proposing to remove 57 individual trees, of which 38 (approx.) are in a wetland area. However, the total acreage of impacts is less than the threshold that would require further permitting and mitigation.

During the construction phase, appropriate soil erosion and sediment control devices will be used and the method of removal for these sensitive areas will include felling the tree and leaving the stump and woody debris in place. With the implementation of these measures, wetland impacts are not expected to exceed thresholds of significance.

5.5.2 Floodplains

Floodplains were originally protected upon issue of Executive Order 11988, *Floodplain Management,* which established a national policy that required federal agencies to avoid, to the extent possible, long and short term adverse impacts associated with the alteration of floodplains.

5.5.2.1 Regulatory Setting

Exhibit 14-3 in the Desk Reference lists all statutes, regulations, Executive Orders and any other applicable requirements pertaining to floodplains. These include Executive Order 11988, the National Flood Insurance Act, and DOT Order 5650.2.

5.5.2.2 Analysis of Floodplains

No-Action Alternative

No tree removal would occur, resulting in no impacts to floodplains.

Preferred Alternative

Development within FEMA floodplains can increase the frequency and intensity of flooding by reducing the amount of area for flood storage, obstructing movement of floodwaters and increasing stormwater runoff. Also, vegetation adjacent to surface waters is essential for maintaining bank stability and the disturbance. The preferred alternative does not involve any development within FEMA floodplains but will involve removal of vegetation within designated floodplains. (see Figures 5.2 and 5.3)

5.5.2.3 Impacts to Floodplains

Since tree removal will occur within designated floodplains as described above, those impacts were quantified. The results of these include:

Runway 1 End

25 individual trees (1.30 acres approximated) will be removed in a FEMA floodplain. The method of removal will require the stumps to be left in place to avoid ground disturbance.

Runway 19 End

17 individual trees (0.27 acres approximated) will be removed in a FEMA floodplain. The method of removal will require the stumps to be left in place to avoid ground disturbance.

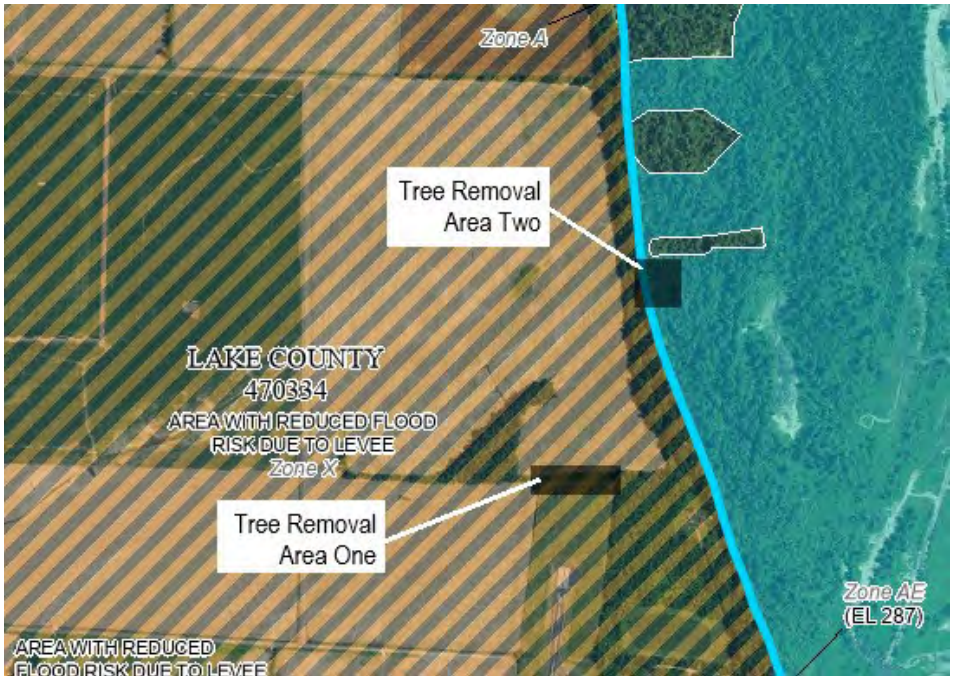


Figure 5.2 - FLoodplains Located within Tree Removal Areas One and Two (Runway 19)

Since avoidance of the base floodplain is not possible with regard to the proposed action, the only alternative that would avoid obstruction removal within the FEMA floodplain would involve displacing the runway thresholds. As described in Chapter 3 – Project Alternatives this was not feasible. Therefore, encroachment within the floodplain is unavoidable. However, according to regulations identified in Chapter 14.3 of the Desk Reference, encroachment is only considered significant if the proposed action would result in one or more of the following:

- A considerable probability of loss of human life.

  The preferred alternative would not result in the loss of human life.

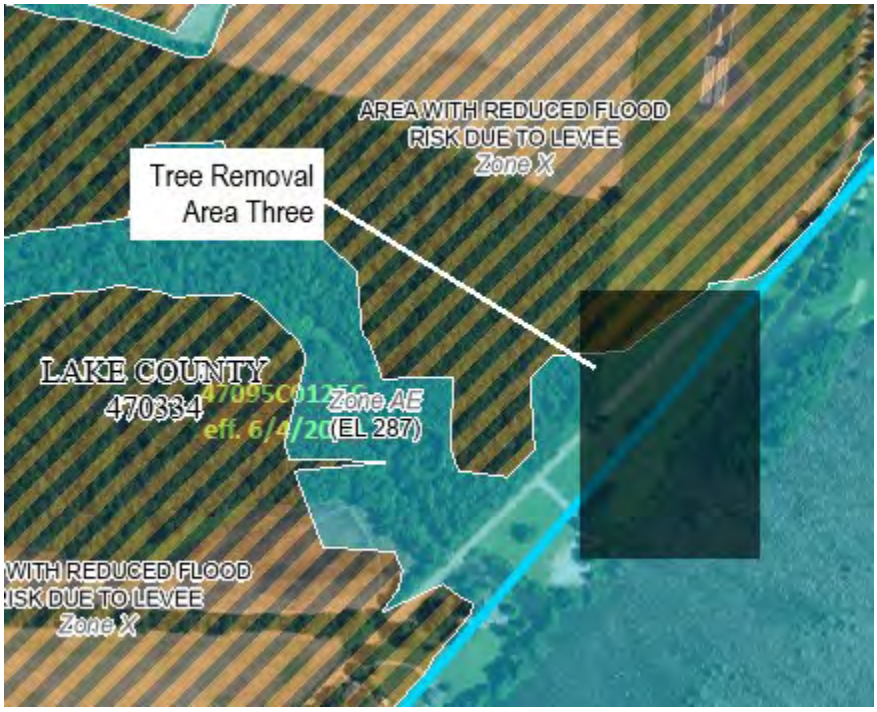


Figure 5.3 - Floodplains Located within Tree Removal Area Three (Runway 1)

- Likely future damages associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility.

  The preferred alternative does not include planned development within the floodplain.

- A notable adverse impact on natural and beneficial floodplain value.

  The preferred alternative involves a minimal amount of vegetation removal (stumps and woody debris left in place) that is consistent with federal, state, and local floodplain and water quality regulations and could help mitigate the potential increase of bank erosion. Additionally, appropriate erosion control measures will be implemented during the construction phase.

Therefore, it has been determined that this project as proposed does not exceed a level of significance as established in FAA Order 10501.F and with the incorporation of the measures identified above no significant impact to FEMA floodplains is expected.

5.5.3 Surface Waters

Surface waters include streams, rivers, lakes, ponds, estuaries, and oceans. Chapter 14 of the Desk Reference describes the importance of surface waters and measures established under NEPA to protect them.

5.5.3.1 Regulatory Setting

Surface waters are protected under the CWA, SDWA, the Fish and Wildlife Coordination Act, and the Rivers and Harbors Act and any other applicable State and local statutes.

5.5.3.2 Analysis of Surface Waters

No-Action Alternative

Since the no-action alternative will not involve tree removal there will be no impacts to surface waters.

Preferred Alternative

The preferred alternative proposes to remove 57 individual trees in three different areas on and off airport property. During preliminary investigation and consultation, an HD was completed. Results of the HD found two jurisdictional streams within the project boundaries. Therefore, further analysis was conducted to determine impacts, if any, as a part of the proposed tree removal.

5.5.3.3 Impacts to Surface Waters

Only one of the two stream channels identified within the HD study area occurs within a tree removal area This area is designated as Tree Removal Area One. As described in Chapter 3, tree removal in this area consists of 17 individual trees that will be felled at ground level and the stumps grubbed below the ground level. However, no work will occur within the stream channel or adjacent to the bank. Proper erosion and sediment control devices will be in place during construction practices and best management practices will be required.

5.5.4 Groundwater

No impacts to Groundwater are anticipated. (see Chapter 3)

5.5.5 Wild and Scenic Rivers

Wild and Scenic Rivers are characterized as those rivers having abundant recreational, historic, cultural, fish, or geologic value as defined by the Wild and Scenic Rivers Act. Congress instilled this Act to protect rivers with the characteristics listed above. The National Park Service (NPS) maintains the Nationwide River

Inventory[5.7] (NRI), which is a list of all rivers or river segments that meet the minimum criteria established by the Wild and Scenic Rivers Act to be included in the National Wild and Scenic River System (NWSRS). Rivers listed on the NRI may or may not be recommended for addition to the NWSRS, but all federal agencies proposing to affect an NRI listed river must coordinate with the regulatory agency that has jurisdiction over that river.

As a part of this EA, a review of the NRI was performed to verify the absence of any listed rivers within the proposed project boundaries. Since there are no listed Wild and Scenic Rivers within the project boundaries or adjacent that would be impacted either directly or indirectly as a part of this proposed action, no further analysis is necessary.

5.6 CLIMATE CHANGE

Climate can be defined as the weather patterns of a particular region and includes the temperature, humidity, precipitation, wind, and the different seasons. Climate change, according to the U.S. EPA, "refers to any significant change in the measures of climate lasting for an extended period of time."[1] Climate change is a result of greenhouse gases (GHGs), which include pollutants such as carbon dioxide (CO_2), methane, nitrous oxide, and any refrigerants that trap heat and radiation in the earth's atmosphere. Scientists and researchers are gaining a better understanding of climate change and atmospheric impacts resulting from the aviation industry. Regarding aviation, CO_2 is the most important since it is a long-lived gas that remains in the atmosphere for up to 100 years and is the main GHG produced by the aviation industry in the burning of fuel. The International Civil Aviation Organization (ICAO) reported that international and domestic aviation accounts for approximately 2% of global anthropogenic CO_2 emissions. While this percentage hasn't significantly changed since the early 1990s, the volume of CO_2 emissions has increased, along with the increase in global CO_2 emissions.[2] Therefore, minimizing GHG emissions, as well as identifying potential future impacts of climate change, is necessary if we want a healthy national airspace system.

Since this project is being proposed to remove obstructions and not to add any new structures or facilities to the Airport, it is expected that the only impacts to the climate would be short-term during the construction phase. As such impacts to the overall climate were addressed during preliminary site investigation and given the rural nature of the Airport, the scale of the proposed action and the location of the Airport in an attainment area, it is not expected that the proposed action will have any impact to the local climate. It should also be noted that currently there are no significance thresholds for aviation GHG emissions, nor are there accepted methods of determining the significance applicable to aviation projects.

[5.7]https://www.nps.gov/subjects/rivers/data.htm

5.7 COASTAL RESOURCES

As defined in the *Desk Reference*[5.8], coastal resources include all-natural resources occurring within coastal waters and their adjacent shorelands. Coastal resources include islands, transitional and intertidal areas, salt marshes, wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs as well as fish and wildlife and their respective habitats within these areas. Since the Reelfoot Lake Airport does not lie within a coastal zone, there was no need for further analysis of coastal resources.

5.8 DEPARTMENT OF TRANSPORTATION, SECTION 4(F)

5.8.1 Regulatory Setting

The Department of Transportation Act of 1966 included a special provision, Section 4f, that allows the federal government the ability to protect publicly owned parks, recreational areas, wildlife and waterfowl refuges, along with public and private historic sites. It states that the reuse of any land that meets the above criteria cannot be approved by DOT agencies unless there is no feasible or prudent alternative. It also states that if more than one DOT agency is involved with the project, the agency acting as the NEPA lead normally takes precedence on Section 4(f) compliance. For this proposed action at the Reelfoot Lake Airport, TDOT Aeronautics Division is the leading NEPA agency, acting on the FAA's behalf in the review and approval of EA documents concerning proposed actions at all airports within the state of Tennessee.

5.8.2 Significant Impact Thresholds

A significant impact will occur to a Section 4(f) resource if the proposed action involves more than a minimal physical use or constitutes a constructive use as stated in Chapter 5 of the FAA Order 1050.1F *Desk Reference*. "Use" within the context of Section 4(f) includes the purchase of land, or permanent easement, occupation of, or alteration of structures/facilities on the property (physical use); or create an environmental burden to the Section 4(f) resource by means of noise, air pollution, water pollution or any other impacts that would diminish the value or aesthetics of the property, restrict access, endanger wildlife, or take it in every practical sense.

[5.8]FAA 1050.1F, *Desk Reference*, Chapter 4, Coastal Resources

A significant impact would not occur, under NEPA, if mitigation measures eliminate or reduce the effects of the use below the threshold of significance. However, if a proposed action would physically use a Section 4(f) resource, even if the impacts are deemed less than significant, the FAA must still be responsible to comply with Section 4(f).

A *de minimis* determination can be reached with respect to a physical or constructive use of a Section 4(f) resource if, after analysis, the determination is that the proposed action would not adversely affect:

- The features, attributes, activities that would qualify a park, recreation area, wildlife or waterfowl refuge for protection.
- Regulatory officials with jurisdiction over the Section 4(f) resource concur in writing that the proposed action will not adversely affect the features, attributes, activities that would qualify a park, recreation area, wildlife or waterfowl refuge for protection.
- Historic properties are not affected or a Section 106 finding of no adverse effect has been determined.

5.8.3 Analysis of Section 4(f) Resources

During the process of this EA, it was determined that a portion of the project area is located within a designated wildlife refuge and a state park. As such impacts to Section 4(f) resources as a part of the preferred alternative, along with the no-action alternative were analyzed. The following paragraphs discuss the results:

5.8.3.1 No-Action Alternative

Since the no-action alternative doesn't require the removal of trees within the wildlife refuge or state park, it will not create an impact to this environmental resource category.

5.8.3.2 Preferred Alternative

The preferred alternative will remove 15 individual trees that are located within the Reelfoot Lake Wildlife Refuge and 23 individual trees that are located within the Reelfoot Lake State Park. The method of removal will include felling the trees above the ground and leaving the stump and all woody debris in place.

5.8.4 Impacts to Section 4(f) Resources

The proposed action is classified under NEPA as a physical use. However, since it is anticipated that it would not result in harm to wildlife, habitat or visual impacts due to the size of the removal area (approximately 1.57 acres) with respect to the overall size of the adjacent wildlife land, it has been determined to be de minimis. Additionally, there would be no impacts to historic resources.

Coordination was pursued with the USFWS to ensure concurrence with the de minimis determination. After review they stated no objections to the project as proposed. Additional coordination and review of the proposal was requested with USFWS biologists in January 2022 since it is likely that the construction phase would occur in the fall of 2022, the breeding season for the Bald Eagle. After consideration of the updated construction timeline, the USFWS confirmed that, “Since last coordinated with our office on December 9, 2020, the timeframe for tree removal has been determined as likely to occur between late September and early November. The purpose of this re-coordination is to ensure that our comments and project clearance provided on January 5, 2021, are still valid. Upon review of our database and the information provided, our January 5, 2021, response remains valid. We have no additional concerns or comments at this time.” (See Appendix B for email dated Jan 5, 2022 from Mr. John Griffith to Beck Hobneck)

Several attempts have been made to notify the Reelfoot Lake Wildlife Refuge. This includes mailed and emailed correspondence, as well as phone calls to the main office and to the Refuge Manager. No comments were received at the time of submittal of the EA to TDOT Aeronautics in September 2021. Follow up coordination was submitted on December 22, 2021, with a request to provide comment within 30 days. Prior to this deadline, coordination/comments were received via phone call between Beck Hobneck (Stantec) and Mr. Randy Cook (Manager, West Tennessee National Wildlife Refuge Complex). Mr. Cook requested copies of documentation sent to the USFWS, along with the prepared HD report but had no issues with the tree removal itself. (See consultation with the Refuge included in Appendix B)

5.8.5 Summary

The nature of the proposed action is to promote and maintain safe and efficient aircraft approaches (VFR) at the Reelfoot Lake Airport and after review there were no other reasonable alternatives identified that would allow the Airport this outcome. The overall size of the project area within the protected wildlife refuge in correlation with the entire protected area poses no harm to its overall recreational features or to the wildlife and habitat itself. As such, a *de minimis* determination is anticipated for Section 4(f) resources as a part of the preferred alternative.

5.9 NATURAL RESOURCES AND ENERGY SUPPLY

This impact category provides an evaluation of a proposed project’s consumption of natural resources and use of energy supplies. Natural resources can include water, asphalt, aggregate, wood, and other raw materials. Typical energy supplies that could be used are coal for electricity, fuel for aircraft and other ground vehicles, and natural gas for heating.

5.9.1 Regulatory Setting

The statutes and Executive Orders Related to Natural Resources and Energy Supply that may be relevant to the natural resources and energy supply impacts that could occur due to this proposal, include the Energy Independence and Security Act, Energy Policy Act, Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, and the Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance. To verify that this proposal won't affect any natural resources or energy supply categories as related to the executive statutes and regulations described above, consultation was requested from state and local agencies that are responsible for enforcing local rules and guidelines.

5.9.2 Significant Impact Thresholds

Chapter 10 of the FAA Order 1050.1F, *Desk Reference* states that the FAA has not established a significance threshold for natural resources and energy supply. However, the FAA has identified a factor to consider when analysis is being conducted for potential impacts. This includes, but is not limited to, if the proposed action and/or alternatives could potentially cause demand of the resource (water, asphalt, aggregate, wood, coal, natural gas, fuel, etc.) to exceed available or future supplies. If through the process of an EA, a problem is identified, additional analysis may be required in an EIS.

5.9.3 Analysis of Natural Resources and Energy Supply

5.9.3.1 No-Action Alternative

The no-action alternative will not impact natural resources or energy supply.

5.9.3.2 Preferred Alternative

The proposed airport improvement project includes obstruction removal, which will allow for safer visual approaches and depatures of aircraft at the Reelfoot Lake Airport. The process of obstruction removal does not require any materials that are considered rare or in short supply on a long-term scale. Additionally, the removal of trees at the project site does not impact any natural resources and/ or local energy supplies.

In summary, the proposed action outlined in this EA is not expected to have any impacts on any natural resources. Any anticipated short-term impacts resulting from construction efforts will be addressed in Section 5.14.

5.10 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

The Hazardous Materials, Solid Waste, and Pollution Prevention impact category should include an assessment of any hazardous material(s) that might be used during the construction or operation of a project be completed. Additionally, the potential to encounter any existing hazardous materials during the construction or operation of the proposed action must be considered. In regard to solid waste, the assessment for this impact category should include any anticipated materials that may be discarded on the project site such as refuse, scrap metal, spent materials, and chemical by-products. Lastly, this impact category will analyze the ability of the proposal to avoid, prevent, or reduce pollutant discharges or emissions.

5.10.1 Regulatory Setting

There are several statutes, regulations, and executive orders related to this impact category. Chapter 7 of the FAA Order 1050.1F, *Desk Reference*, identifies the USEPA as the lead agency in the enforcement of federal regulations involving hazardous substances. An understanding of the following federal statutes (and state equivalents, if applicable) is necessary for addressing hazardous materials, solid waste, and pollution prevention as a part of the NEPA process.

5.10.1.1 Comprehensive Environmental Response, Compensation, and Liability Act

This act, acronym CERCLA, established liability for those parties responsible for hazardous substance releases to pay for cleanup costs and its oversight agency is the USEPA. It created a trust fund to finance cleanup costs in situations where a responsible party could not be identified. Additionally, this act is responsible for the creation of the National Priority List[5.9] (NPL), which is a list of sites with known releases or threatened releases of hazardous substances in the US and its territories. The NPL is helpful in the determination of which sites may require further investigation. CERCLA was amended by both the Superfund Amendments Reauthorization Act of 1986 and the Community Environmental Response Facilitation Act of 1992.

5.10.1.2 Pollution Prevention Act

This act is regulated by both the Council of Environmental Quality (CEQ) and the USEPA. It was established in 1990 to require pollution prevention and reduction control of source pollutants so that wastes (hazardous and non-hazardous) would have less of an impact on the environment.

[5.9] https://www.epa.gov/superfund/superfund-national-priorities-list-npl

5.10.1.3 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act established guidelines for the generation, storage, treatment, and disposal of hazardous and non-hazardous waste in the US.

5.10.2 Significant Impact Thresholds

The FAA has not established a significance threshold for hazardous materials, solid waste or pollution prevention in the FAA Order 1050.1F. However, during analysis of a proposed action factors to consider regarding this environmental category include:

- Violation of any applicable federal, state, local, or tribal laws regarding hazardous materials, solid waste, and pollution prevention.
- If the proposed action would involve a contaminated site (including, but not limited to, a site listed on the NPL).
- Create an adverse impact to human health and the environment.
- Produce or generate a considerable amount of hazardous or non-hazardous waste or if not considerable but would exceed local capacity.

5.10.3 Analysis of Hazardous Materials, Solid Waste, and Pollution Prevention

In order to remain compliant with NEPA, an analysis was completed with regard to hazardous and non-hazardous solid waste and pollution prevention. First, a search was performed of the NPL on the USEPA website. No superfund sites were identified within the project boundaries, nor neighboring the Airport. The nearest listed site to the project is located in Alamo, Tennessee, approximately 48 miles southeast of the proposed project boundaries. This superfund site is identified as a contaminated plume of groundwater beneath the City of Alamo, Tennessee, which was placed on the NPL in 2011. To date several investigations have been conducted, but the extent of the contaminated ground water plume is unknown. The EPA received a letter from the State of Tennessee supporting its listing on the NPL.

Research of applicable state and local laws was also conducted in order to determine what type of coordination would be necessary and to whom it should be submitted. TDEC Division of Solid Waste Management (DSWM) received the project proposal with a request for comments.

5.10.3.1 No-Action Alternative

There will be no impacts to this environmental category as a result of the no-action alternative

5.10.3.2 Preferred Alternative

The preferred alternative proposes to remove 57 individual trees. TDEC DSWM strongly recommends that the project design plans state that any wastes associated with the obstruction removal will be handled in accordance with the Solid Waste and Hazardous Waste Rules and Regulations of the State of Tennessee. Additionally, they stated that, "Reviews of the EPA's databases and WasteBin were performed for information relative to the project's delineated area. There was no evidence of any significant permitted/compliance/enforcement solid or hazardous waste related issues within the site locations

specified." Lastly, they requested that any wastes unearthed during the project must be managed appropriately and would be subject to a hazardous determination. (See Appendix B)

5.10.4 Summary

Since no hazardous materials were documented as occurring at the project site and this obstruction removal effort will not create any hazardous waste, nor will it create a considerable amount of solid waste that permitted local facilities cannot handle, it is not anticipated that the proposed action will impact this resource category.

5.11 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

FAA 1050.1F, *Desk Reference*[5.10] provides guidance regarding airport development and/or maintenance actions and how they could create socioeconomic impacts, pose health and safety risks to children, have adverse effects on low-income or minority populations, and effects on transportation/traffic.

Each of these was analyzed with respect to the proposed action in the following paragraphs.

5.11.1 Socioeconomic Impacts

A socioeconomics evaluation includes evaluation of all social or economic aspects that might be affected by the proposed action. This could include the human environment or population, employment, housing, and public services.

[5.10] FAA 1050.1F, Desk Reference, Chapter 12, Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

5.11.1.1 Regulatory Setting

Federal regulations clarify that social and economic effects alone do not necessarily require the preparation of an environmental impact statement. The requirement is project specific, and the effects must be interrelated with the natural and physical environmental effects.

For this impact category, these regulations specify that the study area not be restricted to just the proposed project site location boundaries, but to include any possible impacts to the economic activity, employment, income, population, housing, and public services of communities adjacent to the airport.

5.11.1.2 Significance Threshold

The FAA has not established a significance threshold in FAA Order 1050.1F.

5.11.1.3 Analysis of Socioeconomic Resources

No-Action Alternative

No development or construction would take place with the no-action alternative. As a result, no socioeconomic impacts are anticipated.

Preferred Alternative

Since the proposed action involves tree removal activities and is being pursued for safety/maintenance reasons, it is not expected to create long-term economic impacts to the local area. There will be short-term economic benefits resulting from the addition of construction workers in the locale. However, the increase obtained on local services and materials correlates with the size of the construction effort and subsides with the completion of construction activities. Due to the size of the construction project, it is not anticipated that this increase will be substantial, nor create a burden. Similarly, it will not have a substantial increase on local employment levels, nor will it have any impact on local public services (transportation, medical, education, etc.). The proposed action will not increase or decrease local water usage, other utilities. It will not create a burden to local waste facilities, as project plans will state that the contractor be responsible to dispose of all solid waste at a permitting facility that is capable of acceptance of woody brush and debris.

Since a portion of the tree removal may occur on private property, a boundary survey is recommended to identify the extent of tree removal on private property However, it will not displace any residents, nor will any household, or business relocation be necessary as a part of this project.

5.11.2 Environmental Justice Impacts

Environmental justice (EJ) demands the fair treatment of all regardless of race, color, national origin, or income. This means that no group of people should bear a disproportionate share of negative environmental consequences as a result of a proposed action. Additionally, the opportunity to have meaningful involvement in the decision-making process is required. Therefore, as a part of the NEPA process it is important to determine if any low-income and/or minority will be impacted as a result of the proposed action and if so to seek out and facilitate involvement of those potentially affected. As the public's contribution can influence a regulating agency's decision.

5.11.2.1 Regulatory Setting

Exhibit 12-3 in the Desk Reference lists guidance related to environmental justice impacts. These include the Civil Rights Act, Executive Order 12898, and DOT Order 5610. The lead oversight agencies include the Department of Justice (DOJ) and the EPA.

5.11.2.2 Significant Impact Threshold

No significance threshold has been identified in FAA Order 1050.1F

5.11.2.3 Analysis of Environmental Justice Impacts

No-Action Alternative

No impacts would occur.

Preferred Alternative

To determine if there were a higher concentration of low-income and minority populations within and near the project site and Airport, an analysis, using the EJ mapping database[5.11], was conducted of the percentages of these groups within the study area compared to nearby metropolitans. Tiptonville TN (and a ten-mile buffer) was identified as the study area since it is the closest city center to the project location. The nearby surrounding metropolitan areas used for comparison included the City of Dyersburg TN, the City of Jackson TN, the City of Union City TN, and the City of Jonesboro, AR. An EJ community would be identified in which the percentage of minorities within the study area is above those in the surrounding metropolitans or the percentage of persons in poverty within the study area was substantially greater than the percentage of persons in poverty in those same metropolitan areas. The results of this analysis are identified in Table 5.1. The study area was found to be very similar to surrounding metropolitan areas, regarding minority population and persons in poverty. Therefore, according to this criterion, it does not appear that the project area would include EJ communities and thus would not result in environmental justice impacts.

[5.11] https://ejscreen.epa.gov/mapper/

5.11.3 Children's Health and Safety Risks

In Chapter 12 of the FAA Order 1050.1F, *Desk Reference*, children's health and safety risks are identified as products or substances that a child could come into contact with or could ingest. The EJ screening and mapping tool was utilized as it was above with the same parameters to conduct an analysis. Children's populations were consistent in the study areas, as they were in the surrounding metropolitan areas. Additionally, the project area itself, does not include any schools, daycares, or parks and is in a rural location with the nearest residence being approximately 400 feet from the tree removal boundaries in the southern

portion of the project area and roughly 3,000 and 4,400 feet from the northern tree removal areas. Therefore, it has been determined that this project does not pose any health or safety risks to children.

Area	Total Population	Minority Population	Population Below Poverty Level
Dyserburg TN	16,314	30.4%	25.1%
Jackson, TN	67,191	50.5%	22.5%
Union City, TN	10,901	29.8%	31%
Jonesboro, AR	78,394	28.2%	18.1%
Project Area	8,448	28%	23%

Table 5.1 - EJ Analysis of Study Area and Surrounding Cities

5.12 VISUAL EFFECTS

This impact category deals with visual effects caused by light emissions and/or any impacts to the visual resources and character of the existing environment. Light emission impacts are defined as any light that emanates from a light source into the surrounding environment.[5.12] Examples of visual resource impacts are any building or structure that would block or obscure any landscape features, also including the nighttime sky.

[5.12] FAA 1050.1F, Desk Reference, Chapter 13, Visual Effects

Additionally, an impact to the visual character of an area could include a building or structure that does not fit in with the local landscape or environment of the area that it was designed for.

5.12.1 Regulatory Setting

There are no formal federal regulations, permits or other approvals that are related to this impact category. However, there may be special purpose laws and requirements that should be researched during analysis. Informal consultation is recommended with local agencies, adjacent communities, and the public, as well as with the THC since Section 106 resources may be impacted by visual effects.

5.12.2 Significant Impact Thresholds

While the FAA recommends that visual effects be analyzed to determine potential impacts as a result of the proposed action, significant thresholds have not been established. Chapter 13 in the FAA Order 1050.1F, *Desk Reference*, provides a list of factors that can be useful in determining the significance of an impact. These include:

- Light Emissions Effects

  The degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions.

  The degree to which the action would have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

- Visual Resources and Visual Character Effects

  The degree to which the action would have the potential to affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources.

  The degree to which the action would have the potential to contrast with the visual resources and/or visual character in the study area.

  The degree to which the action would have the potential to block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

5.12.3 Analysis of Visual Effects

An analysis of light emissions and visual impacts was conducted to determine whether the proposed project would create an annoyance to residents located nearby the airport, affect the existing landscape features or topography, and lastly block or obstruct the views of visual resources.

5.12.3.1 No-Action Alternative

No tree removal would occur with this alternative. As a result, there would be no impacts related to light emissions or viewshed impacts.

