

Mitigation Attachment

Hanks Road at Breastworks Branch Bridge (FPID 432286-1)

April 10, 2017

Wetland

Impact: 0.26 acres of forested palustrine wetlands / 0.16 UMAM functional loss

Proposed

Mitigation: Hydrologic enhancement (Low-Water-Crossing) at Salters Lake area on Northwest Florida Water Management District (NFWFMD) lands along the Escambia River floodplain

USACE

Permit: TBD

Scope

A former logging road in the floodplain of the Escambia River, located on NFWFMD lands proximate to Salters Lake, disrupts low-water surface flows in a forested wetland slough. To enhance the natural hydrologic regime of this slough during low-flow conditions, the NFWFMD will install one (1) low-water-crossing. This mitigation project will offset the wetland functional loss (0.16 UMAM) associated with Florida Department of Transportation (FDOT) replacement of a bridge on Hanks Road at Breastworks Branch (FPID 432286-1).

Development of this plan is guided by compliance with the 12 components of a compensatory mitigation plan as outlined in 33 CFR §332.4(c)(2)–(14) of the 2008 EPA Final Rule (Compensatory Mitigation for Losses of Aquatic Resources).

1—Objectives [§332.4(c)(2)]

The objective of this project is to enhance the hydrologic regime of an estimated 6.49 acres of forested wetlands (FLUCCS 615 – Bottomland) by removing a manmade barrier to natural surface flows during low-water conditions. Enhancement will be accomplished by removing approximately 30 linear feet of existing road fill and constructing one (1) low-water-crossing (LWC) on a former logging road proximate to Salters Lake on NFWFMD Escambia Water Management Area (WMA) lands.

Pre-Restoration Habitat Cover—Forested Wetland (approximately Bottomland–FLUCCS 615). 6.49 acres.

Post-Restoration Habitat Cover—Forested Wetland (approximately Bottomland–FLUCCS 615). 6.49 acres.

2—Site Selection Criteria [§332.4(c)(3)]

The Escambia River WMA was established by the NFWFMD to protect water resources and natural habitat. Hydrologic enhancements, such as that proposed herein, improve the ecological and protection value of the WMA.

This site is proposed as offsetting mitigation for the Hanks Road at Breastworks Branch (FPID 432286-1) impact for the following reasons:

- The impact is not within the service area of any existing or planned mitigation bank.
- The impact and mitigation site are in the same 8-digit HUC basin (#03140305; Escambia River).
- The mitigation addresses the ecological needs of the Escambia River WMA.
- The mitigation is “in-kind” (palustrine forested wetlands).
- The mitigation enables the NFWFMD to implement wetland enhancements that would otherwise be unfunded and not implemented.

When complete, the mitigation will be self-sustaining and managed for ecological integrity in perpetuity by the NFWFMD as part of the Escambia River WMA.

3—Site Protection Instrument [§332.4(c)(4)]

In accordance with the site protection clauses of the USACE/EPA compensatory mitigation Final Rule of 2008, title to this site (fee-simple) will be held in perpetuity by the NFWFMD. The mitigation site will be managed in a natural condition as conservation lands as part of the Escambia River Water Management Area.

The NFWFMD, a governmental entity created by the Florida Water Resources Act of 1972

(section 373.069, Florida Statutes), given taxing authority by a Florida constitutional amendment in 1973, with jurisdictional boundaries covering 16 counties, manages over 211,000 acres in the Florida Panhandle for water resources protection and ecosystem integrity. Section 373.1391, Florida Statutes, mandates ecological management of NFWFMD lands, although allowing for multiple uses such as hunting and passive recreation when such uses do not conflict with ecological management goals. It is the policy of the NFWFMD Governing Board to prioritize the conservation, protection and restoration of water resources and natural ecosystems over other uses such as public access.

4—Baseline Information [§332.4(c)(5)]

The Salters Lake mitigation site consists of a former logging road that bisects a forested wetland slough. Fill material associated with this road blocks surface flows during low-flow conditions and alters wetland moisture regimes.

Maps and Figures for Proposed Mitigation Area (see attached)

- Location of Impact and Proposed Mitigation
- 2016 DOQ
- 1940 B&W Aerial
- LiDAR
- Upland / Wetland (Bottomland Forest) Delineation
- NWI (National Wetlands Inventory)
- FLUCCS (Florida Land Use Cover Classification System)
- NRCS Soils (Natural Resources Conservation Service)
- Low-Water-Crossing (LWC) Typical Drawing
- Photo of Proposed LWC Location
- Estimated UMAM Assessment

The Salters Lake area is part of the approximately 35,000-acre Escambia River WMA. The slough proximate to Salters Lake that will be enhanced by installation of a LWC is subject to frequent flooding by the Escambia River. Blackgum is the dominant species within the slough, with other wetland forested species, including cypress, present.

5—Determination of Credits [§332.4(c)(6)]

Estimated mitigation credits for this project were derived using the Uniform Mitigation Assessment Method (UMAM). Assessments by NFWFMD staff, subject to USACE approval, suggest that implementation may yield a functional gain of 0.19 UMAM credits.

Determining the wetland area enhanced by installation of LWCs is necessarily subjective. For UMAM scoring purposes and based on extensive experience in Tates Hell State Forest using protocols previously accepted by the USACE, NFWFMD staff estimate that this LWC would enhance 6.49 acres. The assumption is that the hydrologic enhancement benefits will extend at least 300 feet out from the center of each LWC; the area of the road footprint is ignored for calculation purposes.

6—Detailed Work Plan [§332.4(c)(7)]

The LWC site is located in a generally low-energy hydraulic environment not subject to significant scour potential, and will typically only contain water when the Escambia River is experiencing high water levels. Existing road fill at the LWC site will be excavated to natural grade (plus approaches at a maximum 4% grade), a geotextile woven fabric (conforming to FDOT Design Standards, Index 199, Class D-1 or D2) lain down with a minimum fabric overlap of 2 ft., and covered with a 12 inch thick coarse aggregate base consisting of limestone or granite 2-6 inches in diameter ($D_{50} = 4$ inches). A 12 inch thick rock apron consisting of 6-10 inch diameter material ($D_{50} = 8$ inches) will be placed on each side of the LWC. Road fill excavated from LWC construction will be disposed by spreading it on the existing management access road or other appropriate disposal area; it will not be placed into any wetland area, or into any upland area that is managed in a natural state. Cut and fill estimates will be generated as LWC dimensions are finalized. The LWC (including approaches), subject to engineering design and site-specific conditions, is anticipated to be ≤ 50 FT long.

