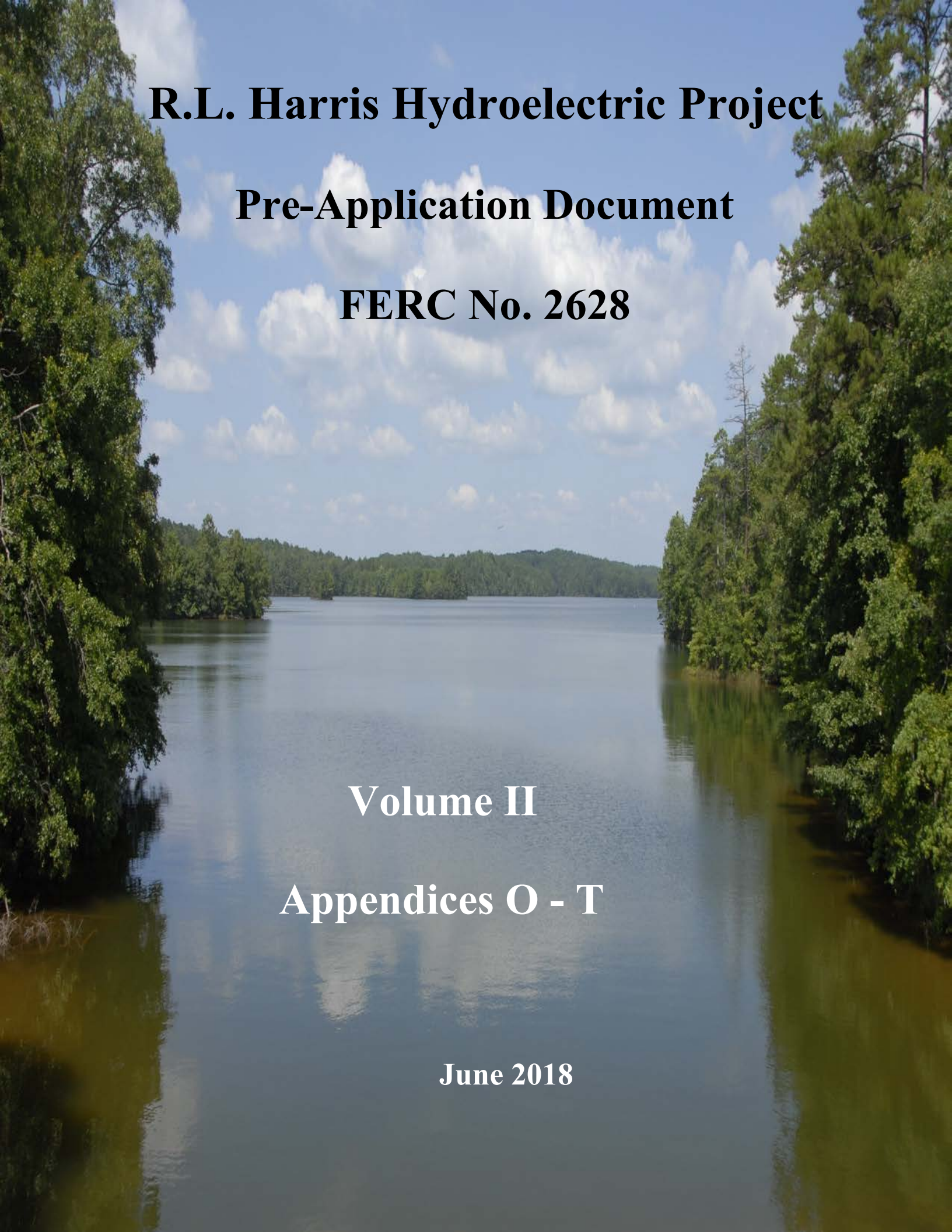

R.L. Harris Hydroelectric Project

Pre-Application Document

FERC No. 2628

Volume II

Appendices O - T

June 2018

Appendix O
Sensitive Area (Wetlands) Assessment Report and Wetland Delineation and Stream Environmental Assessment Report

Appendix O

SENSITIVE AREA (WETLANDS) ASSESSMENT REPORT

For

ALABAMA POWER

FERC Project 2628
R. L. Harris Reservoir
Randolph County, Alabama

Prepared By:

Cahaba Consulting, LLC
Birmingham, Alabama
November 2016

EXECUTIVE SUMMARY

In the fall of 2012 and spring of 2013, Alabama Power Company (APCO) contracted with Cahaba Consulting, LLC to perform a study to identify, assess and document possible U.S. Army Corps of Engineers' (COE) potential sensitive areas (wetlands) located at, or below APCO regulated property on RL Harris Reservoir.

Lakes and Dams

Four APCO dams form continuous impoundments over nearly the entire length of the Tallapoosa River located in Alabama, with each dam discharging into the upper end of the next downstream impoundment. RL Harris Reservoir is located in Upper Tallapoosa River Basin. The lower three dams (Martin, Yates, and Thurlow) are located in the Middle and Lower Tallapoosa Basins. RL Harris has an elevation of 793 feet above sea level. RL Harris (a.k.a. Lake Wedowee) was impounded by APCO in April, 1983 as the newest of the 14 Alabama Power hydroelectric developments. It was named in honor of Rother L. "Judge" Harris, an Alabama Power director and vice president of electric operations. He retired from the company in 1968 after 45 years of service. RL Harris is very fertile and supports high densities of sport fish and forage species. The lake was constructed to provide flood control, and supply hydroelectricity; however, the lake has become very popular for various types of recreation including boating, swimming and fishing. The dam is 150 ft. high, 135 ft. at its maximum depth, impounds 10,660 acres (28 km²), created 271 miles of shoreline and has a capacity of two units rating 67,500kW each.

The Tallapoosa River originates in Paulding County Georgia, just 40 miles west of Atlanta, at an elevation of about 1,145 feet. It flows in a south-westerly direction for about 195 miles into Alabama and then takes a big left hand turn to the west after meeting Uphapee Creek and continues westerly for 40 miles to join the Coosa River near Wetumpka. Its total length of 235 miles drains a watershed area of 4,680 square miles. Only 720 square miles lie in Georgia accounting for 15% of the total land area. The remaining 3,960 square miles lie in Alabama accounting for 85% of the land area. *(GA DNR)* The Upper Tallapoosa has one primary tributary, the Little Tallapoosa River, which originates slightly to the south of its older sibling, in Carroll County Georgia. Within Georgia, the Tallapoosa River and the Little Tallapoosa River form separate basins of almost equal drainage area. The Little Tallapoosa's total drainage area is 605 square miles. The main stem enters Alabama at Cleburne County and the Little Tallapoosa enters as the border between Cleburne and Randolph Counties. The two merge when they flow into Lake Wedowee. *(GA DNR)*

Other principal tributaries include Sougahatchee Creek, South Sandy Creek, Uphapee, and Hillabee Creeks in Alabama. *(GA DNR)*

This report includes the RL Harris Reservoir located in Randolph County in east central Alabama (Figure 1) and is located about 100 miles east and south of Birmingham. Specifically, center coordinates of the project are approximately 33.3054° N and -85.5872°W.

Figure 1 – Tallapoosa River Basin

BACKGROUND

APCO manages its hydroelectric reservoir shorelines and project lands to comply with its Federal Energy Regulatory Commission (FERC) operating licenses. In an effort to guide existing and future management actions within the Project's FERC boundary, APC has developed a Shoreline Management Plan for its lake projects. The SMP was developed in accordance with established FERC guidelines for developing Shoreline Management Plans and in cooperation with relicensing stakeholders, including federal and state regulatory agencies, interested non-governmental organizations, and concerned citizens. In September of 2010, the COE issued a public notice for issuance of programmatic general permits (PGP) for all of APCO's impoundments. A subsequent revision is currently undergoing review by the Corps and council. The purpose of these proposed PGPs is to authorize work, including minor structures, and other activities within the Federal Energy Regulatory Commission (FERC) project boundaries of APCO reservoirs within the Coosa, Tallapoosa, and Warrior River Basins in the State of Alabama that would have minimal adverse impact on the aquatic environment.

APCO regulates all activities and structures within the boundaries of the hydroelectric reservoirs, and these activities and structures must be pre-approved and permitted by APCO. Under these proposed PGPs, a permit applicant will only apply to APCO, rather than applying to both APCO and the COE for permits for the same work. APCO will verify that a proposed project meets the terms and conditions of the PGPs and concurrently issue an APCO Shoreline Permit.

Regulations implemented by both FERC and COE require that sensitive resource lands be managed for protection and enhancement of sensitive resources. Sensitive resources include resources protected by state and/or federal law, executive order, and other natural features considered important to the area or natural environment. In an effort to identify these sensitive resources a study of the reservoir was conducted to locate and map areas of concern. The identified areas will be used in future submittals to FERC as part of the Shoreline Management Plan (SMP), as well as a tool to assist APCO's shoreline managers' permitting activities.

A Sensitive Resource "layer" on APCO mapping identified potential sensitive areas to be assessed to either clarify or identify these areas and record the resources. These predetermined areas had the potential for historic properties, endangered species, and wetlands.

Wetlands: These PGPs authorize the following work in or affecting navigable waters of the United States and discharges of dredge or fill material into waters of the United States (wetlands).

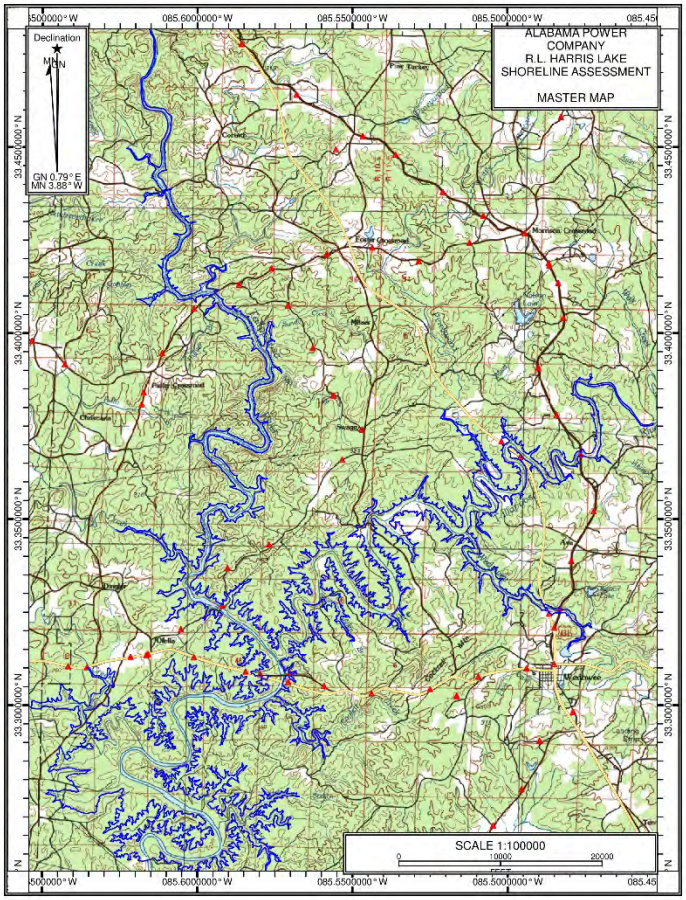

Figure 2-Study Area – RL Harris Reservoir

SITE CONDITIONS

Geology

The Upper Tallapoosa River Basin is located in the Piedmont Upland Physiographic Region, one of five physiographic regions in Alabama. The Piedmont consists of a plateau that slopes from the north, with elevations commonly above 1,000 feet, to the south, where it contacts the Coastal Plain at about 500 feet.

The Piedmont developed on northeast-southwest trending belts of Precambrian to Paleozoic (around 1.0 billion years to about 300 million years in age) metamorphic rocks that are highly deformed and bordered by faults.

Although described as a plateau, the relatively flat nature of the Piedmont is only obvious in its southern region. The northern part contains many of the highest peaks in the state, including Mt. Cheaha, the state's highest point at 2,407 feet, and numerous northeast-trending steep-sided ridges. The point at which the Piedmont's relatively rugged landscape becomes flat serves as a dividing

line between the Northern Piedmont Upland district and the Southern Piedmont Upland district. The boundary is the Brevard Fault Zone, which roughly follows the course of the Tallapoosa River in the vicinity of Lake Martin, in Tallapoosa County. In Randolph County, the boundary swings toward the northeast and follows the valley of High Pine Creek, passing just north of Roanoke.

Figure 3 - Physiographic Provinces

Soils

Chewlaca, Altivista, Louisa, Madison, Wehadkee and Wickham soils dominate the areas adjacent to the water and upper slopes adjacent to the river. They are composed of sandy – to gravelly fine sandy loam and clay subsoils and fine sandy loam surface layers. Areas of rock outcrops and an area of open pits occur in the project area.