5.12.3.2 Preferred Alternative

The proposed action, obstruction removal, does not include the installation of new airfield lighting or reconfiguration of existing airfield lighting. Therefore, additional light emissions within the project area will not occur. However, it does involve the removal of trees in three different areas that will change the overall viewshed and could create light emissions in areas that previously didn't have light emissions. Aerial imagery was analyzed to see what, if any, impacts could be anticipated. The two tree removal areas off the Runway 19 end are located in a fence line that borders the adjacent property owner and further northeast of the runway end on State owned property that is adjacent to the Reelfoot Lake Wildlife Refuge. From aerial imagery, one residence was identified within proximity of the Runway 19 tree removal areas. The house is located on Pigeon Roost Road and approximately 3,000 feet and 4,400 feet away from either of the removal areas. Due to the topography and other dense vegetation, this residence does not have a view of the obstruction removal areas and would not be impacted by light emissions or visual impacts.

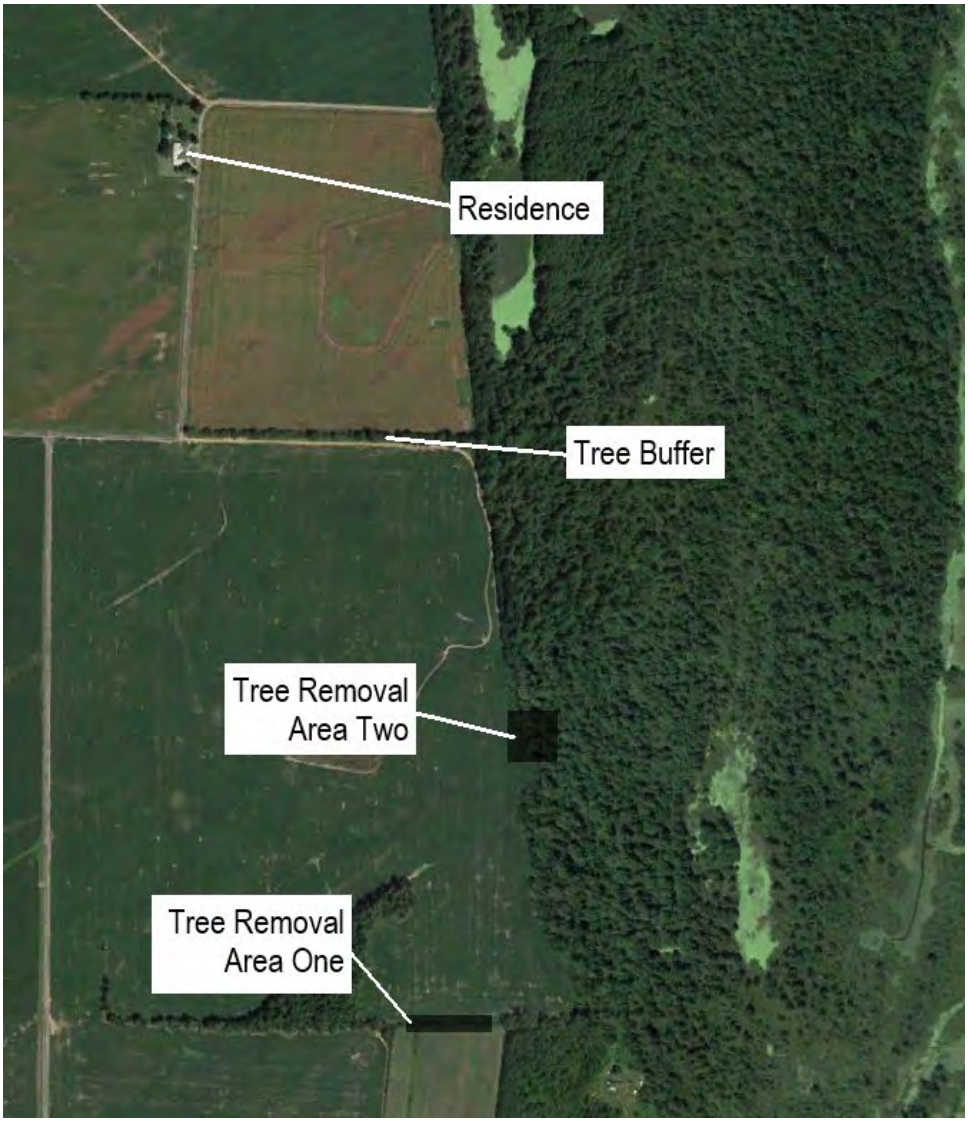


Figure 5.4 - Viewshed - Tree Removal Areas One and Two

The obstruction removal area on the Runway 1 end is located southeast of airport property and across Phillippy Road. From aerial imagery, it appears that there are several residences further south along Phillippy Road that may be impacted by the proposed action. The nearest of which is located approximately 400 feet away from the tree removal area. However, after analysis, it does not appear that this proposed action will alter the existing viewshed, as large trees and other vegetation located northeast of the residence block the view of the Runway 1 tree removal area.

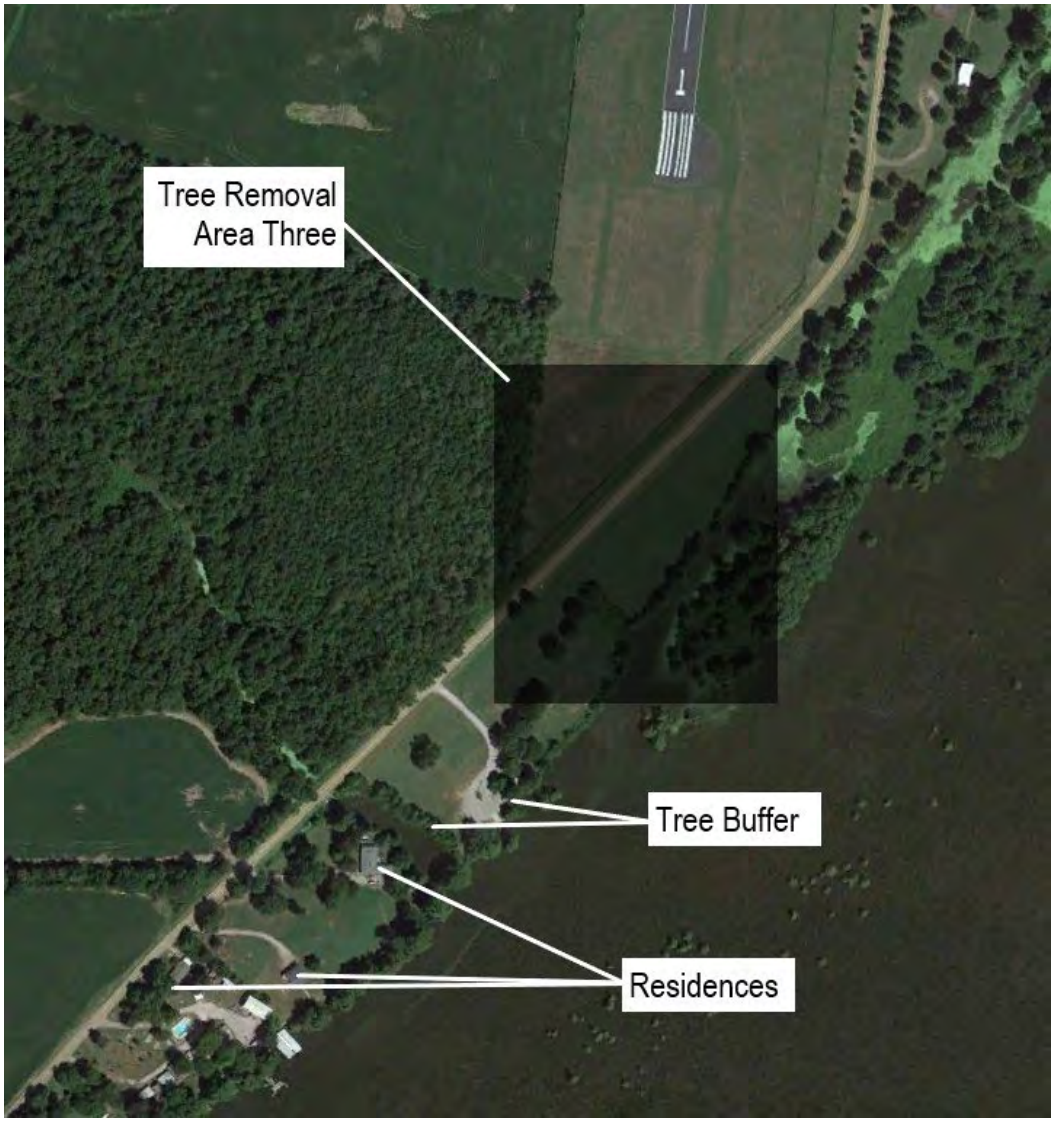


Figure 5.5 - Viewshed - Tree Removal Area Three

5.12.4 Summary

In summary the proposed action outlined in this EA is not anticipated to generate additional light emissions, nor will its visual characteristics change in a negative or unacceptable manner for the surrounding residences.

5.13 CUMULATIVE IMPACTS

Cumulative impacts include impacts the proposed action would have on any of the above-listed environmental resources when added to impacts on that resource as a result of past, present and reasonably foreseeable actions within a defined time and geographical area.

5.13.1 Regulatory Setting

According to the CEQ, cumulative impacts represent 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over time."

Chapter 15 of the *Desk Reference* states that all past, present and reasonably foreseeable future actions must be considered in the determination of whether or not a proposed action may result in cumulative impacts. A past action is identified as any action that occurred in the past that may warrant further consideration when considered as a part of the proposed action. A present action is identified as any action occurring simultaneously as the proposed action and a reasonably foreseeable future action is defined as an action that may affect projected impacts.

5.13.2 Significant Impact Threshold

The FAA doesn't have an established significance threshold for cumulative impacts, but states that the significance of cumulative impacts should be determined similarly to the significance of those direct and indirect impacts for all environmental resource categories analyzed.

5.13.3 Analysis of Cumulative Impacts

The proposed tree removal areas are relatively small when compared to the adjacent surrounding tree cover. Since there were no known clearing projects at the Airport in past recent years and no concurrent ongoing projects it is unlikely that the proposed action would result in any direct or indirect cumulative impacts.

As such, it is not anticipated that these actions will result in impacts to any one resource category or cumulatively as a whole exceed thresholds of significance as described in FAA Order 1050.1F will result due to this proposed action.

5.14 CONSTRUCTION IMPACTS

As a result of this proposed project, some of the environmental categories that have been discussed above may experience short-term impacts during the construction phase. Construction can have various effects on the environment. These can include, but are not limited to, increases in fugitive dust at the construction site, emissions from heavy equipment, stormwater runoff, soil erosion, noise increase from construction vehicles and equipment, socioeconomic impacts and spill/leaking petroleum. The following sections outline measures that will be instilled during construction that will allow for the reduction and/or avoidance of impacts to each sub-category. The environmental impacts listed in this section are all short-term in nature.

5.14.1 Short-term Impacts to Air Quality

During the construction phase, impacts such as a reduction to the local air quality can be caused by fugitive dust or emissions from heavy equipment at the project site. As a way to mitigate this impact, the contractor will implement routine dust control measures. These dust control measures could include periodic watering of the project site during dry conditions, providing a designated haul route that will minimize soil being carried onto the adjacent road network, and the discontinuance of all construction activities during exceptionally dry and/or high wind conditions.

5.14.2 Short-term Impacts to Water Quality

The risk of soil erosion and the possible release of silt and sediment into local waterways is a potential impact as a result of tree and brush removal activities. Due to the exposure of bare soil materials to any precipitation events, this impact is more likely during the construction phase of the project. Within the two large areas of tree clearing/grubbing these impacts can be minimized by implementing Best Management Practices (BMPs). BMPs related to the local water quality at the construction site can include measures

and techniques such as preserving existing vegetation, using sediment barriers to trap soil in runoff, installing sediment traps and settling basins, seeding/mulching, covering bare soil immediately, and preserving vegetation near all waterways. Therefore, BMPs will be outlined in the project plans and specifications and will be adhered to by the contractor. This will help minimize any silt, sedimentation, or erosion to occur within or nearby any wetland area during construction of the proposed action. Additionally, mechanized low ground pressure equipment may be required for tree removal in areas within or adjacent to the wetland area. This project will require a CGP based on the disturbance of more than one acre. This permit is issued and regulated by TDEC DWR. An erosion control plan and Stormwater Pollution Prevention Plan (SWPP) will be completed as a part of this permit and will graphically show the location of temporary erosion and pollution control devices that will be installed and implemented throughout the duration of construction activities as regulated by federal, state, and local jurisdictional agencies. Lastly, all mechanical equipment will be staged in predetermined locations far removed from any surface water, and construction activities will be scheduled during dry periods and/or not occur while the ground is saturated.

5.14.3 Short-term Impacts to Traffic Patterns

The Reelfoot Lake Airport is located in a rural area nine miles northeast of Tiptonville TN. During the construction phase of the project there will be additional vehicles accessing the local road network so a designated haul route will be identified in the project plans. This will keep all construction vehicles and heavy equipment out of sensitive areas, as well as eliminate any impacts to normal traffic patterns. It is anticipated that during obstruction removal within Tree Removal Area One, all construction vehicles and work equipment will take Highway 213 to the Airport and then drive north once on Airport property to the project site, keeping out of runway safety areas and off the taxiway pavement as much as possible. Highway 213 will also be used to access Tree Removal Area Three, which is located nearby to the Reelfoot Lake Public Boat Access. Construction vehicles will take Highway 78 to Pigeon Roost Road and Fraley Lane till it ends in a dirt road to access Tree Removal Area Two. A construction staging area, if necessary, will be located on Airport property near the apron. Refer to Figures 5.6, 5.7, and 5.8 for a graphic depiction of the anticipated haul routes.

It is not expected that local traffic patterns will be disrupted during the construction phase since the project site is located in a rural location that currently has a good road network. Additionally, due to the short duration of the construction phase and the scale of the project, no impacts are anticipated to local traffic patterns.

5.14.4 Short-term Impacts as a Result of Increased Noise Emissions

During the construction phase, there will be increased noise emissions within and adjacent to the project site. This will be as a result of construction vehicles and/or heavy equipment required for the obstruction removal project. However, the three tree removal areas are located in a predominantly rural area that has adjacent tree cover with only a few scattered residences within the vicinity of the Airport. From aerial

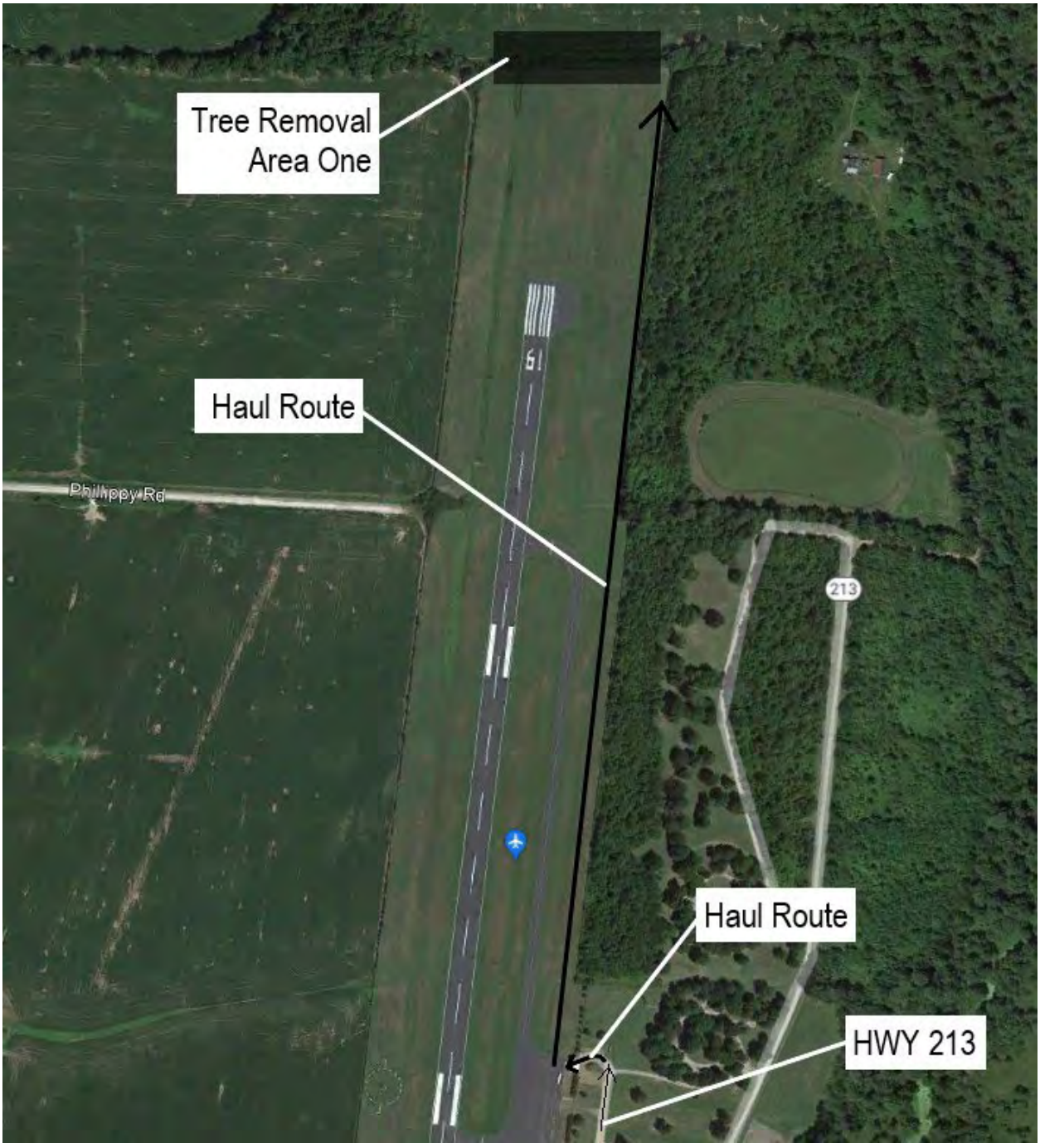


Figure 5.6 - Haul Route Area One Removal



Figure 5.7 - Haul Route Area Two Removal

imagery, one residence was identified within proximity of the Runway 19 tree removal areas. The house is located on Pigeon Roost Road and approximately 3,000 feet and 4,400 feet away from either of the removal areas. Due to the topography and other dense vegetation, this residence would not be impacted by short term noise emissions. Likewise, the tree removal area on the Runway 1 end is located southeast of airport property and across Phillippy Road. From aerial imagery, it appears that there are several residences further south along Phillippy Road. The nearest of which is located approximately 400 feet away from the tree removal area. However, after analysis, it does not appear that this proposed action will create short term impacts related to increased noise emissions for the homeowner, as large trees and other vegetation are located between the residence and the Runway 1 tree removal area.



Figure 5.8 - Haul Route Area Three Removal

5.14.5 Short-term Impacts as a Result of Generated Solid Waste

This project will result in additional solid waste as a result of tree removal. However, the specifications and plans will require that the contractor be responsible to remove and dispose of all solid waste off of the project site in a permitted facility. There were no anticipated issues after coordination with the DSWM.

5.15 MITIGATION

As defined in the CEQ, mitigation can include any of the following: 1) avoidance of the impact; 2) minimizing the impact; 3) rectifying the impact by repairing, rehabilitating, or restoring the environment; 4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and lastly by 5) compensating for the impact by replacing or providing substitute resources.

With the completion of this EA, it has been determined that the preferred alternative is proposing to remove 57 individual trees, of which 38 (approx.) are in a wetland area. However, the total acreage of impacts is less than the threshold that would require further mitigation.

During the construction phase, appropriate soil erosion and sediment control devices will be used and the method of removal for these sensitive areas will include felling the tree and leaving the stump and woody debris in place. With the implementation of these measures, wetland impacts are not expected to exceed thresholds of significance.

Approximately 42 of the individual trees are located within FEMA floodplains. Trees within floodplains will also require a sensitive method of removal that will leave the stump in place as to not disturb the ground. Soil erosion and sediment control devices will also be required within FEMA floodplains.

Lastly, haul routes will be designated as to avoid the sensitive environment and construction vehicles to haul out debris will only be allowed outside of the wetland boundary.

No other mitigation is anticipated as a result of the proposed action.

5.16 LIST OF ANTICIPATED PERMITS

The following paragraphs provide a discussion about the permits that will be required as a part of the upcoming tree removal project. Each paragraph contains a description of the permit, why it is required for the proposed action and the permitting agency.

5.16.1 Construction Stormwater Permit (CGP)

The Tennessee Water Quality Control Act of 1977 authorized TDEC to facilitate the federal National Pollutant Discharge Elimination System (NPDES) program. The NPDES program was developed to reduce the discharge of pollutants to our creeks, rivers, and lakes by means of a permitting process. One of these permits is the Construction Stormwater Permit (also referred to the NPDES Stormwater Construction Permit or General Construction Permit). This permit is obtained from the TDEC Division of Water Resources and is required for all construction projects that involve clearing, grading, or excavation that results in the disturbance of one or more acres. Or a proposed action that would result in the disturbance of less than an acre, if it is part of a larger development. Since this project will require the disturbance of more than an acre

of land, a CGP will be obtained prior to the obstruction removal phase. No difficulties are anticipated in retrieving this permit.

Permit	Agency	Document Quick Reference (pages)
Construction Stormwater Permit	TDEC Division of Water Resources	4.31, 4.35, 5.52, 5.73

5.16.2 Aquatic Resources Alteration Permit (ARAP)

Similar to the CGP, the Aquatic Resources Alteration Permit (ARAP) permit is also part of the federal NPDES program that has been developed to reduce the discharge of pollutants into bodies of water. TDEC Division of Water Resources facilitates applications and approvals for this permit. An ARAP is necessary for construction projects that will require the alteration of a stream, river, lake, or wetland. Since this project requires tree removal within a wetland area, an ARAP will be required prior to any construction work. No difficulties are anticipated in obtaining this permit.

Permit	Agency	Document Quick Reference (pages)
Aquatic Resources Alteration Permit	TDEC Division of Water Resources	4.31, 4.35, 5.49, 5.52

6.0 AGENCY COORDINATION AND PUBLIC PARTICIPATION

In accordance with NEPA requirements, preliminary coordination with all interested agencies was initiated at the onset of the proposed project. An initial scope was submitted to TDOT Aeronautics Division (TAD) for the purpose of identifying which federal and state regulators should be notified of the proposed action.

Early agency coordination was solicited via either a mailed or emailed proposal.[6.1] This process is outlined in FAA Order 1050.1F Section 2-4.3 which states that, "In accordance with Executive Order 12373, Intergovernmental Review of Federal Programs, the responsible FAA official must provide the opportunity for state and local officials to review and comment on Federal actions for Federal Assistance or actions affecting them". As such to fulfill NEPA regulations, early consultation began with the responsible TAD official, acting on behalf of the FAA, to establish the appropriate level of agency coordination.

6.1 AGENCY COORDINATION

Agency coordination has been ongoing as a part of the EA process. The following list of agencies were coordinated with regarding potential impacts as a result of the obstruction removal project. A scoping letter or proposal was submitted via regular mail, email or online to the agencies included below:

- United States Fish & Wildlife (USFWS)
- United States Department of Agriculture/Natural Resources Conservation Office (USDA-NRCS)
- United States Corps of Engineers (USACE)
- United States Environmental Protection Protection Agency (USEPA) Region 4
- Tennessee Historical Commission (THC)
- Tennessee Wildlife Resources Agency (TWRA)
- Tennessee Division of Air Quality
- Tennessee Division of Solid Waste Management
- Tennessee Division of Water Resources
- Tennessee Department of Economic and Business Development
- Reelfoot Lake National Wildlife Refuge
- Lake County Planning Department

[6.1]This scoping letter requested each agency review and comment. All correspondence received as a part of agency coordination has been included in Appendix B.

6.2 PUBLIC PARTICIPATION

To facilitate public participation, the EA will be made available to the public for a 30-day period. A legal notice will be published in the Lake County Banner (the highest circulating local paper) announcing the availability of the EA, as well as letting the public know how to obtain further information regarding the proposed project. It is anticipated that the EA will also be made available for the public to review online. Any public comments received during the public review period will be included with the Final EA document.

During the review period, a hearing can be scheduled at the public's request. The purpose of the hearing would be to provide the public with information regarding the proposed project at the Airport and to gain feedback. All attendees would be given the opportunity to provide written and/or oral comments. Information letting the public know how to request a hearing will be included in the legal notice.

Lastly, communication with the impacted private property owner is anticipated to occur during the public review period. This communication may take place via letters, email communications, meetings and phone calls.

This section will be updated after the public review period has ended and all coordination with the property owner and comments from the public will be added to Appendix E.

7.0 LEAD AGENCIES/LIST OF PREPARERS AND REVIEWERS

Based on the research and analysis done as a part of this EA effort, as well as information received during preliminary coordination with federal, state, and local agencies, it is anticipated that this proposal as outlined will have no impact on the natural and human environment. This document has been forwarded to the TDOT Aeronautics Division with a request that a FONSI be prepared, and approval be granted for the proposed action.

7.1 TDOT AERONAUTICS DIVISION

TDOT Aeronautics Division will review and provide comments on the EA. Changes will be made for the final EA that will be advertised for public review. The following is a list of TAD Officials responsible for the Reelfoot Lake Airport.

Aeronautics Division Director:

Jay Norris, P.E.
Interim Director of Aeronautics
7335 Centennial Boulevard
Nashville, TN 37209
Phone: 615-741-3208
Jay.Norris@tn.gov

Aeronautics Division Environmental Reviewers:

Evan Lester
Transportation Program Supervisor (Planning)
7335 Centennial Boulevard
Nashville, TN 37209
Phone: 615-361-8016
Evan.Lester@tn.gov

Erin Burkle
Transportation Program Monitor 1 (Planning)
7335 Centennial Boulevard
Nashville, TN 37209
Phone: 615-532-871
Erin.Burkle@tn.gov

Aeronautics Division Project Manager/Engineer:

William Burney, P.E.
Transportation Project Specialist Senior
7335 Centennial Boulevard
Nashville, TN 37209
Phone: 615-741-1680
William.Burney@tn.gov

7.2 LIST OF PREPARERS AND REVIEWERS

The preparation of this document has been a collaborative effort from several responsible entities that includes planners, engineers, and environmental scientists. The following list depicts all who helped prepare or review the EA.