If approved as mitigation for the Hanks Road impact, the LWC would be installed after receipt of mitigation funds from FDOT. One to two construction days is anticipated for completion of the LWC, depending on weather, site conditions, and circumstances outside the control of the NFWFMD. Construction would be performed during dry weather and low water conditions. Grading and excavation activities are anticipated to be performed using heavy equipment such as backhoes, small bulldozers or excavators.

Best Management Practices (BMPs), as deemed necessary, for turbidity, sedimentation and erosion control may be implemented during construction to prevent siltation and turbid discharges into waters of the state and water quality violations of Chapter 62-302, F.A.C.

Staging of Construction Activities. The excavation and moving of soil materials will be scheduled in stages to minimize the size of areas disturbed and unprotected from erosion for the shortest reasonable time.

Protection of Desirable Vegetation. Stockpiling, vehicular parking and excessive foot or vehicular traffic will not be allowed within wetland areas. Material storage, fueling and servicing equipment, undertaking equipment maintenance, and cleaning will not be performed in or immediately adjacent to wetland areas. Erosion and sediment controls, such as silt fences, may be needed around the perimeter of stockpiles to prevent the transportation of soils from the area.

Best Management Practices. Erosion control measures which will minimize impacts to wetlands and wetland vegetation may be used as necessary during construction activities.

Stabilization of Disturbed Areas. Any disturbed areas will be allowed to naturally re-vegetate.

Suspension of Work During Inclement Weather. Construction will be carried out during dry weather conditions to the extent practical and erosion and sedimentation control measures will be implemented. Excavations and other construction activities will be suspended during periods of inclement weather or high water levels if there is potential for environmental damage.

Inspection and Maintenance of Erosion and Sedimentation Control. Routine inspection and maintenance of any erosion and sedimentation control features used will occur until the project is complete. Barriers, if used, will be regularly maintained to insure their effectiveness.

Removal of Sediment and Erosion Control Measures. Any temporary erosion control measures used during construction phases, whether temporary sediment basin, silt fence, straw bales, or other measures, will be removed following the implementation of the LWC.

7—Maintenance Plan [§332.4(c)(8)]

After hydrologic enhancements are implemented this site will be maintained in perpetuity by the NFWFMD as part of the Escambia River WMA.

8—Performance Standards [§332.4(c)(9)]

- Low-water-crossing is installed at appropriate elevation.
- No subsequent blockage of slough (e.g., from beaver activity).
- Non-failure of low-water-crossing (i.e., rock/filter fabric blowout) during flood events.

9—Monitoring [§332.4(c)(10)]

Monitoring protocols to ensure that the hydrologic enhancements are maintained will be conducted annually for a minimum of five years from the start of mitigation activities or as required by USACE permit conditions. Monitoring will be performed by NFWFMD staff or qualified consulting firms. All monitoring reports, expected to consist of general photos and site

condition notes, will be posted at www.NFWMDwetlands.com. Corrective measures will be taken if necessary.

10—Long-term Management [§332.4(c)(11)]

The enhanced forested wetland slough will be managed in perpetuity by the NFWMD as part of the Escambia River WMA.

11—Adaptive Management Plan [§332.4(c)(12)]

If changes in the implementation of this mitigation plan become necessary due to the stochastic nature of ecological processes, the NFWMD will first obtain approvals from the USACE.

12—Financial Assurances [§332.4(c)(13)]

The NFWMD is a governmental entity created by the Florida Water Resources Act of 1972 with the mission of protecting water resources protection and ecosystem integrity. Funds are specifically earmarked to implement and maintain mitigation.

As of 12/31/2016, the NFWMD had \$16,303,451.10 in a dedicated mitigation fund. This fund was established to receive mitigation funds from FDOT for the implementation and long-term management of mitigation sites, in accordance with 62-342.850 FAC.

Other Information [§332.4(c)(14)]

Uncertainty and Risk. The uncertainty and risk associated with implementation of this type of hydrologic enhancement is very low. Once the low-water-crossing is in place, the hydrologic enhancement is complete—water levels and flows are controlled by natural processes with no human intervention. Because of the low energy environment, failure of the low-water-crossing is unlikely.

Size and ecological value of parcel / watershed approach. The wetland enhancement polygon (6.49 acres) is part of a much larger bottomland swamp system within the Escambia River floodplain.

Temporal loss. There will be no temporal lag between installation of the low-water-crossing and attainment of functional lift. Once the low-water-crossing is in place, the hydrologic lift is been obtained.

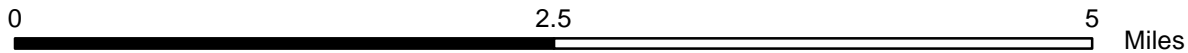
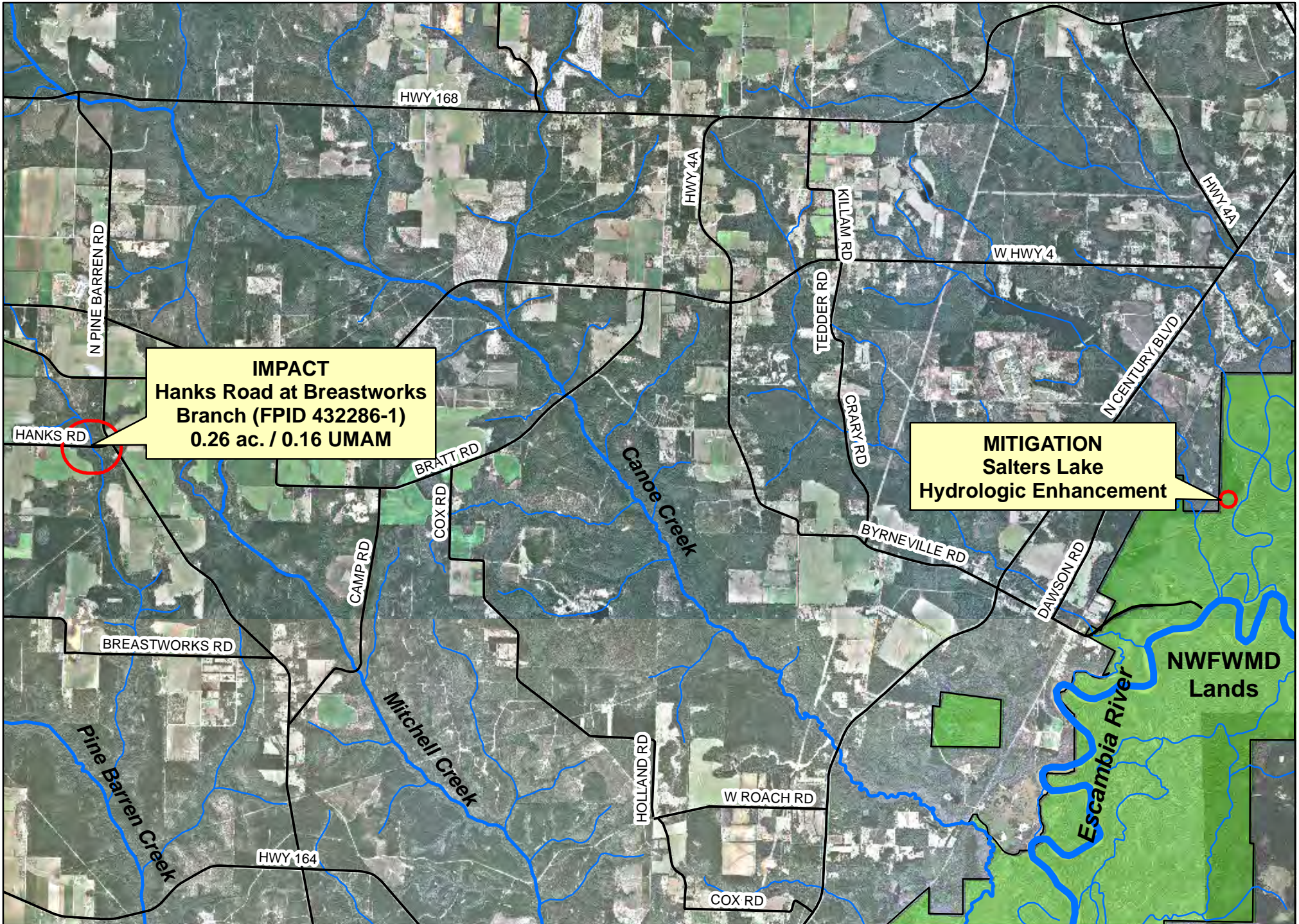
Scientific/technical analysis, planning, and implementation. Over the past twenty years, the