Vegetation

Most of the project area contains hardwood forest on a flat, first terrace and adjacent slopes. The understory is open and includes a well-developed herbaceous layer throughout the project area, unless previously disturbed or developed. The hardwood forest occupies the floodplain along streams and adjacent to the shoreline in many instances in the area. Species dominating the canopy and shrub layer include *Fagus grandifolia* (American beech), *Quercus alba* (White oak), *Q. nigra* (Water oak), *Q. phellos* (Willow oak), *Liquidambar styraciflua* (Sweet gum), *Oxydendrum arboreum* (Sourwood), and *Liriodendron tulipifera* (Tulip poplar), *Acer rubrum* (Red maple), *Pinus taeda* (Loblolly pine), *Cephalanthis occendentalis* (Button bush), *Eupatorium perfoliatum* (Common boneset), and *Andropogon virginicus* (Broom sedge)

Common herbaceous species occurring within the floodplain and shoreline wetlands are diverse and include *Juncus effusus* (Soft rush), *Carex spp*. (Sedges), *Solidago caesia* (Goldenrod), *Solidago patula* (Goldenrod), *Panicum boscii* (Panic grass), *Solidago arguta* (Goldenrod), *Panicum polyanthes* (Panic grass) and *Chasmanthium sessifolium* (Spike grass). *Smilax bona-nox* (Catbrier), and *S. rotundifolia* (Catbrier), are common lianas found along the shoreline.

CLASSIFICATION OF SENSITIVE AREAS

Although the National Wetland Inventory (NWI) maps are a resourceful tool in identifying potential areas of wetlands, the NWI differs from criteria that render a wetland jurisdictional under Section 404 of the Clean Water Act. Furthermore, the NWI for the impoundment show preconstruction conditions, rendering the information not applicable to the assessment. It was determined as part of the Shoreline Management Plan as well as assistance to APCO shoreline managers, a wetland GIS "layer" would be generated from field verified wetland/shoreline assessments. This data can be utilized for future permitting decisions and used as a tool to assist managers to determine the need for additional fieldwork to identify wetlands, which could be impacted.

Figure 4-NWI Mapping

Lacustrine Fringe Wetlands – RL Harris

Three features characterize [jurisdictional] wetlands by definition: hydrology (hydroperiod, mean depth, etc.), the presence of hydric soils and the resulting biotic communities, particularly the presence of hydrophytic vegetation. Hydrology is considered the primary variable of wetland ecosystems, driving the development of wetland soils and leading to the development of the biotic communities (Mitsch and Gosselink 2000).

Lacustrine wetlands occur around the edges of a lake (palustrine in Cowardin). They are usually situated in topographic depressions, flat shorelines or in sloughs where streams flow into the reservoir. True fringe wetlands lack trees, shrubs or persistent emergents with > 30% areal coverage. Extends from the shoreward boundary of the system to a depth of 6.6 feet below low water or to the maximum extent of nonpersistent emergents, if these grow deeper than 6.6 feet. These systems may include cattail (*Typha spp.*), bulrush (*Scirpus spp.*), "persistent emergent" vegetation meaning coming up out of water & lasting until start of next growing season.

Lacustrine Fringe Benefits - These systems provide critical protein waterfowl need for egg laying and development of young. If preferred prey organisms are unavailable, foraging will be less effective and populations of fish, waterfowl, and amphibians may suffer. Although many wetland areas are composed of "nuisance" plant species, the ecological benefits still exist. These benefits are realized by the following:

- Potential for removing sediment
- Potential for removing nutrients
- Potential for removing toxic metals and toxic organic compounds
- Habitat for invertebrates
- Habitat for anadromous and resident fish
- Habitat for wetland associated avian species
- Habitat for wetland associated terrestrial species
- Native plant richness
- Shoreline stabilization
- Base of the aquatic food chain.

Classifications

Both small and large expanses of wetland fringe exist on the system. These were primarily located along shoreline at or near the 793' elevation. Many wetlands are located along the shoreline, at the confluence of the reservoir and streams, and their resulting alluvial plains, as well as being present on point bars, in sloughs, or at, or below the ordinary lake pool.

Riverine Wetlands - Many of the streams that flow into the reservoir have the potential for the presence of wetlands. These areas are primarily located adjacent to the larger first order streams with gentle topography located within the water. Riverine wetlands also occur in floodplains and riparian corridors in association with stream channels. Dominant water sources are overbank flow from the channel or subsurface hydraulic connections between the stream channel and wetlands. Additional water sources may be interflow and return flow from adjacent uplands, occasional overland flow from adjacent uplands, tributary inflow, and precipitation. First-order streams, usually designated by solid blue lines on U.S. Geological Survey (USGS) 7.5-min topographic maps (scale 1:24,000), are normally associated with riverine wetlands. They may also continue farther upstream where broken blue lines on topographic maps indicate the presence of channels. Perennial flow is not a requirement for a wetland to be classified as riverine.

Emergent/Lacustrine Fringe - Fringe wetlands are located along lakeshores where the water elevation of the lake determines the water table of the adjacent wetland (Figure 6). In some cases, they consist groundwater discharge, the latter dominating where lacustrine fringe wetlands intergrade with uplands or slope wetlands. Lacustrine wetlands lose water during reservoir draw-down, by saturation surface flow, and by evapotranspiration. Organic matter normally accumulates in areas protected from shoreline wave erosion. These wetlands are usually dominated by small shrubs, herbaceous and emergent hydrophytic vegetation. These wetland areas located along the shoreline were classified as "fringe" wetlands, if the criteria were met.

Alluvial Forested, Scrub-Shrub Wetlands – These wetlands are generally located in areas where perennial or intermittent streams flow into the reservoir. As sediment and other organic debris accumulate, land mass is formed which allows for the formation of these wetlands. These areas are at or near the surface elevation of the reservoir. Saturated soils were common in these formations and in turn, have allowed for the formation of hydric soils and the propagation of saplings, large shrubs and herbaceous hydrophytic vegetation. In many instances, these wetlands were classified as forested, if topography and/or the presence of a floodplain located above the full pool was present.

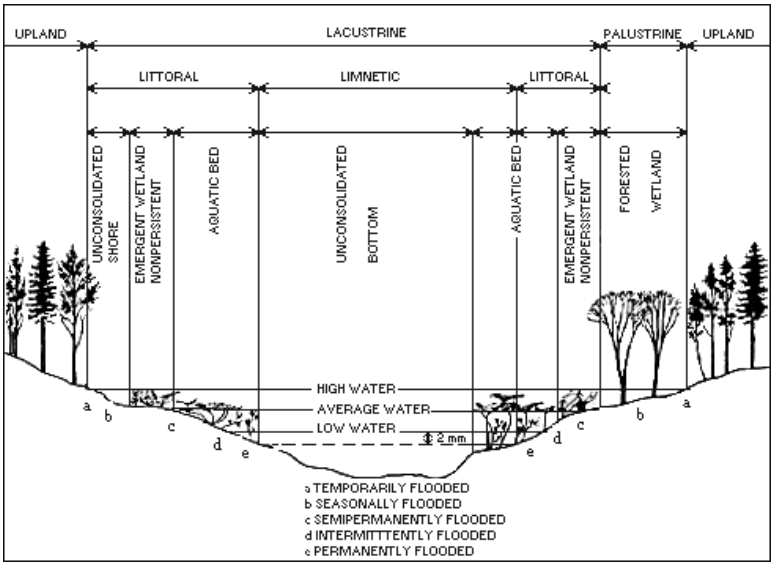

Figure 5-Cross-Sectional View of Wetlands

Wetland Assessment Methods and Procedures

A field plan was prepared to assist in the identification and location of wetlands within the subject property. Utilizing existing topographic maps, aerial photography, and field reconnaissance, wetlands were identified. Consultation with the COE was conducted to determine what areas would be considered a jurisdictional wetland. Within the reservoir, topography, geology and soils are an initial indicator for the likelihood of the presence of wetlands. Although the entire accessible shoreline was assessed, the aforementioned indicators were areas of concentration for assessment.

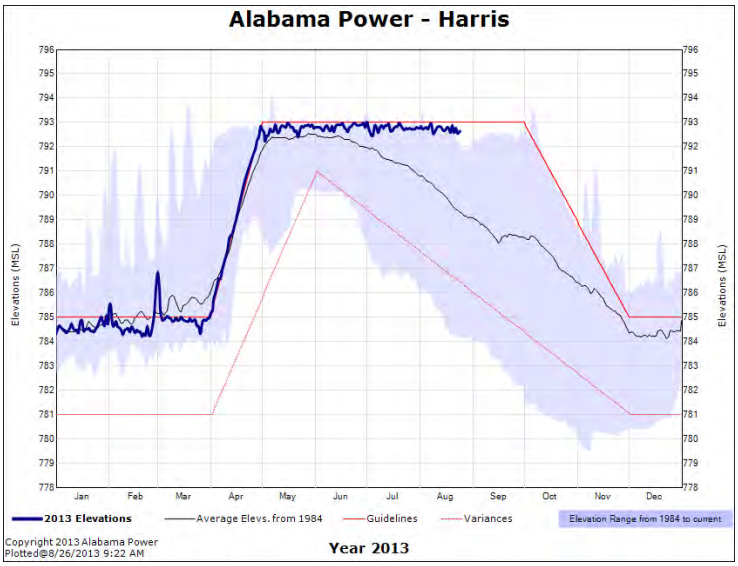

Figure 6-2013 Reservoir Elevation

Wetlands were accessed either by boat or foot. Criteria for identifying wetlands and their limits were set prior to fieldwork utilizing the normal pool elevation of 793' AMSL, which was the limits of assessment. During the initial winter 2012 assessment, the water elevation was at approximately 786' AMSL. This elevation allowed for potential wetlands to be accessed for in-depth analysis and characterization. Wetlands were numbered by assigning "WL" numbers, which can be utilized for future reference. During the spring 2013 assessment, the reservoir was at full pool, and this allowed for boat access to areas further upstream, which were not accessible in the draw-down period.

One of the initial indicators that prompted an assessment was the presence of hydrophytic vegetation. Based on COE criteria and professional judgment, a determination was made if a site was a wetland and if so, it would be recorded. Wetland assessments included visual observation, collection of general biological data, which included soil analysis, aquatic species observations, if present, and habitat assessment, as well as assessment of hydrologic conditions. A Garmin GPSmap76 hand held GPS unit marked wetlands. Wetlands were subsequently assessed (not delineated); using applicable procedures described in the 1987 U.S. Army Corps of Engineers' Wetland Delineation Manual and the Alabama Power Programmatic General Permit Program Reservoir Wetland Characterization Methodology, which is discussed below. Reference points were mapped and plotted on the project site map.

The RL Harris assessment included a wetland quality characterization, in addition to mapping. The characterization included a assigning a color for mapping, based on the assessment. Wetlands were coded as Green (*Good and 75-100% coverage*), Yellow (*Moderate and 50-75% coverage*) or Red (*Poor and < 50% coverage*), each color representing the wetland segments' characteristics and vegetation coverage. A description sheet (*Attachment 2-Wetland Sheets*), which describe the wetland and its attributes. Criteria for the assessments included:

- Coverage/Continuity of Lacustrine Fringe segment
- Plant species diversity

- Shoreline stability
- Topography
- Location
- Wildlife usage
- Presence or absence of development

Over the last few years, new wetland assessment procedures have been under development by APCO personnel, with assistance from Cahaba Consulting. These procedures have been developed exclusively for use under the Alabama Power Programmatic General Permit Program, and rely, in part, on APCO's wetland presence/absence mapping efforts associated with the relicensing of APCO projects with the Federal Energy Regulatory Commission. When a project is proposed in an area where wetlands have been mapped by APCO, or where APCO personnel have observed emergent vegetation, or shoreline vegetation consisting of herbaceous, scrub shrub, or forested vegetation, the proposed Alabama Power Programmatic General Permit Program Reservoir Wetland Characterization Methodology (WCM) will be used to determine the percent coverage of wetland vegetation and the species comprising a representative area of the wetland proposed to be impacted.

WCM is described as follows:

1. Areas that are evaluated by boat for FERC mapping purposes or on-site for residential development shall be rated poor, moderate, or high as herein described:

a. Poor Quality Wetland – A wetland that consist primarily of a single species of noxious or invasive vegetated plants/stems in an emergent shallow water condition.

b. Medium Quality Wetland – A wetland that consist of noxious or invasive vegetation where there are a minimum of 2 additional hydrophytic plant species present.

c. High Quality Wetland – A wetland of native hydrophytic vegetation that consist typically of 3 or more species. Generally, high quality wetland would include two layers of strata (i.e. herbaceous, scrub shrub, forested). Noxious or invasive species may be present but are not dominant within the wetland area being evaluated.

Note: Factors pertaining to wetland characterization rating include: overall vegetative species diversity, species density, shoreline physical conditions (i.e. erosion, site development) wildlife habitat, buffer types (i.e. natural undeveloped or developed). These factors, if present, will be documented by EA Compliance and EA's Environmental Contractor that is mapping APCO Lakes.