List of Preparers/Reviewers:

Stantec Consulting

Beck Hobneck, AICP, EI
Aviation Planner
601 Grassmere Park, Suite 21
Nashville, TN 37211

Michael Williams, QHP
Senior Biologist
601 Grassmere Park, Suite 21
Nashville, TN 37211

Niky Vahanian
Environmental Scientist
601 Grassmere Park, Suite 21
Nashville, TN 37211

Ronnie Canups, PE
Project Manager
601 Grassmere Park, Suite 21
Nashville, TN 37211

Rhett Baggett, QHP
Regional Sector Leader, Environmental Services
601 Grassmere Park, Suite 21
Nashville, TN 37211

APPENDICES

Appendix A

A.1 OBSTRUCTION SURVEY (COMPLETED BY OTHERS)



OVERALL VIEW

TN GRID

0' 300' 600'
Graphic Scale

REELFOOT AIRPORT (0M2) 20:1 APPROACH SURFACE PENETRATIONS

Penetration Point #	Northing TN State Plane (US Feet)	Easting TN State Plane (US Feet)	Latitude NAD83 (2011)	Longitude NAD83 (2011)	Top Elevation (Feet)	Surface Elevation (Feet)	Height Above Surface (Feet)	Runway	Distance from Runway End (Feet)	Offset to Runway Centerline (Feet)	Offest Direction	Extraction Technician	QC Checked
P1	793417.59	984088.85	36°28'00.13"	89°20'53.82"	355.56	349.28	6.28	1	1438	207	W	EWF	SPS
P2	793438.18	984133.33	36°28'00.35"	89°20'53.29"	355.14	347.92	7.22	1	1411	167	W	EWF	SPS
P3	793502.02	984118.97	36°28'00.97"	89°20'53.49"	356.57	344.88	11.69	1	1350	190	W	EWF	SPS
P4	793556.39	984123.89	36°28'01.51"	89°20'53.45"	350.16	342.15	8.01	1	1295	194	W	EWF	SPS
P5	793593.13	984133.56	36°28'01.88"	89°20'53.35"	359.39	340.26	19.13	1	1257	190	W	EWF	SPS
P6	793610.67	984142.40	36°28'02.05"	89°20'53.25"	361.14	339.33	21.81	1	1239	184	W	EWF	SPS
P7	793626.91	984167.03	36°28'02.22"	89°20'52.96"	353.35	338.34	15.01	1	1219	162	W	EWF	SPS
P8	793735.51	984200.18	36°28'03.31"	89°20'52.60"	340.41	332.72	7.69	1	1107	146	W	EWF	SPS
P9	793774.90	984241.91	36°28'03.71"	89°20'52.10"	334.15	330.46	3.69	1	1061	110	W	EWF	SPS
P10	793821.14	984260.30	36°28'04.17"	89°20'51.90"	347.95	328.03	19.92	1	1013	99	W	EWF	SPS
P11	793849.44	984296.05	36°28'04.47"	89°20'51.47"	327.30	326.36	0.94	1	979	68	W	EWF	SPS
P12	793713.95	984517.54	36°28'03.20"	89°20'48.70"	347.71	331.37	16.34	1	1080	171	E	EWF	SPS
P13	793749.81	984518.91	36°28'03.56"	89°20'48.70"	335.61	329.59	6.02	1	1044	167	E	EWF	SPS
P14	793802.78	984514.00	36°28'04.08"	89°20'48.78"	328.30	327.01	1.29	1	992	154	E	EWF	SPS
P15	793841.47	984453.67	36°28'04.44"	89°20'49.54"	330.67	325.56	5.11	1	963	89	E	EWF	SPS
P16	793891.48	984490.36	36°28'04.95"	89°20'49.11"	344.52	322.81	21.72	1	908	117	E	EWF	SPS
P17	793948.78	984528.11	36°28'05.53"	89°20'48.67"	340.48	319.69	20.79	1	846	146	E	EWF	SPS
P18	798891.72	985031.20	36°28'54.54"	89°20'44.58"	322.26	309.29	12.97	19	616	109	W	EWF	SPS
P19	800368.16	985647.84	36°29'09.34"	89°20'37.66"	391.13	386.94	4.19	19	2169	276	E	EWF	SPS
P20	800399.25	985599.33	36°29'09.63"	89°20'38.26"	393.11	388.11	5.00	19	2192	224	E	EWF	SPS
P21	800389.98	985596.05	36°29'09.54"	89°20'38.30"	393.20	387.63	5.57	19	2183	222	E	EWF	SPS

REELFOOT AIRPORT (0M2) 20:1 APPROACH SURFACE POTENTIAL PENETRATIONS
(WITHIN 10 FEET)

Penetration Point #	Northing TN State Plane (US Feet)	Easting TN State Plane (US Feet)	Latitude NAD83 (2011)	Longitude NAD83 (2011)	Top Elevation (Feet)	Surface Elevation (Feet)	Below Surface (Feet)	Runway	Distance from Runway End (Feet)	Offset to Runway Centerline (Feet)	Offset Direction	Extraction Technician	QC Checked
22	793688.44	984488.33	36°28'02.94"	89°20'49.05"	328.00	332.85	-4.85	1	1,109	146	E	EWF	SPS
23	793721.98	984367.14	36°28'03.23"	89°20'50.55"	327.56	332.12	-4.56	1	1,095	21	E	EWF	SPS
24	793871.92	984309.61	36°28'04.69"	89°20'51.31"	318.58	325.15	-6.57	1	955	58	W	EWF	SPS
25	793867.47	984482.52	36°28'04.71"	89°20'49.20"	317.44	324.05	-6.61	1	933	113	E	EWF	SPS
26	793863.36	984461.96	36°28'04.66"	89°20'49.45"	320.19	324.41	-4.22	1	940	94	E	EWF	SPS
27	793831.24	984441.13	36°28'04.33"	89°20'49.69"	319.70	326.16	-6.45	1	975	78	E	EWF	SPS
28	794301.35	984528.01	36°28'09.01"	89°20'48.82"	295.51	302.26	-6.75	1	497	92	E	EWF	SPS
29	794314.90	984543.65	36°28'09.15"	89°20'48.64"	293.31	301.48	-8.17	1	482	106	E	EWF	SPS
30	798874.47	985028.33	36°28'54.37"	89°20'44.61"	301.95	308.41	-6.46	19	599	109	W	EWF	SPS
31	798876.72	985050.18	36°28'54.40"	89°20'44.35"	298.83	308.69	-9.86	19	604	88	W	EWF	SPS
32	798915.76	985039.65	36°28'54.78"	89°20'44.49"	307.14	310.54	-3.40	19	641	104	W	EWF	SPS
33	798899.83	985076.21	36°28'54.64"	89°20'44.04"	306.12	310.03	-3.91	19	631	65	W	EWF	SPS
34	798874.36	985087.78	36°28'54.39"	89°20'43.89"	302.05	308.86	-6.81	19	607	50	W	EWF	SPS
35	798892.85	985108.28	36°28'54.58"	89°20'43.64"	304.86	309.93	-5.07	19	629	33	W	EWF	SPS
36	798878.74	985116.70	36°28'54.44"	89°20'43.53"	301.66	309.30	-7.64	19	616	22	W	EWF	SPS
37	798871.69	985149.92	36°28'54.39"	89°20'43.12"	301.57	309.20	-7.63	19	614	12	E	EWF	SPS
38	798883.76	985144.55	36°28'54.50"	89°20'43.19"	300.73	309.76	-9.03	19	625	5	E	EWF	SPS
39	798921.05	985130.11	36°28'54.87"	89°20'43.39"	301.73	311.49	-9.76	19	660	15	W	EWF	SPS
40	798877.91	985179.98	36°28'54.46"	89°20'42.76"	301.66	309.74	-8.08	19	625	41	E	EWF	SPS
41	798865.88	985220.12	36°28'54.35"	89°20'42.26"	299.98	309.45	-9.47	19	619	82	E	EWF	SPS
42	798888.71	985230.16	36°28'54.58"	89°20'42.15"	304.41	310.65	-6.24	19	643	89	E	EWF	SPS
43	798918.27	985204.76	36°28'54.86"	89°20'42.47"	303.84	311.92	-8.08	19	669	59	E	EWF	SPS
44	798927.06	985238.82	36°28'54.96"	89°20'42.06"	307.69	312.61	-4.93	19	683	91	E	EWF	SPS
45	798917.90	985262.45	36°28'54.88"	89°20'41.77"	306.60	312.34	-5.74	19	677	116	E	EWF	SPS
46	800323.06	985626.00	36°29'08.89"	89°20'37.90"	375.52	384.55	-9.03	19	2,121	262	E	EWF	SPS
47	800439.99	985631.27	36°29'10.05"	89°20'37.89"	388.65	390.37	-1.72	19	2,238	249	E	EWF	SPS
48	800491.33	985658.59	36°29'10.56"	89°20'37.58"	392.46	393.11	-0.65	19	2,292	268	E	EWF	SPS
49	800499.69	985693.20	36°29'10.66"	89°20'37.16"	393.74	393.79	-0.04	19	2,306	301	E	EWF	SPS
50	800535.74	985669.23	36°29'11.01"	89°20'37.46"	386.90	395.39	-8.49	19	2,338	272	E	EWF	SPS
51	800531.57	985627.48	36°29'10.95"	89°20'37.97"	393.68	394.86	-1.18	19	2,327	231	E	EWF	SPS
52	800573.43	985632.22	36°29'11.37"	89°20'37.93"	392.00	396.97	-4.96	19	2,370	230	E	EWF	SPS
53	800579.27	985601.82	36°29'11.41"	89°20'38.31"	393.20	397.02	-3.82	19	2,371	199	E	EWF	SPS
54	800589.83	985586.22	36°29'11.51"	89°20'38.50"	394.73	397.43	-2.69	19	2,379	182	E	EWF	SPS
55	800599.88	985613.02	36°29'11.62"	89°20'38.18"	394.56	398.13	-3.57	19	2,393	207	E	EWF	SPS
56	800627.38	985732.97	36°29'11.93"	89°20'36.72"	395.31	400.40	-5.09	19	2,438	321	E	EWF	SPS
57	800681.29	985735.00	36°29'12.47"	89°20'36.72"	397.94	403.08	-5.14	19	2,492	315	E	EWF	SPS

REELFOOT LAKE AIRPORT

APPROACH PENETRATION EXHIBIT

DATE: 6/8/2020
DRAWN BY: AMO
CHECKED BY: JCR
SCALE: 1"=300'
LAKE COUNTY, TN
SHEET 1 OF 2
FILE NAME: 2020 PROJECTS\20-04-0603\REELFOOT\SURVEY\APPROACH EXHIBIT.DGN

WISER CONSULTANTS
1427 Kensington Square Court
Murfreesboro, Tennessee 37130
Telephone: 615-278-1500
Facsimile: 615-217-8130
www.wiserconsultants.com

P1 ▲ APPROACH SURFACE PENETRATION POINT

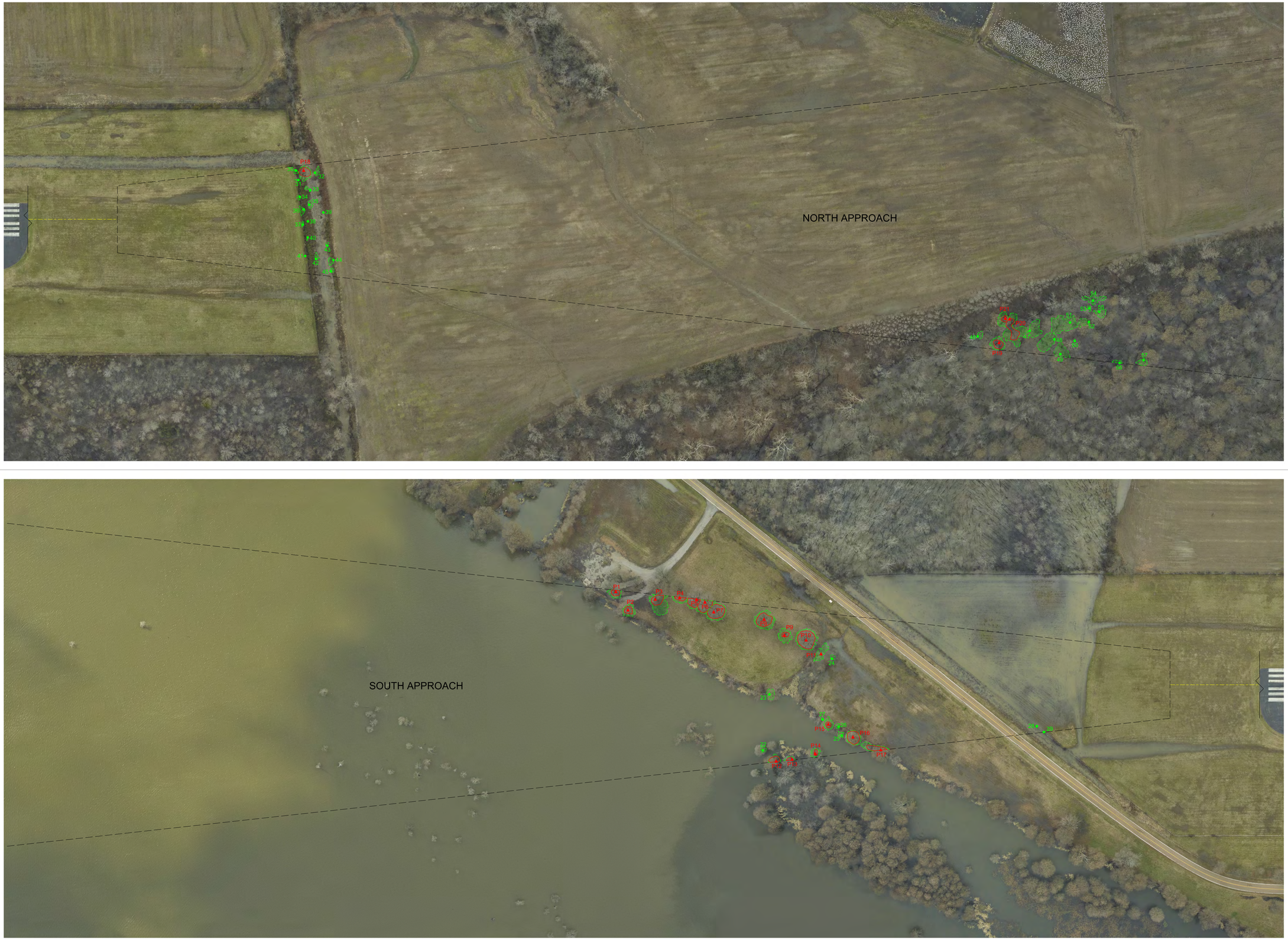
22 ● POTENTIAL APPROACH SURFACE PENETRATION POINT (WITHIN 10 FEET)

APPROACH EXTENTS

RUNWAY CENTERLINE

PAVEMENT EDGE

SEE SHEET 2 FOR DETAILED VIEW


NORTH APPROACH
SOUTH APPROACH
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
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Appendix B

B.2 AGENCY COORDINATION

LAKE COUNTY PLANNING OFFICE
COORDINATION

From:	Hobneck, Beck
To:	info@lakecountytn.com
Subject:	Proposed Obstruction Removal Project - Reelfoot Lake Airport (0M2) Scoping Letter
Date:	Monday, April 19, 2021 11:37:00 AM
Attachments:	LakeCountyPlanning_letter.pdf

Dear Sir/Madam,

Please see the attached project proposal that I am submitting for local coordination within Lake County (environmental review per NEPA regulations).
I would appreciate it if this email could be forwarded to any interested/concerned entities within your community (planning, zoning, solid waste, utilities, etc.)

If you have any questions concerning this request, please don't hesitate to contact me by phone at 615-268-0746
or via email at beck.hobneck@stantec.com.

Thank you,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

April 19, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
Lake County TN Planning Office
116 S Court Street
Tiptonville, TN 38079

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions. It is anticipated that these trees will be removed with the root ball, where possible and then burned on site (if local regulations allow). Trees located in wetlands or within a floodplain area will be cut at the base and left in place.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end. The approximated total size of the tree clearing areas at the Runway 1 end is .40 acres and .20 acres at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

While we do not anticipate impacts to the surrounding communities due to the nature, size, and location of the proposed action, in order to fulfill NEPA requirements, we request that your office review this proposal with regard to possible impacts to the local economy (population, employment, housing, and public services). Additionally, if there is any foreseeable planning projects nearby to the Airport that can be disclosed please provide details and if it should be included in the final EA document.

Please refer to the project sketch that has been included with this proposal for a depiction of the obstruction removal areas (red hatching). If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-268-0746
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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USDA/NRCS
COORDINATION

United States Department of Agriculture

Beck Hobneck
601 Grassmere Park, Suite 22
Nashville, TN 37211

December 10, 2020

Dear Beck:

The Natural Resources Conservation Service (NRCS) in Tennessee has received your Farmland Protection Policy Act (FPPA) request (AD-1006, Farmland Conversion Impact Rating) regarding the Reelfoot Lake Airport project at Tiptonville, TN. The intent of the FPPA is to minimize the impact Federal programs have on the unnecessary and irreversible conversion of important farmland to nonagricultural uses.

Through the review process, it has been determined this project does not meet the guidance set forth by the act and is therefore **EXEMPT** from Farmland Protection Policy Act (FPPA) review due to the following:

☑ No federal funding - This project is not planned and/or constructed with the assistance of federal funding and therefore is not subject to FPPA.

☐ Not prime farmland - This project does not have an unnecessary or irreversible impact on land designated as prime farmland and therefore is not subjec to FPPA. Official land classification information can be found at http://websoilsurvey.nrcs.usda.gov

☐ Urban development - This project area is already in or committed to urban land use and therefore is not subject to FPPA.

☐ Subsurface corridor project (minimal disturbance) - Properly planned/permitted buried utility projects will result in minimal distrubance of agricultural land and are therefore not subject to FPPA.

☐ Agriculture structures - The construction of on-farm structures that are associated with farm operations are not subject to FPPA.

☐ Zoning - This project area has been designated by a state or local government entitiy for commerical and/or industrial landuse and therefore is not subject to FPPA.

☐ Water storgage - This project area involves land used for water storage and therefore is not subject to FPPA.

Questions regarding your inquiry and this response can be directed to the Tennessee State Soil Scientist, Aaron Friend, at (615) 277-2550 or emailed to the FPPA intake box at tnhawc@usda.gov.

Sincerely,

Natural Resources Conservation Service
801 Broadway, 675 U.S. Courthouse
Nashville, Tennessee 37203
Voice (615) 277-2531 Fax (855) 591-1284
USDA is an equal opportunity provider, employer, and lender.

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

December 9, 2020

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
Ms. Brooke Lucas
Natural Resources Conservation Service
Nashville State Office
801 Broadway
675 U.S. Courthouse
Nashville, TN 37203
(629)219-6355

Dear Sir/Madam,

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be removed in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions. It is anticipated that the trees will be removed entirely and including the root ball. The area will then be graded.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

In order to fulfill NEPA requirements, we request that your office review this proposal in regard to farmland of statewide importance. Please refer to the project sketch that has been included with this proposal for a depiction of the location of the obstruction removal.

If you have any questions concerning our request, please do not hesitate to contact me at (615) 26-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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REELFOOT NATIONAL WILDLIFE REFUGE COORDINATION

Coordination (timeline) with Reelfoot National Wildlife Refuge

Date:	Contact made:
Between April and May 2021	Multiple phone calls were attempted to the Reelfoot National Wildlife Refuge (731-538-2481). There was never an answer and no voicemail/directory. Possible COVID closure of the main office? A hard copy of the project proposal was mailed to the Refuge at their headquarters in Dyersburg TN. No responses received.
May 4th 2021	Email to Evan Lester (TDOT Aeronautics) requesting help for additional contact information for the Refuge.
May 20th 2021	Response email from Evan Lester (TDOT Aeronautics) with additional contacts at the Refuge. The link to this website was provided. www.fws.gov/southeast/tennessee/
June 7th 2021	Attempted contact with the Refuge Manager at the number listed on the website (731-538-2481). The receptionist provided a name of her supervisor, Randy Cook, and an email to send the coordination.
June 8th 2021	Project proposal emailed to Randy Cook at Randy_Cook@fws.gov. No responses received.
December 22nd 2021	Attempted follow-up contact with the Refuge Manager. Tara Dowdy (Park Ranger at the Refuge) stated that the project details should go to her supervisor, Randy Cook. She provided his contact number (731-287-0650) and confirmed his email listed above was correct.
December 22nd 2021	Attempted to contact Randy Cook at 731-287-0650. There was no answer, and no voicemail could be left.
December 23rd 2021	A follow-up email was sent to Randy Cook with the project proposal and a request to provide comment by January 22nd
January 20th 2022	Phone call between Beck Hobneck and Mr. Randy Cook. Mr. Cook had no concern with the tree removal itself. He did request comments/coordination with USFWS, as well as a copy of the Hydrologic Determination that had been completed. These were forwarded to him. He expressed interest to be kept informed of permissions obtained to access and remove the trees on Refuge leased lands.

From:	Hobneck, Beck
To:	Cook, Randy
Subject:	Reelfoot Lake Airport Obstruction Removal Project
Date:	Thursday, January 20, 2022 12:01:00 PM
Attachments:	HD_Request_ReelfootLake_20210614-reduced.pdf DWR_response_Reelfoot.pdf USFWS_response_Reelfoot.pdf USFWS_response_updated_Reelfoot.pdf TWRA_response_Reelfoot.pdf

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Per our discussion I have attached the wetland delineation/HD report that was completed. It has been reviewed and approved by TDEC. I also have attached comments we received from the Cookeville field office and TWRA.

Let me know if you have any other questions/concerns.

I appreciate your time in reviewing the project information.

Beck Hobneck AICP, EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

From:	Hobneck, Beck
To:	randy_cook@fws.gov
Subject:	Upcoming obstruction removal project at the Reelfoot Lake Airport - Request for project review (Reelfoot Lake National Wildlife Refuge)
Date:	Tuesday, June 08, 2021 10:32:00 AM
Attachments:	Reelfoot_National_Refuge_Request for Comment.pdf

Mr. Cook,

Please find the attached project review request for an upcoming Obstruction Removal Project at the Reelfoot Lake Airport.
We are contacting all agencies that may want to provide comments. These comments will be included with the environmental assessment
that is being completed at this time.

The purpose of the project is to remove trees that have been identified as penetrating the Runway 1-19 approach surfaces and that
are creating a safety hazard. It is anticipated that any short term impacts during the obstruction removal project can be minimized through the installation of erosion
control devices when work will be nearby water resources.

Please let me know if you have any questions/need any additional information during your review or if I should be in contact with a different individual at the Refuge regarding this matter.

Thank you,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

June 8, 2021

Reference:
Reelfoot Lake Airport(0M2)
Obstruction Clearing Project

Attention:
Reelfoot National Wildlife Refuge
309 North Church Street
Federal Building, Room 201
Dyersburg, Tennessee 38024
(931)528-6481

Project Name: Reelfoot Lake Airport (0M2) Obstruction Clearing

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it may be necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, these easements will allow the Airport to maintain these properties going forward.

Results of IPAC Online Review:
In order to fulfill NEPA requirements, Federally Listed species and Critical Habitat known to occur within the project site was obtained from the Information Planning and Conservation (IPAC) database, which showed that there was a total of 2 threatened, endangered, or candidate species (2 mammals) that have been identified. These species, and their current federal status, include the: Indiana Bat- Endangered and the Northern Long-eared Bat- Threatened. Additionally, 10 different species of migratory birds were of particular concern due to the location of the proposed action. These include the American Golden-plover, the Bald Eagle, the Kentucky Warbler, LeConte's Sparrow, the Lesser Yellowlegs, Prothonotary Warbler, Red-Headed Woodpecker, Rusty Blackbird, Semipalmated Sandpiper, and the Wood Thrush. No critical habitat was known to occur.

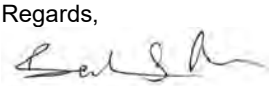
Effect Determinations:
With regard to the two mammal species, it is our opinion that since the project will include tree removal in a mature forested area, this proposed action **May affect-not likely to adversely affect** the Indiana Bat, and the Northern Long-eared Bat, as similar habitat is prevalent adjacent to the obstruction removal site.

Additionally, we anticipate a determination of **May affect-not likely to adversely affect for** the ten species of migratory birds as the construction phase of the obstruction clearing project can be scheduled to occur when the birds of concern are least likely to be present within the project area.

Closing Remarks:
We request that your office review this proposal and provide comment. Please refer to the project sketch that has been included with this proposal for a depiction of the location of the obstruction removal.

If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY1



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

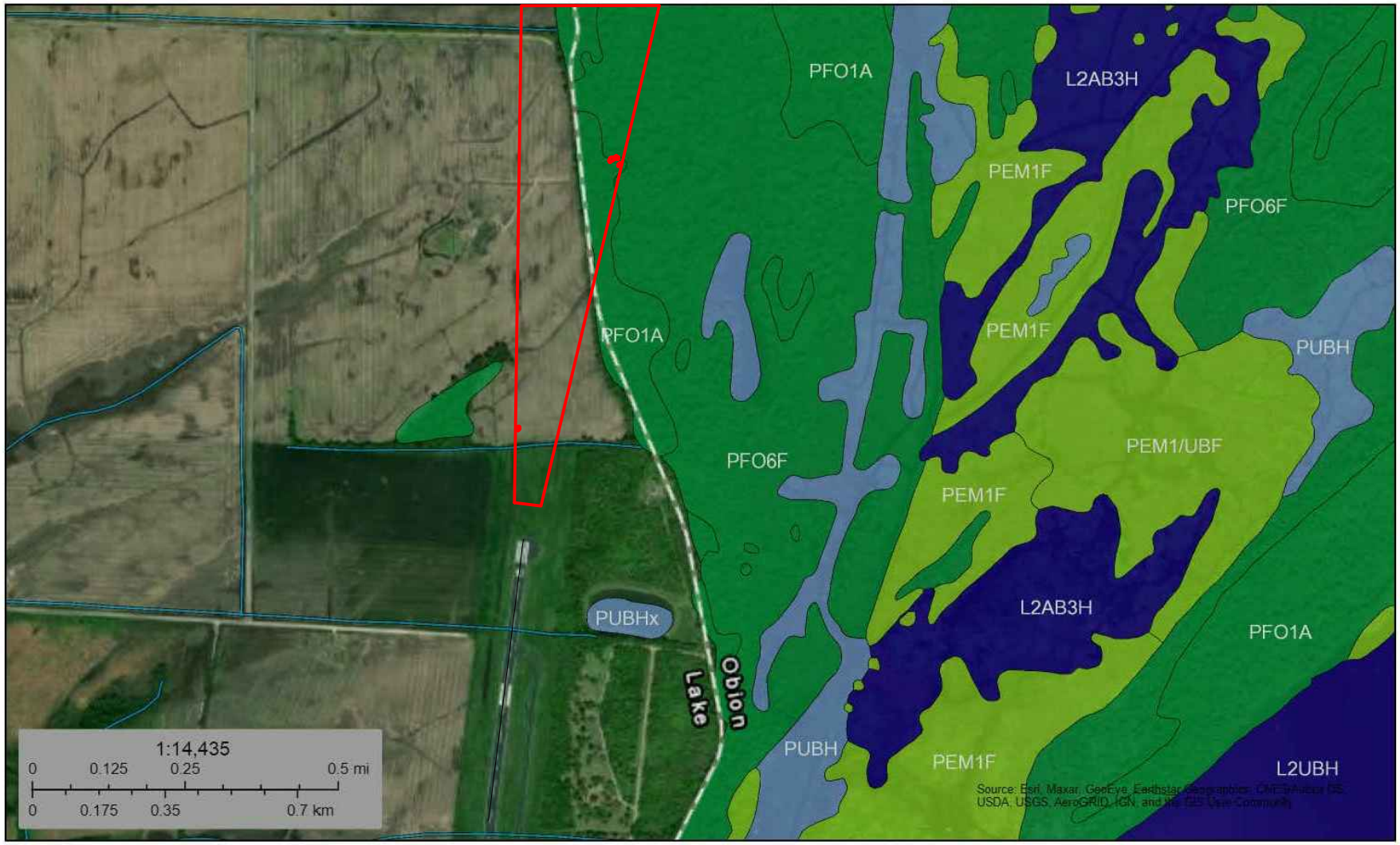
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY19



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

TN DEPT OF ECONOMIC AND
BUSINESS DEVELOPMENT
COORDINATION

From:	Hobneck, Beck
To:	ECD.Communications.Office@tn.gov
Subject:	Proposed Obstruction Removal Project - Reelfoot Lake Airport (0M2) Scoping Letter
Date:	Monday, April 19, 2021 8:33:00 AM
Attachments:	TN Dept of Economic and Business Development_Letter.pdf

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Dear Sir/Madam,

Please see the attached project proposal that I am submitting for environmental review per NEPA regulations.

If you have any questions during your review don't hesitate to contact me via phone at 615-268-0746 or via email at beck.hobneck@stantec.com.

Regards,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

April 16, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
TN Dept. of Economic & Community Development
312 Rosa Parks Avenue
Nashville, TN 37243

Request for Comments
Scoping Letter for Upcoming Obstruction Removal Project at the Reelfoot Lake Airport in Tiptonville, TN

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions. It is anticipated that these trees will be removed with the root ball, where possible and then burned on site (if local regulations allow). Trees located in wetlands or within a floodplain area will be cut at the base and left in place.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end. The approximated total size of the tree clearing areas at the Runway 1 end is .40 acres and .20 acres at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

While we do not anticipate impacts to the surrounding communities due to the nature, size, and location of the proposed action, in order to fulfill NEPA requirements, we request that your office review this proposal with regard to possible impacts to the local economy (population, employment, housing, and public services). Please refer to the project sketch that has been included with this proposal for a depiction of the obstruction removal areas (red hatching). If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-268-0746
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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TN DIVISION OF AIR QUALITY
COORDINATION

State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243

Beck Hobneck, El
Aviation Planner
Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

July 13, 2021

Dear Mr. Hobneck:

This letter is in response to your request for an environmental impact assessment in compliance with the following requirements:

Subpart A-Purpose, Legal Authority, Federal Laws and Authorities

Sec. 58.5 Related Federal Laws and Authorities

(g) Air Quality. (1) The Clean Air Act (42 U.S.C. 7401 et. seq.) as amended; particularly section 176(c) and (d) (42 U.S.C. 7506 (c) and (d)). (2) Determining Conformity of Federal Actions to State or Federal Implementation Plans (Environmental Protection Agency—40 CFR parts 6, 51, and 93).

Subpart D-Environmental Review Process: Documentation, Range of Activities, Project Aggregation and Classification

Sec. 58.38 Environmental Review Record

Subpart E-Environmental Review Process: Environmental Assessments (EA's)

Sec. 58.40 Preparing the Environmental Assessment

(1) A Finding of No Significant Impact on the quality of the human environment.

In reference to your request for Air Quality Data concerning Lake County / Reelfoot Lake Airport obstruction removal project received on April 19, 2021; please note that Lake County is currently in Attainment for all Air Quality Standards in accordance with Rules of the Tennessee Department of Environment and Conservation Bureau of Environment/Division of Air Pollution Control Chapter 1200-03-03 Ambient Air Quality Standards. The Environmental Protection Agency (EPA) has designated Lake County as Attainment for the National Ambient Air Quality Standards.

Sufficient information is not available to indicate projected emissions from the Lake County / Reelfoot Lake Airport obstruction removal project; however, the proposed project is not expected to adversely impact the local air quality provided adequate measures are employed to control fugitive emissions, and waste is properly disposed.

Other Rules of the Tennessee Department of Environment and Conservation Bureau of Environment/Division of Air Pollution Control that may apply to your project are:

Chapter 1200-03-04: Open Burning
Chapter 1200-03-08: Fugitive Dust
Chapter 1200-03-09: Construction and Operating Permits
Chapter 1200-03-11.02: Hazardous Air Contaminants (Asbestos)

Please contact me at phone number (615) 532-6819 or e-mail kevin.mclain@tn.gov should you need further assistance.

Sincerely,



TN Department of Environment & Conservation

Kevin McLain | Environmental Manager
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower, 15th Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243
p. 615-532-6819
kevin.mclain@tn.gov
tn.gov/environment

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

April 19, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
TDEC Division of Air Pollution Control
312 Rosa Parks Avenue
15th Floor
Nashville, TN 37243

Dear Ms. Owenby,

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions. It is anticipated that these trees will be removed with the root ball, where possible and then burned on site (if local regulations allow). Trees located in wetlands or within a floodplain area will be cut at the base and left in place.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end. The approximated total size of the tree clearing areas at the Runway 1 end is .40 acres and .20 acres at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

In order to fulfill NEPA requirements, we request that your office review this proposal with regard to possible impacts to the local air quality and regulations established in the Clean Air Act. Please refer to the project sketch that has been included with this proposal for a depiction of the obstruction removal areas (red hatching). If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-268-0746
Beck.hobneck@stantec.com


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TN DIVISION OF SOLID WASTE
MANAGEMENT
COORDINATION

May 3, 2021

Tennessee Department of Environment and Conservation (TDEC)
Division of Solid Waste Management
RE: Proposed Obstruction Removal Project, Reelfoot Lake Airport (0M2) – Integrated Environmental Review

In relation to potential solid waste, hazardous waste, or toxic substances issues that may exist or arise with the proposed obstruction removal project, the Division of Solid Waste Management (DSWM or the Division) performed a cursory review of the provided project documents (scoping request - description, maps), the EPA's NEPAssist[1] databases, and the Division's internal site and enforcement database WasteBin.

Per the scoping request and project description, the project will consist of obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. The DSWM strongly recommends that the project's plans reflect that any wastes associated with the planned removal be handled in accordance with the Solid and Hazardous Waste Rules and Regulations of the state. This includes all materials that would be classified as solid and/or hazardous wastes per these chapters.[2]

Reviews of the EPA's databases and WasteBin were performed for information relative to the project's delineated area. There was no evidence of any significant permitted/compliance/enforcement solid or hazardous waste related issues within the site locations specified. With respect to the possibility of a legacy Solid Waste site around the plan's sites of interest, Tennessee's Solid Waste Management program only dates to 1972, so there could conceivably be disposal in this area that predates our program of which we are unaware. Any wastes which may be unearthed during the project would be subject to a hazardous waste determination and must be managed appropriately.