NFWFMD has gained extensive experience installing low-water-crossings to enhance wetland hydrology. To date, the NFWFMD has installed low-water-crossings as wetlands mitigation at the St. Joseph Bay State Buffer Preserve (St. Andrew Bay watershed), Tates Hell State Forest (Apalachicola watershed), and on NFWFMD lands on the Choctawhatchee River, Escambia River, and Perdido River floodplains. Staff includes licensed professional engineers, biologists, geographers, planners, and GIS specialists. Contracts are also in place for outside consultants as needed.

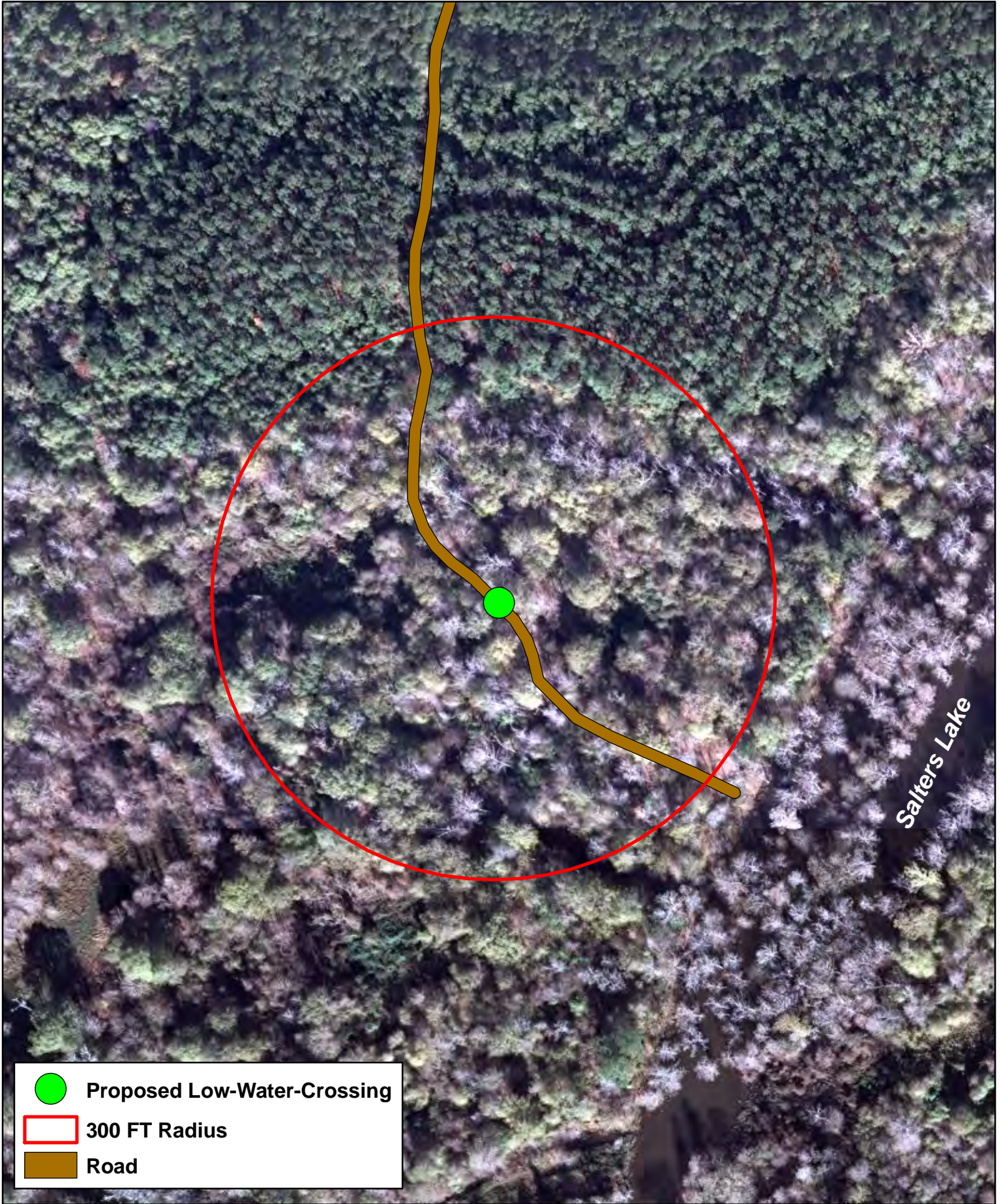
Long-term viability of the mitigation site. The Escambia River WMA is being preserved and managed for ecological integrity in perpetuity by the NFWFMD. Mitigation funds will available for future monitoring and maintenance as needed.

Any additional information requested by the USACE to determine the appropriateness, feasibility, and practicability of this compensatory mitigation project will be provided.