RL Harris Summary

A total of 189 wetlands were identified and mapped on R.L. Harris Reservoir during the assessment. Wetland assessments included visual observation, collection of general biological data, which included random soil analysis, aquatic species observations, if present, and habitat assessment, as well as assessment of hydrologic conditions.

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The characterization included assigning a color for mapping, based on the assessment. Wetlands were coded as Green (Good and 75-100% coverage), Yellow (Moderate and 50-75% coverage) or Red (Poor and < 50% coverage), each color representing the wetland segments' characteristics and vegetation coverage. A description sheet (Attachment 2-Wetland Sheets) describes the wetland and its attributes.

Of the approximately **271** miles of shoreline and islands, **11.35** miles (14.98 acres) were characterized as wetland habitat.

The following table shows the linear feet, quality and type of wetland recorded.

Quality	Lacustrine/Littoral on Shoreline		Shoreline and Alluvial WL
	Linear Feet	Miles	WL Acres
Poor	5268	1.00	2.16
Moderate	24,258	4.59	3.45
Good	30,430	5.76	9.28
Total	**59,956**	**11.35**	**14.98**

Figure 7- R.L. Harris Reservoir Wetlands

Skyline Wildlife Management Area

The Skyline Wildlife Management Area (SWMA) is composed of approximately 60,000 acres within the Jackson County, Al. mountains district, comprised of undeveloped forested land holdings. Within these holdings include Alabama Department of Conservation and Natural Resources (AL DCNR) Forever Wild Program land, the state-owned Skyline Wildlife Management Area, and undeveloped, contiguous, forestlands on the Cumberland Plateau.

There are several "units" or areas within the SWMA, primarily based on watersheds and/or landowners. These include Mill Creek, Little Coon Creek, Hurricane Creek and Paint Rock River.

Alabama Power owns approximately 35,000 acres within the Little Coon Creek drainage area, which is the area of interest. These lands are part of the FERC license 2628 Land Use Plan for mitigation for land loss due to construction of the reservoir.

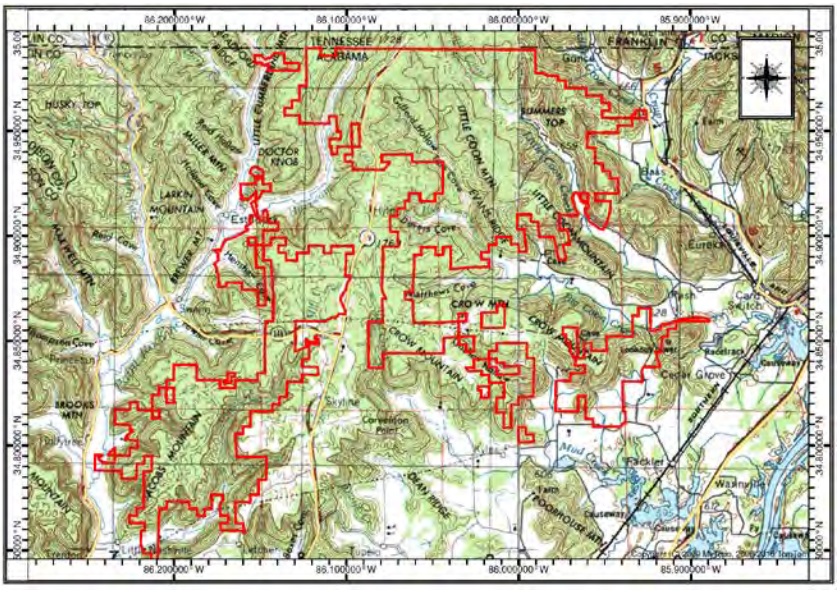


Figure 8-Alabama Power Company Lands – Skyline WMA

Geology

The Cumberland Plateau physiographic section is the most southerly part of the Appalachian Plateaus province of the Appalachian Highlands Region. Hereafter called the Cumberland Plateau, the section is identified by its pattern of relief features and landforms, which differ significantly from those of adjacent sections. It occupies about 15 percent of the state and occurs as a roughly northeast-oriented rectangular area in central and northeastern Alabama, encompassing mainly Jackson, DeKalb, Marshall, Blount, Cullman, Winston and Walker counties and runs into northeastern Georgia and Tennessee. The Cumberland Plateau borders the Highland Rim section to the north, the Valley and Ridge province to the southeast, and the Cumberland Plateau to the southwest. The landscape consists of flat-topped high-elevation plateaus separated by deep, steep-sided valleys. The plateaus slope gently from the northeast to the southwest. The highest elevations are above 1,500 feet in DeKalb and eastern Madison counties, and the lowest elevations are about 200 feet, near Holt Lock and Dam in Tuscaloosa County.

The landforms are the result of differential erosion of the underlying Paleozoic rocks in the section, which range from Cambrian to Pennsylvanian in age (approximately 550 to 290 million years before the present). The most resistant rocks are sandstones of various ages, and these are what form the ridges. Pennsylvanian sandstones belonging to the Pottsville Formation underlie the major plateaus. The valleys cut through softer shale, limestone, and dolomite. Of these three, limestone is most easily weathered and eroded, and thus the deepest valleys are cut through this rock type. The Jackson County Mountains district is highly irregular, consisting of isolated, flat-topped remnants of the former plateau cut by steep-sided valleys. Heights of individual peaks reflect whether or not the original sandstone layer that capped the peaks is still present as well as the degree of erosion of the underlying Mississippian shales and limestones. The remnants of the Pottsville Formation occur at elevations ranging from about 1,200 feet above sea level along the

Tennessee River to more than 1,700 feet along the Alabama-Tennessee border, indicating an original plateau that sloped from northeast to southwest.

The project lands are located primarily within the Guntersville Lake Watershed – HUC 06030001, with the western project lands being within the Wheeler Lake Watershed – HUC 06030002.

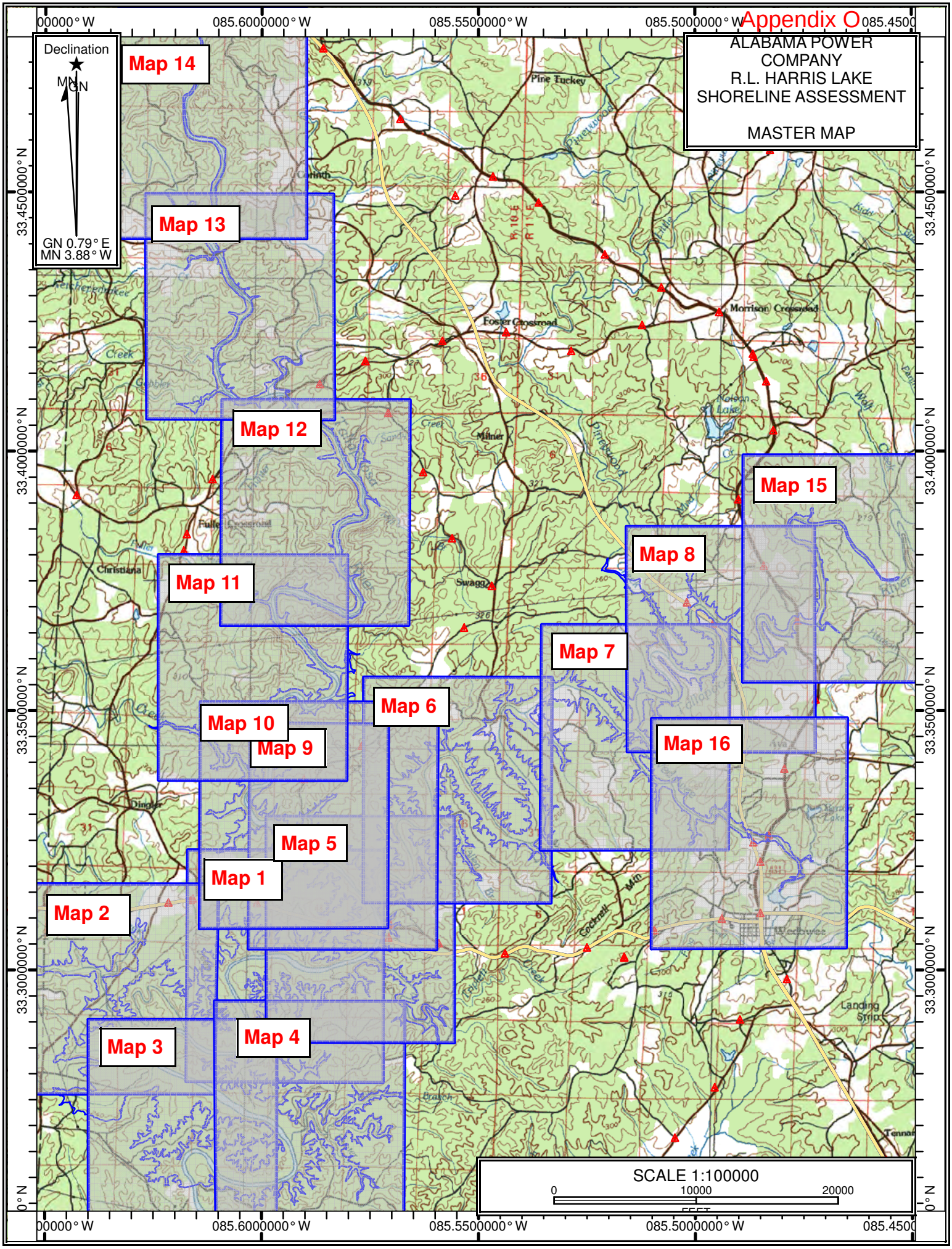
Habitat

Predominant habitat within project area is contiguous upland deciduous forest composed primarily of *Red Oak/White Oak/hickory association*. Drier sites such as ridgetops and shallow to bedrock areas may have stands composed primarily of *Chestnut Oak,* or *Chestnut Oak* in association with *Scarlet Oak* and *Black Oak.* On richer soils, other mixed upland hardwood associations are found, including *Sweet Gum/Yellow Poplar associations*.

Wetlands and Streams

A review of the U.S. Fish and Wildlife Services national Wetland Inventory did not indicate wetlands within the Skyline lands. Numerous large perennial are within the project lands. No NWI classifications are shown within project lands. Although a few instances of wetlands could occur within the project lands, large areas of wetlands or more than likely not present. The steep topography and minimal presence of wide flood plains, is not conducive to the presence of wetland habitat.

Assessment of USGS 1:24,000 7.5 Minute Quadrangles portray many low order streams that drain the hillsides, adding moisture to forested areas in ravines. Some first order streams originate as hillside seeps and continues as steep gradient until they conjoin with other stream and continue to flatter topography and wide floodplains.


ALABAMA POWER COMPANY
R.L. HARRIS LAKE
SHORELINE ASSESSMENT
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Declination
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Map 14
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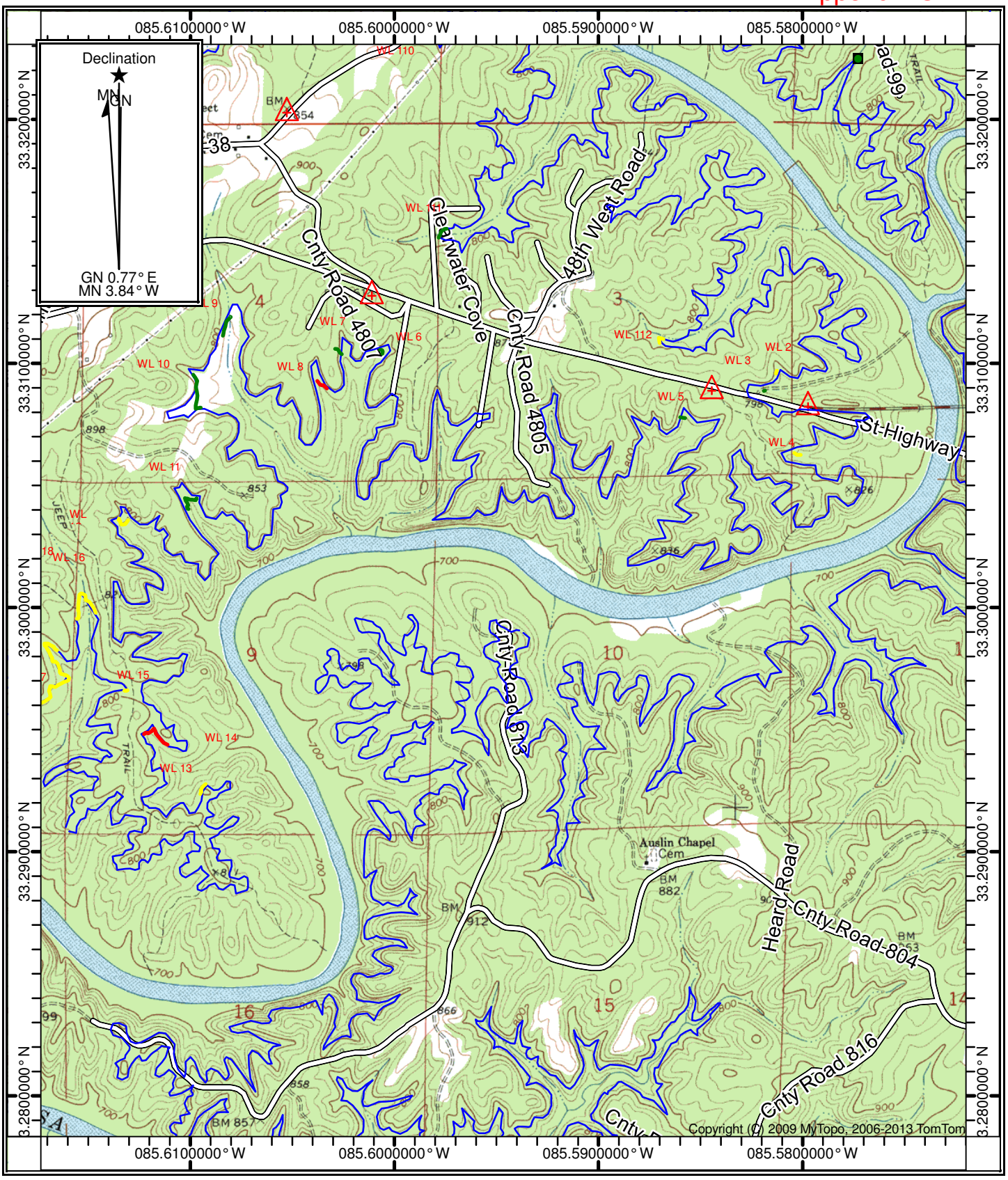