[1] *https://www.epa.gov/nepa/nepassist*

[2] *Reference the TDEC Solid Waste Management Rule 0400 Chapter 11 for Solid Waste and Chapter 12 for Hazardous Waste. Please see http://sos.tn.gov/effective-rules for applicable Rules and Regulations of the State.*

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

April 19, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
TDEC Division of Solid Waste Management
312 Rosa Parks Avenue
14th Floor
Nashville, TN 37243

Dear Ms. Hughey,

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions. It is anticipated that these trees will be removed with the root ball, where possible and then burned on site (if local regulations allow). Trees located in wetlands or within a floodplain area will be cut at the base and left in place.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end. The approximated total size of the tree clearing areas at the Runway 1 end is .40 acres and .20 acres at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

In order to fulfill NEPA requirements, we request that your office review this proposal with regard to sensitive natural environments, and laws established to protect human health. Please refer to the project sketch that has been included with this proposal for a depiction of the obstruction removal areas (red hatching). If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-268-0746
Beck.hobneck@stantec.com


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TN DIVISION OF WATER RESOURCES
COORDINATION

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

December 11, 2020

Mr. Beck Hobneck
Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

re: Reelfoot Lake Airport Tree Removal Project
Lake County, TN

Dear Mr. Hobneck,

Staff within the Division of Water Resources have reviewed the proposed obstruction removal project for Reelfoot Lake Airport. The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. This will require removal of trees that are located both on and off existing airport property.

From the submittal, it appears the project will disturb more than one acre of land, which will include clearing, grading, or other similar activities, as well as staging areas. This project will require a Construction Stormwater Permit (CGP) based on the disturbance of more than one acre. Some of the trees identified are in a wetlands adjacent to Reelfoot Lake. This project will require a hydrologic determination to assess the potential impacts on water resources/ wetlands during this project. All of the cut zones should be ground-truthed to make sure there aren't any more wetlands or streams. From the information submitted and the wetlands identified in our GIS coverage, an Aquatic Resources Alteration Permit Alteration Permit (ARAP) will be required. Depending on the amount of wetlands disturbed, mitigation may be required.

If you have any further questions, I will be glad to try to assist you. You may reach me at (615) 532-0170 or tom.moss@tn.gov.

Sincerely,

Thomas A. Moss

Thomas A. Moss, P.G.
Environmental Review Coordinator
Compliance and Enforcement Unit

Conner Franklin, Jackson EFO – DWR Manager

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

December 9, 2020

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
State of Tennessee
Department of Environment and Conservation – Division of Water Resources
William R. Snodgrass – Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

Dear Sir/Madam,

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction clearing project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, a short form Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:
The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:
0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:
The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

In order to fulfill NEPA requirements, we request that your office review this proposal in regard to wetlands, navigable waters, or public water supply. Please refer to the project sketch that has been included with this proposal for a depiction of the location of the obstruction removal.

If you have any questions concerning our request, please do not hesitate to contact me at (615) 26-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY1



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

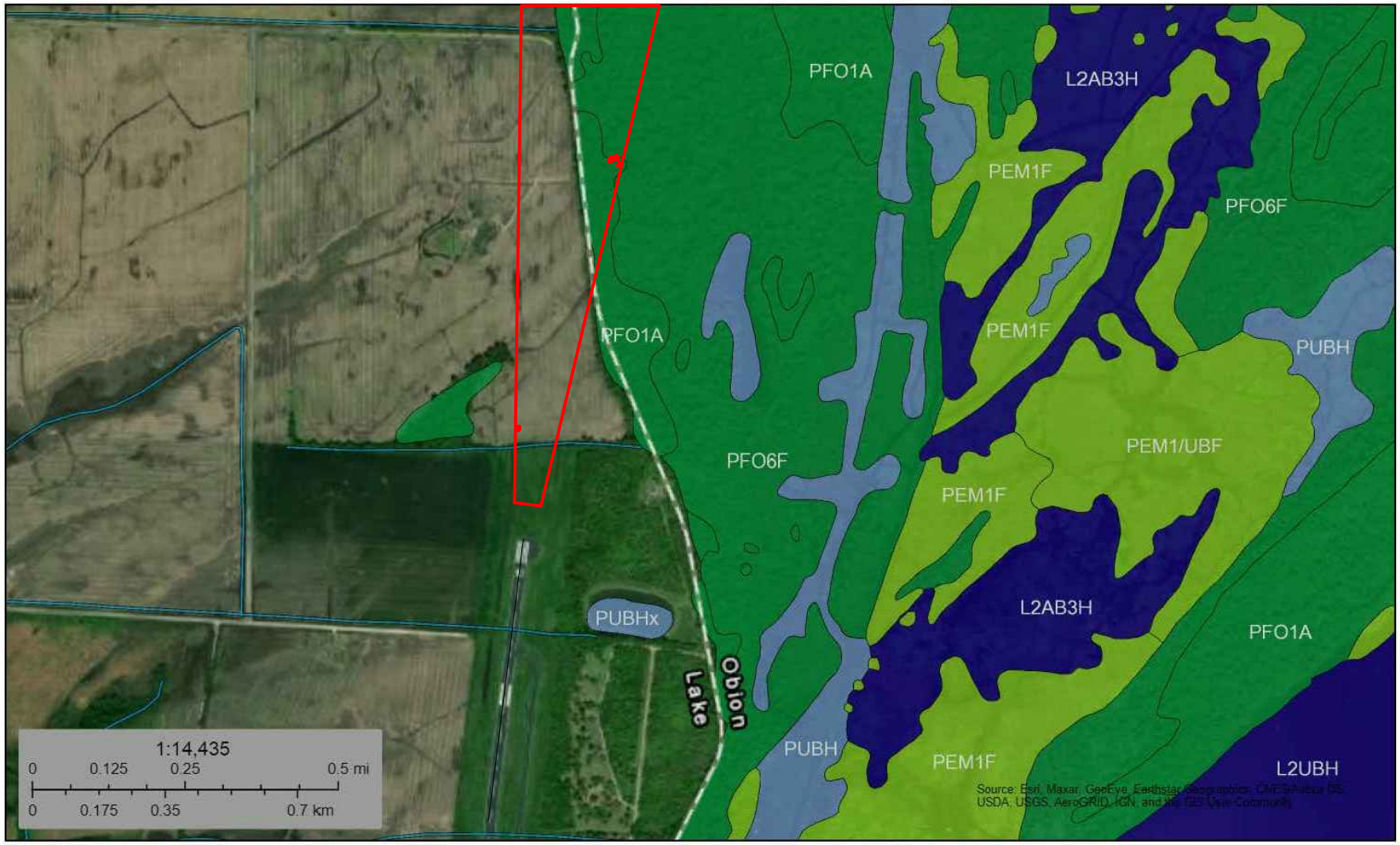
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY19



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
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- Other
- Riverine

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TN HISTORICAL COMMISSION COORDINATION

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

December 9, 2020

Mr. Beck Hobneck
Stantec
601 Grassmere Park, Suite 22
Nashville, TN 37211

RE: FAA / Federal Aviation Administration, Reelfoot Lake Airport Obstruction Clearing, Tiptonville, Lake County, TN

Dear Mr. Hobneck:

In response to your request, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects, the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties, the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register, or it will not alter an eligible Historic Property's location, setting or use. We have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. If you are applying for federal funds, license or permit, you should submit this letter as evidence of consultation under Section 106 to the appropriate federal agency, which, in turn, should contact us as required by 36 CFR 800. If you represent a federal agency, you should submit a formal determination of eligibility and effect to us for comment. You may direct questions or comments to ((615) 687-4780, Jennifer.Barnett@tn.gov). This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

December 8, 2020

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
Tennessee Historical Commission
State Historical Preservation Office
2941 Lebanon Road
Nashville, TN 37243-0442
(615)532-1550

Project Name: Reelfoot Lake Airport Obstruction Clearing

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Results of Online Review of THC Database

Utilizing online maps and aerial imagery, an **Area of Potential Effect** (APE) was identified. The APE includes all structures that are believed to be within the viewshed of the proposed action.

With the establishment of the APE, an online review was then conducted of the Tennessee Historical Commission (THC) Database to determine if any properties in the National Register of Historic Places (NRHP) had the potential to be impacted. There were no NRHP properties identified during the online review with the APE. The nearest property, identified as LK-69, is located approximately 2,500 feet in a southwesterly direction from the obstruction clearing area on Phillippy Road. This structure's viewshed would not be impacted by the proposed action.

Closing Remarks:

We request that your office review this proposal and provide comment. Please refer to the project sketch that has been included with this proposal for a depiction of the established APE (black hatched area) and the proposed obstruction removal areas (red hatching)

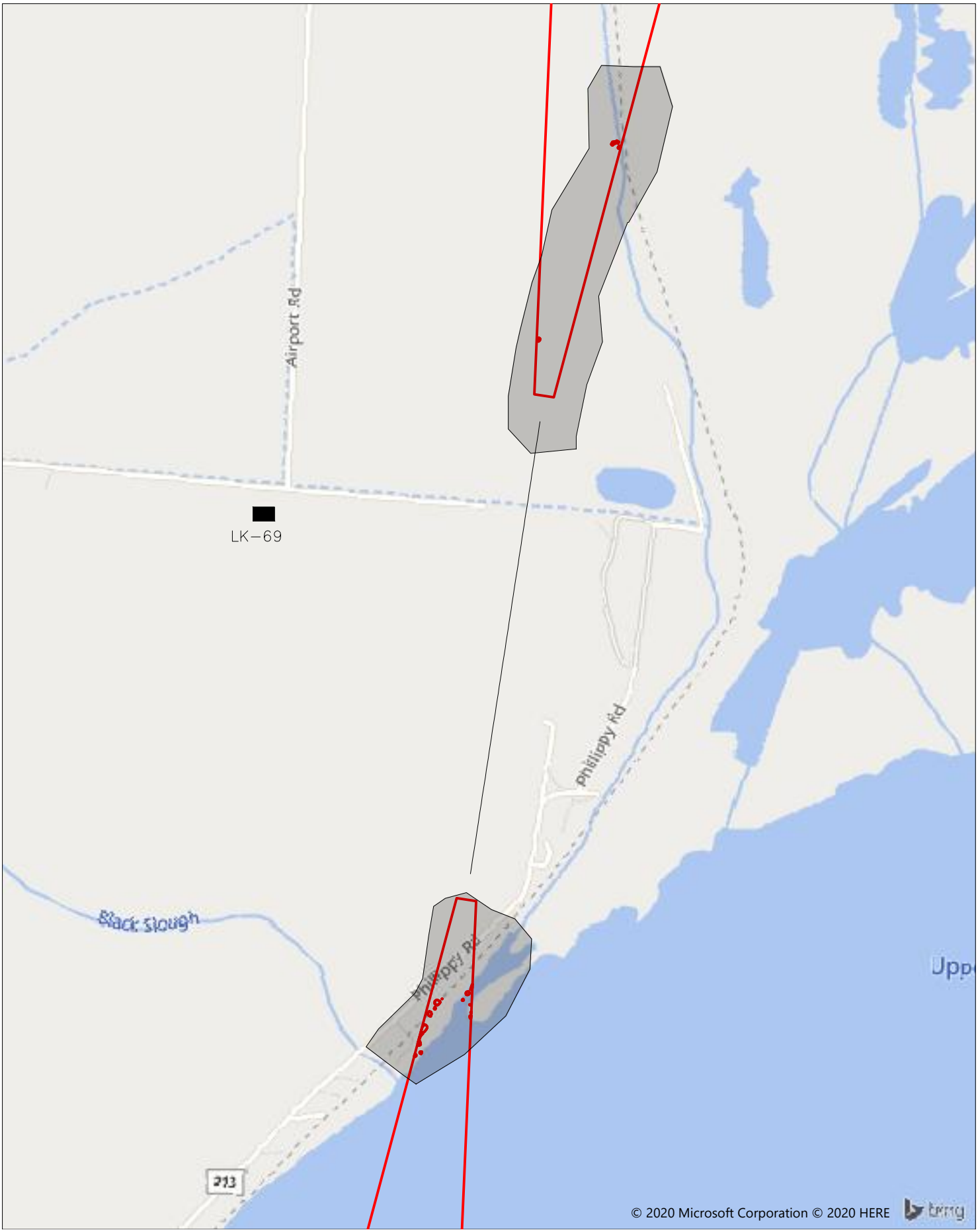
If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com


Airport Rd
LK–69
Philippy Rd
Philippy Rd
Black Slough
213
© 2020 Microsoft Corporation © 2020 HERE


PHILLIPPY ROAD


© 2020 Microsoft Corporation © 2020 Maxar ©CNES (2020) Distribution Airbus DS

TWRA COORDINATION

From: Rob Todd
To: Hobneck, Beck
Cc: Jeff Martin
Subject: RE: Project Review Request - Reelfoot Lake Airport Obstruction Removal Project
Date: Monday, January 11, 2021 1:37:23 PM

Mr. Hobneck:

The Tennessee Wildlife Resources Agency has reviewed the information that you provided regarding the proposed tree removal project for the Runway 1-19 approach to the Reelfoot Lake Airport and we have no objections or concerns regarding the proposed project. Thank you for the opportunity to review and comment on this proposed project. If I may be of further assistance, please contact me.

Robert Todd
Fish & Wildlife Environmentalist
Tennessee Wildlife Resources Agency
Ellington Agricultural Center
5107 Edmondson Pike
Nashville, TN 37211
Office: 615-781-6572
Cell: 931-881-8240
Fax: 615-781-6667
Email: rob.todd@tn.gov

From: Hobneck, Beck <Beck.Hobneck@stantec.com>
Sent: Wednesday, January 6, 2021 8:27 AM
To: Rob Todd <Rob.Todd@tn.gov>
Subject: [EXTERNAL] Project Review Request - Reelfoot Lake Airport Obstruction Removal Project

Mr. Todd,

Please find the attached project review request for the proposed Obstruction Removal Project at the Reelfoot Lake Airport.
The purpose of the project is to remove trees that have been identified as penetrating the Runway 1-19 approach surfaces and that
are creating a safety hazard.

It is anticipated that any short term impacts during the obstruction removal project can be minimized through the installation of erosion
control devices when work will be nearby water resources.

Please let me know if you have any questions/need any additional information.

Thank you,

Beck Hobneck El
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

January 6, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
Rob Todd
Via email: Rob.Todd@tn.gov
Tennessee Wildlife Resources Agency
Ellington Agricultural Center
PO Box 40747
Nashville, TN 37204

Reelfoot Lake Airport Obstruction Clearing Project

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, a short form Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Results of State and Federally Listed Species and Critical Habitat:

In order to fulfill NEPA requirements, State and Federally-Listed species and Critical Habitat known to occur within the project site was obtained from the Tennessee Department of Environment and Conservation (TDEC) Division of Heritage rare species online database, as well as the Information Planning and Conservation (IPAC) database. These species, and their current federal and or state status, have been included below:

TDEC Division of Heritage rare species Database:

Palid Sturgeon – Endangered
Interior Least Tern-Endangered
Blue Mud-plantain-Threatened
Bristly Sedge-Threatened
Yellow Water-crowfoot-Threatened
Copper Iris-Threatened

IPAC Database:

Indiana Bat - Endangered
Northern Long-eared Bat - Threatened

Effect Determinations for Federally Listed Species :

With regard to the Federally listed species, a self-certification letter (Attachment A) was prepared for the U.S. Fish and Wildlife Service's (USFWS) TN Ecological Services Field Office. They provided an official response stating that, "Upon review of our database, we would not anticipate adverse effects to any federally listed or proposed species as a result of clearing activities. The National Wetlands Inventory maps provided indicate that wetlands are present within the runway clear zones. If wetland impacts would occur, TDOT should coordinate with the U.S. Army Corps of Engineers, Memphis District, Regulatory Branch (901-544-3682), to address concerns."

As such, coordination has also been submitted to the U.S. Army Corps of Engineers. To date no comments have been received.

Closing Remarks:

Stantec would like to request that your office review this proposal and provide comment for the above listed species to ensure that the proposed action will be in full compliance with state regulations.

Please refer to the project sketch that has been included with this proposal for a depiction of the location of the obstruction removal.

If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY1



December 8, 2020

Wetlands

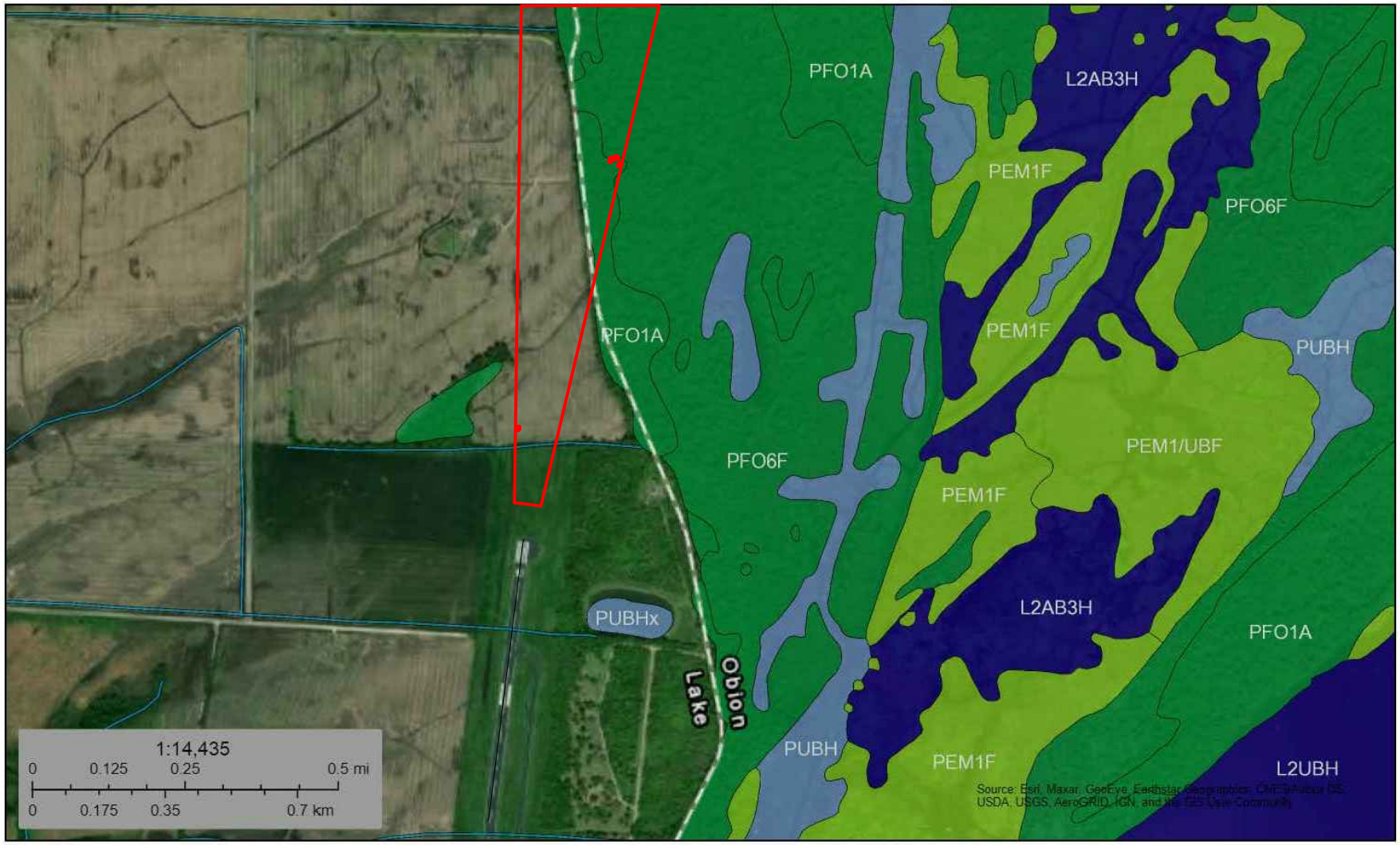
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY19



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

ATTACHMENT A

COORDINATION WITH USFWS TN ESFO

From:	Griffith, John
To:	Hobneck, Beck
Cc:	Elbert, Daniel C
Subject:	Re: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN Lake County) Consultation Code : 04ET1000-2021-SLI-0257
Date:	Tuesday, January 05, 2021 11:55:23 AM

Mr. Hobneck,

Thank you for requesting our review of a proposed Reelfoot Lake Airport (0M2) Obstruction Clearing in Tiptonville, Lake County, Tennessee. The project would involve removal of several trees that have been identified as penetrating the Runway 1-19 approach surfaces. Some tree clearing would be necessary outside of existing airport property, requiring easement acquisitions for tree removal and future maintenance.

Upon review of our database, we would not anticipate adverse effects to any federally listed or proposed species as a result of clearing activities. The National Wetlands Inventory maps provided indicate that wetlands are present within the runway clear zones. If wetland impacts would occur, TDOT should coordinate with the U.S. Army Corps of Engineers, Memphis District, Regulatory Branch (901-544-3682), to address concerns.

This email will serve as our official response. Please let me know if we can offer further assistance.
Sincerely,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)

From: Lowran, Chellyn M <chellyn_lowran@fws.gov> on behalf of Tennessee ES, FWS <tennesseeES@fws.gov>
Sent: Tuesday, January 5, 2021 8:00 AM
To: Griffith, John <john_griffith@fws.gov>
Subject: Fw: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN Lake County) Consultation Code : 04ET1000-2021-SLI-0257

From: Hobneck, Beck <Beck.Hobneck@stantec.com>
Sent: Wednesday, December 9, 2020 8:35 PM
To: Tennessee ES, FWS <tennesseeES@fws.gov>
Subject: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN

Lake County) Consultation Code : 04ET1000-2021-SLI-0257

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good afternoon,

I am submitting the attached proposal for your review and comment regarding potential impacts to state and federally-listed species. We would
like to ensure that we are in full compliance with all Federal and State regulations, regarding listed species.

Please don't hesitate to contact me via email or my cell phone at 615-268-0746 if you have any questions during your review.

Thank you,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

December 8, 2020

Reference:
Consultation Code:
04ET1000-2021-SLI-0257
Reelfoot Lake Airport(0M2)
Obstruction Clearing Project

Attention:
Tennessee ESFO
446 Neal Street
Cookeville, TN 38501-4027
(931)528-6481

Consultation Code: 04ET1000-2021-SLI-0257
Event Code: 04ET1000-2020-E-00510
Project Name: Reelfoot Lake Airport (0M2) Obstruction Clearing

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:
The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:
0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:
The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Results of IPAC Online Review:

In order to fulfill NEPA requirements, Federally-Listed species and Critical Habitat known to occur within the project site was obtained from the Information Planning and Conservation (IPAC) database, which showed that there was a total of 2 threatened, endangered, or candidate species (2 mammals) that have been identified. These species, and their current federal status, include the: Indiana Bat- Endangered and the Northern Long-eared Bat- Threatened. Additionally, 10 different species of migratory birds were of particular concern due to the location of the proposed action. These include the American Golden-plover, the Bald Eagle, the Kentucky Warbler, LeConte's Sparrow, the Lesser Yellowlegs, Prothonotary Warbler, Red-Headed Woodpecker, Rusty Blackbird, Semipalmated Sandpiper, and the Wood Thrush. No critical habitat was known to occur.

Effect Determinations:

With regard to the two mammal species, it is our opinion that since the project will include tree removal in a mature forested area, this proposed action **May affect-not likely to adversely affect** the Indiana Bat, and the Northern Long-eared Bat, as similar habitat is prevalent adjacent to the obstruction removal site.

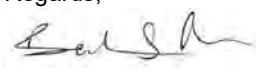
Additionally, we anticipate a determination of **May affect-not likely to adversely affect for** the ten species of migratory birds as the construction phase of the obstruction clearing project can be scheduled to occur when the birds of concern are least likely to be present within the project area.

Closing Remarks:

We request that your office review this proposal and provide comment. Please refer to the project sketch that has been included with this proposal for a depiction of the location of the obstruction removal.

If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501-4027
Phone: (931) 528-6481 Fax: (931) 528-7075

In Reply Refer To: December 08, 2020
Consultation Code: 04ET1000-2021-SLI-0257
Event Code: 04ET1000-2021-E-00510
Project Name: Reelffoot Lake Airport (0M2) Obstruction Clearing

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Tennessee Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481

Project Summary

Consultation Code: 04ET1000-2021-SLI-0257

Event Code: 04ET1000-2021-E-00510

Project Name: Reelffoot Lake Airport (0M2) Obstruction Clearing

Project Type: LAND - CLEARING

Project Description: The Tennessee Department of Transportation's (TDOT) Aeronautics Division (TAD) is pursuing a clearing project for obstructions identified within the approach surfaces at both of the runway ends.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.48601197160107N89.34389492248079W



Counties: Lake, TN | Obion, TN

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Le Conte's Sparrow *Ammodramus leconteii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see

below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

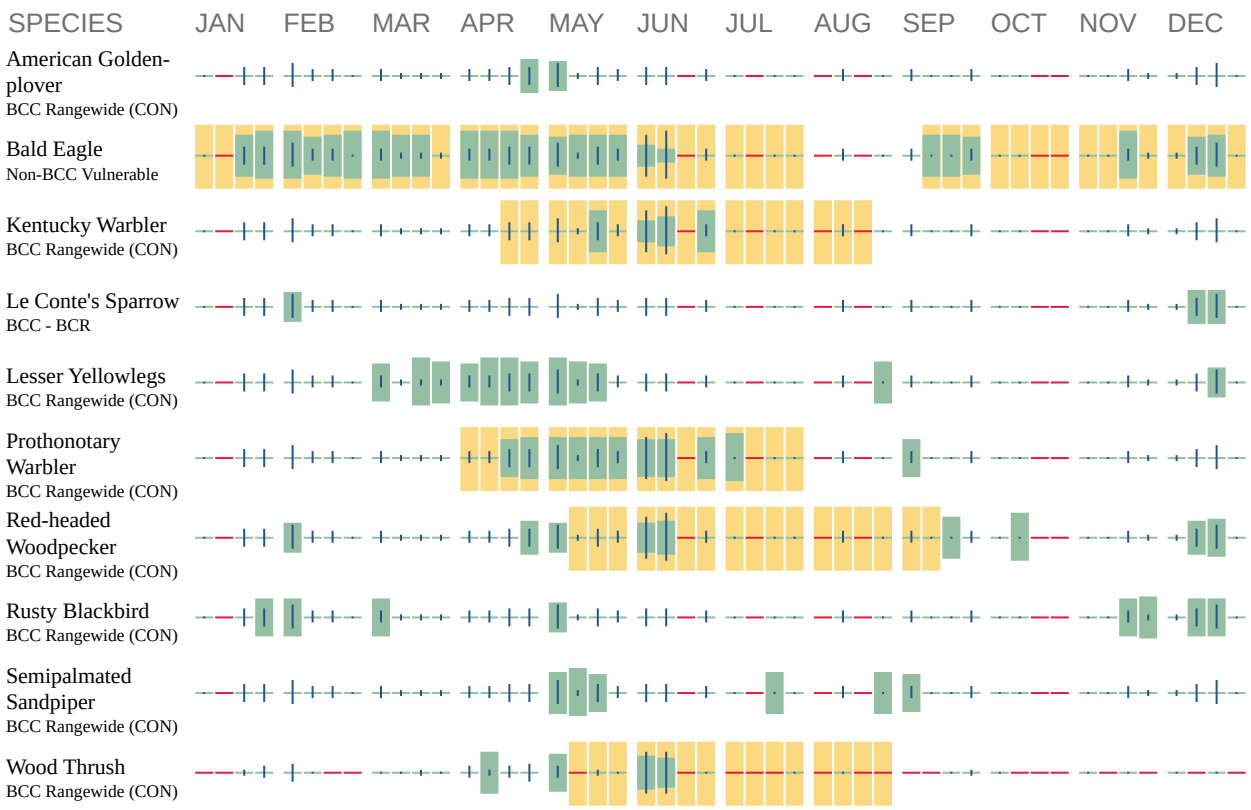
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or

permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In

contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A

LAKE

- L2UBH

RIVERINE

- R4SBC

USACE
COORDINATION

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT CORPS OF ENGINEERS
167 NORTH MAIN STREET B-202
MEMPHIS, TENNESSEE 38103-1894

February 5, 2021

Beck Hobneck
Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

Dear Mr. Hobneck:

This is in reference to your request for an environmental review and discussion of permitting considerations associated with the proposed Reelfoot Lake Airport Obstruction Clearing Project in Tiptonville, Lake County, Tennessee. Tree cutting is not a regulated activity. Provided that the project does not entail the discharge of dredged or fill material into waters of the United States, no permit would be required from the Corps of Engineers under Section 404 of the Clean Water Act. However, if design plans change resulting in a discharge of fill material (including fills associated with temporary access) a permit may be required.

The Memphis District Regulatory Division is committed to providing quality and timely service to our customers. In an effort to improve customer service, we invite you to complete a Customer Service Survey found at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. Your comments, positive or negative, will not affect any current or future dealings with the Corps of Engineers.

Please notify us as project plans develop (including specific locations and proposed methods of work) so that we can quickly address any permitting considerations. If you have questions, please contact Joanna Neu at (901) 544-0731 and refer to File No. MVM-2020-365.