Hanks Road at Breastworks Branch and Proposed Salters Lake Mitigation Area



Salters Lake Hydrologic Enhancement - 2016 DOQ



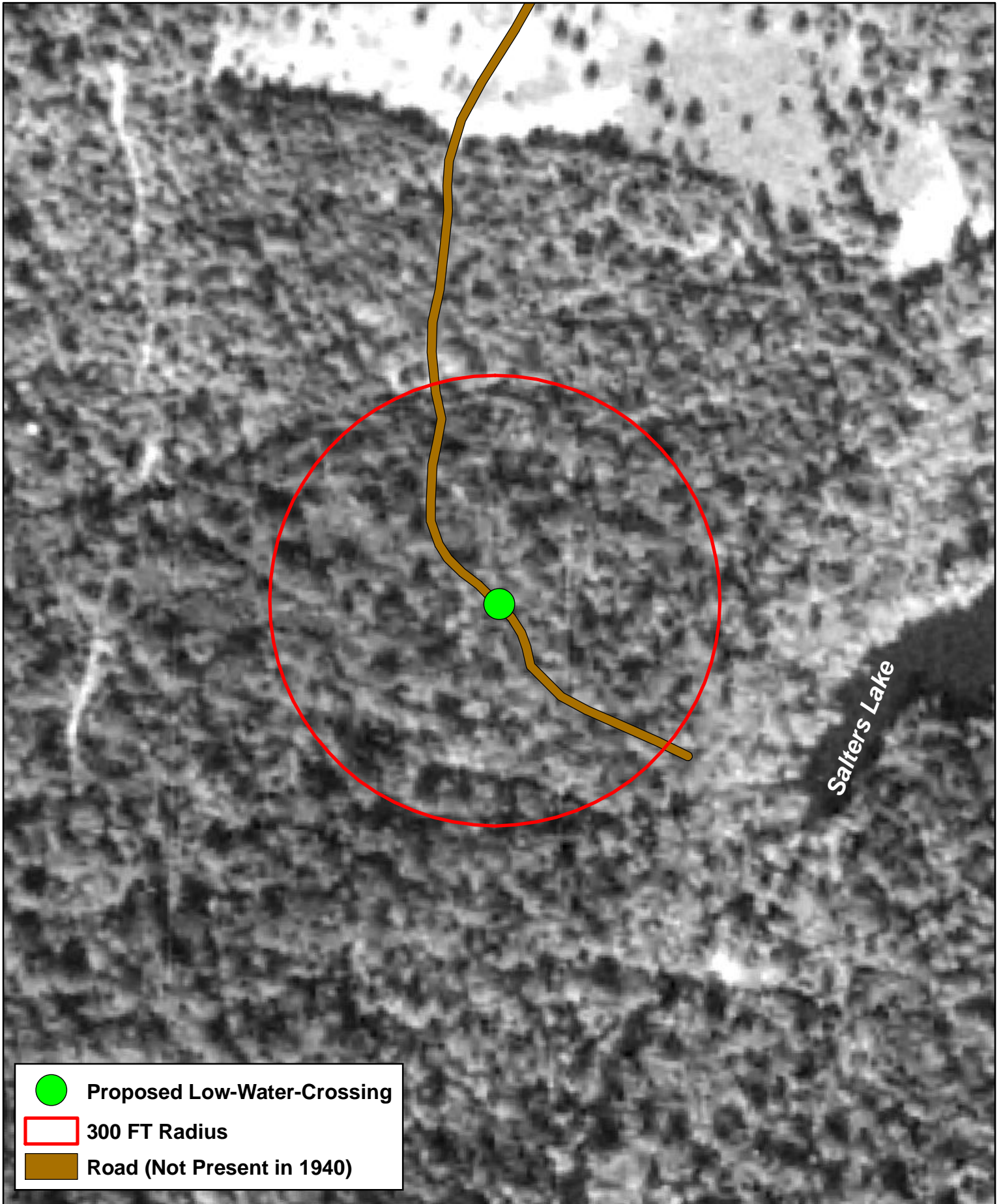
Salters Lake

-  Proposed Low-Water-Crossing
-  300 FT Radius
-  Road

0 250 500 Feet



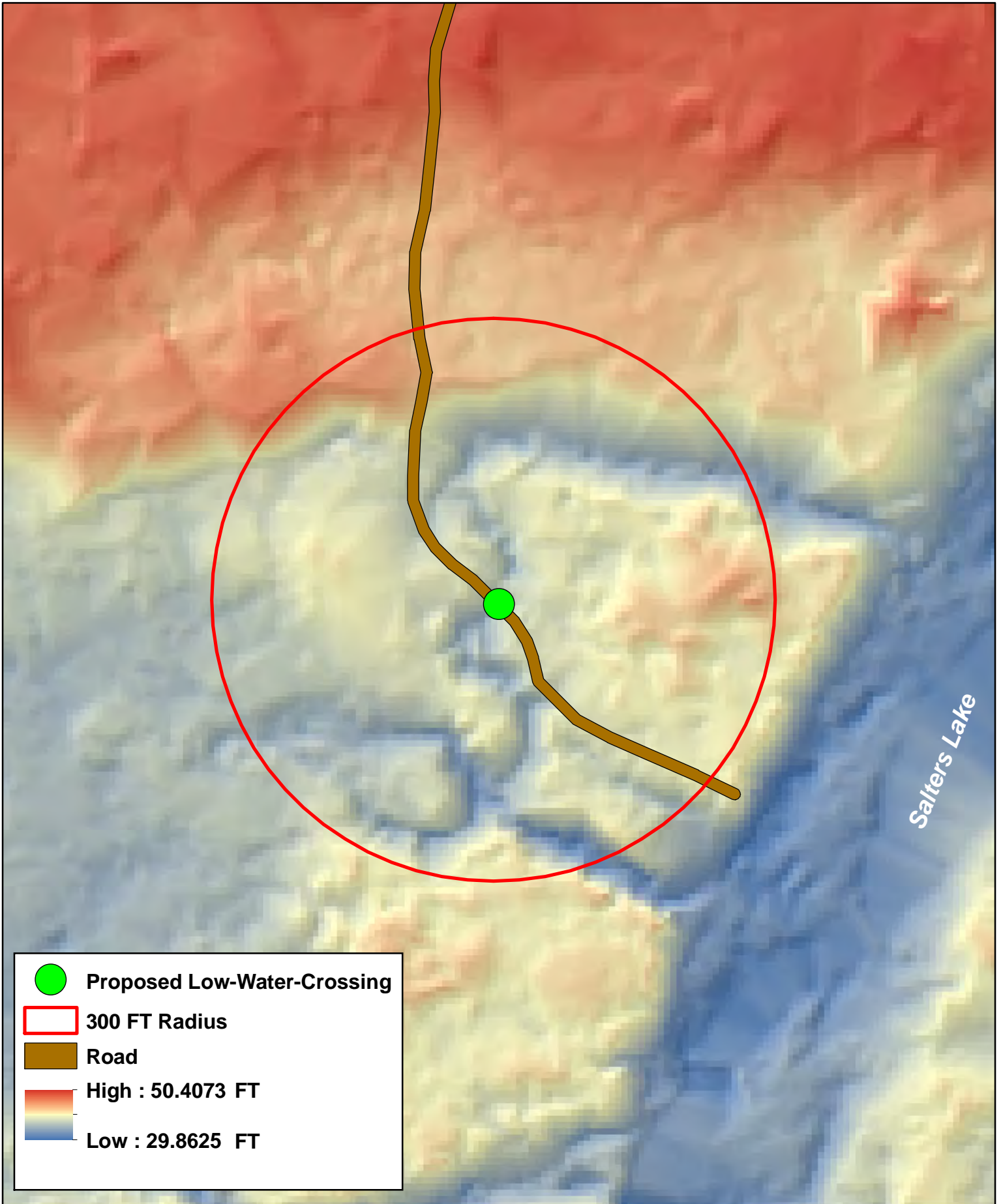
Salters Lake Hydrologic Enhancement - 1940 B&W Aerial