ALABAMA POWER CO.
RL Harris Reservior
Shoreline Wetland Assesssment.
March 2013
Map 1

Cahaba Consulting
Environmental & Mining

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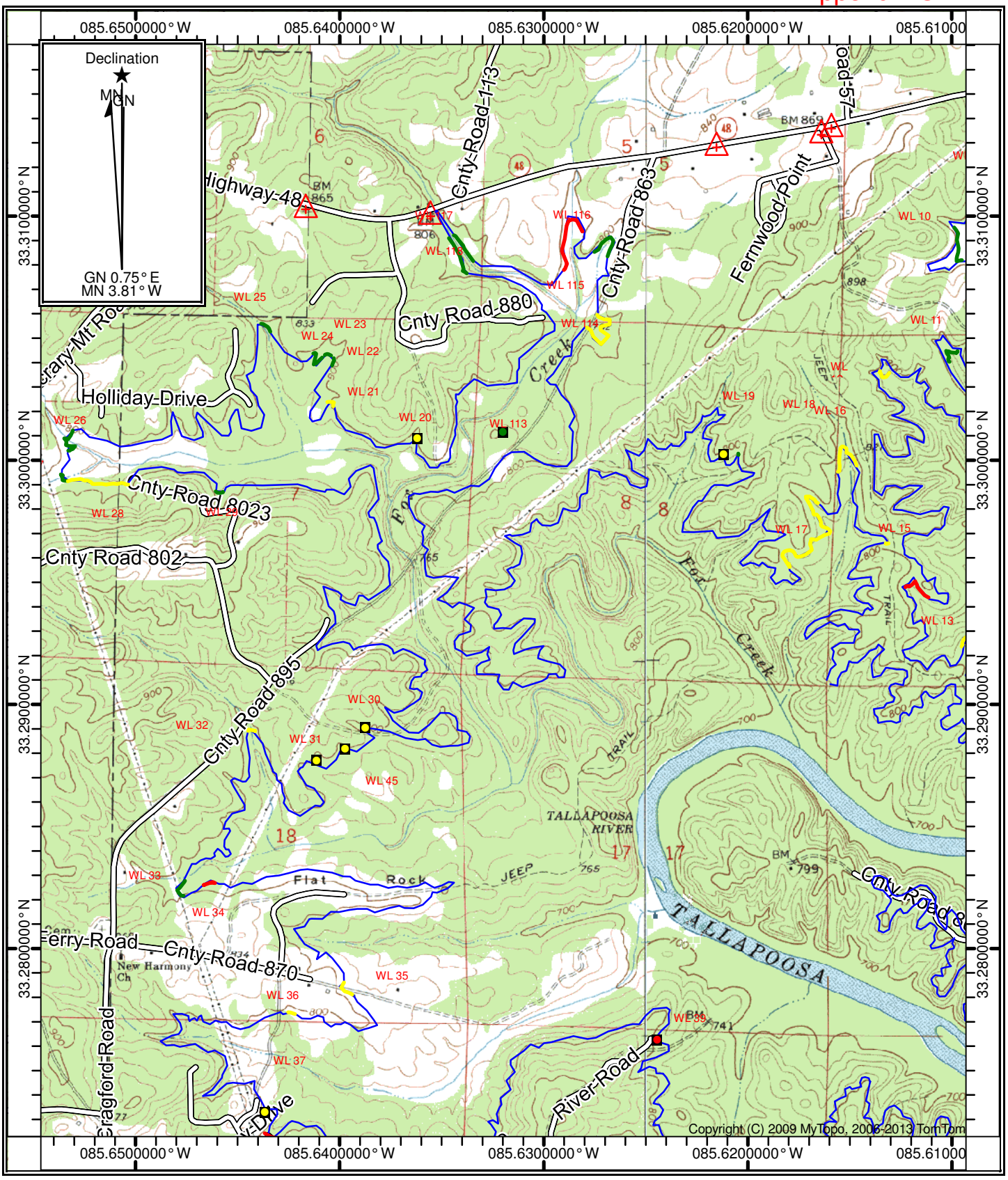

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
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Cahaba Consulting

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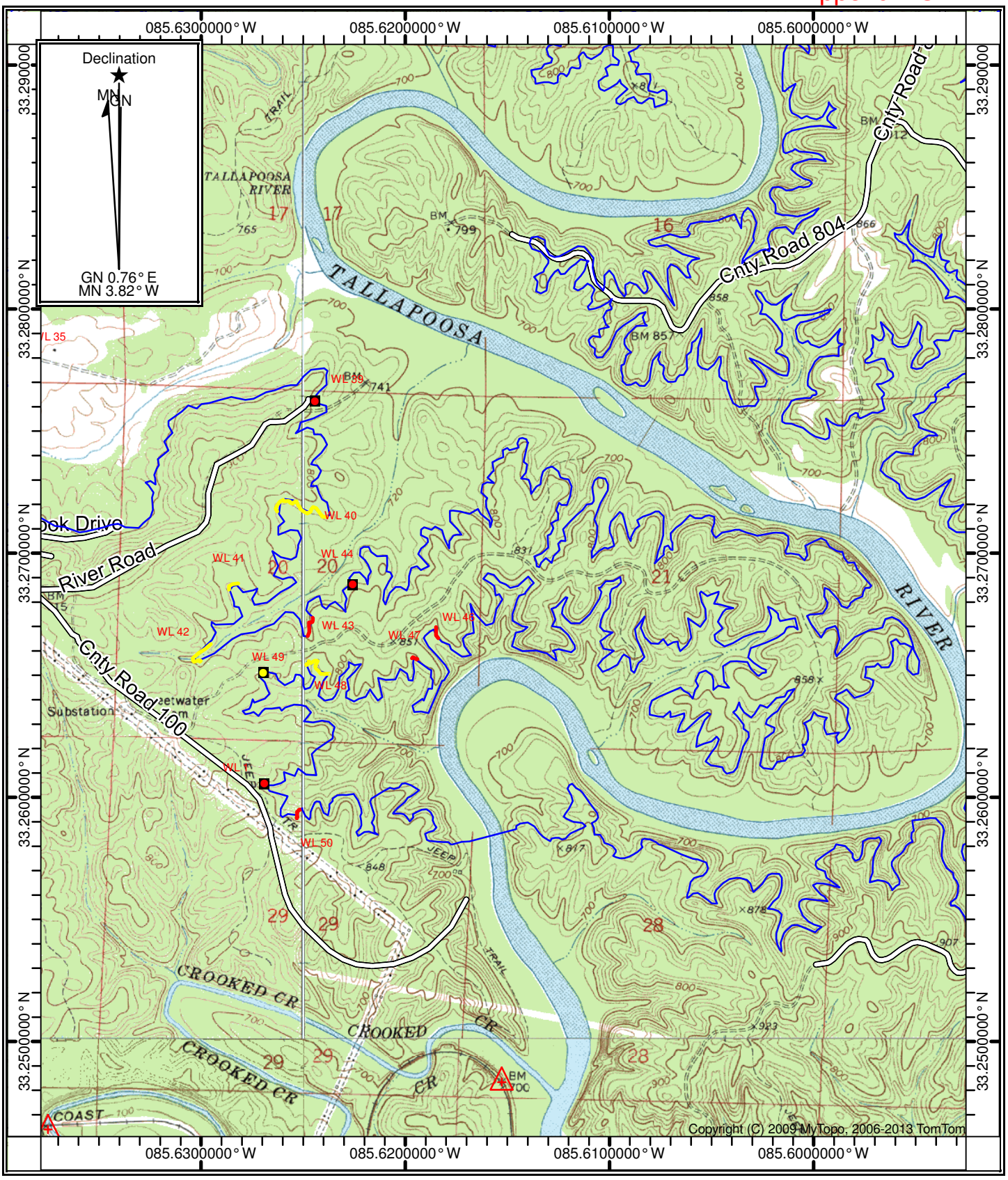

ALABAMA POWER CO.
RL Harris Reservior
Shoreline Wetland Assesssment.
March 2013
Map 3

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Environmental & Mining

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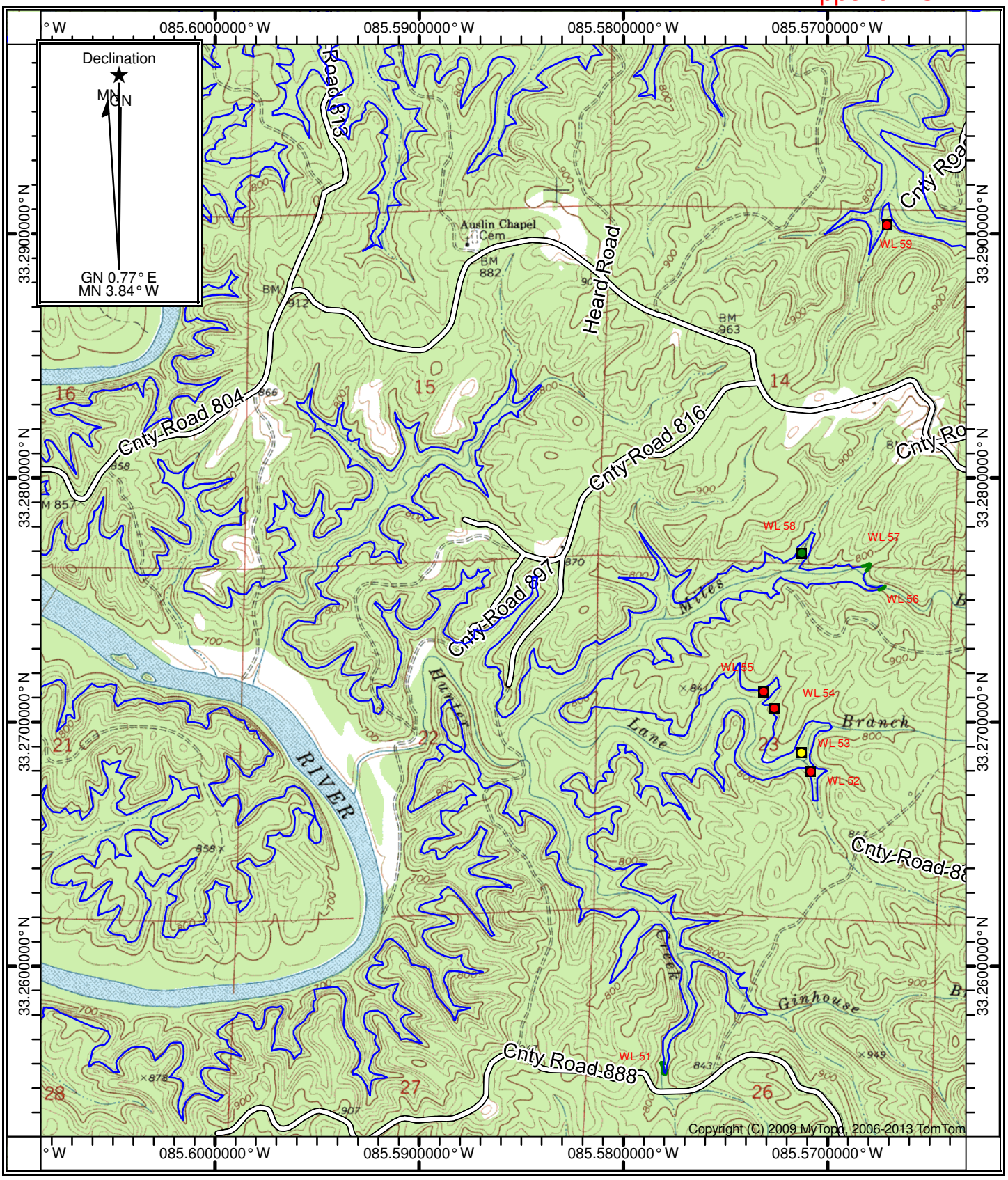