Sincerely,

Roger S. Allan
Deputy Chief
Regulatory Division

Enclosures

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

January 25, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
United States Army Corps of Engineers
Memphis District Regulatory Division
167 N Main St B202
Memphis TN 38103

Dear Mr. Allan,

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

In order to fulfill NEPA requirements, we request that your office review this proposal in regard to wetlands, navigable waters, or public water supply. Please refer to the project sketch that has been included with this proposal for a depiction of the obstruction removal areas (red hatching). If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-268-0746
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY1



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

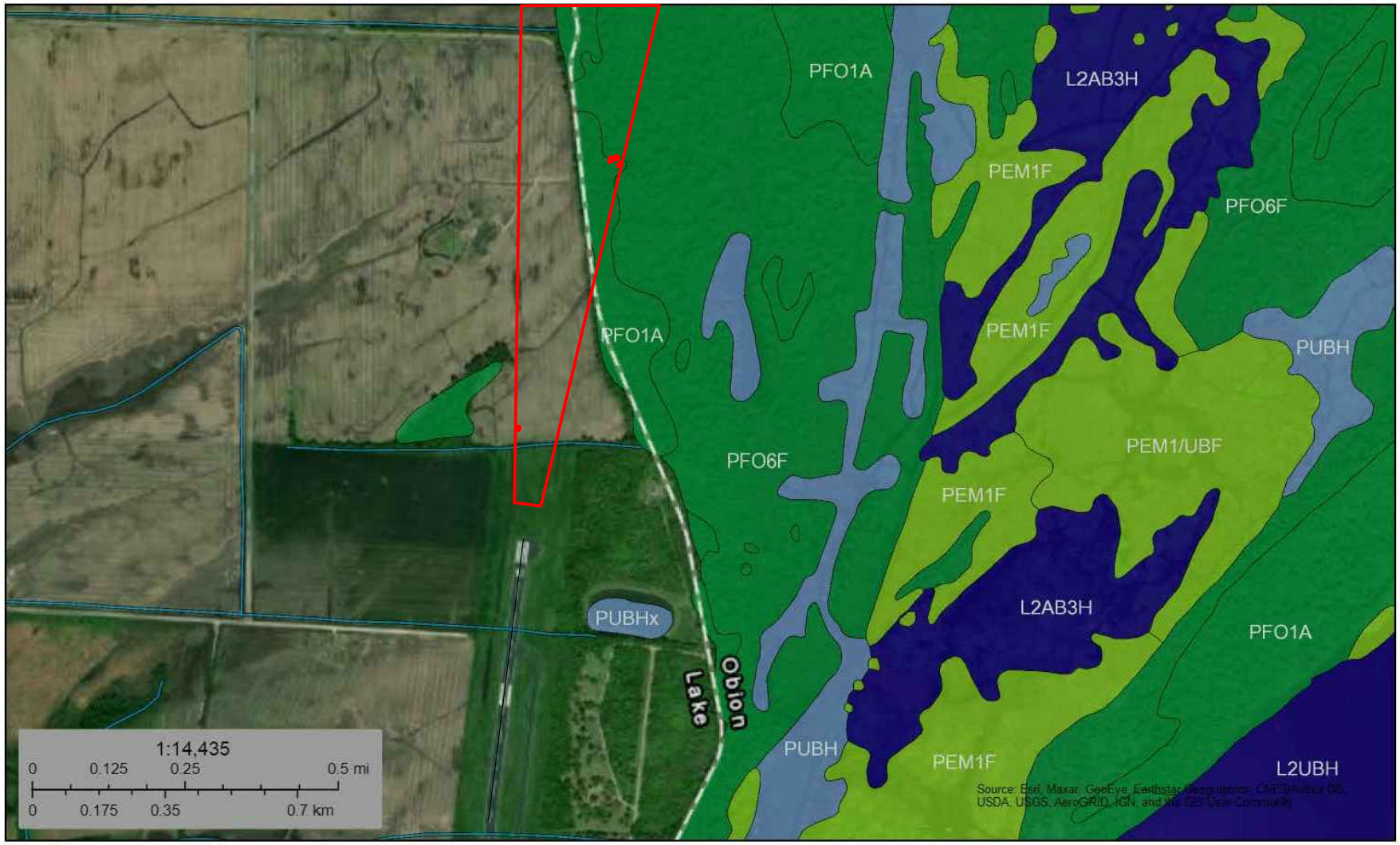
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY19



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

UNITED STATES EPA, REGION 4
COORDINATION

From:	Hobneck, Beck
To:	militscher.chris@epa.gov
Subject:	Proposed Obstruction Removal Project - Reelfoot Lake Airport (0M2) Scoping Letter
Date:	Monday, April 19, 2021 11:55:00 AM
Attachments:	USEPA4_letter.pdf

Dear Mr. Militscher,

Please see the attached project proposal that I am submitting for environmental review per NEPA regulations.
If you have any questions regarding this request please don't hesitate to contact me by phone at 615-268-0746
or via email at beck.hobneck@stantec.com.

Your agency's review and comments are appreciated.

Sincerely,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

From:	Hobneck, Beck
To:	Gissentanna.Larry@epa.gov
Subject:	Proposed Obstruction Removal Project - Reelfoot Lake Airport (0M2) Scoping Letter
Date:	Monday, April 19, 2021 12:02:00 PM
Attachments:	USEPA4_letter.pdf

Dear Mr. Gissentanna,

Please see the attached project proposal that I am submitting for environmental review per NEPA regulations.
If you have any questions regarding this request please don't hesitate to contact me by phone at 615-268-0746
or via email at beck.hobneck@stantec.com.

Your agency's review and comments are appreciated.

Sincerely,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

April 19, 2021

Reference:
Reelfoot Lake Airport
Obstruction Clearing Project

Attention:
U.S. EPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:

The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions. It is anticipated that these trees will be removed with the root ball, where possible and then burned on site (if local regulations allow). Trees located in wetlands or within a floodplain area will be cut at the base and left in place.

Project Location:

0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end. The approximated total size of the tree clearing areas at the Runway 1 end is .40 acres and .20 acres at the Runway 19 end.

Purpose and Need:

The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Closing Remarks:

In order to fulfill NEPA requirements, we request that your office review this proposal in regard to sensitive natural environments, and laws established to protect human health. Please refer to the project sketch that has been included with this proposal for a depiction of the obstruction removal areas (red hatching). If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-268-0746
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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USFWS COORDINATION

From:	Griffith, John
To:	Hobneck, Beck
Cc:	Sikula, Nicole R
Subject:	Re: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, TN Tiptonville Lake County) Consultation Code : 04ET1000-2021-SLI-0257
Date:	Wednesday, January 05, 2022 9:58:46 AM

Mr. Hobneck,

Thank you for requesting an updated coordination for the proposed Reelfoot Lake Airport Obstruction Removal in Tiptonville, Lake County, Tennessee. Since last coordinated with our office on December 9, 2020, the timeframe for tree removal has been determined as likely to occur between late September and early November. The purpose of this recoordination is to ensure that our comments and project clearance provided on January 5, 2021, are still valid.

Upon review of our database and the information provided, our January 5, 2021, response remains valid. We have no additional concerns or comments at this time. Please let me know if we can offer further assistance with your project. Thanks,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)

From: Hobneck, Beck <Beck.Hobneck@stantec.com>
Sent: Monday, January 3, 2022 9:48 AM
To: Griffith, John <john_griffith@fws.gov>
Subject: RE: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN Lake County) Consultation Code : 04ET1000-2021-SLI-0257

Mr. Griffith,

You reviewed this project proposal for us last year (see email chain below). I am contacting you again because as we have moved forward with the consultation process and with the design of the obstruction removal it is now probable that construction will occur in fall sometime (planning for dates between late September to early November). Looking back at project details we submitted to your office it was stated that we anticipated construction could occur around the breeding season of the 10 different species of migratory birds identified during the IPAC review. It seems that this would still be the case with the exception of the Bald Eagle.

With this updated information would USFWS's official response still be as stated below?

I have attached the project details that were originally submitted to your office.

Thank you for your further assistance.

From:	Griffith, John
To:	Hobneck, Beck
Cc:	Elbert, Daniel C
Subject:	Re: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN Lake County) Consultation Code : 04ET1000-2021-SLI-0257
Date:	Tuesday, January 05, 2021 11:55:23 AM

Mr. Hobneck,

Thank you for requesting our review of a proposed Reelfoot Lake Airport (0M2) Obstruction Clearing in Tiptonville, Lake County, Tennessee. The project would involve removal of several trees that have been identified as penetrating the Runway 1-19 approach surfaces. Some tree clearing would be necessary outside of existing airport property, requiring easement acquisitions for tree removal and future maintenance.

Upon review of our database, we would not anticipate adverse effects to any federally listed or proposed species as a result of clearing activities. The National Wetlands Inventory maps provided indicate that wetlands are present within the runway clear zones. If wetland impacts would occur, TDOT should coordinate with the U.S. Army Corps of Engineers, Memphis District, Regulatory Branch (901-544-3682), to address concerns.

This email will serve as our official response. Please let me know if we can offer further assistance.
Sincerely,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)

From: Lowran, Chellyn M <chellyn_lowran@fws.gov> on behalf of Tennessee ES, FWS <tennesseeES@fws.gov>
Sent: Tuesday, January 5, 2021 8:00 AM
To: Griffith, John <john_griffith@fws.gov>
Subject: Fw: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN Lake County) Consultation Code : 04ET1000-2021-SLI-0257

From: Hobneck, Beck <Beck.Hobneck@stantec.com>
Sent: Wednesday, December 9, 2020 8:35 PM
To: Tennessee ES, FWS <tennesseeES@fws.gov>
Subject: [EXTERNAL] Request for Project Review and Comment (Reelfoot Lake Airport, Tiptonville TN

Lake County) Consultation Code : 04ET1000-2021-SLI-0257

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good afternoon,

I am submitting the attached proposal for your review and comment regarding potential impacts to state and federally-listed species. We would
like to ensure that we are in full compliance with all Federal and State regulations, regarding listed species.

Please don't hesitate to contact me via email or my cell phone at 615-268-0746 if you have any questions during your review.

Thank you,

Beck Hobneck EI
Aviation Planner
Office Phone: (615) 885-1144 ext 327
Mobile Phone: (615) 268-0746 *PLEASE CALL THIS NUMBER..WORKING FROM HOME*
Beck.Hobneck@stantec.com

Stantec Consulting Services
601 Grassmere Park, Suite 22
Nashville, TN 37211

December 8, 2020

Reference:
Consultation Code:
04ET1000-2021-SLI-0257
Reelfoot Lake Airport(0M2)
Obstruction Clearing Project

Attention:
Tennessee ESFO
446 Neal Street
Cookeville, TN 38501-4027
(931)528-6481

Consultation Code: 04ET1000-2021-SLI-0257
Event Code: 04ET1000-2020-E-00510
Project Name: Reelfoot Lake Airport (0M2) Obstruction Clearing

Officials with the Reelfoot Lake Airport (0M2) in Tiptonville, Tennessee, are pursuing an airport obstruction removal project and in order to fulfill regulations that have been established with the National Environmental Policy Act (NEPA) of 1969, an Environmental Assessment (EA) is being prepared. This EA will follow all requirements outlined in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.

Proposed Project:
The proposed project will include obstruction removal for trees that have been identified as penetrating the Runway 1-19 approach surfaces. More specifically the Runway 1 Threshold Siting Surface (TSS) and the Runway 19 TSS. This surface is centered on the runway and described as starting 200 feet from the runway threshold and having a beginning width of 300 feet, then expanding to an ending width of 2,500 feet for a total length of 5,000 feet. This surface slopes upward at a rate of 20:1 (20 feet horizontal, 1 foot vertical). During an aerial survey, several trees were identified as penetrating these surfaces and must be remove in order to maintain the quality of the safety surface. Additionally, it has been determined that the tree clearing project will occur both on and off existing airport property. As such, this proposed project will involve easement acquisition in order to facilitate the removal of the tree obstructions.

Project Location:
0M2 is a general aviation airport that is located approximately nine miles northeast of the City of Tiptonville, Tennessee. The proposed project coordinates are 36° 28’ 31.20”N and 89° 20’ 46.70”W (the approximate center point of the tree removal project). As stated above, the obstruction removal will take place on several different parcels that can be accessed via Phillipy Road at the Runway 1 end and both Airport Road and Fraley Lane at the Runway 19 end.

Purpose and Need:
The purpose of the proposed project is to remove obstructions that have been identified as penetrating the Runway 1-19 TSS. The Airport is required to maintain clear approaches to the runway, both for the safety of the traveling public, as well as to continue to provide a viable service to the community. These obstructions are located both on and off airport property. Therefore, it is necessary for the Airport sponsor to obtain easements as a part of this action. Furthermore, the easements will allow the Airport to maintain these properties going forward.

Results of IPAC Online Review:

In order to fulfill NEPA requirements, Federally-Listed species and Critical Habitat known to occur within the project site was obtained from the Information Planning and Conservation (IPAC) database, which showed that there was a total of 2 threatened, endangered, or candidate species (2 mammals) that have been identified. These species, and their current federal status, include the: Indiana Bat- Endangered and the Northern Long-eared Bat- Threatened. Additionally, 10 different species of migratory birds were of particular concern due to the location of the proposed action. These include the American Golden-plover, the Bald Eagle, the Kentucky Warbler, LeConte's Sparrow, the Lesser Yellowlegs, Prothonotary Warbler, Red-Headed Woodpecker, Rusty Blackbird, Semipalmated Sandpiper, and the Wood Thrush. No critical habitat was known to occur.

Effect Determinations:

With regard to the two mammal species, it is our opinion that since the project will include tree removal in a mature forested area, this proposed action **May affect-not likely to adversely affect** the Indiana Bat, and the Northern Long-eared Bat, as similar habitat is prevalent adjacent to the obstruction removal site.

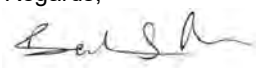
Additionally, we anticipate a determination of **May affect-not likely to adversely affect for** the ten species of migratory birds as the construction phase of the obstruction clearing project can be scheduled to occur when the birds of concern are least likely to be present within the project area.

Closing Remarks:

We request that your office review this proposal and provide comment. Please refer to the project sketch that has been included with this proposal for a depiction of the location of the obstruction removal.

If you have any questions concerning our request, please do not hesitate to contact me at (615) 268-0746. Thank you for your assistance and cooperation.

Regards,



Beck Hobneck, EI
Aviation Planner

Phone: 615-885-1144
Beck.hobneck@stantec.com


PHILLIPPY ROAD


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U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY1



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

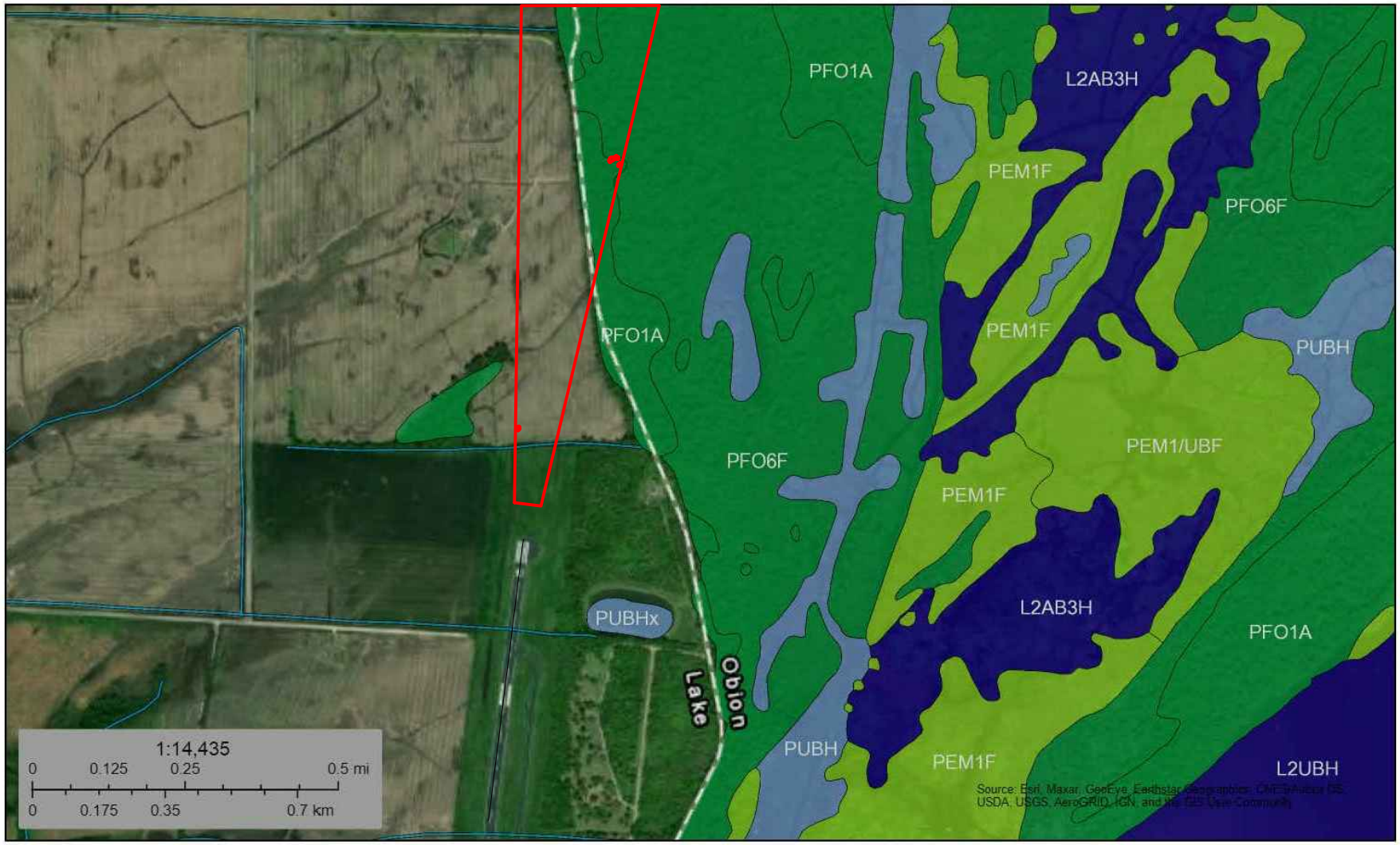
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service

National Wetlands Inventory

Reelfoot Wetlands RWY19



December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501-4027
Phone: (931) 528-6481 Fax: (931) 528-7075

In Reply Refer To: December 08, 2020
Consultation Code: 04ET1000-2021-SLI-0257
Event Code: 04ET1000-2021-E-00510
Project Name: Reelffoot Lake Airport (0M2) Obstruction Clearing

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Tennessee Ecological Services Field Office
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481

Project Summary

Consultation Code: 04ET1000-2021-SLI-0257

Event Code: 04ET1000-2021-E-00510

Project Name: Reelffoot Lake Airport (0M2) Obstruction Clearing

Project Type: LAND - CLEARING

Project Description: The Tennessee Department of Transportation's (TDOT) Aeronautics Division (TAD) is pursuing a clearing project for obstructions identified within the approach surfaces at both of the runway ends.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.48601197160107N89.34389492248079W



Counties: Lake, TN | Obion, TN

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Le Conte's Sparrow *Ammodramus leconteii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see

below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

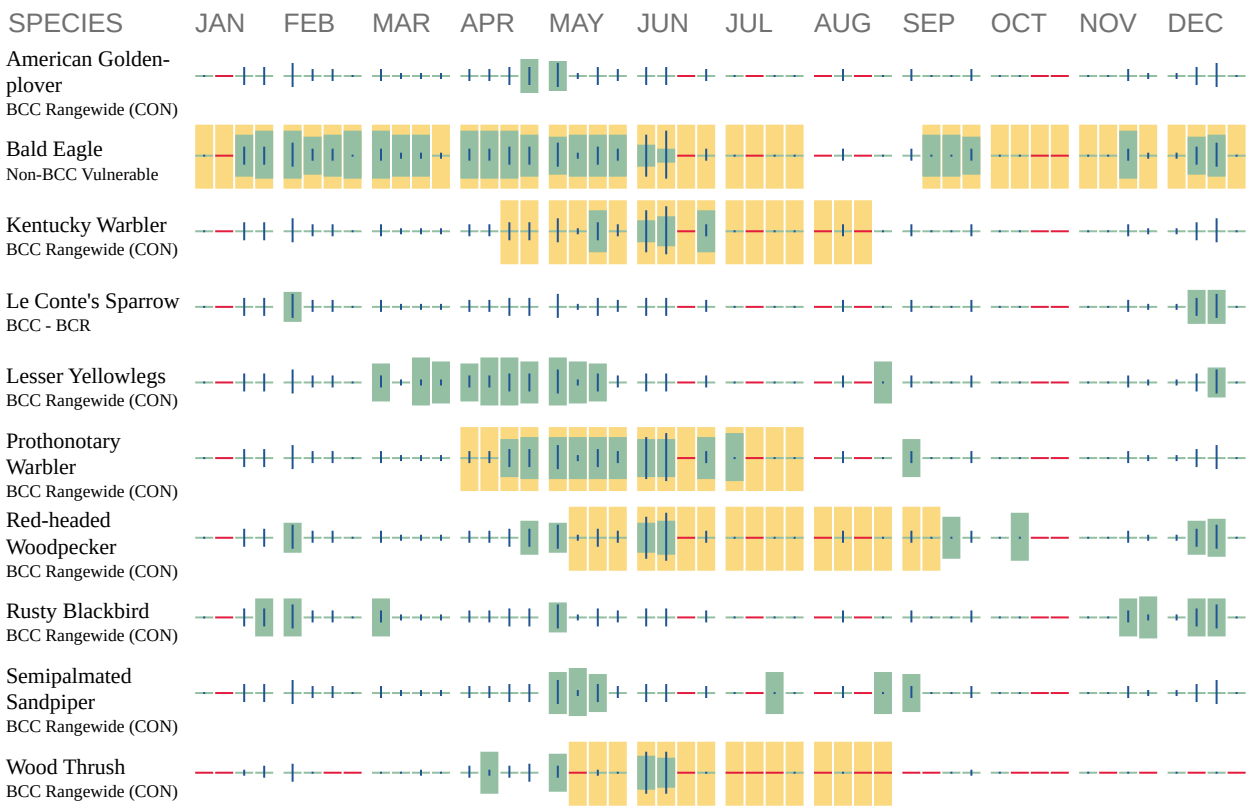
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or

permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In

contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A

LAKE

- L2UBH

RIVERINE

- R4SBC

Appendix C

C.3 HYDROLOGIC DETERMINATION

Reelfoot Lake Airport Hydrologic Determination Concurrence Request Package

Reelfoot Lake Airport Tree Removal Project, Lake County, TN

June 14, 2021

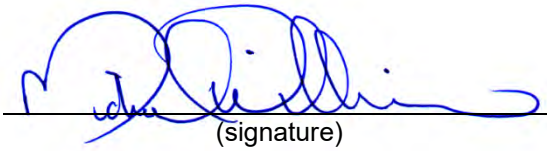
Prepared for:

Conner Franklin
Division of Water Resources
Jackson Environmental Field Office
1625 Hollywood Drive
Jackson, TN 38305
conner.franklin@tn.gov

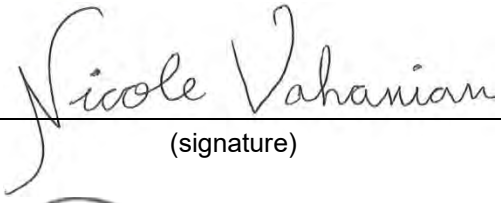
Prepared by:

Michael Williams, QHP #1079-TN11

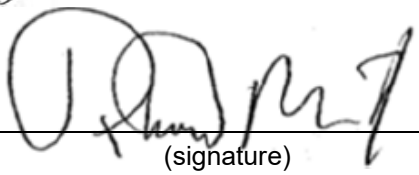
This document entitled Reelfoot Lake Airport Hydrologic Determination Concurrence Request Package was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of TDOT Aeronautics Division (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  (signature)

Michael Williams QHP #1079-TN11

Reviewed by  (signature)

Niky Vahanian

Approved by  (signature)

Rhett Baggett QHP #1013-TN11

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1.0 INTRODUCTION

Stantec conducted hydrologic determinations on May 5, 2021 and May 6, 2021 on three linear features identified within the Study Area to determine the extent of waterbodies pursuant to the hydrologic determination requirements under the "presumption of correctness" (as amended in Rule 0400-40-17 of the Tennessee Water Quality Control Act of 1977). Stantec has prepared Hydrologic Determination (HD) Concurrence Packages for each location, which contains information for submittal to the Tennessee Department of Conservation (TDEC) in support of the HD concurrence and 401 permitting process.

2.0 PURPOSE

The purpose of the environmental site review was to identify whether potentially jurisdictional streams and wetlands, using scientifically based principals and applicable State and Federal Rules and regulations, were located within the Study Area. The information provided in the attached HD package identifies the waterbodies located within the Study Area and further characterizes any linear features/channels that were identified during the field surveys.

3.0 BACKGROUND INFORMATION

The Tennessee Department of Transportation's (TDOT) Aeronautics Division (TAD) is planning to clear the 20:1 threshold siting surface (TSS) approaches of obstructions for each runway end at Reelfoot Lake Airport. More particularly, TAD will cut specific trees that penetrate the airspace of the 20:1 threshold at each end of the runway. All work will take place on parcels owned by the State of Tennessee.

3.1 STUDY AREA

The Study Area is comprised of two segments, the northern segment and the southern segment, which total approximately 42 acres within and immediately surrounding the Reelfoot Lake Airport. The Study Area is comprised of maintained herbaceous lands, agricultural fields, and forested areas. The southern segment of the Study Area is located within Reelfoot Lake State Park and borders Reelfoot Lake to the east. The northern segment of the Study Area is located partially within Reelfoot National Wildlife Refuge and partially within Reelfoot Lake State Park. The Study Area is in the Mississippi Alluvial Plain physiographic region of the Northern Holocene Meander Belts ecoregion. The Study Area is situated within the Samburg, Tennessee topographic quadrangle (**Figure 2**) and within the Reelfoot Lake (080102020404) 12-digit HUC.

3.2 LITERATURE REVIEW

Prior to beginning field work, available literature was reviewed to gain an understanding of any areas of interest. National Wetlands Inventory (NWI) maps, U.S. Geological Survey (USGS) topographic maps, Infrared aerial photographs, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils maps, available Lake County GIS and historical aerial imagery was reviewed to

determine the potential presence and likelihood of Waters of the U.S. and State, including wetlands, within the Study Area. In addition, the TDEC Division of Water Resources Hydrologic Determinations Mapviewer and the Water Quality Assessment/Permits Mapviewer were reviewed to determine if previous WWC determinations have been made in the area, and if TDEC has mapped/assessed any features within the Study Area.

3.2.1 Soils

Soils in the locations of potential wet weather conveyance and streams are mapped by the NRCS (**Figure 4**) as Reelfoot silt loam (Re), Reelfoot silty clay loam (Rf), and Water (W). The NRCS Web Soil Survey for Lake County, Tennessee lists Rf soils as containing hydric components comprising nine percent of the soil type map unit, with these soils typically being found in backswamps.

3.2.2 Precipitation

Prior to conducting field investigations on May 5, 2021 and May 6, 2021, recent and long-term precipitation patterns were evaluated. Precipitation totals for seven days prior to the surveys as well as the previous three months were tabulated to evaluate whether the determinations were made during normal weather conditions. Daily precipitation total data was obtained from the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) station nearest the Study Area, Station #KY-FT-1/Fulton 5.0 W. Precipitation data for this station indicated at total of 4.16 inches of rain the seven days prior to the 05/05/2021 survey event, with 1.32 inches of precipitation recorded the 48 hours prior to field survey and 4.29 inches of rain the seven days prior to the 05/06/2021 survey event, with 0.88 inches of precipitation recorded the 48 hours prior to field survey. Precipitation totals for the three months prior to the May surveys indicate that the determinations were made under abnormally wet conditions. (**Table 1**).

TABLE 2. CALCULATIONS OF NORMAL WEATHER CONDITIONS FOR 05/05/2021 SITE VISIT

		LONG TERM RAINFALL RECORDS								
	MONTH	NORMAL RAINFALL (Mean inches)	STANDARD DEVIATION	NORMAL RAINFALL MINUS 1 STANDARD DEVIATION	NORMAL RAINFALL PLUS 1 STANDARD DEVIATION	ACTUAL RAINFALL	CONDITION (Elevated, Average, Low)	CONDITION VALUE	MONTH WEIGHT VALUE	PRODUCT
1st Month Prior	April	4.57	1.86	2.71	6.43	8.71	elevated	3	3	9
2nd Month Prior	March	4.58	2.77	1.81	7.35	9.30	elevated	3	2	6
3rd Month Prior	February	4.20	2.36	1.84	6.56	2.58	average	2	1	2
									SUM =	17

NOTE

IF SUM IS:	
6-9	Then prior period has been abnormally dry
10-14	Then prior period has been normal (average)
15-18	Then prior period has been abnormally wet

CONDITION VALUE:	
Low =	1
Average =	2
Elevated =	3

SOURCE OF PRECIPITATION DATA:

Daily:	CoCoRaHS Station# KY-FT-1, Fulton 5.0 W
Long Term:	National Climatic Data Center (NCDC) Web Site, Union City, TN
Standard Deviation:	NOAA Research Physical Sciences Division Web Site, Union City,TN

CONCLUSIONS:

Precipitation falls within the ELEVATED range for prior 3-month period; abnormally wet conditions exist at time of determination.

- 4.16 inches of rain previous 7 days prior to determination
- 1.32 inches of rain previous 48 hours prior to determination

4.0 METHODS

The Study Area was evaluated on May 5, 20201 and May 6, 2021 by Michael Williams (TN-QHP #1079-TN11) and Niky Vahanian (TN-QHP-IT). All features depicted as “blue line” channels or exhibiting strong topographic relief on USGS topographic maps, as well as areas mapped as potentially hydric soils, displaying drainage patterns or containing hydrophytic vegetation were examined. Assessment of potential features was conducted in accordance with the Tennessee Department of Environment and Conservation Division of Water Pollution Control Guidance for Making Hydrologic Determinations, Version 1.5 (April 2020). All potential features were first evaluated in regard to presence or absence of Primary Field Indicators; if it was determined that the primary field indicators were not applicable, then the hydrologic determination of the features was based on assessment of secondary field indicators associated with geomorphology, hydrology, and biology of the features.

5.0 RESULTS

Eleven (11) features were evaluated within the Study Area (**Figure 6**) and hydrologic determinations were conducted on three of these features by Michael Williams (TN-QHP #1079-TN11) and Niky Vahanian. The hydrologic determination of the features was based on assessment of secondary field indicators associated with geomorphology, hydrology, and biology of the features. Completed Hydrologic Determination Field Data Sheets and Wetland Determination Data Forms for assessed features are provided in Appendix B. Photographs documenting existing site conditions of all examined areas are included in Appendix D. The following features were identified and delineated within the Study Area.

- Two Streams (STR-01, STR-02)
- One Wet Weather Conveyance (WWC-01)
- Eight Wetlands (WTL-01, WTL-02, WTL-03, WTL-04, WTL-05, WTL-06, WTL-07, WTL-08)

STR-01
Begin: 36.481835°, -89.343200°
End: 36.481809°, -89.346306°

Stream STR-01 flows through a forested area along the southern boundary of the northern segment of the Study Area. STR-01 is not depicted as a blue-line stream on the Samburg USGS Topographic Quadrangle. TDEC Division of Water Resources Mapviewer does not depict STR-01. There was significant flow in the channel the day of the survey, and the feature was scored using a primary field indicator due to the presence of a naturally occurring ground water table connection.

STR-02
Begin: 36.481377°, -89.343953°
End: 36.481851°, -89.343591°

Stream STR-02 drains from a woody wetland feature located outside of the Study Area and flows into STR-01 in the northern segment of the Study Area. STR-02 is not depicted as a blue-line stream on the Samburg USGS Topographic Quadrangle. TDEC Division of Water Resources Mapviewer does not depict STR-02.

There was flow on the day of the survey and the feature was assessed using secondary field indicators and scored 20.75.