0 250 500 Feet



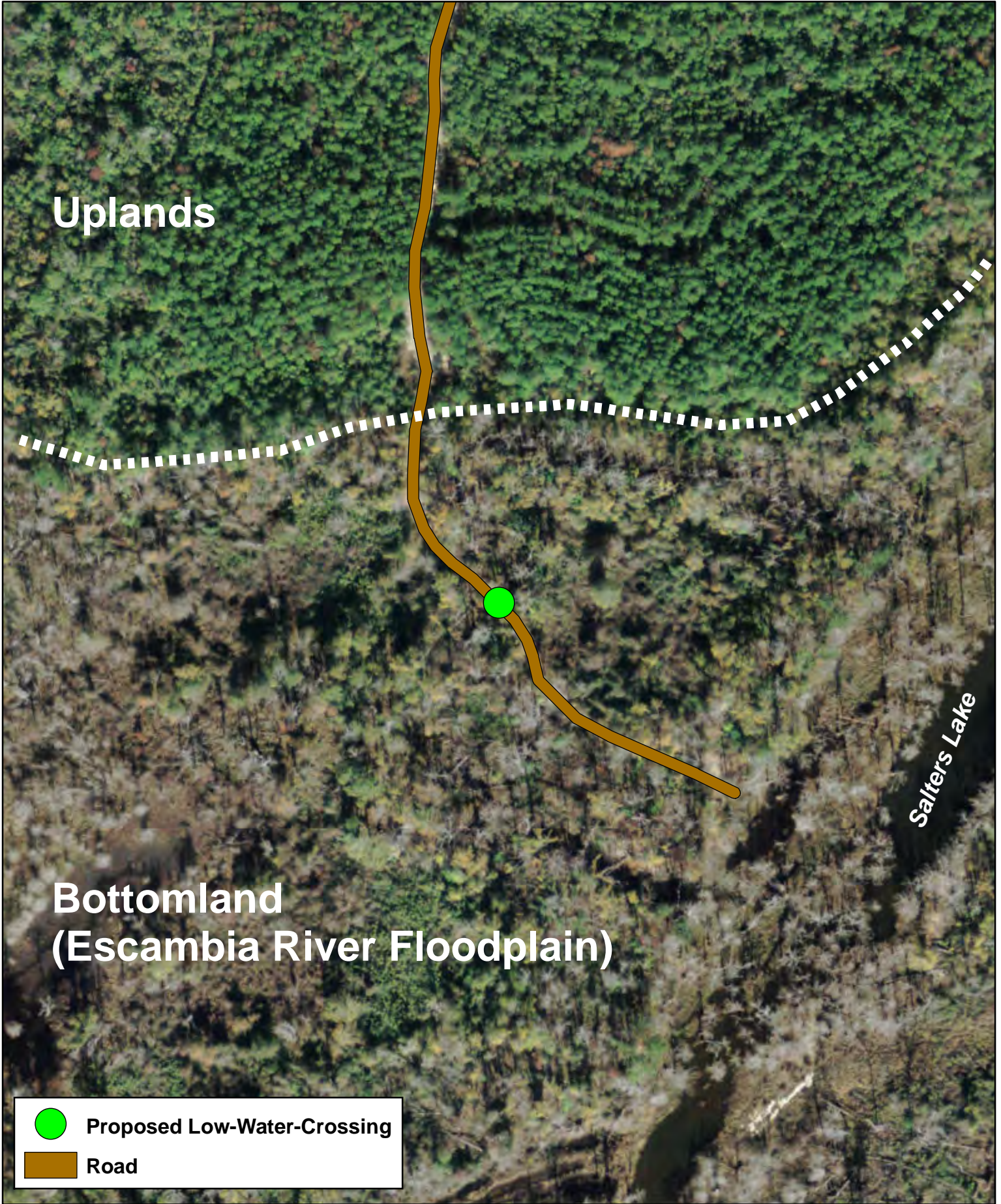
Salters Lake Hydrologic Enhancement - LiDAR