ALABAMA POWER CO.
RL Harris Reservior
Shoreline Wetland Assesssment.
March 2013
Map 4

Cahaba Consulting
Environmental & Mining

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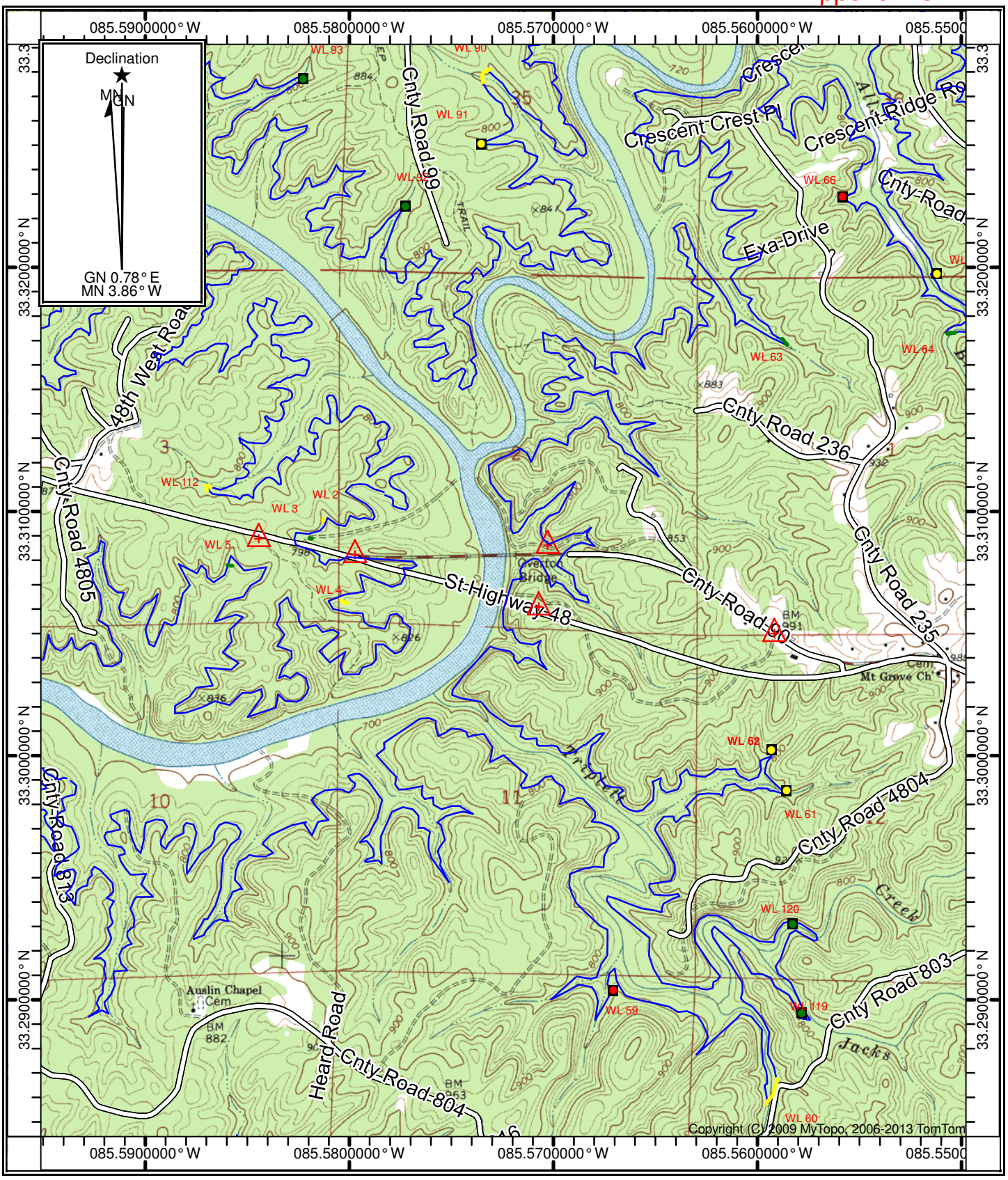

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 5

Cahaba Consulting

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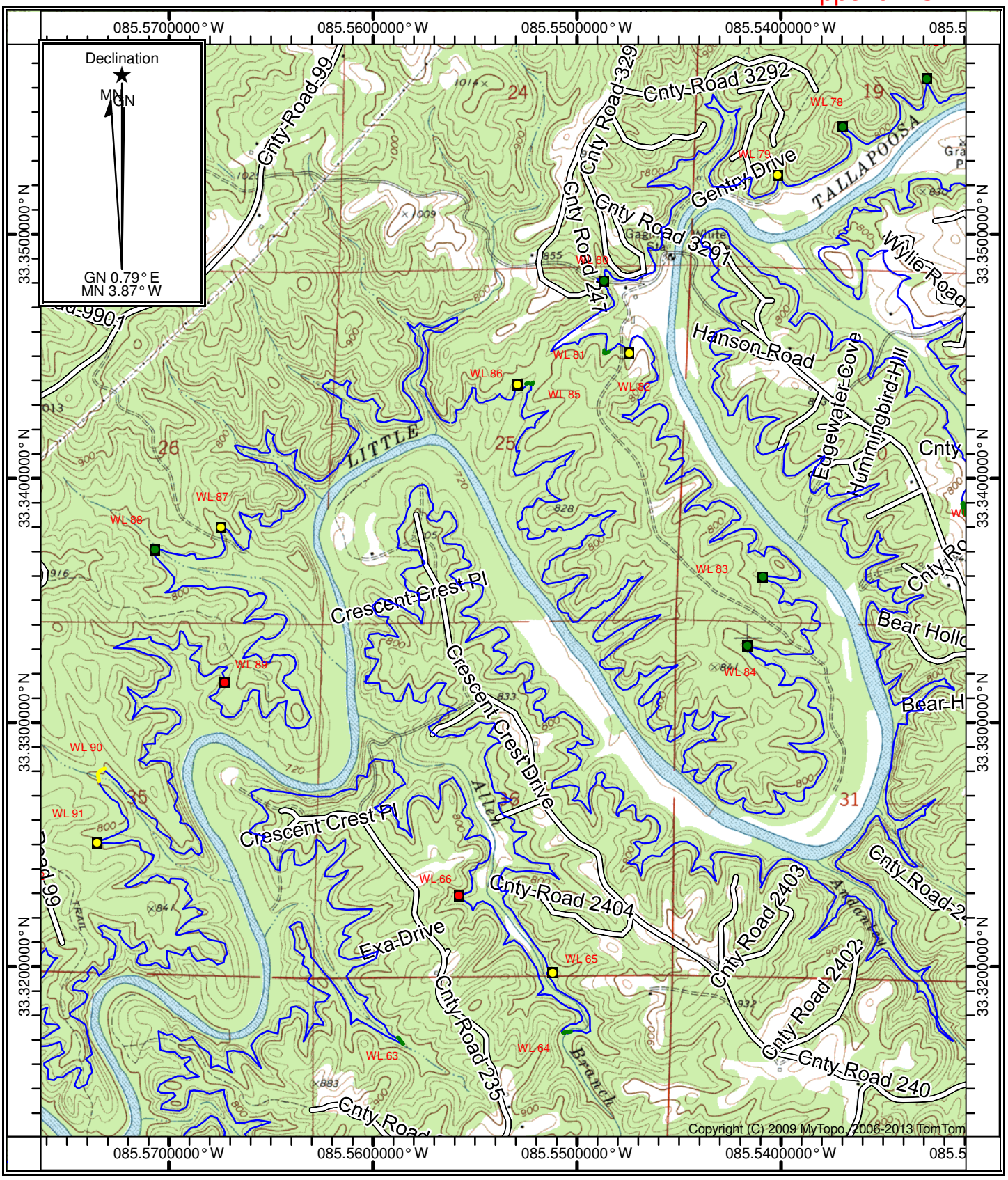

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RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 6

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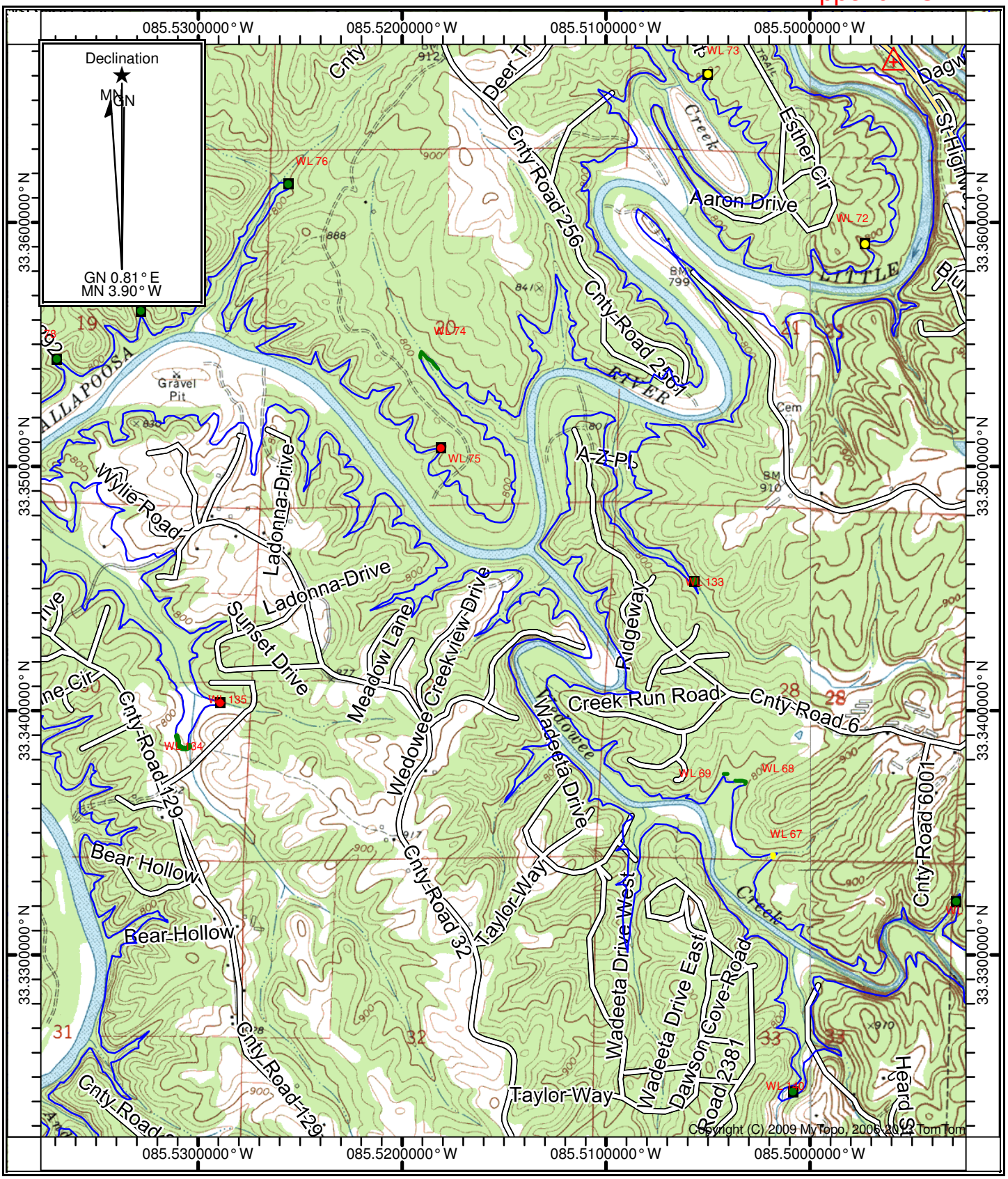