WWC-01
Begin: 36.486854°, -89.345299°
End: 36.487039°, -89.344045°

Wet weather conveyance WWC-01 conveys flow from a culvert pipe located within an agricultural field in the northern segment of the Study Area and flows along the northern border of the Study Area into a woody wetland located outside of the Study Area. WWC-01 is partially located in an agricultural field and partially located within a forested area. Two hydrologic determination forms were completed to determine if any substantial differences might exist between the two segments based on surrounding land use conditions. Flow was present on the day of the survey but was likely due to recent rains as no ground water connection was observed. The feature's bed and bank was impacted by surrounding agriculture in the upper reach of the feature, developed more defined bed and bank in the lower forested reach of feature, then lost bed and bank as the feature flowed into the woody wetland outside of the Study Area. The feature was scored using secondary field indicators and scored 14.75 in the upper agricultural reach and 15.75 in the lower forested reach.

WTL-01
36.468161°, -89.346967°

Wetland WTL-01 is an emergent wetland located in the southeastern portion of the southern segment of the Study Area, abutting Reelfoot Lake and continuing outside of the Study Area. The National Wetlands Inventory (NWI) Map shows this area is mapped as a combination of PFO6F (Palustrine, Forested, Deciduous, Semi-permanently Flooded) and L2UBH (Lacustrine, Littoral, Unconsolidated Bottom, Permanently Flooded) wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology. The area was delineated as a wetland and the boundaries, except for those sections which extend into Reelfoot Lake, were flagged in the field.

WTL-02
36.469201°, -89.347509°

Wetland WTL-02 is an emergent wetland located within the southern segment of the Study Area, extending westward outside of the Study Area, and with fingers of wetland area extending north outside of the Study Area towards the airport runway. The NWI Map does not show this area as mapped wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology; the area was delineated as a wetland and the boundaries were flagged in the field.

WTL-03
36.481425°, -89.344871°

Wetland WTL-03 is a narrow linear wetland in the northern segment of the Study Area, located in a drainage swale alongside the runway and drains into STR-01. WTL-03 extends outside of the Study Area to the south,

towards the runway. The NWI Map does not show this area as mapped wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology; the area was delineated as a wetland and the boundaries were flagged in the field.

WTL-04
36.481096°, -89.345617°

Wetland WTL-04 is a narrow linear wetland in the northern segment of the Study Area, located in a drainage swale alongside the runway. WTL-04 extends outside of the Study Area to the south, towards the runway. The NWI Map does not show this area as mapped wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology; the area was delineated as a wetland and the boundaries were flagged in the field.

WTL-05
36.481465°, -89.345854°

Wetland WTL-05 is a narrow linear wetland in the northern segment of the Study Area, located in a drainage swale alongside the runway and drains into STR-01. WTL-05 extends outside of the Study Area to the south, towards the runway. The NWI Map does not show this area as mapped wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology; the area was delineated as a wetland and the boundaries were flagged in the field.

WTL-06
36.485242°, -89.343465°

Wetland WTL-06 is located in the northern segment of the Study Area and is predominantly characterized as a cypress swamp with two fingers extending out into the adjacent agricultural field. WTL-06 extends beyond the Study Area to the north and east and is located within the Reelfoot National Wildlife Refuge. The NWI Map shows this area is mapped as a combination of PFO1A (Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded) and PFO6F (Palustrine, Forested, Deciduous, Semi-permanently Flooded) wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology. The area was delineated as a wetland; however, no flags were hung in the field due to its presence within private agricultural property and federal national wildlife refuge property.

WTL-07
36.485305°. -89.344153°

Wetland WTL-07 is a small, disturbed depression wetland located in an agricultural field in the northern segment of the Study Area. The NWI Map does not show this area as mapped wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology. The area was delineated as a wetland; however, no flags were hung in the field due to its presence within private agricultural property.

WTL-08
36.482241°, -89.343159°

Wetland WTL-08 is a small, disturbed depression wetland located in an agricultural field in the northern segment of the Study Area. The NWI Map does not show this area as mapped wetlands. The area exhibited evidence of meeting all three wetland criteria of predominance of hydrophytic vegetation, presence of hydric soils and wetland hydrology. The area was delineated as a wetland; however, no flags were hung in the field due to its presence within private agricultural property.

6.0 SUMMARY

As defined by Tennessee Code Annotated, wet weather conveyances are watercourses:

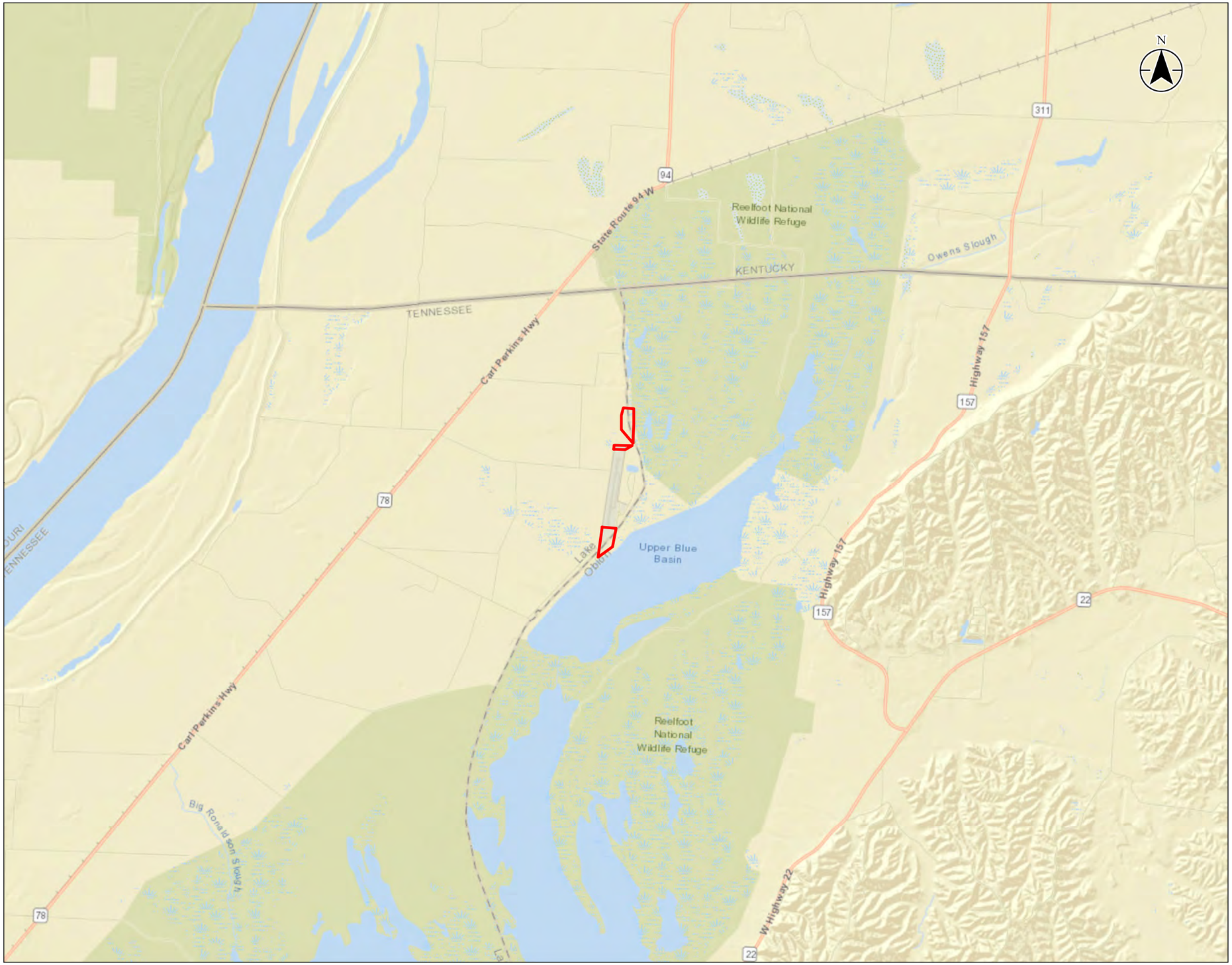
- That flow only in direct response to precipitation runoff in their immediate locality;
- Whose channels are at all times above the groundwater table;
- That are not suitable for drinking water supplies; and
- In which hydrological and biological analysis indicate, under normal weather conditions, due to naturally occurring ephemeral or low flow there is not sufficient water to support fish, or multiple populations of obligate lotic aquatic organisms whose like cycle includes an aquatic phase of at least two months.

One of the 11 features evaluated within the Study Area during Stantec's field investigation and described above was determined to be a WWC. Two evaluated features did not meet the criteria for a WWC and were determined to be jurisdictional streams. The eight remaining features were determined to be jurisdictional wetlands. Neither of the two streams is depicted as a blue-line channel on the USGS topographic map and neither is depicted in the TDEC Division of Water Resources MapViewer. Hydrologic determinations of features were based on assessment of both primary and secondary field indicators.

Stantec respectfully requests a review and confirmation of our hydrologic determination for the above listed waterbodies and attest that all submitted information is true, accurate and complete to the best of our knowledge. If you have any questions or require additional information, please contact me at 615-585-4125 or by email at michael.williams@stantec.com.

APPENDIX A

Figures



Stantec

TN TDOT Department of Transportation

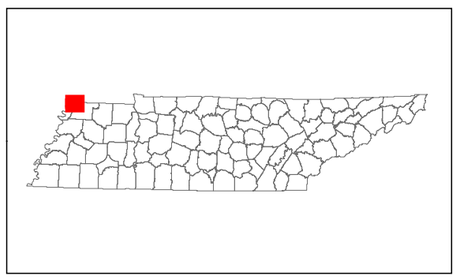
Legend

Study Area

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Notes
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2. Basemap: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Project Location
Lake County, Tennessee

178579023
Prepared by NV on 2021-06-07
Technical Review by MW on 2021-06-07
Independent Review by MW on 2021-06-07

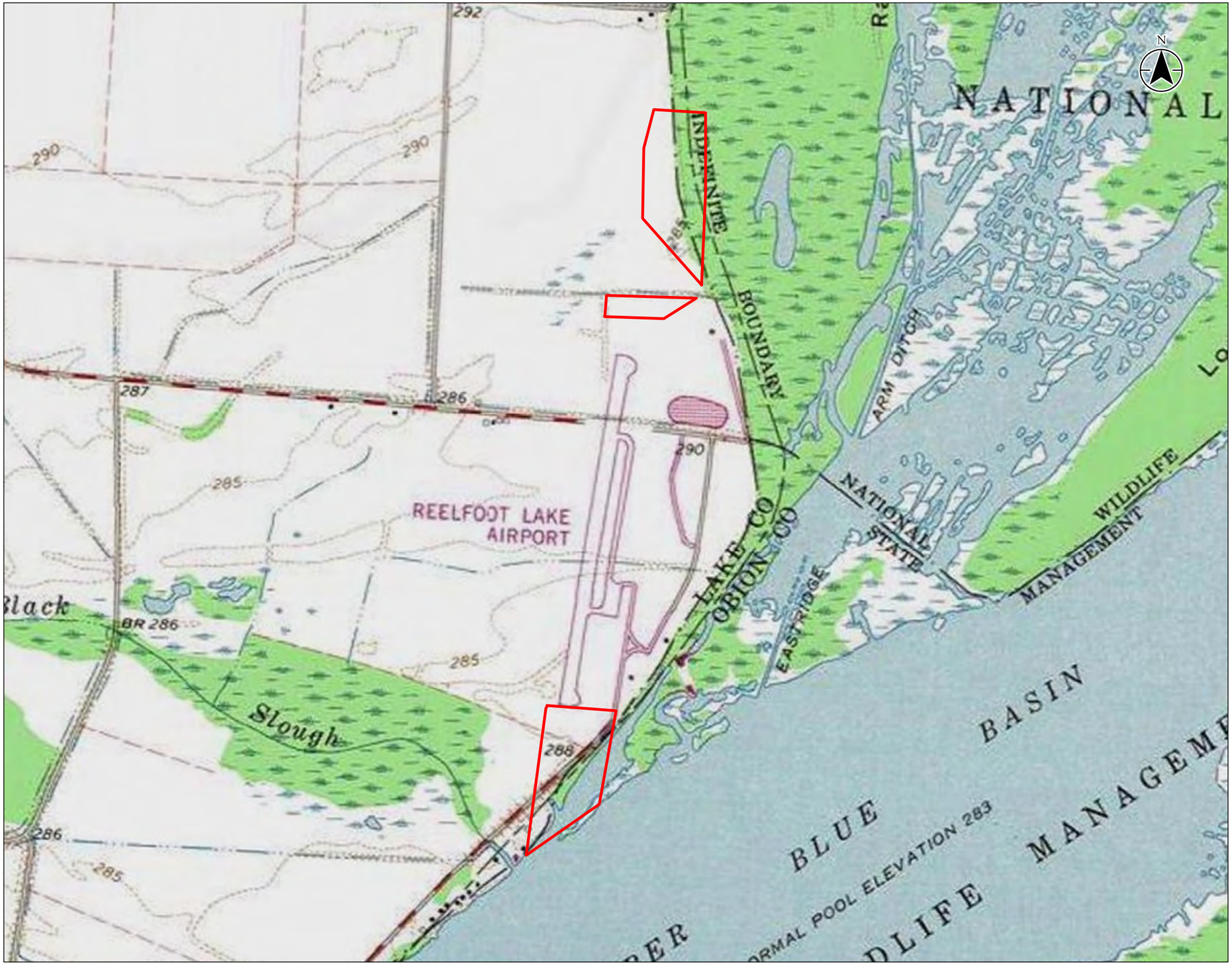
Client/Project
TDOT Aeronautics Division
Obstruction Removal Project at Reelfoot Lake

Figure No.
1

Title
Project Location Map

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\\10264-rpt01\shared projects\1726 Bird Lake Dam Removal\Env Boundaries FieldSurvey\GIS\MXDs\Figure1_LocationMap_BirdLake.mxd Revised: 2021-06-07 By: mrahanan



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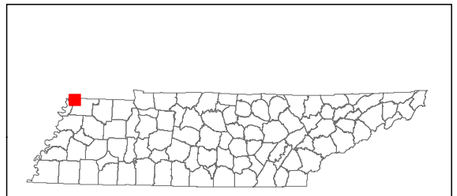
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Study Area

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Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Basemap: Copyright© 2013 National Geographic Society, i-cubed



Project Location
Lake County, Tennessee

178579023
Prepared by NV on 2021-06-07
Technical Review by MW on 2021-06-07
Independent Review by MW on 2021-06-07

Client/Project
TDOT Aeronautics Division
Obstruction Removal Project at Reelfoot Lake

Figure No.
2

Title
Project Vicinity Map

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TN TDOT Department of Transportation

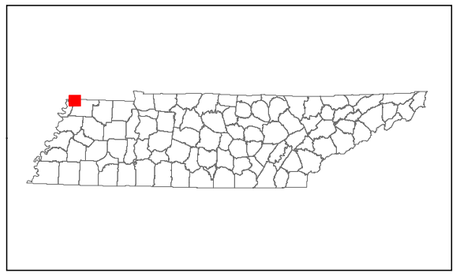
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Study Area

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Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Basemap: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Project Location
Lake County, Tennessee

178579023
Prepared by NV on 2021-06-07
Technical Review by MW on 2021-06-07
Independent Review by MW on 2021-06-07

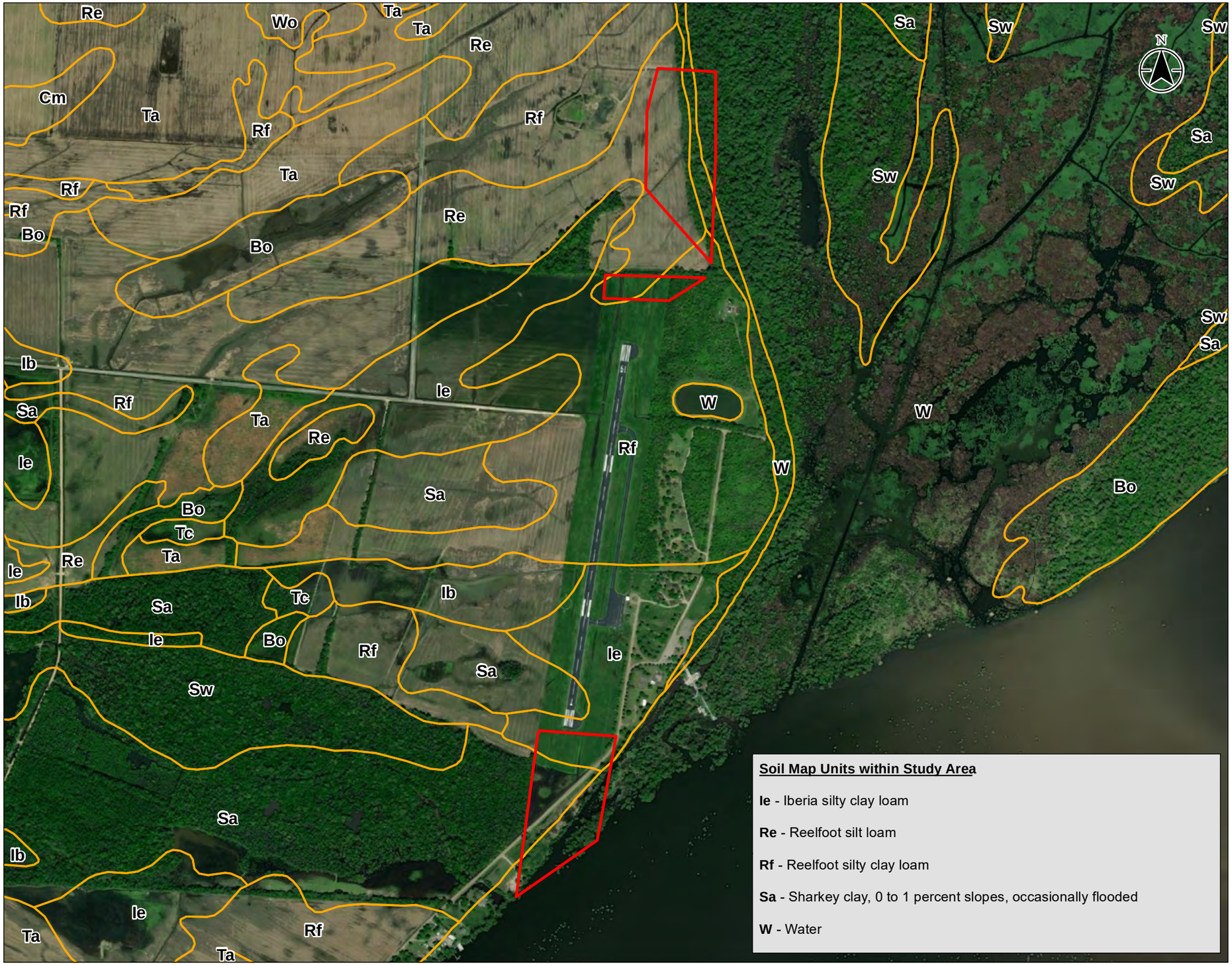
Client/Project
TDOT Aeronautics Division
Obstruction Removal Project at Reelfoot Lake

Figure No.
3

Title
Aerial Imagery Map

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\\US926-prtfs01\shared_projects\172\Bird_Lake_Dam_Removal\Env_Boundaries_FieldSurvey\GIS\MXD\Figure3_LocationMap_BirdLake.mxd Revised: 2021-06-07 By: nvahanian



Soil Map Units within Study Area

Ie - Iberia silty clay loam

Re - Reelfoot silt loam

Rf - Reelfoot silty clay loam

Sa - Sharkey clay, 0 to 1 percent slopes, occasionally flooded

W - Water

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Legend

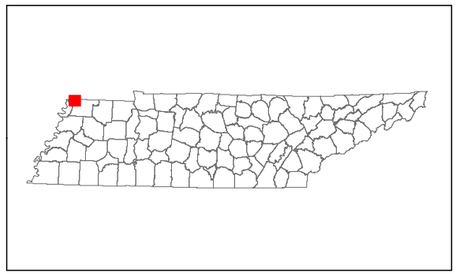
- Study Area
- Soils

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Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Soil Boundaries: USDA NRSC Web Soil Survey 2019
3. Basemap: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Project Location
178579023

Lake County, Tennessee

Prepared by NV on 2021-06-07
Technical Review by MW on 2021-06-07
Independent Review by MW on 2021-06-07

Client/Project

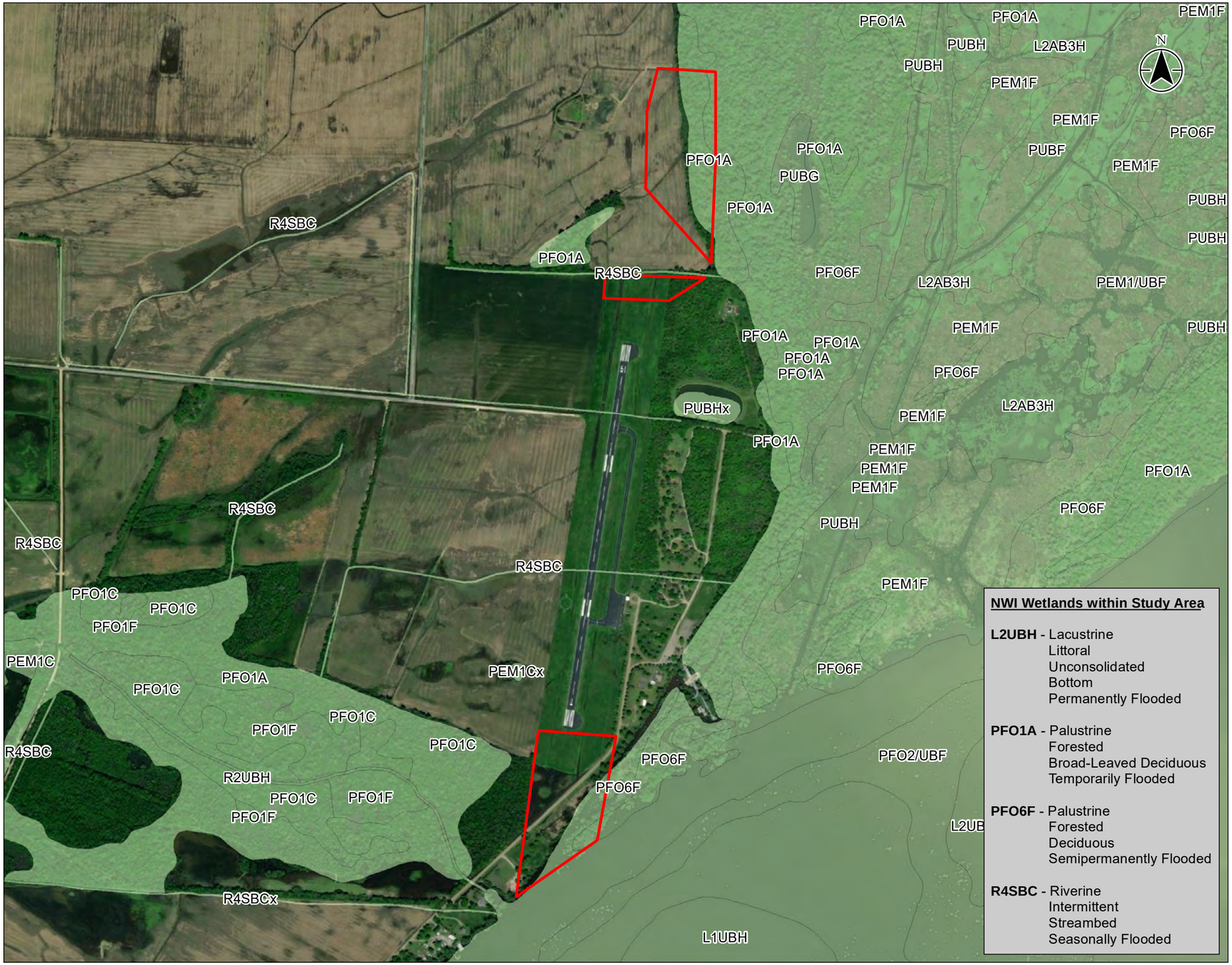
TDOT Aeronautics Division
Obstruction Removal Project at Reelfoot Lake

Figure No.
4

Title
NRCS Soil Survey Map

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\\ug064.ppl\ug01\shared_projects\172618rd Lake Dam Removal\Env Boundaries Field\Surv\LGIS\MXDs\Figure1 LocationMap_Brd_lake.mxd Revised: 2021-06-07 By: nvahanian



NWI Wetlands within Study Area

L2UBH - Lacustrine
Littoral
Unconsolidated
Bottom
Permanently Flooded

PFO1A - Palustrine
Forested
Broad-Leaved Deciduous
Temporarily Flooded

PFO6F - Palustrine
Forested
Deciduous
Semipermanently Flooded

R4SBC - Riverine
Intermittent
Streambed
Seasonally Flooded

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TN TDOT Department of Transportation

Legend

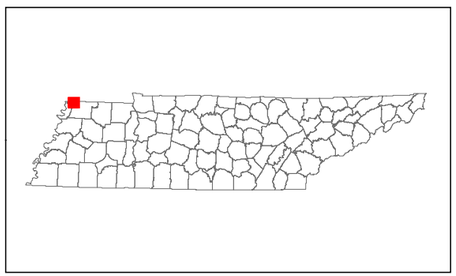
Study Area

NWI Wetlands

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Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. NWI Boundaries: USFWS NWI 2019
3. Basemap: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Project Location
Lake County, Tennessee

178579023

Prepared by NV on 2021-06-07
Technical Review by MW on 2021-06-07
Independent Review by MW on 2021-06-07

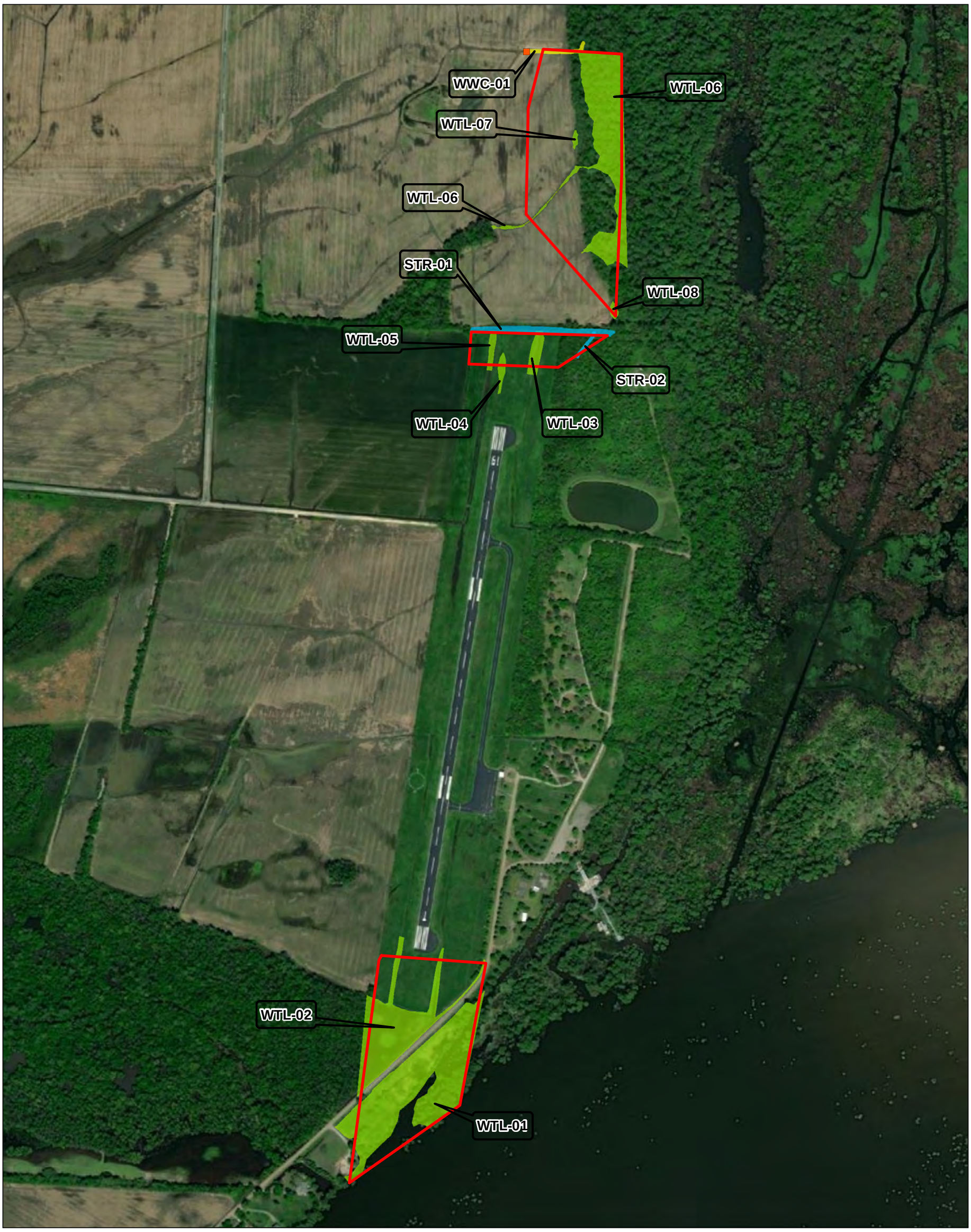
Client/Project
TDOT Aeronautics Division
Obstruction Removal Project at Reelfoot Lake

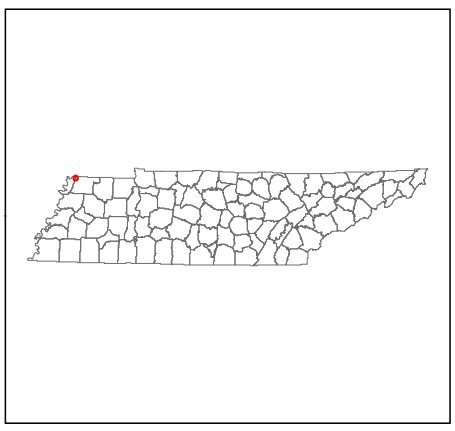
Figure No.
5

Title
National Wetlands Inventory Map

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Legend
- Study Area
- Wetland (WTL)
- Stream (STR)
- Stream (STR)
- Wet Weather Conveyance (WWC)
- Culvert

0 500 1,000 Feet

(At original document size of 11x17)
1:8,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Wetland features WTL-01, WTL-02, WTL-03, WTL-04, WTL-05, and WTL-06 continue beyond Study Area limits.