0 250 500 Feet



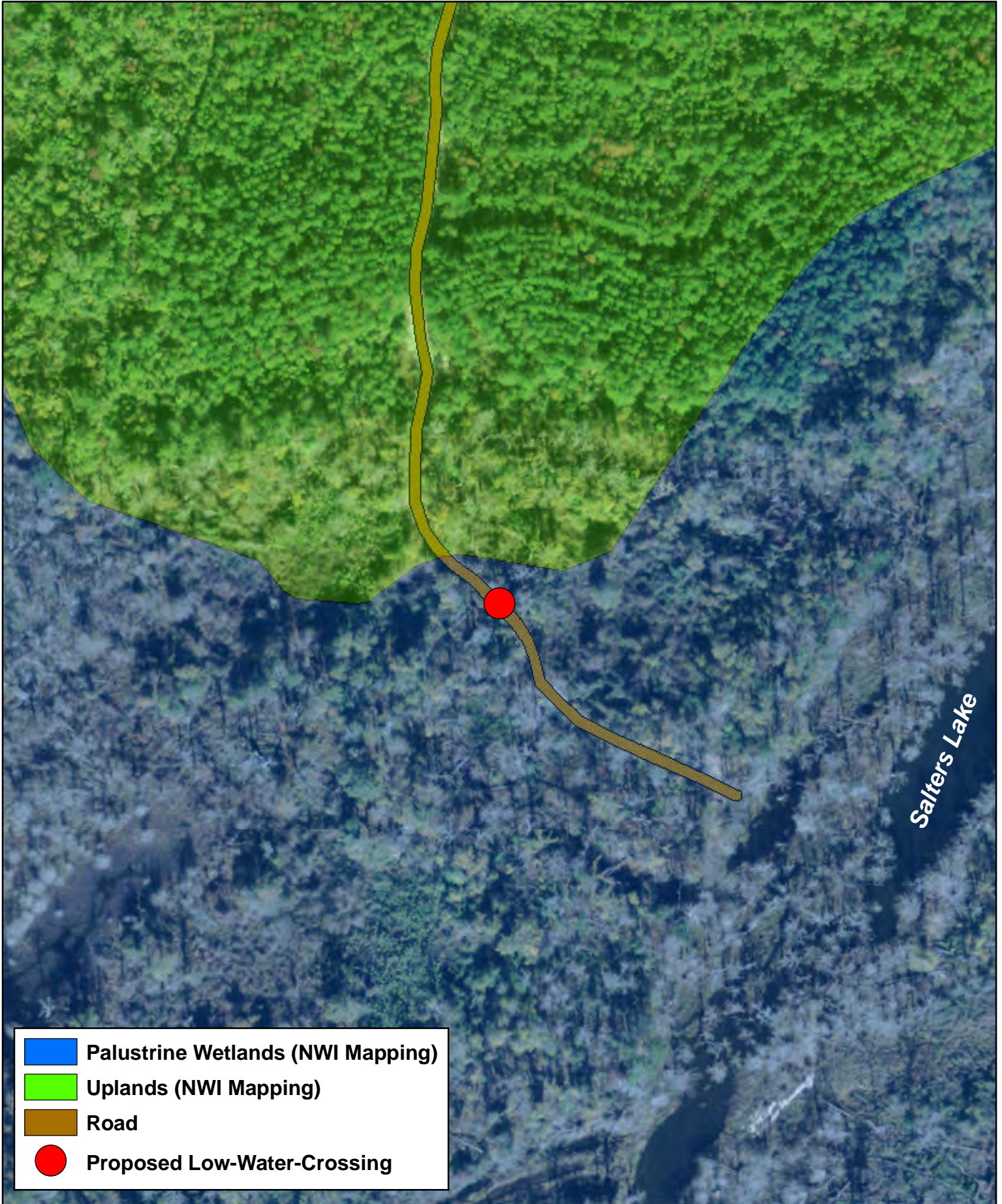
Salters Lake Hydrologic Enhancement - 2007 DOQ