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 7

Cahaba Consulting

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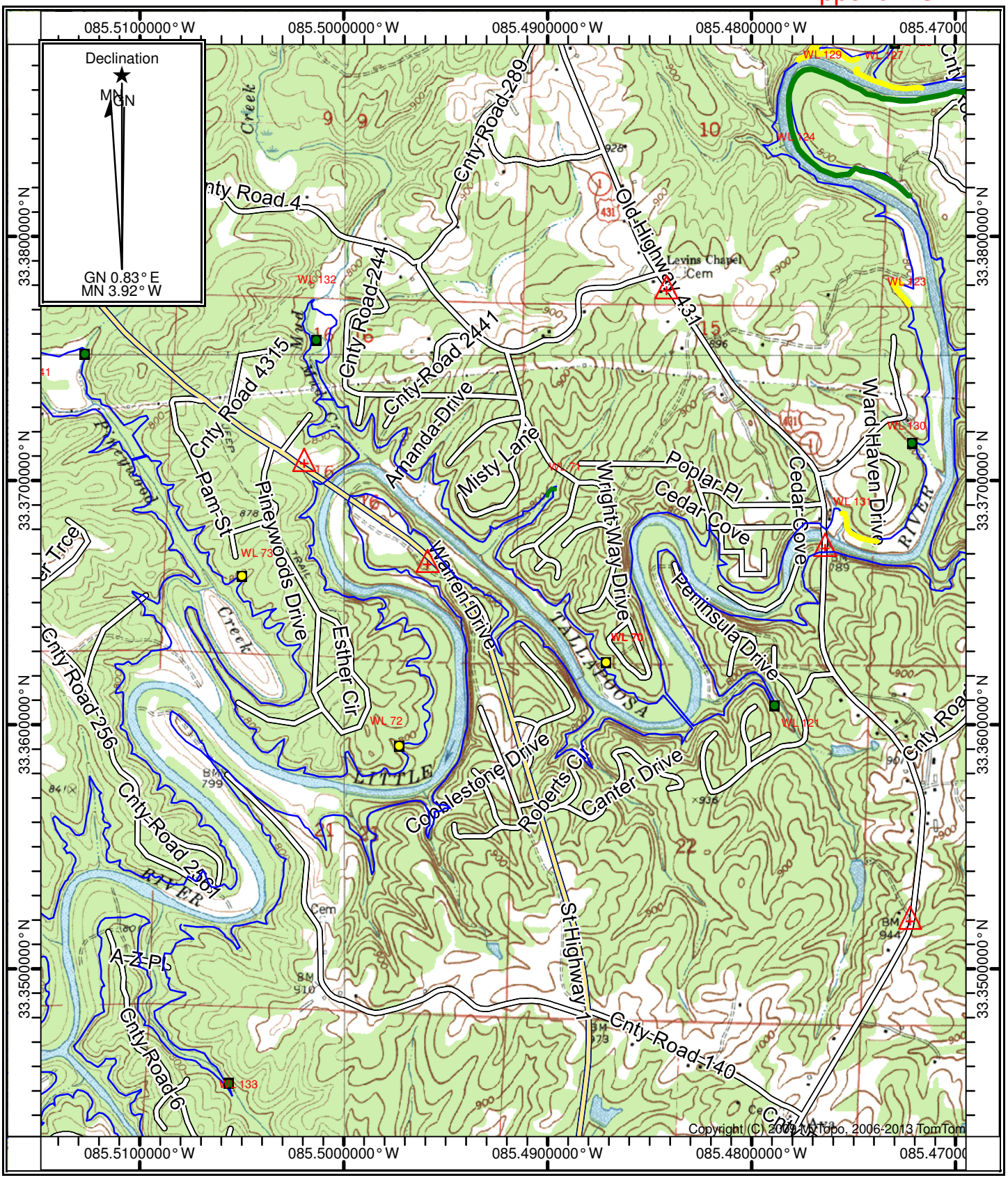

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 8

Cahaba Consulting

SCALE 1:24000

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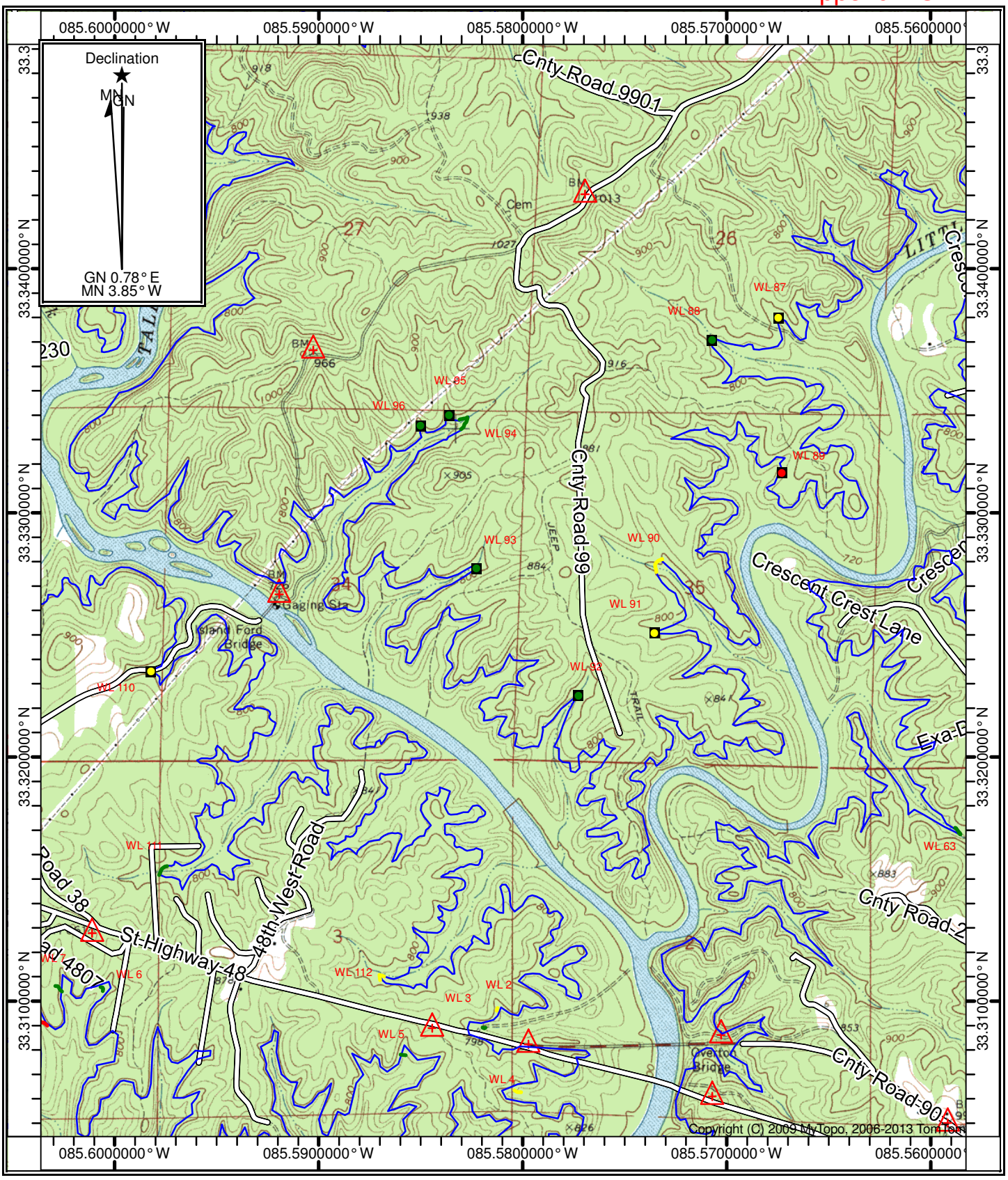

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 9

Cahaba Consulting

SCALE 1:24000

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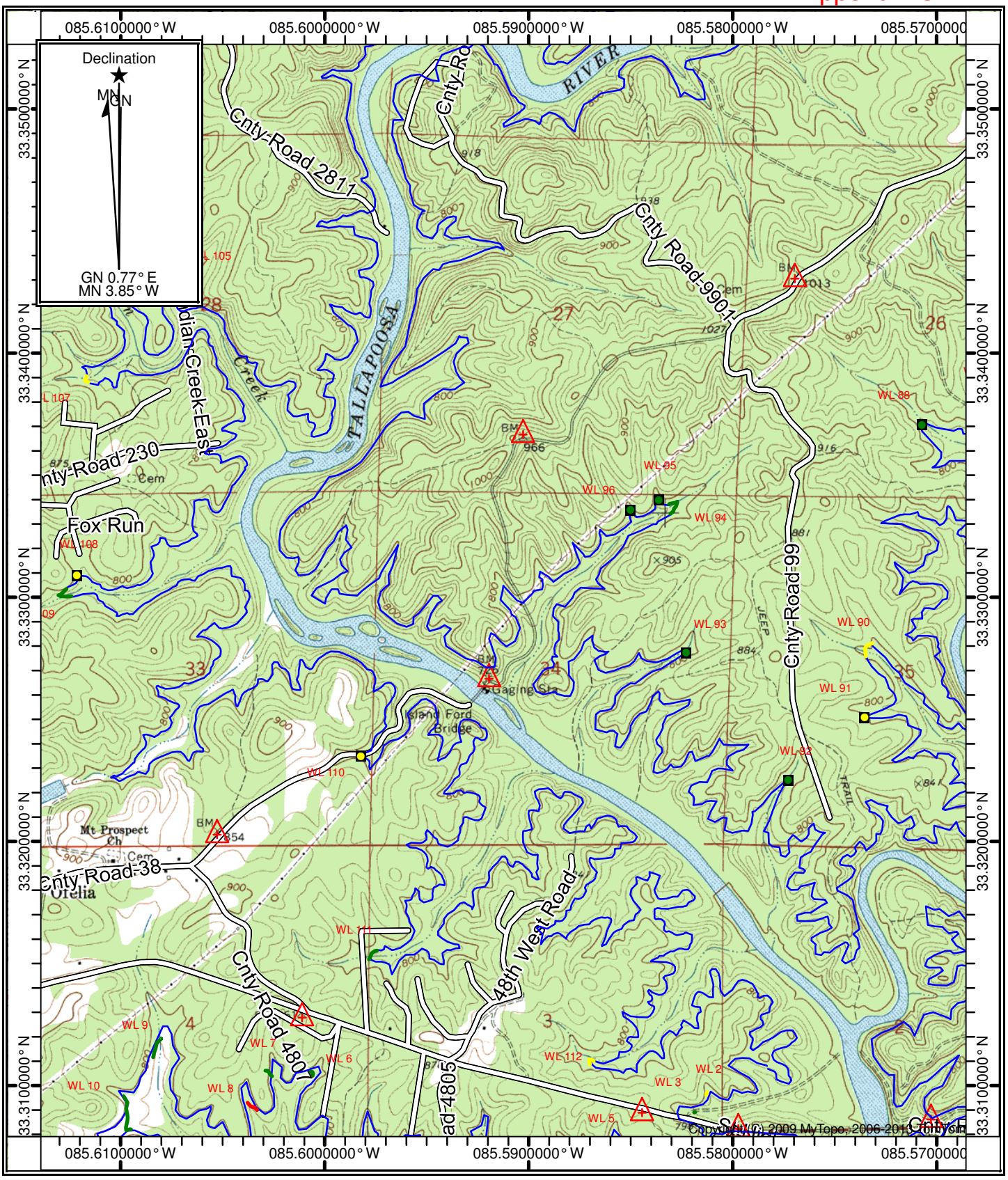

ALABAMA POWER CO.
RL Harris Reservior
Shoreline Wetland Assesssment.
March 2013
Map 10

Cahaba Consulting
Environmental & Mining

SCALE 1:24000

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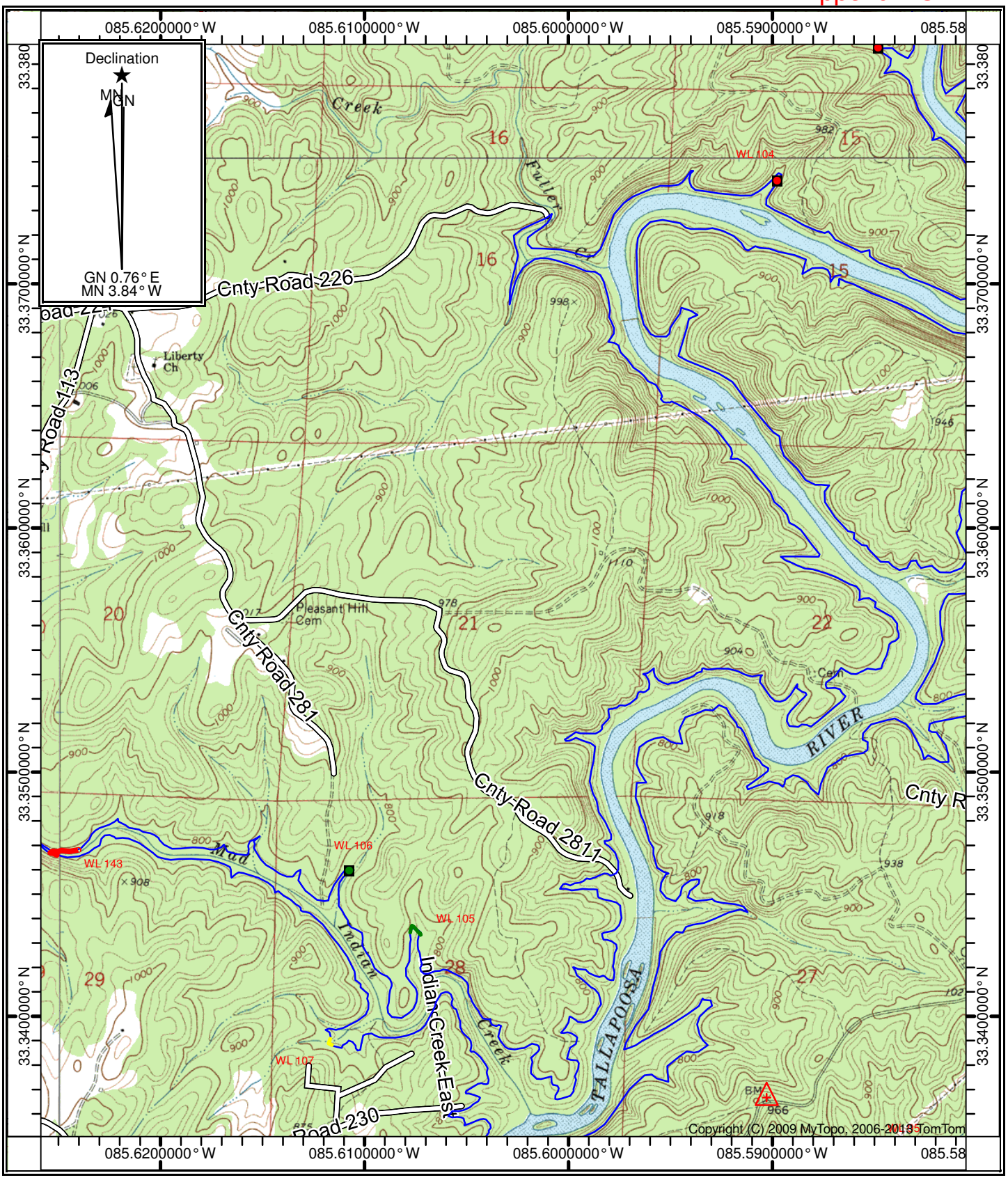