Stantec

TN TDOT Department of Transportation

Project Location
Lake County, Tennessee

Prepared by NV on 2021-06-07
TR by MW on 2021-06-07
IR by MW on 2021-06-07

Client/Project
178579023

TDOT Aeronautics Division
Obstruction Removal Project at Reelfoot Lake

Figure No.
1

Title
Hydrologic Determination Map

C:\Users\nvahanian\Desktop\Reelfoot Airport\GIS\Figure6_HDMap_Reelfoot.mxd Revised: 2021-06-07 By: nvahanian

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APPENDIX B

Data Forms

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Reelfoot Lake - Upper Blue Basin	Date/Time: 05/05/2021
Assessors/Affiliation: MW (#1079-TN11), NV/ Stantec	Project ID : 178579023
Site Name/Description: Lake Co Reelfoot Lake Airport	
Site Location: STR-01	
HUC (12 digit): 080102020404 - Reelfoot Lake	Lat/Long: 36.481846 °N
Previous Rainfall (7-days) : 4.16 inches (CoCoRaHS Station # KY-FT-1)	-89.344754 °W
Precipitation this Season vs. Normal : abnormally wet [ ] elevated [✔] average [ ] low [ ] abnormally dry [ ] unknown [ ] Source of recent & seasonal precip data :	
Watershed Size : 369 acres	County: Lake
Soil Type(s) / Geology : Reelfoot silt loam (Re), Reelfoot silty clay loam (Rf), Water (W)	Source: NRCS
Surrounding Land Use : Forested, Agricultural, National Wildlife Refuge	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe [✔] Moderate [ ] Slight [ ] Absent [ ]	

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✔	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✔	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✔	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✔	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✔	Stream
6. Presence of fish (except *Gambusia*)	✔	Stream
7. Presence of naturally occurring ground water table connection		Stream ✔
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✔	Stream
9. Evidence watercourse has been used as a supply of drinking water	✔	Stream

NOTE : If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Stream

Secondary Indicator Score (if applicable) = 0

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 0)	**Absent**	**Weak**	**Moderate**	**Strong**
1. Continuous bed and bank	0	1	2	3
2. Sinuous channel	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	1	2	3
4. Sorting of soil textures or other substrate	0	1	2	3
5. Active/relic floodplain	0	0.5	1	1.5
6. Depositional bars or benches	0	1	2	3
7. Braided channel	0	1	2	3
8. Recent alluvial deposits	0	0.5	1	1.5
9. Natural levees	0	1	2	3
10. Headcuts	0	1	2	3
11. Grade controls	0	0.5	1	1.5
12. Natural valley or drainageway	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	No = 0		Yes = 3	

B. Hydrology (Subtotal = 0)	**Absent**	**Weak**	**Moderate**	**Strong**	**N/A**
14. Subsurface flow/discharge into channel	0	1	2	3	
15. Water in channel and >48 hours since sig. rain	0	1	2	3	
16. Leaf litter in channel (January – September)	1.5	1	0.5	0	
17. Sediment on plants or on debris	0	0.5	1	1.5	
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5	
19. Hydric soils in stream bed or sides of channel	No = 0		Yes = 1.5		

C. Biology (Subtotal = 0)	**Absent**	**Weak**	**Moderate**	**Strong**
20. Fibrous roots in channel bed [1]	3	2	1	0
21. Rooted plants in thalweg [1]	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	1	2	3
23. Bivalves/mussels	0	1	2	3
24. Amphibians	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	1	2	3
26. Filamentous algae; periphyton	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5
28.Wetland plants in channel bed [2]	0	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 0

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Reelfoot Lake - Upper Blue Basin	Date/Time: 05/05/2021
Assessors/Affiliation: MW (#1079-TN11), NV/ Stantec	Project ID : 178579023
Site Name/Description: Lake Co Reelfoot Lake Airport	
Site Location: STR-02	
HUC (12 digit): 080102020404 - Reelfoot Lake	Lat/Long: 36.481609 °N
Previous Rainfall (7-days) : 4.16 inches (CoCoRaHS Station # KY-FT-1)	-89.343758 °W

Precipitation this Season vs. Normal : abnormally wet | elevated ✔ | average | low | abnormally dry | unknown

Source of recent & seasonal precip data :

Watershed Size : 6 acres	County: Lake
Soil Type(s) / Geology : Reelfoot silty clay loam (Rf), Water (W)	Source: NRCS
Surrounding Land Use : Forested, Agricultural, National Wildlife Refuge	

Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) :

Severe | Moderate | Slight | Absent ✔

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✔	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✔	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✔	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✔	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✔	Stream
6. Presence of fish (except *Gambusia*)	✔	Stream
7. Presence of naturally occurring ground water table connection	✔	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✔	Stream
9. Evidence watercourse has been used as a supply of drinking water	✔	Stream

NOTE : If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Stream

Secondary Indicator Score (if applicable) = 20.75

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 8.25)	**Absent**	**Weak**	**Moderate**	**Strong**
1. Continuous bed and bank	0	1	✔ 2	3
2. Sinuous channel	0	✔ 1	2	3
3. In-channel structure: riffle-pool sequences	0	1 ✔	2	3
4. Sorting of soil textures or other substrate	0	✔ 1	2	3
5. Active/relic floodplain	✔ 0	0.5	1	1.5
6. Depositional bars or benches	0	✔ 1	2	3
7. Braided channel	✔ 0	1	2	3
8. Recent alluvial deposits	0	✔ 0.5	1	1.5
9. Natural levees	✔ 0	1	2	3
10. Headcuts	✔ 0	1	2	3
11. Grade controls	0	0.5	✔ 1	1.5
12. Natural valley or drainageway	0 ✔	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	No ✔ = 0		Yes = 3	

B. Hydrology (Subtotal = 6.5)	**Absent**	**Weak**	**Moderate**	**Strong**	**N/A**
14. Subsurface flow/discharge into channel	0	1	✔ 2	3	
15. Water in channel and >48 hours since sig. rain	0	1	2	3	✔
16. Leaf litter in channel (January – September)	✔ 1.5	1	0.5	0	
17. Sediment on plants or on debris	0	✔ 0.5	1	1.5	
18. Organic debris lines or piles (wrack lines)	0	0.5	✔ 1	1.5	
19. Hydric soils in stream bed or sides of channel	No = 0		Yes ✔ 1.5		

C. Biology (Subtotal = 6)	**Absent**	**Weak**	**Moderate**	**Strong**
20. Fibrous roots in channel bed [1]	3	2	✔ 1	0
21. Rooted plants in thalweg [1]	✔ 3	2	1	0
22. Crayfish in stream (exclude in floodplain)	✔ 0	1	2	3
23. Bivalves/mussels	✔ 0	1	2	3
24. Amphibians	✔ 0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	✔ 0	1	2	3
26. Filamentous algae; periphyton	0	1 ✔	2	3
27. Iron oxidizing bacteria/fungus	✔ 0	0.5	1	1.5
28.Wetland plants in channel bed [2]	0	✔ 0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 20.75

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

Feature drains wetland area
Silt bottom channel with little to no sorting and only a few depositional benches
No headcuts/ 2 grade controls at tree roots
Fibrous roots present throughout
No rooted plants
Some trumpet creeper present in channel

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Reelfoot Lake - Upper Blue Basin	Date/Time: 05-06-2021 0831 hrs
Assessors/Affiliation: MW (#1079-TN11), NV/ Stantec	Project ID : 178579023
Site Name/Description: Lake Co Reelfoot Lake Airport	
Site Location: WWC-01 (Agricultural Section)	
HUC (12 digit): 080102020404 - Reelfoot Lake	Lat/Long: 36.486867 °N
Previous Rainfall (7-days) : 4.29 inches (CoCoRaHS Station # KY-FT-1)	-89.344624 °W
Precipitation this Season vs. Normal : abnormally wet [ ] elevated [✔] average [ ] low [ ] abnormally dry [ ] unknown [ ] Source of recent & seasonal precip data :	
Watershed Size : 4 acres	County: Lake
Soil Type(s) / Geology : Reelfoot silt loam (Re), Water (W)	Source: NRCS
Surrounding Land Use : Agricultural	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe [✔] Moderate [ ] Slight [ ] Absent [ ]	

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✔	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✔	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✔	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✔	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✔	Stream
6. Presence of fish (except *Gambusia*)	✔	Stream
7. Presence of naturally occurring ground water table connection	✔	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✔	Stream
9. Evidence watercourse has been used as a supply of drinking water	✔	Stream

NOTE : If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) = 14.75

Justification / Notes :

Drainage feature in wheat field. Strong flow day of survey

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 3.25)	**Absent**	**Weak**	**Moderate**	**Strong**
1. Continuous bed and bank	0	✔	2	3
2. Sinuous channel	✔	1	2	3
3. In-channel structure: riffle-pool sequences	0 ✔	1	2	3
4. Sorting of soil textures or other substrate	0 ✔	1	2	3
5. Active/relic floodplain	✔	0.5	1	1.5
6. Depositional bars or benches	✔	1	2	3
7. Braided channel	✔	1	2	3
8. Recent alluvial deposits	✔	0.5	1	1.5
9. Natural levees	✔	1	2	3
10. Headcuts	✔	1	2	3
11. Grade controls	0	✔	1	1.5
12. Natural valley or drainageway	0	0.5 ✔	1	1.5
13. At least second order channel on existing USGS or NRCS map	No ✔ = 0		Yes = 3	

B. Hydrology (Subtotal = 4.5)	**Absent**	**Weak**	**Moderate**	**Strong**	**N/A**
14. Subsurface flow/discharge into channel	0	✔	2	3	
15. Water in channel and >48 hours since sig. rain	0	1	2	3	✔
16. Leaf litter in channel (January – September)	✔	1	0.5	0	
17. Sediment on plants or on debris	0	✔	1	1.5	
18. Organic debris lines or piles (wrack lines)	✔	0.5	1	1.5	
19. Hydric soils in stream bed or sides of channel	No = 0		Yes ✔ = 1.5		

C. Biology (Subtotal = 7)	**Absent**	**Weak**	**Moderate**	**Strong**
20. Fibrous roots in channel bed [1]	3	✔	1	0
21. Rooted plants in thalweg [1]	✔	2	1	0
22. Crayfish in stream (exclude in floodplain)	✔	1	2	3
23. Bivalves/mussels	✔	1	2	3
24. Amphibians	✔	0.5	1	1.5
25. Macrobenthos (record type & abundance)	✔	1	2	3
26. Filamentous algae; periphyton	0	1	✔	3
27. Iron oxidizing bacteria/fungus	✔	0.5	1	1.5
28.Wetland plants in channel bed [2]	✔	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 14.75

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

B&B altered due to farming
Almost 100% run habitat
No sorting
No headcut/ 1 grade control in form of culvert at NRCS erosion control berm
Flow present but recent rain and no indication of spring flow
No source for leaf litter
Sediment on debris in channel bottom
No debris piles
Fibrous roots present in lower reach
Sinistral snails present

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Reelfoot Lake - Upper Blue Basin	Date/Time: 05-06-2021 0900 hrs
Assessors/Affiliation: MW (#1079-TN11), NV/ Stantec	Project ID : 178579023
Site Name/Description: Lake Co Reelfoot Lake Airport	
Site Location: WWC-01 (Forested Section)	
HUC (12 digit): 080102020404 - Reelfoot Lake	Lat/Long: 36.486867 °N
Previous Rainfall (7-days) : 4.29 inches (CoCoRaHS Station # KY-FT-1)	-89.344624 °W
Precipitation this Season vs. Normal : abnormally wet [ ] elevated [✔] average [ ] low [ ] abnormally dry [ ] unknown [ ] Source of recent & seasonal precip data :	
Watershed Size : 4 acres	County: Lake
Soil Type(s) / Geology : Reelfoot silt loam (Re), Water (W)	Source: NRCS
Surrounding Land Use : Forested, Agricultural, National Wildlife Refuge	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe Moderate Slight[✔] Absent	

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✔	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✔	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✔	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✔	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✔	Stream
6. Presence of fish (except *Gambusia*)	✔	Stream
7. Presence of naturally occurring ground water table connection	✔	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✔	Stream
9. Evidence watercourse has been used as a supply of drinking water	✔	Stream

NOTE : If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance

Secondary Indicator Score (if applicable) = 15.75

Justification / Notes :

Feature fed by drainage feature in wheat field. Good flow day of survey due to recent rains

Secondary Field Indicator Evaluation

A. **Geomorphology** (Subtotal = 5.25)	Absent	Weak	Moderate	Strong
1. Continuous bed and bank	0	1	✔ 2	3
2. Sinuous channel	0	✔ 1	2	3
3. In-channel structure: riffle-pool sequences	0 ✔	1	2	3
4. Sorting of soil textures or other substrate	0 ✔	1	2	3
5. Active/relic floodplain	✔ 0	0.5	1	1.5
6. Depositional bars or benches	0 ✔	1	2	3
7. Braided channel	✔ 0	1	2	3
8. Recent alluvial deposits	✔ 0	0.5	1	1.5
9. Natural levees	✔ 0	1	2	3
10. Headcuts	✔ 0	1	2	3
11. Grade controls	✔ 0	0.5	1	1.5
12. Natural valley or drainageway	0	0.5 ✔	1	1.5
13. At least second order channel on existing USGS or NRCS map	No ✔ = 0		Yes = 3	

B. **Hydrology** (Subtotal = 5)	Absent	Weak	Moderate	Strong	N/A
14. Subsurface flow/discharge into channel	0	✔ 1	2	3	
15. Water in channel and >48 hours since sig. rain	0	1	2	3	✔
16. Leaf litter in channel (January – September)	✔ 1.5	1	0.5	0	
17. Sediment on plants or on debris	0	✔ 0.5	1	1.5	
18. Organic debris lines or piles (wrack lines)	0	✔ 0.5	1	1.5	
19. Hydric soils in stream bed or sides of channel	No = 0		Yes ✔ 1.5		

C. **Biology** (Subtotal = 5.5)	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed [1]	3	2	1 ✔	0
21. Rooted plants in thalweg [1]	✔ 3	2	1	0
22. Crayfish in stream (exclude in floodplain)	✔ 0	1	2	3
23. Bivalves/mussels	✔ 0	1	2	3
24. Amphibians	✔ 0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	✔ 0	1	2	3
26. Filamentous algae; periphyton	0	1	✔ 2	3
27. Iron oxidizing bacteria/fungus	✔ 0	0.5	1	1.5
28.Wetland plants in channel bed [2]	✔ 0	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 15.75

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

B&B loses form in lower reach
Almost 100% run habitat
No sorting
1 depositional bar
No headcut/No grade control
Flow present but recent rain and no indication of spring flow
No leaf litter
Sediment on debris in channel bottom
Few small debris piles
Fibrous roots present throughout
Sinistral snails present

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-01-UP

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Roadway Fillslope Local relief (concave, convex, none): convex Slope (%): 20

Subregion (LRR or MLRA): LRR O Lat: 36.46752 Long: -89.348633 Datum: NAD83 TN

Soil Map Unit Name: Sharkey Clay 0-1% slopes occasionally flooded (Sa) NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point for wetland WTL-01 and WTL-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WTL-01-UP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. Sherardia arvensis	80	X	NL
2. Ranunculus bulbosus	5		FAC
3. Trifolium repens	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 5	x 3 = 15
FACU species 5	x 4 = 20
UPL species	x 5 =
Column Totals: 10 (A)	35 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-01-UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Silty clay	
10-18	10YR 3/2	50					Silty clay	
	10YR 5/1	15					Silty clay	
10-18			10YR 5/6	35	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]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[3]:

- ☐ 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)

[3]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** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-01-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 36.467489 Long: -89.348591 Datum: NAD83 TN

Soil Map Unit Name: Iberia silty clay loam (Ie), Sharkey Clay (Sa), Water (W) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-01-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. Ranunculus bulbosus	25	X	FAC
2. Cinna arundinacea	30	X	FACW
3. Carex sp.	25	X	NA
4. Trifolium repens	10		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	30	x 2 =	60
FAC species	25	x 3 =	75
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	65 (A)		175 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-01-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	65	7.5YR 5/6	35	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/5/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NV Wetland Name/Location WTL-01

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☐ - no fill material or sediment - outlet unaltered - no excavation
☐ - no ditches/drainage tiles - runoff/input unaltered

2. Wetland depth slightly impacted (SI = 0.75)

☑ - portion of site with minimal fill material or sediment - outlet lowered/raised - minor excavation
☑ - portion of site with ditches/drainage tiles - runoff/input increased

3. Wetland depth moderately impacted (SI = 0.5)

☐ - portion of site with moderate fill material or sediment - outlet lowered/raised - moderate excavation
☐ - portion of site with ditches/drainage tiles - increased hydroperiod

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - outlet lowered/raised - significant excavation
☐ - portion of site with ditches/drainage tiles - increased hydroperiod

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - outlet removed/blocked - entire wetland affected
☐ - numerous ditches/drainage tiles - increased hydroperiod - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces 99
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar _____
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar 1.0

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.9901

NA ☑ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☐ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☑ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☐ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☐ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1) ☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ Carex sp	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ Rumex crispus	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ Trifolium repens
☐ _____	☐ _____	3 Number native herbaceous spp.		☐ Ranunculs

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.704

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☑ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☐ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8=_____

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☑ 75% – 89% (CI = 0.75) ☐ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25) ☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☐ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☐ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☑ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☐ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**=____

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.75 (WETDEPTH) V3_____ (TSIZE) V5_____ (SCOV) V7 0.704 (COMP) V9 0.2475 (BUFFER)

V2 0.9901 (WSHEDINT) V4_____ (TDEN) V6 1.0 (GVC) V8 1.0 (ORGANIC)

Wetland Map Label: WTL-01

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as **"Critical Habitat"** for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	Yes	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-01

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-01 is within Reelfoot State Park and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands.	
Quantitative Rating scores	Function: Hydrologic Regime	0.862
	Function: Biogeochemical Processes	0.587
	Function: Retain Particulates	N/A
	Function: Plant Community	0.285
	Function: Wildlife Community	0.313
	Quantitative Score (Average of FCIs x 100)	51.2
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	51.2

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-02-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 36.469434 Long: -89.346474 Datum: NAD83 TN

Soil Map Unit Name: Iberia silty clay loam (Ie), Sharkey Clay 0-1% slopes occasionally flooded (Sa) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Use WTL-01-UP data point for upland point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 1-2

Water Table Present? Yes X No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-02-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. Carex granularis	35	X	FACW
2. Poa pratensis	5		FACU
3. Ranunculus bulbosus	20	X	FAC
4. Carex vulpinoidea	10		FACW
5. Leersia oryzoides	20	X	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	45	x 2 =	90
FAC species	20	x 3 =	60
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	90 (A)		190 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-02-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Silt loam	
1-18	10YR 3/1	70	5YR 3/4	30	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/5/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NV Wetland Name/Location WTL-02

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☐ - no fill material or sediment - outlet unaltered - no excavation
- no ditches/drainage tiles - runoff/input unaltered

2. Wetland depth slightly impacted (SI = 0.75)

☑ - portion of site with minimal fill material or sediment - outlet lowered/raised - minor excavation
- portion of site with ditches/drainage tiles - runoff/input increased

3. Wetland depth moderately impacted (SI = 0.5)

☐ - portion of site with moderate fill material or sediment - outlet lowered/raised - moderate excavation
- portion of site with ditches/drainage tiles - increased hydroperiod

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - outlet lowered/raised - significant excavation
- portion of site with ditches/drainage tiles - increased hydroperiod

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - outlet removed/blocked - entire wetland affected
- numerous ditches/drainage tiles - increased hydroperiod - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces 50
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 40
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar 10

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.8010

NA ☑ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☐ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☑ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☐ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☐ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1)
< 20 (SI=0.0)
☐

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ Carex _____	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ Rice cutgrass	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ _____
☐ _____	☐ _____	6 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.8124

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☑ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☐ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8=_____

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☑ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25) ☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☐ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☑ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☐ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☐ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**= 0.33

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.75 (WETDEPTH) V3_____ (TSIZE) V5_____ (SCOV) V7 0.8124 (COMP) V9 0.33 (BUFFER)

V2 0.801 (WSHEDINT) V4_____ (TDEN) V6 1.0 (GVC) V8 1.0 (ORGANIC)

Wetland Map Label: WTL-02

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as **"Critical Habitat"** for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	Yes	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-02

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-02 is within Reelfoot State Park and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands.	
Quantitative Rating scores	Function: Hydrologic Regime	0.775
	Function: Biogeochemical Processes	0.557
	Function: Retain Particulates	N/A
	Function: Plant Community	0.287
	Function: Wildlife Community	0.324
	Quantitative Score (Average of FCIs x 100)	48.6
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	48.6

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-03-UP

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace like fill area Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR O Lat: 36.481023 Long: -89.344806 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silty clay loam (Rf) NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WTL-03-UP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. Dactylis glomerata	45	X	FACU
2. Trifolium repens	20		FACU
3. Trifolium campestre	40	X	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species	65	x 4 =	260
UPL species	40	x 5 =	200
Column Totals:	105 (A)		460 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (If observed, list morphological adaptations below).

Vegetation maintained with routine mowing

SOIL

Sampling Point: WTL-03-UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Silty loam	
4-18	10YR 3/4	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]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[3]:

- ☐ 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)

[3]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** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-03-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 36.48102 Long: -89.344858 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silt loam (Re), Reelfoot silty clay loam (Rf) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

- Vegetation maintained with routine mowing

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-03-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size:)			
1. Carex vulpinoidea	55	X	FACW
2. Ranunculus bulbosus	30	X	FAC
3. Juncus sp.	10		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	55	x 2 =	110
FAC species	30	x 3 =	90
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	85 (A)		200 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

Vegetation maintained with routine mowing

SOIL

Sampling Point: WTL-03-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	95	10YR 3/6	5	C	M	Silty clay	
2-15	10YR 3/2	85	10YR 3/6	15	C	M	Silty clay	
15-18	10YR 3/1	65	10YR 4/6	35	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/5/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NW Wetland Name/Location WTL-03

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☐ - no fill material or sediment - outlet unaltered - no excavation
- no ditches/drainage tiles - runoff/input unaltered

2. Wetland depth slightly impacted (SI = 0.75)

☑ - portion of site with minimal fill material or sediment - outlet lowered/raised - minor excavation
- portion of site with ditches/drainage tiles - runoff/input increased

3. Wetland depth moderately impacted (SI = 0.5)

☐ - portion of site with moderate fill material or sediment - outlet lowered/raised - moderate excavation
- portion of site with ditches/drainage tiles - increased hydroperiod

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - outlet lowered/raised - significant excavation
- portion of site with ditches/drainage tiles - increased hydroperiod

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - outlet removed/blocked - entire wetland affected
- numerous ditches/drainage tiles - increased hydroperiod - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 95
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar 5

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.7130

NA ☑ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☐ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☑ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☐ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☐ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1) ☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ Carex	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ Juncus	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ _____
☐ _____	☐ _____	5 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.8124

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☑ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☐ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8=_____

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☑ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25)
☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☑ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☐ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☐ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☐ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**= 0.5

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.75 (WETDEPTH) V3_____ (TSIZE) V5_____ (SCOV) V7 0.8124 (COMP) V9 0.5 (BUFFER)

V2 0.713 (WSHEDINT) V4_____ (TDEN) V6 1.0 (GVC) V8 1.0 (ORGANIC)

Wetland Map Label: WTL-03

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as **"Critical Habitat"** for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	Yes	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-03

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-03 is within Reelfoot State Park and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands.	
Quantitative Rating scores	Function: Hydrologic Regime	0.731
	Function: Biogeochemical Processes	0.541
	Function: Retain Particulates	N/A
	Function: Plant Community	0.283
	Function: Wildlife Community	0.338
	Quantitative Score (Average of FCIs x 100)	47.3
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	47.3

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-04-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 36.481144 Long: -89.345612 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silt loam (Re), Reelfoot silty clay loam (Rf) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

- Use wetland WTL-03-UP for upland data point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-04-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size:)			
1. Ranunculus bulbosus	50	X	FAC
2. Cinna arundinacea	25	X	FACW
3. Carex vulpinoidea	15		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	40	x 2 =	80
FAC species	50	x 3 =	150
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	90 (A)		230 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-04-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	95	5YR 3/4	5	C	PL	Silt	
2-18	10YR 4/2	75	7.5YR 4/6	25	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/5/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NW Wetland Name/Location WTL-04

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☐ - no fill material or sediment - outlet unaltered - no excavation
- no ditches/drainage tiles - runoff/input unaltered

2. Wetland depth slightly impacted (SI = 0.75)

☑ - portion of site with minimal fill material or sediment - outlet lowered/raised - minor excavation
- portion of site with ditches/drainage tiles - runoff/input increased

3. Wetland depth moderately impacted (SI = 0.5)

☐ - portion of site with moderate fill material or sediment - outlet lowered/raised - moderate excavation
- portion of site with ditches/drainage tiles - increased hydroperiod

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - outlet lowered/raised - significant excavation
- portion of site with ditches/drainage tiles - increased hydroperiod

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - outlet removed/blocked - entire wetland affected
- numerous ditches/drainage tiles - increased hydroperiod - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 95
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar 5

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.7130

NA ☑ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☐ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☑ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☐ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☐ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1) ☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ Carex	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ Juncus	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ _____
☐ _____	☐ _____	4 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.8124

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☑ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☐ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8=_____

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☑ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25) ☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☑ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☐ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☐ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☐ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**= 0.5

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.75 (WETDEPTH) V3_____ (TSIZE) V5_____ (SCOV) V7 0.8124 (COMP) V9 0.5 (BUFFER)

V2 0.7130 (WSHEDINT) V4_____ (TDEN) V6 1.0 (GVC) V8 1.0 (ORGANIC)

Wetland Map Label: WTL-04

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as **"Critical Habitat"** for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	Yes	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-04

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-04 is partially within Reelfoot State Park and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands.	
Quantitative Rating scores	Function: Hydrologic Regime	0.731
	Function: Biogeochemical Processes	0.541
	Function: Retain Particulates	N/A
	Function: Plant Community	0.283
	Function: Wildlife Community	0.338
	Quantitative Score (Average of FCIs x 100)	47.3
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	47.3

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-05-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-05-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Drainage swale Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR O Lat: 36.481333 Long: -89.345806 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silt loam (Re), Reelfoot silty clay loam (Rf) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

- Use wetland WTL-03-UP for upland data point

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 12+
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Fish present in feature

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

Sampling Point: WTL-05-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling/Shrub Stratum (Plot size:)			
1. Hibiscus moscheutos	10	X	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size:)			
1. Juncus effusus	15	X	OBL
2. Typha latifolia	10		OBL
3. Carex vulpinoidea	30	X	FACW
4. Carex lurida	5		OBL
5. Ranunculus bulbosus	10		FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		

50% of total cover: 35 20% of total cover: 14

Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	80 (A)		130 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-05-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/2	90	7.5YR 4/6	10	C	M	Silty clay	
1-18	10YR 4/1	70	7.5YR 4/6	30	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/5/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NW Wetland Name/Location WTL-05

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☐ - no fill material or sediment - outlet unaltered - no excavation
☐ - no ditches/drainage tiles - runoff/input unaltered

2. Wetland depth slightly impacted (SI = 0.75)

☐ - portion of site with minimal fill material or sediment - outlet lowered/raised - minor excavation
☐ - portion of site with ditches/drainage tiles - runoff/input increased

3. Wetland depth moderately impacted (SI = 0.5)

☐ - portion of site with moderate fill material or sediment - outlet lowered/raised - moderate excavation
☑ - portion of site with ditches/drainage tiles - increased hydroperiod

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - outlet lowered/raised - significant excavation
☐ - portion of site with ditches/drainage tiles - increased hydroperiod

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - outlet removed/blocked - entire wetland affected
☐ - numerous ditches/drainage tiles - increased hydroperiod - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 95
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar 5

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.713

NA ☑ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☐ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☑ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☐ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☐ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1) ☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ Carex	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ Juncus	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ Ranunculus
☐ _____	☐ _____	6 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.8124

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☑ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☐ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8=_____

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☑ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25) ☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☑ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☐ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☐ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☐ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**= 0.5

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.5 (WETDEPTH) V3_____ (TSIZE) V5_____ (SCOV) V7 0.8124 (COMP) V9 0.5 (BUFFER)

V2 0.713 (WSHEDINT) V4_____ (TDEN) V6 1.0 (GVC) V8 1.0 (ORGANIC)

Wetland Map Label: WTL-05

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as **"Critical Habitat"** for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	Yes	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-05

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-05 is partially within Reelfoot State Park and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands.	
Quantitative Rating scores	Function: Hydrologic Regime	0.597
	Function: Biogeochemical Processes	0.489
	Function: Retain Particulates	N/A
	Function: Plant Community	0.268
	Function: Wildlife Community	0.323
	Quantitative Score (Average of FCIs x 100)	41.9
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	41.9

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-06-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-06-UP

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR O Lat: 36.486338 Long: -89.344125 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silt loam (Re) NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-06-UP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Celtis laevigata	30	X	FACW
2. Liquidambar styraciflua	25	X	FAC
3. Carya illinoinensis	10		FACU
4.			
5.			
6.			
7.			
8.			
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover: 13		
Sapling/Shrub Stratum (Plot size:)			
1. Asimina triloba	15	X	FAC
2. Ulmus rubra	20	X	FAC
3. Celtis laevigata	10	X	FACW
4.			
5.			
6.			
7.			
8.			
	45	= Total Cover	
50% of total cover: 22.5	20% of total cover: 9		
Herb Stratum (Plot size:)			
1. Parthenocissus quinquefolia	50	X	FACU
2. Sanicula odorata	25	X	FACU
3. Galium aparine	5		FACU
4. Arundinaria gigantea	5		FACW
5. Millium effusum	10		UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95	= Total Cover	
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size:)			
1. Smilax rotunifolia	15	X	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	45	x 2 =	90
FAC species	75	x 3 =	225
FACU species	85	x 4 =	340
UPL species	10	x 5 =	50
Column Totals:	215 (A)		705 (B)

Prevalence Index = B/A = 3.27

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-06-UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Silty clay loam	
1-18	10YR 3/2	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]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[3]:

- ☐ 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)

[3]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** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-06-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WET-06-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): _____

Subregion (LRR or MLRA): LRR O Lat: 36.486351 Long: -89.344036 Datum: NAD83 TN

Soil Map Unit Name: Iberia silty clay loam (Ie), Reelfoot silt loam (Re), Water (W) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☑ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 4
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WET-06-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Taxodium distichum	25	X	OBL
2. Celtis laevigata	15		FACW
3. Liquidambar styraciflua	38	X	FAC
4.			
5.			
6.			
7.			
8.			
	78	= Total Cover	

50% of total cover: 39 20% of total cover: 15.600000000000001

Sapling/Shrub Stratum (Plot size:)			
1. Acer saccharinum	15	X	FAC
2. Acer negundo	5	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	