0 250 500 Feet



Salters Lake Hydrologic Enhancement - NWI Mapping*

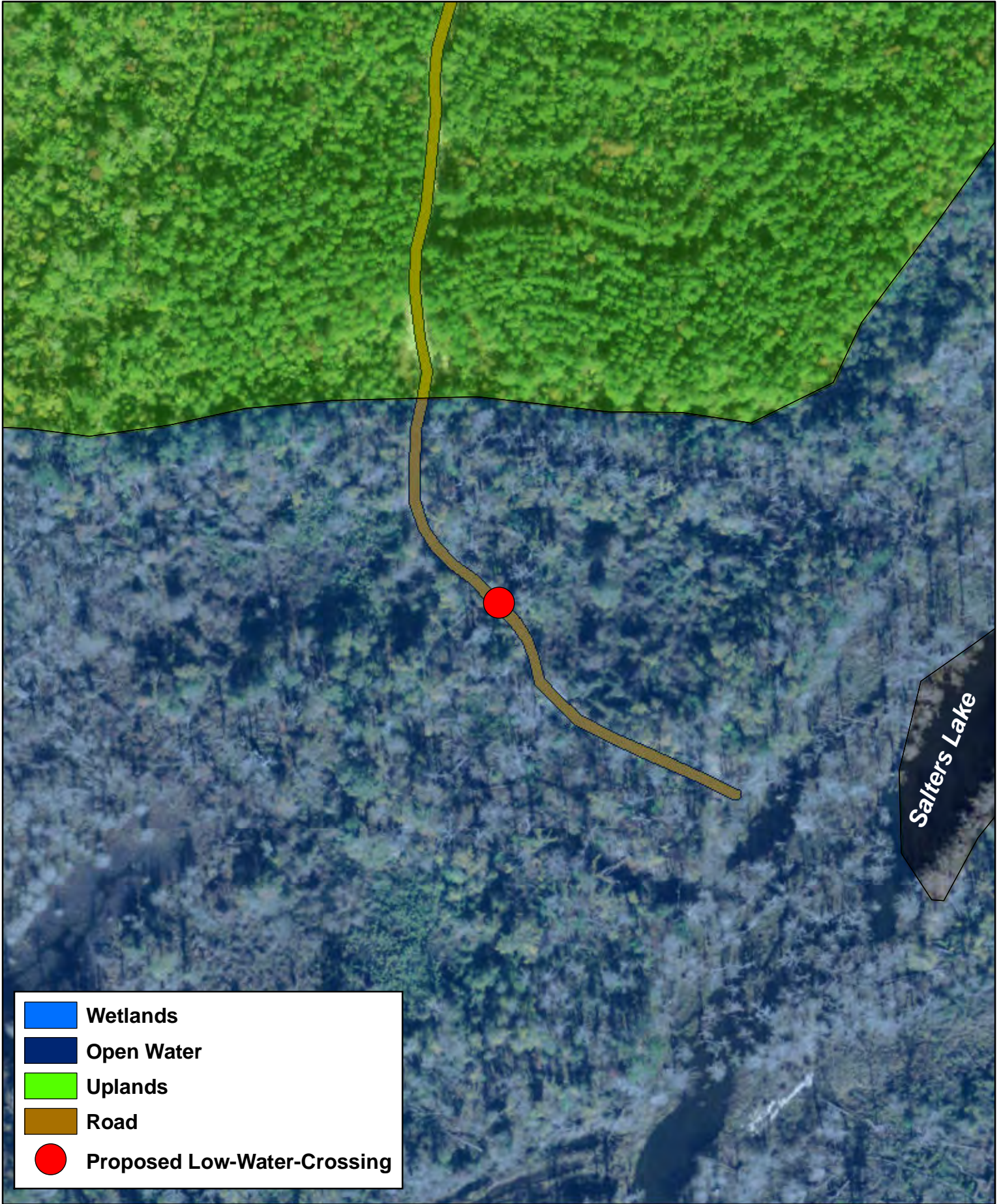


0 250 500 Feet



*National Wetlands Inventory

Salters Lake Hydrologic Enhancement - FLUCCS Mapping*

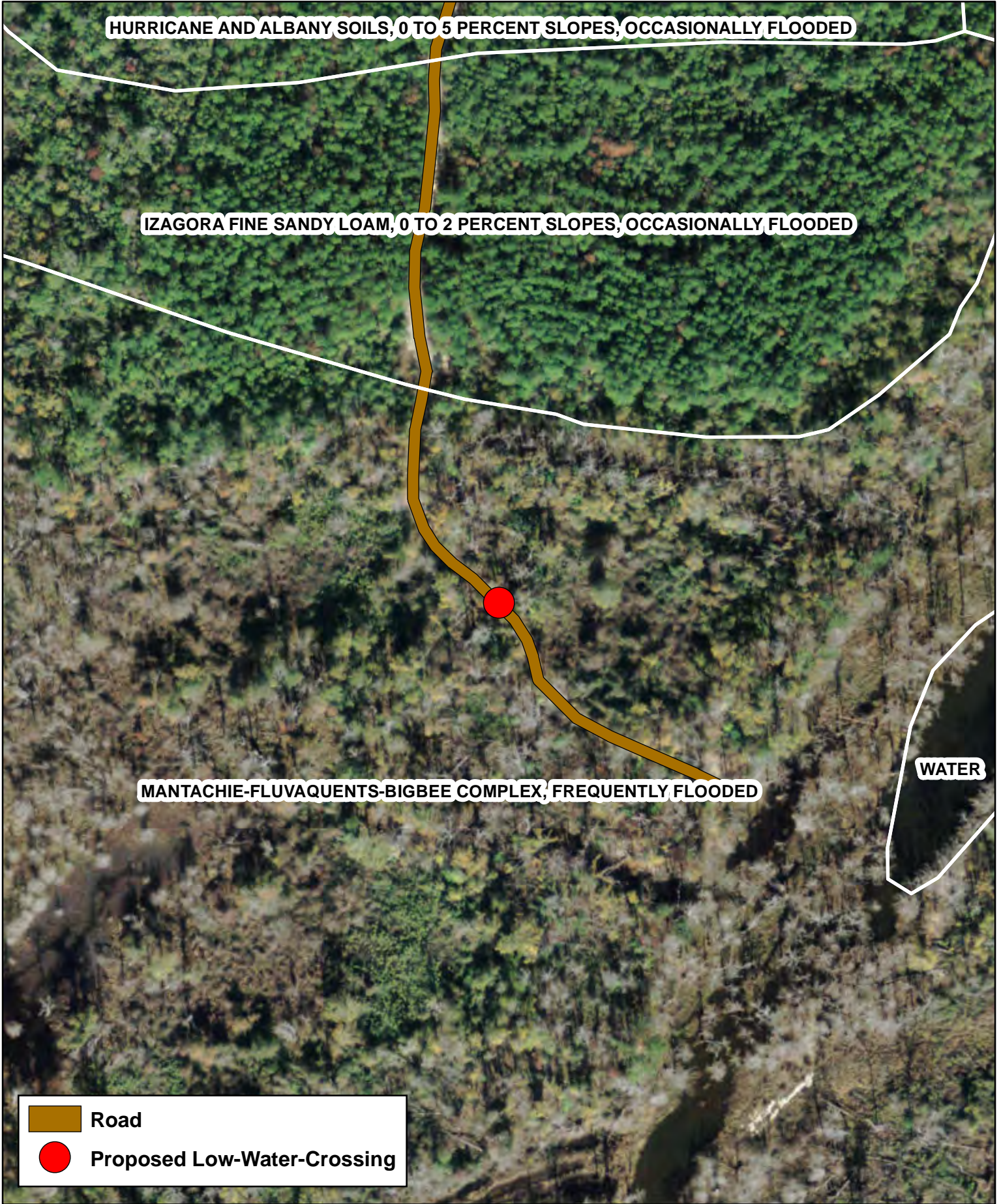


0 250 500 Feet



*Florida Land Use Cover Classification System

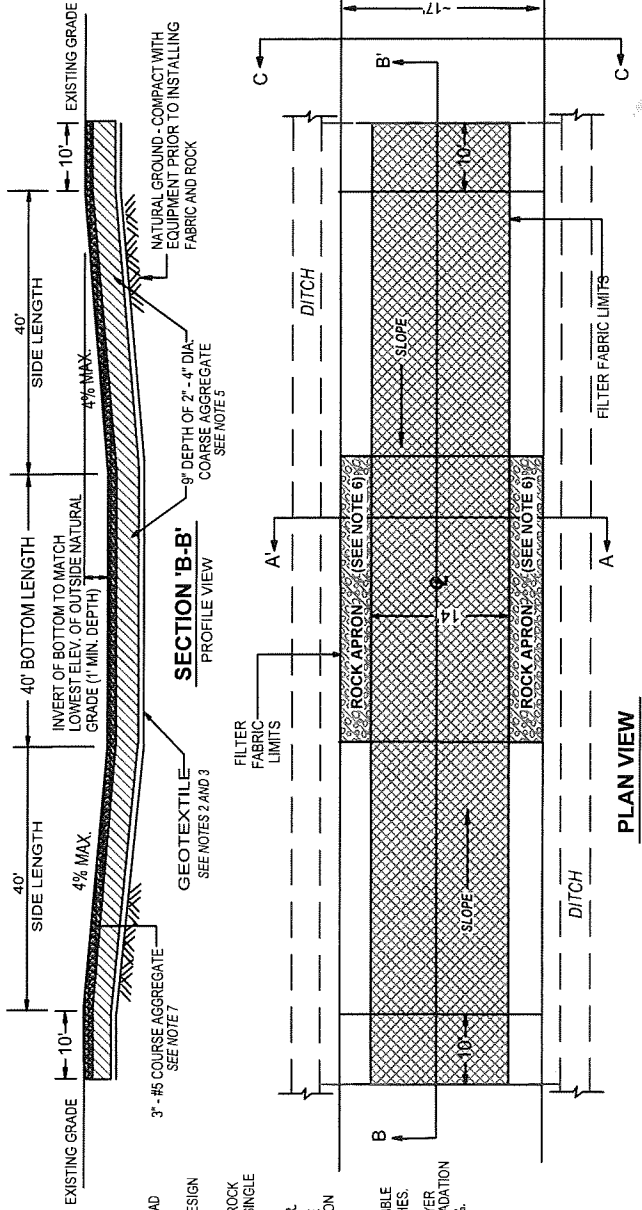
Salters Lake Hydrologic Enhancement - NRCS Soils*



*National Resources Conservation Service (USDA)

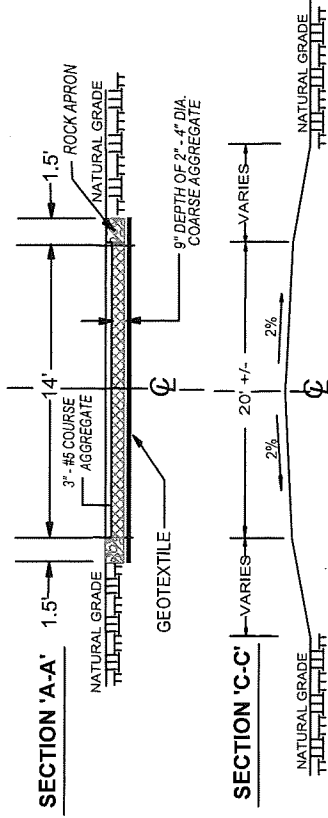
TYPICAL HARDENED LOW WATER CROSSING DETAIL