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 11

Cahaba Consulting
Environmental & Planning

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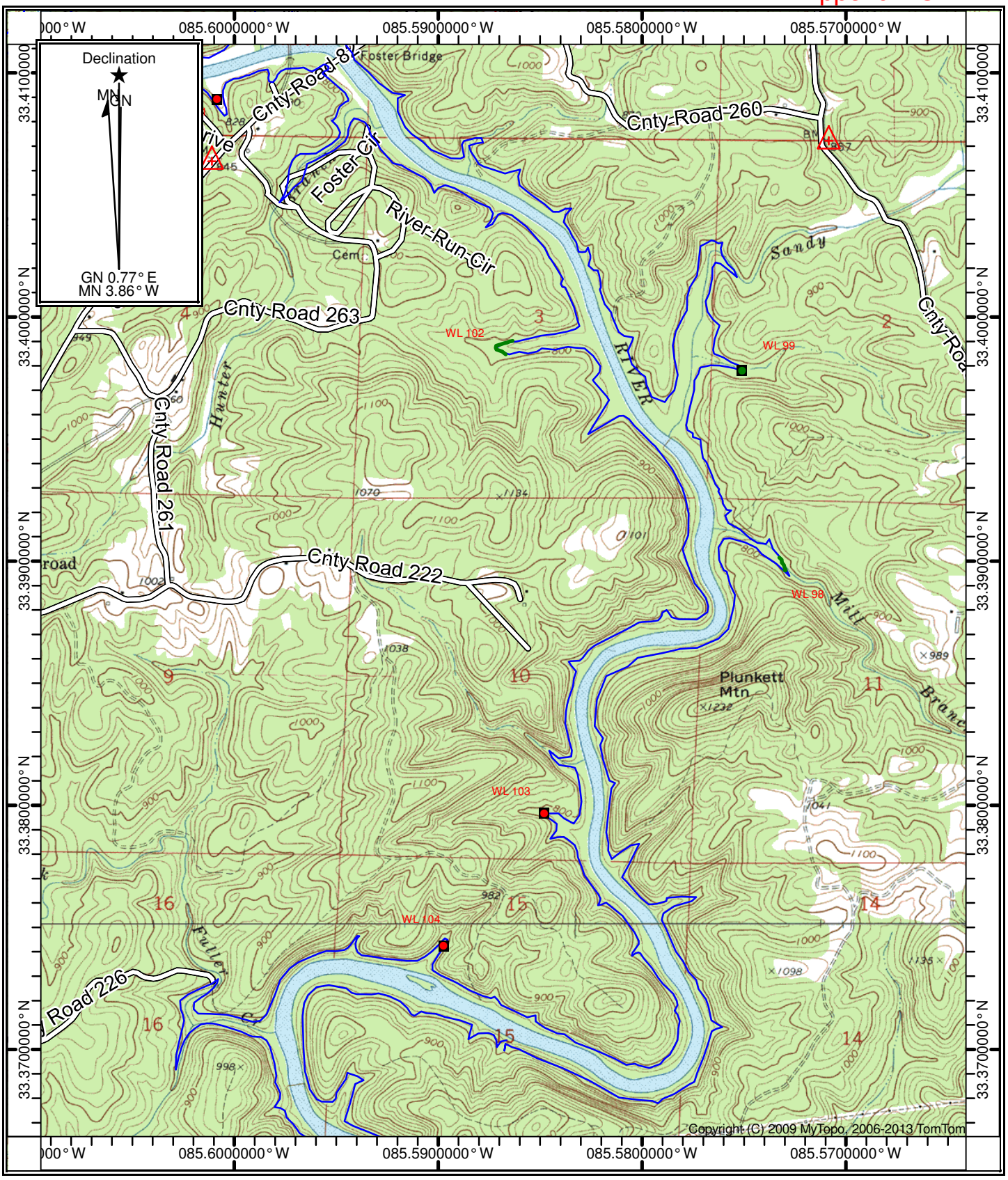

ALABAMA POWER CO.
RL Harris Reservior
Shoreline Wetland Assesssment.
March 2013
Map 12

Cahaba Consulting
Environmental & Mining

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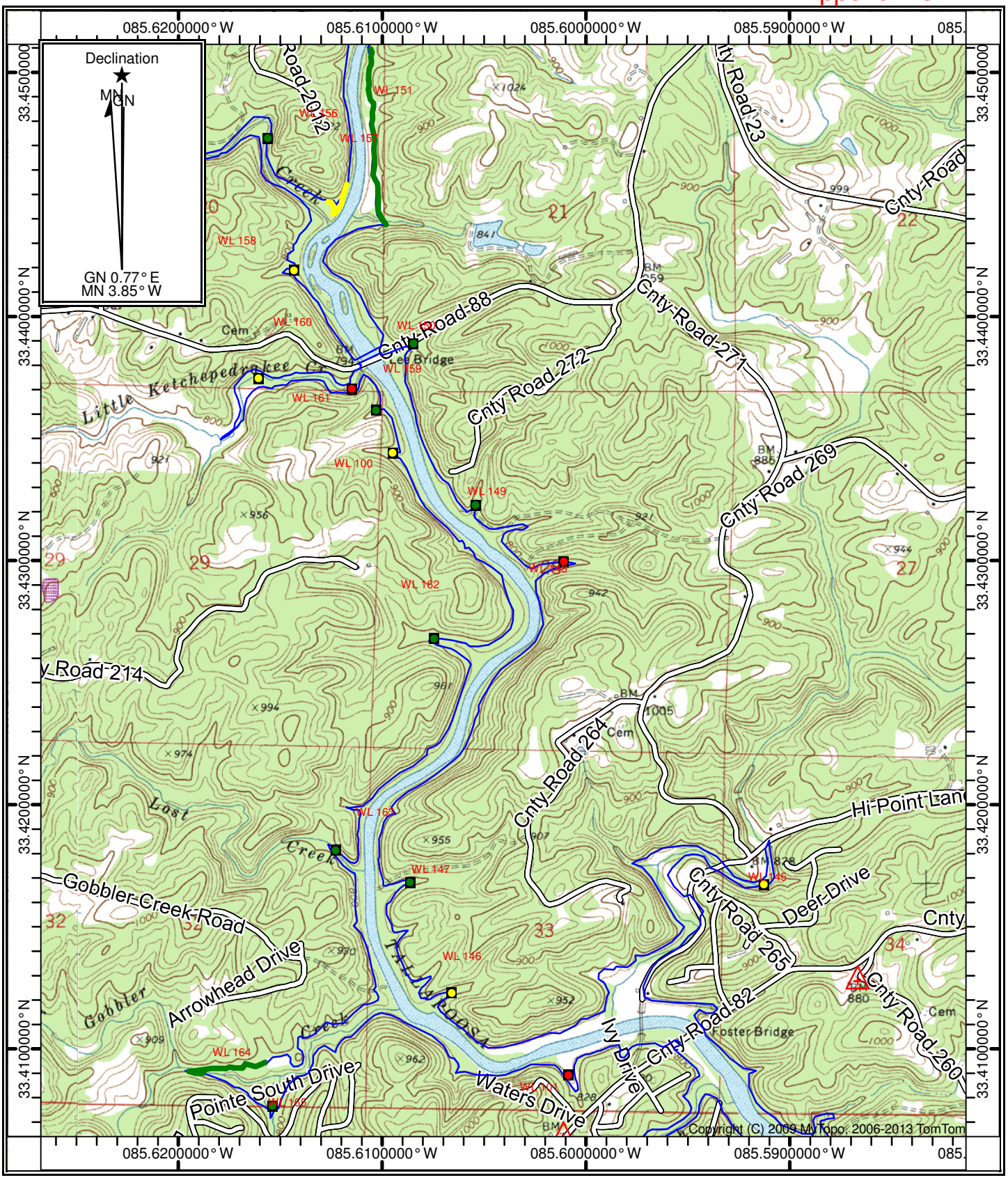

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 13

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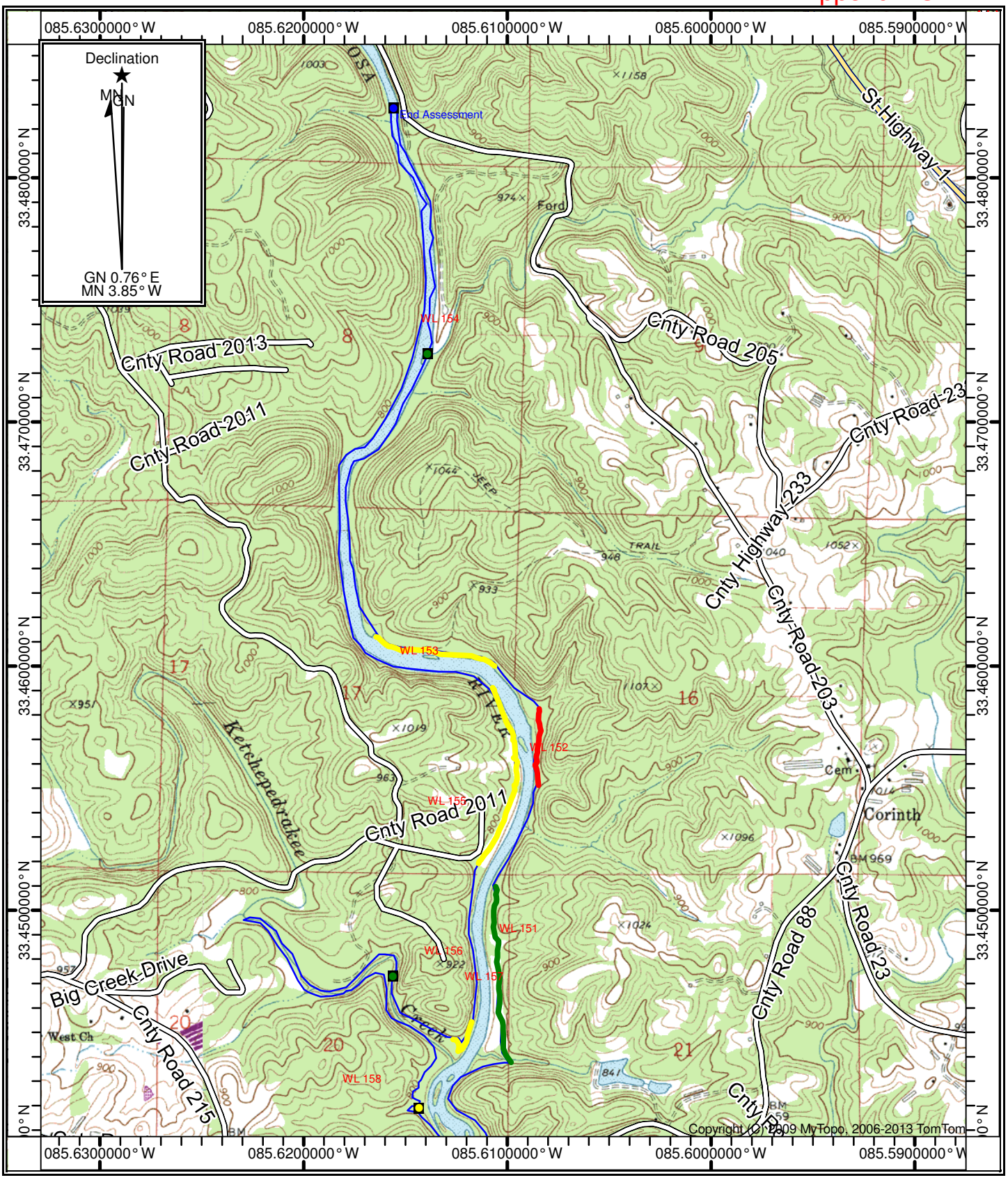