50% of total cover: 10 20% of total cover: 4

Herb Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Woody Vine Stratum (Plot size:)			
1. Toxicodendron radicans	5	X	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	15	x 2 =	30
FAC species	60	x 3 =	180
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	100 (A)		235 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET-06-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	80	7.5YR 3/4	20	C	M	Silty clay	
6-18	10YR 4/2	70	7.5YR 3/4	30	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/6/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NW Wetland Name/Location WTL-06

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☑ - no fill material or sediment - no ditches/drainage tiles	- outlet unaltered - runoff/input unaltered	- no excavation

2. Wetland depth slightly impacted (SI = 0.75)

☐ - portion of site with minimal fill material or sediment - portion of site with ditches/drainage tiles	- outlet lowered/raised - runoff/input increased	- minor excavation

3. Wetland depth moderately impacted (SI = 0.5)

☐ - portion of site with moderate fill material or sediment - portion of site with ditches/drainage tiles	- outlet lowered/raised - increased hydroperiod	- moderate excavation

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - portion of site with ditches/drainage tiles	- outlet lowered/raised - increased hydroperiod	- significant excavation

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - numerous ditches/drainage tiles	- outlet removed/blocked - increased hydroperiod	- entire wetland affected - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces 99
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar _____
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar 1

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = .9901

NA ☐ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☑ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☐ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☑ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☑ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☐ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1) ☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☑ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ ~~Sugar berry~~	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ _____	☐ Phragmites
☐ Overcup oak	☐ _____	1 Number native shrub spp.		☐ _____
☐ _____	☐ _____	4 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.8466

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☑ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☐ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8=_____

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☑ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☐ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25) ☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☐ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☑ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☐ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☐ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**= 0.66

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 1.0 (WETDEPTH) V3 1.0 (TSIZE) V5_____ (SCOV) V7 0.8466 (COMP) V9 0.66 (BUFFER)

V2 0.9901 (WSHEDINT) V4 1.0 (TDEN) V6_____ (GVC) V8 1.0 (ORGANIC)

Wetland Map Label: WTL-06

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "**Critical Habitat**" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	Yes	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	Yes	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	Yes	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	Yes	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-06

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-06 is located within Reelfoot National Wildlife Refuge and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands. It is a cypress swamp with very mature trees and was observed as being a significant waterfowl area.	
Quantitative Rating scores	Function: Hydrologic Regime	0.995
	Function: Biogeochemical Processes	0.997
	Function: Retain Particulates	N/A
	Function: Plant Community	0.964
	Function: Wildlife Community	0.888
	Quantitative Score (Average of FCIs x 100)	96.1
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	96.1

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-06-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-07/08-UP

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace/Ag Field Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR or MLRA): LRR O Lat: 36.485465 Long: -89.344188 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silt loam (Re) NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data form applies to both WTL-07 and WTL-08 due to similarity and proximity.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-07/08-UP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Sapling/Shrub Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Herb Stratum (Plot size:)			
1. Triticum aestivum	60	X	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Woody Vine Stratum (Plot size:)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species	60	x 5 =	300
Column Totals:	60 (A)		300 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-07/08-UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	90	5YR 4/6	10	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Plow pan

Depth (inches): 8

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lake Co Reelfoot Lake Airport City/County: Tiptonville / Lake County Sampling Date: 05-06-2021

Applicant/Owner: TDOT Aeronautics Division State: TN Sampling Point: WTL-07/08-WET

Investigator(s): Michael Williams, Niky Vahanian Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Closed depression on Terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR O Lat: 36.485415 Long: -89.344131 Datum: NAD83 TN

Soil Map Unit Name: Reelfoot silt loam (Re), Reelfoot silty clay loam (Rf) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Feature is closed depression along margin of ag field. Little vegetation present along margins, including some trees and shrubs at forest edge, with no veg within present within majority of wetland. Data form applies to both WTL-07 and WTL-08 due to similarity and proximity.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 6
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: WTL-07/08-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Sapling/Shrub Stratum (Plot size:)			
1. Celtis laevigata	10	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size:)			
1. Campsis radicans	5	X	FAC
2. Toxicodendron radicans	3	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	8 = Total Cover		

50% of total cover: 4 20% of total cover: 1.6

Woody Vine Stratum (Plot size:)			
1. Toxicodendron radicans	10	X	FAC
2. Campsis radicans	5	X	FAC
3.			
4.			
5.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	25	x 2 =	50
FAC species	23	x 3 =	69
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	48 (A)		119 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WTL-07/08-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	90	7.5YR 3/4	10	C	M	Silty clay	Redox noted in pore linings
1-18	10YR 4/1	70	7.5YR 3/4	30	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]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[3]:

- ☐ 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)

[3]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:

HGM FUNCTIONAL ASSESSMENT
SEASONALLY INUNDATED DEPRESSION WETLANDS

Date: 5/6/2021 Project Name Reelfoot Lake Airport

Field Personnel MW, NW Wetland Name/Location WTL-07/08

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Wetland Depth (WETDEPTH)

1. Wetland Depth not impacted (SI = 1.0)

☐ - no fill material or sediment - outlet unaltered - no excavation
☐ - no ditches/drainage tiles - runoff/input unaltered

2. Wetland depth slightly impacted (SI = 0.75)

☐ - portion of site with minimal fill material or sediment - outlet lowered/raised - minor excavation
☐ - portion of site with ditches/drainage tiles - runoff/input increased

3. Wetland depth moderately impacted (SI = 0.5)

☑ - portion of site with moderate fill material or sediment - outlet lowered/raised - moderate excavation
☑ - portion of site with ditches/drainage tiles - increased hydroperiod

4. Wetland depth significantly impacted (SI = 0.25)

☐ - portion of site with significant fill material or sediment - outlet lowered/raised - significant excavation
☐ - portion of site with ditches/drainage tiles - increased hydroperiod

5. Wetland depth severely impacted (SI = 0.1)

☐ - excessive fill material or sediment - outlet removed/blocked - entire wetland affected
☐ - numerous ditches/drainage tiles - increased hydroperiod - recovery potential lost

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 100
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar _____

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.75

NA ☑ **V3: Canopy Tree Size Class (TSIZE)**

1. Average size of canopy trees > 3 in. DBH
☐ ≥ 13 in. (SI = 1.0) ☐ 10 – 12 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
☐ < 4 in. or no trees present, go to V5

NA ☑ **V4: Canopy Tree Density (TDEN)**

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
☐ 3 – 7 (SI = 1.0) ☐ 8 – 11 (SI = 0.75) ☐ > 11 (SI = 0.5) ☐ 1 – 2 (SI = 0.5)

NA ☑ **V5: Shrub Cover (SCOV)**

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot
☐ ≥ 20 (SI = 1.0) ☐ < 20, go to V6

NA ☐ **V6: Ground Vegetation Cover (GVC)**

1. Average percent cover of ground vegetation per 30-ft. radius plot
☐ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1)
< 20 (SI=0.0)
☑

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese Stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ Trumpet creep	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ Poison ivy	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ _____
☐ _____	☐ _____	____ Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = _____

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____

b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____

c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 _____

d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____

e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= 0.5745

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

☐ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. ☑ Surface horizons altered (estimate the percent of the WAA in which neither an O or A horizon is present)

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V8= 0.75

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☐ 40% – 74% (CI = 0.5) ☑ 10% – 39% (CI = 0.25)
☐ < 10% (CI = 0.1)

2. Multiply the CI by one of the following values:

☐ a) if average buffer width is ≥ 492 ft., multiply by **1.0**

☐ b) if average buffer is 98 ft. to 491 ft., multiply by **0.66**

☐ c) if average buffer width is 33 ft. to 97 ft., multiply by **0.33**

☑ d) if average buffer width is < 33 ft., multiply by **0.1**

2. This value is the SI for **V9**= 0.025

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.5 (WETDEPTH) V3_____ (TSIZE) V5_____ (SCOV) V7 0.5745 (COMP) V9 0.025 (BUFFER)

V2 0.75 (WSHEDINT) V4_____ (TDEN) V6_____ (GVC) V8 0.75 (ORGANIC)

Wetland Map Label: WTL-07/08

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a)**.**	Yes	**ORNW**
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	Yes	**ETW**
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	Yes	**ETW**
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	**ETW**
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as **"Critical Habitat"** for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	**ETW**
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	**ETW**
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-07/08

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	✔
	2. **ETW**	✔
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES: WTL-07 is located directly adjacent to Reelfoot National Wildlife Refuge and is hydrologically connected to Reelfoot Lake/Upper Blue Basin, which is considered an ONRW along with surrounding wetlands.	
Quantitative Rating scores	Function: Hydrologic Regime	0.612
	Function: Biogeochemical Processes	0.303
	Function: Retain Particulates	N/A
	Function: Plant Community	0.132
	Function: Wildlife Community	0.135
	Quantitative Score (Average of FCIs x 100)	29.6
	Value Added (Significant Size) Total	0
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	29.6

APPENDIX C

Precipitation Data

TABLE 2. CALCULATIONS OF NORMAL WEATHER CONDITIONS FOR 05/05/2021 SITE VISIT

		LONG TERM RAINFALL RECORDS								
	MONTH	**NORMAL RAINFALL** (Mean inches)	**STANDARD DEVIATION**	**NORMAL RAINFALL MINUS 1 STANDARD DEVIATION**	**NORMAL RAINFALL PLUS 1 STANDARD DEVIATION**	**ACTUAL RAINFALL**	**CONDITION (Elevated, Average, Low)**	**CONDITION VALUE**	**MONTH WEIGHT VALUE**	**PRODUCT**
1st Month Prior	April	4.57	1.86	2.71	6.43	8.71	elevated	3	3	9
2nd Month Prior	March	4.58	2.77	1.81	7.35	9.30	elevated	3	2	6
3rd Month Prior	February	4.20	2.36	1.84	6.56	2.58	average	2	1	2
									SUM =	17

NOTE

IF SUM IS:	
6-9	Then prior period has been abnormally dry
10-14	Then prior period has been normal (average)
15-18	Then prior period has been abnormally wet

CONDITION VALUE:	
Low =	1
Average =	2
Elevated =	3

SOURCE OF PRECIPITATION DATA:

Daily:	CoCoRaHS Station# KY-FT-1, Fulton 5.0 W
Long Term:	National Climatic Data Center (NCDC) Web Site, Union City, TN
Standard Deviation:	NOAA Research Physical Sciences Division Web Site, Union City,TN

CONCLUSIONS:

Precipitation falls within the ELEVATED range for prior 3-month period; abnormally wet conditions exist at time of determination.
- 4.16 inches of rain previous 7 days prior to determination
- 1.32 inches of rain previous 48 hours prior to determination

CoCoRaHS

Station KY-FT-1

Site Visit **5-May-21**

Previous Precipitation (48 hrs, in.)	
5/4/2021	0.75
5/3/2021	0.57
Total	**1.32**

Previous Precipitation (7 days, in.)	
5/4/2021	0.75
5/3/2021	0.57
5/2/2021	0.02
5/1/2021	0
4/30/2021	0
4/29/2021	2.82
4/28/2021	0
Total	**4.16**

Field Day	Previous Precip (7 days, in)
5/5/2021	4.16
5/6/2021	4.29

1st Month Prior	Apr-21
Date	Precip (in.)
4/1/2021	0
4/2/2021	0
4/3/2021	0
4/4/2021	0
4/5/2021	0
4/6/2021	0
4/7/2021	0
4/8/2021	1.36
4/9/2021	0
4/10/2021	0.3
4/11/2021	0.02
4/12/2021	0
4/13/2021	0.36
4/14/2021	0.22
4/15/2021	0
4/16/2021	0
4/17/2021	0.08
4/18/2021	0
4/19/2021	0
4/20/2021	0
4/21/2021	0.19
4/22/2021	0
4/23/2021	0.03
4/24/2021	2.82
4/25/2021	0.51
4/26/2021	0
4/27/2021	0
4/28/2021	0
4/29/2021	2.82
4/30/2021	0
Total	**8.71**

2nd Month Prior	Mar-21
Date	Precip (in.)
3/1/2021	2.89
3/2/2021	0
3/3/2021	0
3/4/2021	0
3/5/2021	0
3/6/2021	0
3/7/2021	0
3/8/2021	0
3/9/2021	0
3/10/2021	0
3/11/2021	T
3/12/2021	0.24
3/13/2021	1.15
3/14/2021	0.04
3/15/2021	0.61
3/16/2021	0
3/17/2021	0.04
3/18/2021	1.07
3/19/2021	0.03
3/20/2021	0
3/21/2021	0
3/22/2021	0
3/23/2021	0.11
3/24/2021	0
3/25/2021	0.74
3/26/2021	0.08
3/27/2021	0
3/28/2021	0.13
3/29/2021	0
3/30/2021	0
3/31/2021	2.17
Total	**9.3**

3rd Month Prior	Feb-21
Date	Precip (in.)
2/1/2021	0
2/2/2021	0
2/3/2021	0
2/4/2021	0
2/5/2021	0.07
2/6/2021	0
2/7/2021	0.04
2/8/2021	0
2/9/2021	0
2/10/2021	0
2/11/2021	0.35
2/12/2021	0
2/13/2021	T
2/14/2021	0.01
2/15/2021	0.07
2/16/2021	0.13
2/17/2021	0
2/18/2021	0.2
2/19/2021	0
2/20/2021	0
2/21/2021	0
2/22/2021	0.14
2/23/2021	0
2/24/2021	0
2/25/2021	0
2/26/2021	0.09
2/27/2021	0.06
2/28/2021	1.42
Total	**2.58**

Data Tools: 1981-2010 Normals

The 1981-2010 Climate Normals are NCDC's latest three-decade averages of climatological variables, including temperature and precipitation. This new product replaces the 1971-2000 Climate Normals (http://hurricane.ncdc.noaa.gov/cgi-bin/climatenormals/climatenormals.pl?directive=prod_select&subrnum=) product, which remains available as historical data.

The tool below provides temperature and precipitation Climate Normals for over 9,800 stations across the United States. Begin by selecting the desired dataset tab to view monthly, daily, annual/seasonal, or hourly Normals. Then select the desired location and a corresponding station.

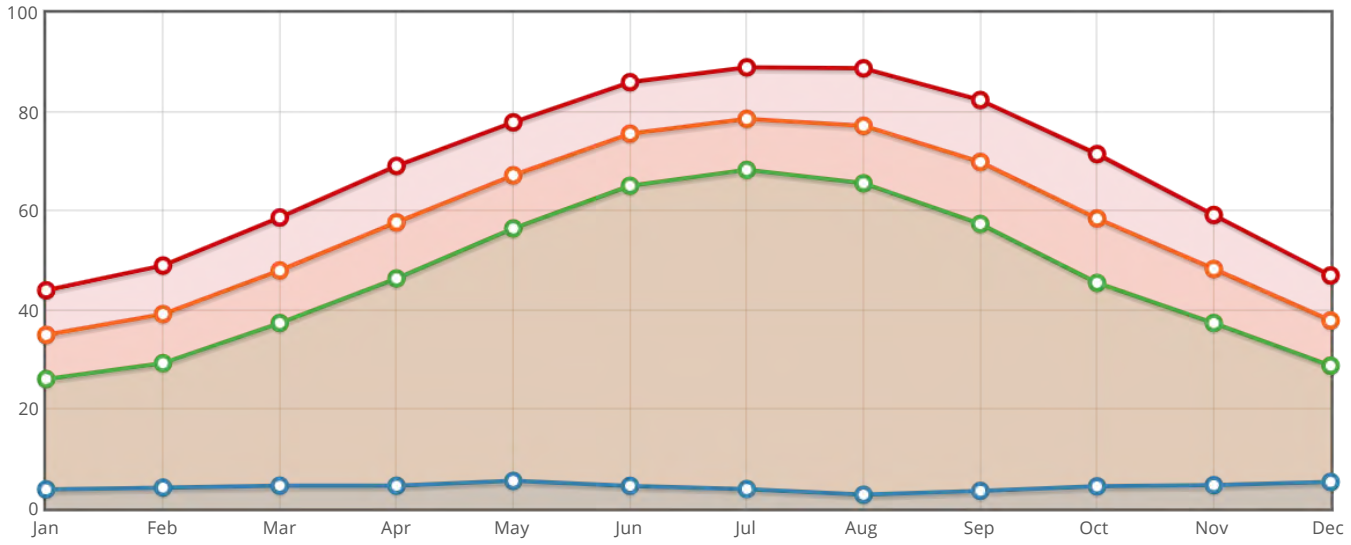
Monthly Normals | Daily Normals | Annual/Seasonal Normals | Hourly Normals

Use the form below to select the geographic region in the first pane, then select the station name in the next pane as the name list is populated.

TENNESSEE	SAMBURG W. L. REFUGE, TN US
TEXAS	SAVANNAH 6 SW, TN US
UTAH	SELMER, TN US
VERMONT	SEVIERVILLE, TN US
VIRGINIA	SEWANEE, TN US
WASHINGTON	SHELBYVILLE MUNICIPAL AIRPORT, TN US
WEST VIRGINIA	SHELBYVILLE WATER, TN US
WISCONSIN	SMITHVILLE 2 SE, TN US

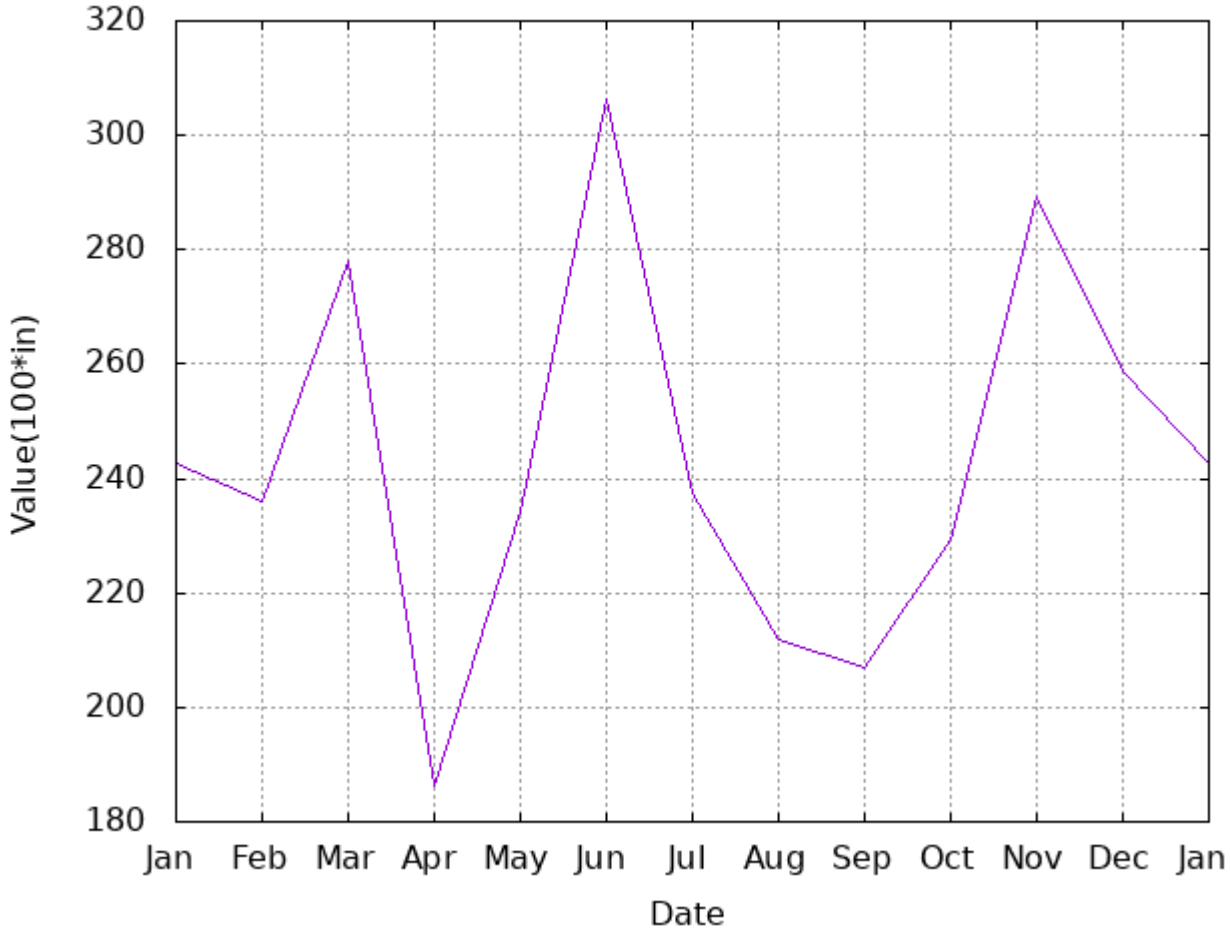
UNION CITY, TN US

View Station Details (https://www.ncdc.noaa.gov/cdo-web/datasets/normal_mly/stations/GHCND:USC00409219/detail) | View Station Report



MONTH	PRECIP (IN)	MIN TMP (°F)	AVG TMP (°F)	MAX TMP (°F)
01	3.84	26.1	35.0	44.0
02	4.20	29.3	39.2	49.0
03	4.58	37.4	48.0	58.7
04	4.57	46.4	57.7	69.1

MONTH	PRECIP (IN)	MIN TMP (°F)	AVG TMP (°F)	MAX TMP (°F)
05	5.55	56.5	67.2	77.9
06	4.55	65.1	75.6	86.0
07	3.91	68.3	78.6	89.0
08	2.76	65.6	77.2	88.8
09	3.54	57.4	69.9	82.4
10	4.45	45.5	58.5	71.5
11	4.69	37.4	48.3	59.2
12	5.34	28.8	37.9	47.0



Values plotted Get file (/tmp/data.12.179.104.42.145.14.44.20)
Date submitted: **5/26/2021 at 14:44**

Mailing Address

NOAA PSL
325 Broadway
Boulder, CO 80305-3328

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Precipitation Standard Deviation for Union City, TN

1	January	2.424843938
2	February	2.358600277
3	March	2.779198563
4	April	1.861815013
5	May	2.341062867
6	June	3.062740703
7	July	2.372780716
8	August	2.116843829
9	September	2.067808156
10	October	2.294226792
11	November	2.892786306
12	December	2.589078167

APPENDIX D

Photo Summary

Stantec

Photographic Log

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 1 **Photo Location:** 36.481828°, -89.343064° **Direction:** NNE **Survey Date:** 5/5/2021 **Comments:** STR-01 Upstream	
Photograph ID: 2 **Photo Location:** 36.481831°, -89.343067° **Direction:** SSW **Survey Date:** 5/5/2021 **Comments:** STR-01 Downstream	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 3 **Photo Location:** 36.481744°, -89.343656° **Direction:** N **Survey Date:** 5/5/2021 **Comments:** STR-02 Upstream	
Photograph ID: 4 **Photo Location:** 36.481742°, -89.343642° **Direction:** ENE **Survey Date:** 5/5/2021 **Comments:** STR-02 Downstream	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 5 **Photo Location:** 36.481581°, -89.343778° **Direction:** NW **Survey Date:** 5/5/2021 **Comments:** STR-02 Upstream	
Photograph ID: 6 **Photo Location:** 36.481594°, -89.343775° **Direction:** S **Survey Date:** 5/5/2021 **Comments:** STR-02 Downstream	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 7 **Photo Location:** 36.486856°, -89.345222° **Direction:** SSE **Survey Date:** 5/6/2021 **Comments:** WWC-01 Culvert Outlet	
Photograph ID: 8 **Photo Location:** 36.486875°, -89.344839° **Direction:** NNW **Survey Date:** 5/6/2021 **Comments:** WWC-01 Upstream - Agricultural portion	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 9 **Photo Location:** 36.486875°, -89.344836° **Direction:** SW **Survey Date:** 5/6/2021 **Comments:** WWC-01 Downstream - Agricultural portion	
Photograph ID: 10 **Photo Location:** 36.4869°, -89.344206° **Direction:** NNW **Survey Date:** 5/6/2021 **Comments:** WWC-01 Upstream - Forested portion	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 11 **Photo Location:** 36.486889°, -89.344203° **Direction:** SSE **Survey Date:** 5/6/2021 **Comments:** WWC-01 Downstream - Forested portion	
Photograph ID: 12 **Photo Location:** 36.487044°, -89.344047° **Direction:** SE **Survey Date:** 5/6/2021 **Comments:** WWC-01 Upstream - Forested portion, drains to wetland	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 13 **Photo Location:** 36.487044°, -89.34405° **Direction:** NNE **Survey Date:** 5/6/2021 **Comments:** WWC-01 Downstream - Forested portion, drains to wetland	
Photograph ID: 14 **Photo Location:** 36.467492°, -89.348614° **Direction:** NE **Survey Date:** 5/5/2021 **Comments:** WTL-01-WET - Soil Data Point	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 15

Photo Location:
36.467517°, -89.348619°

Direction:
SSW

Survey Date:
5/5/2021

Comments:
WTL-01-UPL - Soil Data Point



Photograph ID: 16

Photo Location:
36.467664°, -89.348472°

Direction:
NW

Survey Date:
5/5/2021

Comments:
WTL-01 Overview



Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 17 **Photo Location:** 36.469428°, -89.346469° **Direction:** E **Survey Date:** 5/5/2021 **Comments:** WTL-02-WET - Soil Data Point	
Photograph ID: 18 **Photo Location:** 36.469428°, -89.346469° **Direction:** SSW **Survey Date:** 5/5/2021 **Comments:** WTL-02 Overview	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 19 **Photo Location:** 36.481011°, -89.344856° **Direction:** NW **Survey Date:** 5/5/2021 **Comments:** WTL-03-WET - Soil Data Point	
Photograph ID: 20 **Photo Location:** 36.481036°, -89.344831° **Direction:** SW **Survey Date:** 5/5/2021 **Comments:** WTL-03-UPL - Soil Data Point	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 21 **Photo Location:** 36.481011°, -89.344856° **Direction:** WNW **Survey Date:** 5/5/2021 **Comments:** WTL-03 Overview	
Photograph ID: 22 **Photo Location:** 36.481156°, -89.345594° **Direction:** SSW **Survey Date:** 5/5/2021 **Comments:** WTL-04-WET - Soil Data Point	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 23

Photo Location:
36.481344°, -89.345786°

Direction:
WSW

Survey Date:
5/5/2021

Comments:
WTL-05-WET - Soil Data Point



Photograph ID: 24

Photo Location:
36.481097°, -89.345961°

Direction:
SSE

Survey Date:
5/5/2021

Comments:
WTL-05 Overview



Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 25 **Photo Location:** 36.486358°, -89.344047° **Direction:** NW **Survey Date:** 5/6/2021 **Comments:** WTL-06-WET - Soil Data Point	
Photograph ID: 26 **Photo Location:** 36.486342°, -89.344114° **Direction:** SW **Survey Date:** 5/6/2021 **Comments:** WTL-06-UPL - Soil Data Point	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 27 **Photo Location:** 36.486089°, -89.343967° **Direction:** NE **Survey Date:** 5/6/2021 **Comments:** WTL-06 Overview - Cypress Swamp portion	
Photograph ID: 28 **Photo Location:** 36.484792°, -89.344147° **Direction:** SW **Survey Date:** 5/6/2021 **Comments:** WTL-06 Overview - Agricultural Swale portion	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 29 **Photo Location:** 36.485439°, -89.344128° **Direction:** SSW **Survey Date:** 5/6/2021 **Comments:** WTL-07-WET - Soil Data Point	
Photograph ID: 30 **Photo Location:** 36.485478°, -89.344167° **Direction:** W **Survey Date:** 5/6/2021 **Comments:** WTL-07-UPL - Soil Data Point	

Client:	**TDOT Aeronautics Division**	**Project:**	**178579023**
Site Name:	**Reelfoot Lake Airport Tree Removal Project**	**Site Location:**	**Lake County, TN**

Photograph ID: 31 **Photo Location:** 36.485228°, -89.344125° **Direction:** SE **Survey Date:** 5/6/2021 **Comments:** WTL-07 Overview	
Photograph ID: 32 **Photo Location:** 36.482414°, -89.343192° **Direction:** SW **Survey Date:** 5/6/2021 **Comments:** WTL-08 Overview	

APPENDIX E

Property Access Permission Letter and Property Contact Information

Reelfoot Lake Airport
2595 Highway 21 E
Tiptonville, TN 38079

June 7, 2021
File: 178579023

Attention: Conner Franklin
Division of Water Resources
Jackson Field Office
1625 Hollywood Drive
Jackson, TN 38305

Dear Mr. Franklin,

Reference: Permission to Access the Property at 2595 Highway 21 E, Tiptonville, TN

The project area is located on parcel 014 003.00 and 041 001.00, both of which are owned by the State of Tennessee. In addition, the airport property is open (no controlled access) and has no office or airport manager on site. The Tennessee Department of Environment and Conservation (TDEC) has open access to the parcels located at 2595 Highway 21 E, Tiptonville, TN 38079 containing the Reefloot Lake Airport (Parcel #014 003.00 & 041 001.00) for the purpose of conducting a hydrologic determination certification.

Regards,



Michael Williams
Stantec

Phone: 615-585-4125

Appendix D

D.4 TDEC RESPONSE – HYDROLOGIC DETERMINATION

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
JACKSON ENVIRONMENTAL FIELD OFFICE
DIVISION OF WATER POLLUTION CONTROL
1625 HOLLYWOOD DRIVE
JACKSON, TN 38305
PHONE 731-512-1300 STATEWIDE 1-888-891-8332 FAX 731-661-6283

July 1, 2021

Mr. Michael Williams
Stantec Consulting Services Inc.
601 Grassmere Park Rd, Ste 22
Nashville, TN 37211

Re: Hydrologic Determination Concurrence
Reelfoot Lake Airport
Lake County

Dear Mr. Williams:

The Division of Water Resources has reviewed the documentation submitted on June 22, 2021 seeking concurrence with the Hydrologic Determinations conducted at the Reelfoot Lake Airport and adjacent properties. We are in concurrence with the hydrologic determinations (2 streams, 8 wetlands and 1 wet weather conveyance) as detailed in your submittal. Please be advised that the U.S. Army Corps of Engineers should be consulted regarding "waters of the United States" jurisdictional status. In addition, coverage under the TN Construction General Permit (TNCGP) will be required for any construction activity that results in one or more acres of earthen disturbance.

If you have any questions about the determination or permit requirements please feel free to contact me at 731-225-2689 or by email at Gregg.Overstreet@tn.gov.

Sincerely,

Gregory S. Overstreet
Environmental Manager
Division of Water Resources
Jackson Environmental Field Office

Appendix E

E.5 PUBLIC PARTICIPATION

This appendix will be updated as coordination with the Public takes place