(NOT TO SCALE)



NOTES:

1. LIMEROCK SHALL BE TRUCK DUMPED AND MACHINE SPREAD OVER THE FABRIC FOLLOWING PLACEMENT OF FABRIC.
2. GEOTEXTILE FABRIC SHALL CONFORM TO FDOT 2013 DESIGN STANDARDS INDEX 501, USAGE 3.
3. MINIMUM FABRIC OVERLAP SHALL BE 6' ON EACH EDGE. ROCK SHALL BE PLACED ON LAP PRIOR TO PLACING ROCK ON SINGLE LAYERS OF FABRIC TO PREVENT LATERAL MOVEMENT.
4. ALL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
5. UNLESS OTHERWISE APPROVED BY ENGINEER COARSE AGGREGATE SHALL MEET FDOT SIZE #5 OR #2 GRADATION (2\"/>



SIGNED

DATE

LICENSE NO.

NOT TO SCALE

SHEET 1 OF 1



Salters Lake – Proposed LWC Site (10/28/2016)

**Salters Lake LWC (Escambia River WMA)
UMAM Estimate - 10/28/2016**

Polygon	UMAM Acres	L1	L2	W1	W1	C1	C2	W/Out	With	Raw Delta	Time Lag	P Factor	Risk	Adjusted Delta	UMAM Credits
LWC #1	6.49	10	10	9	10	10	10	0.97	1.00	0.03	1	1	1	0.03	0.195
6.49		(Total Wetland Enhancement Acreage)											(Total UMAM Credit)	0.19	

UMAM Estimate by NFWFMD Staff

Polygon "LWC #1" is a Low-Water-Crossings (LWC). Delineating an area that is ecologically enhanced by construction of a LWC is inherently arbitrary. UMAM assumptions used here are that each LWC will enhance a surrounding area of 6.49 acres (this assumption is based on extensive experience implementing hydrologic enhancements in Tates Hell State Forest and has been previously accepted by the USACE).

UMAM Acres - Area of assessment polygon.

L1 - Location and Landscape Support score (Pre-Mitigation).

L2 - Location and Landscape Support score (Post-Mitigation).

W1 - Water Environment score (Pre-Mitigation).

W2 - Water Environment score (Post-Mitigation).

C1 - Community Structure score (Pre-Mitigation).

C2 - Community Structure score (Post-Mitigation).

W/Out - UMAM Functional Value Pre-Mitigation (0 = No Value, 1 = 100% Functional Value).

With - UMAM Functional Value Post-Mitigation (0 = No Value, 1 = 100% Functional Value).

Raw Delta - "With" minus "W/Out" (the raw functional lift generated from implementation of the mitigation).

Time Lag - Lag between when mitigation is implemented and when target ecological conditions are achieved.

P Factor - Preservation Factor (only used for preservation-only mitigation projects).

Risk - Risk that mitigation project will fail.

Adjusted Delta - Functional lift of mitigation project adjusted for Time Lag, Risk, and Preservation Factor.

UMAM Credits - Functional UMAM Credits generated from mitigation project.

**PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)**

Site/Project Name Salters Lake		Application Number Not Applicable		Assessment Area Name or Number LWC #1	
FLUCCS code 615		Further classification (optional) ---		Impact or Mitigation Site? Mitigation	
				Assessment Area Size 6.49 Acres	
Basin/Watershed Name/Number Pensacola Bay SWIM Basin		Affected Waterbody (Class) III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) ---	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Floodplain wetlands contiguous to the Escambia River.					
Assessment area description Bottomland Forested Wetlands - FLUCCS 615. Natural hydrologic flows are disrupted by a former logging road blocking a slough.					
Significant nearby features Escambia River			Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique.		
Functions Water storage; water quality; floral and faunal habitat.			Mitigation for previous permit/other historic use None		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Potential use by deer, black bear, bobcat, other mammals, waterfowl during floods, amphibians, reptiles.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Potential use by American alligator (FT(S/A)).		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.) --					
Additional relevant factors Site occasionally accessed by hunters, fishermen, and other members of the public.					
Assessment conducted by NWFWMD Staff			Assessment date(s) 10/28/2016		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name Salters Lake	Application Number Not Applicable	Assessment Area Name or Number LWC #1
Impact or Mitigation Mitigation	Assessment conducted by: NFWFMD Staff	Assessment date: 10/28/2016

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support <table border="1"> <tr> <td>w/out mit</td> <td>w/mit</td> </tr> <tr> <td align="center">10</td> <td align="center">10</td> </tr> </table>	w/out mit	w/mit	10	10	<p>Without Mitigation - High-quality forested floodplain wetlands. With Mitigation - Although installation of low-water-crossing may provide minor improvements to habitat connectivity, Location and Landscape Support score will not be significantly affected. [No Change in Score]</p>
	w/out mit	w/mit			
10	10				

.500(6)(b)Water Environment (N/A for Uplands) <table border="1"> <tr> <td>w/out mit</td> <td>w/mit</td> </tr> <tr> <td align="center">9</td> <td align="center">10</td> </tr> </table>	w/out mit	w/mit	9	10	<p>Without Mitigation - Former logging road blocks a forested wetland slough and disrupts natural hydrologic flows during low-flow conditions within the assessment polygon. With Mitigation - Hydrologic regime within the assessment polygon is enhanced by removal of the blockage.</p>
	w/out mit	w/mit			
9	10				

.500(6)(c)Community structure Vegetation and/or Benthic Community <table border="1"> <tr> <td>w/out mit</td> <td>w/mit</td> </tr> <tr> <td align="center">10</td> <td align="center">10</td> </tr> </table>	w/out mit	w/mit	10	10	<p>Without Mitigation - Forested floodplain vegetation dominated by cypress and black gum. With Mitigation - Forested floodplain dominated by cypress and black gum. [No Change in Score]</p>
	w/out mit	w/mit			
10	10				

Score = sum of above scores/30 (if uplands, divide by 20)	
w/out mit	w/mit
0.97	1.00

Preservation Adjustment Factor (PF) =	1
Time Lag Factor =	1
Risk Factor =	1
Adjusted Delta [(Raw Delta * PF) / (T * R)] =	0.03

UMAM Functional Assessment	
Polygon Acreage =	6.49
Functional Gain w/Mitigation (Adjusted Delta * Acres) =	0.19

Raw Delta = [w/mit - w/out mit]
0.03