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 14

Cahaba Consulting

SCALE 1:24000

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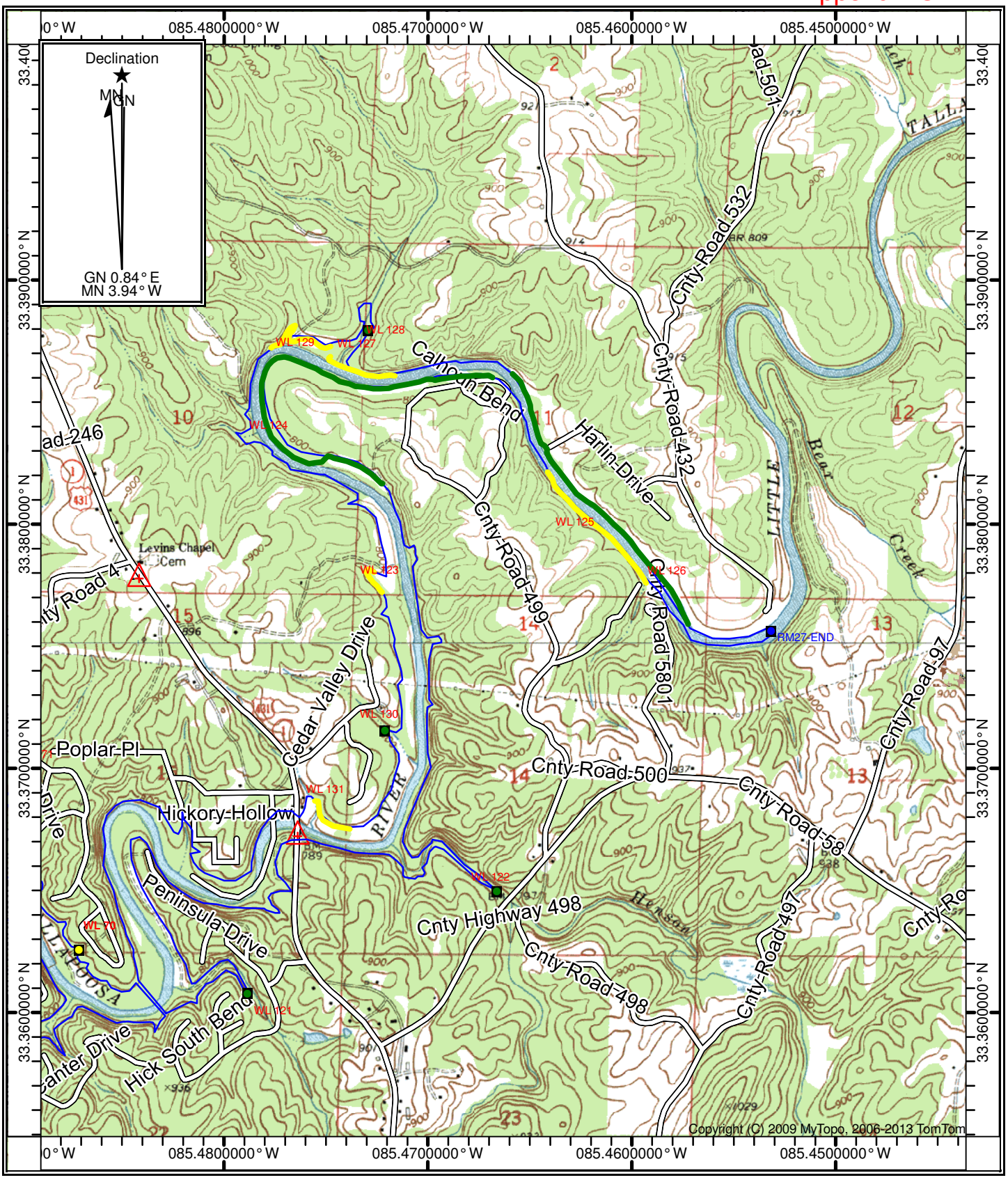

ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 15

Cahaba Consulting

SCALE 1:24000

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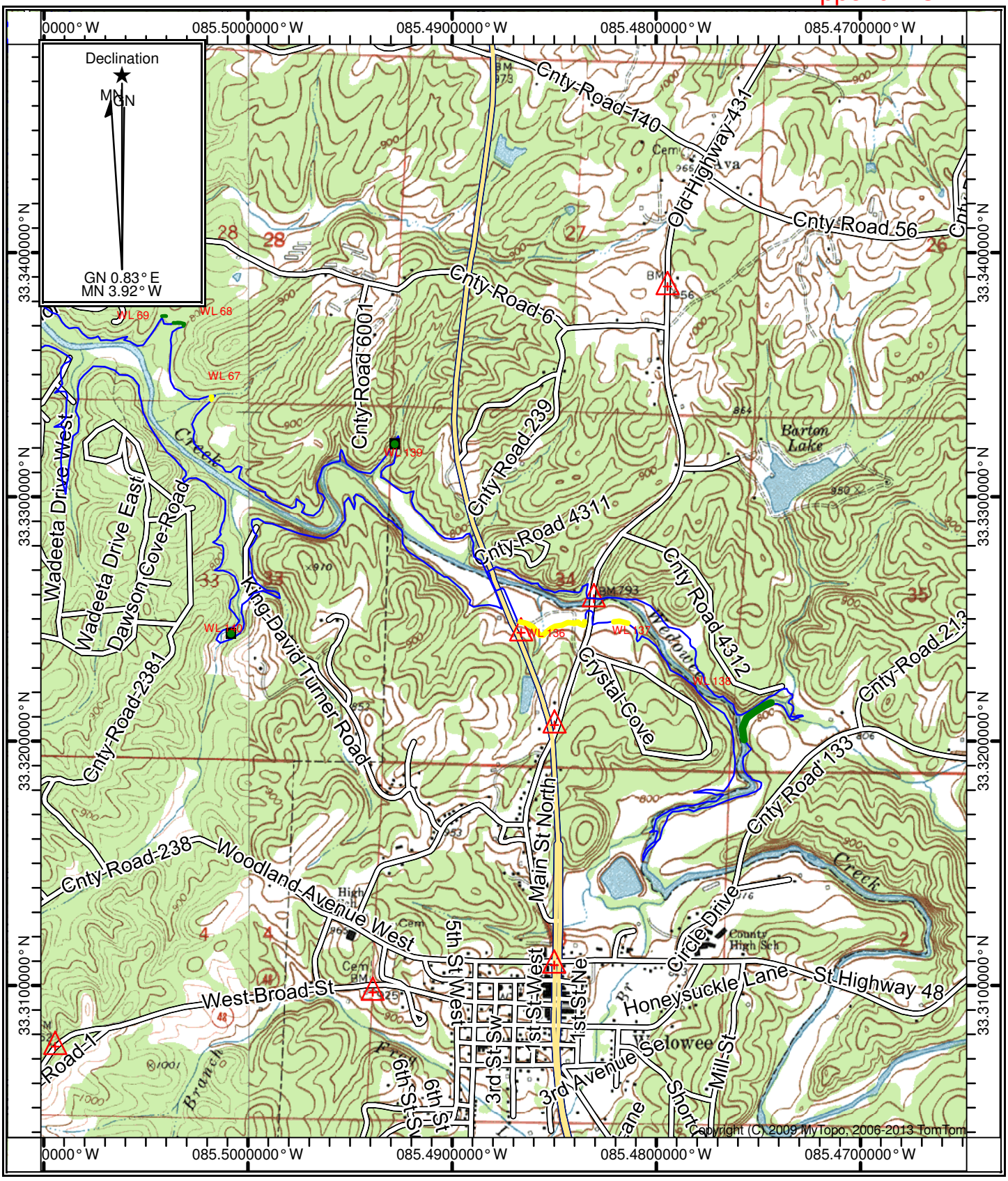


ALABAMA POWER CO.
RL Harris Reservoir
Shoreline Wetland Assessment
March 2013
Map 16

Cahaba Consulting

SCALE 1:24000

0 1000 2000 3000 4000 5000
FEET

Appendix O

WETLAND DELINEATION AND STREAM ENVIRONMENTAL ASSESSMENT REPORT

ALABAMA POWER COMPANY
SKYLINE WILDLIFE MANAGEMENT AREA
JACKSON COUNTY, ALABAMA

PRELIMINARY INFORMATION DOCUMENT
R.L. HARRIS HYDROELECTRIC PROJECT
FERC PROJECT NO. 2628

Prepared for:
Alabama Power Company
Birmingham, Alabama

Alabama Power

Prepared by:

Cahaba Consulting, LLC
Birmingham, Alabama

January 2018

WETLAND DELINEATION AND STREAM ENVIRONMENTAL ASSESSMENT REPORT
ALABAMA POWER COMPANY
SKYLINE WILDLIFE MANAGEMENT AREA
JACKSON COUNTY, ALABAMA

PRELIMINARY INFORMATION DOCUMENT
R.L. HARRIS HYDROELECTRIC PROJECT
FERC PROJECT NO. 2628

TABLE OF CONTENTS

Attachments

1 INTRODUCTION AND SITE DESCRIPTION

1.1 Purpose

Alabama Power Company (APCO) is preparing to initiate the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. APCO contracted Cahaba Consulting, LLC to perform an environmental assessment for the James D. Martin-Skyline Wildlife Management Area (Skyline WMA). The project is located entirely in Jackson County on the Alabama-Tennessee border. This work was performed to identify and document potential and/or probable jurisdictional "waters of the United States," (waters) as defined by Section 404 of the Clean Water Act.

The Harris Project contains 15,063 acres of land within the Skyline WMA located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan for the original construction of the reservoir. The Skyline lands were incorporated into the 1995 approval of the updated Land Use Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

1.2 Site Description

1.2.1 Site Location

The Skyline WMA, subject tract of land, is approximately 19.5 square miles located in Jackson County, Alabama. Specifically, the very irregular shape of the property is located as far west as Sections 15 & 22, Township 1 & 2 South, and Range 5 East; as far south as Sections 12 & 7, Township 2 South, and Range 6 East; as far east as Section 7, Township 2 South, and Range 6 East; and as far north as Sections 3, 4 & 5, Township 1 South, and Range 6 East, along the state border. Within this large expanse are areas that are excluded from Skyline WMA as well as areas that area included. Approximate center coordinates of the project are: 34.9366° North (latitude) and 86.0141° West (longitude). See Attachment A for site location/USGS topographic and aerial maps showing the project area.

The primary drainages for the project area are the Big Coon Creek, Little Coon Creek, and Crow Creek and its tributaries. All creeks and tributaries flow to Guntersville Lake and the Tennessee River. Little Coon Creek is a 303 (d) listed stream, and is a major tributary to the Tennessee River in north eastern Alabama. Its uses are Fish and Wildlife.

1.2.2 Physiographic Characteristics

The entire county is in the Cumberland Plateau section of the Appalachian Plateaus. Before it was dissected by streams, the area was mainly a nearly level plain gently inclined toward the south. The sandstone plateaus include chiefly two areas, Sand Mountain in the southeastern part and the Cumberland Plateau in the north central part of the county. Most of the tributary streams originating in the plateau areas have cut deep gorges where they emerge from the plateaus. These channels form great V-shaped ravines or rock-walled gorges that separate the plateau. Except in the Tennessee River valley, the drainage pattern is dendritic.

The rocks in Jackson county are sedimentary in origin, being sandstone, shale, and limestone. The high plateaus are capped with sandstone about 100-200 feet thick. The Pottsville formation is of Pennsylvania age and is made up of a sandstone capping and the underlying shale bed. The capping is composed mainly of medium- to fine-grained sandstone, but in places it consists of conglomerates.

Many of the geologic formations outcropping in the valleys are covered by alluvium that varies greatly in age, depth, and composition. The formations of alluvium in the Tennessee River valley consist of mixed material transported from a broad area including considerable parts of the Cumberland Plateau, the Blue Ridge Province, and that part of the Ridge and Valley province known as the Great Valley.

1.2.3 HUC Classification

The project is located within HUC 0603000103 the Tennessee River-Big Coon Creek Watershed.

1.2.4 Soils

According to the Jackson County Soil Survey the project land is not suited for agriculture and is composed of mountainous terrain. The most significant agricultural areas are in the valleys and wide floodplains and terraces. Soils on the plateaus are used mostly for field and vegetable crops.

The major soil groups within the project are composed of Hartsells, Jefferson, Muskigum, Rough and Rolling Stony land (Muskigum and Colbert) and Limestone rockland association on steep mountainous areas.

2 METHODOLOGY

The review was performed utilizing USGS 7.5 Minute Quadrangles, the National Wetland Inventory (NWI) and Ortho Aerial Imagery. Assessment of potential waters were not verified in the field, other than minimal representative observations.

To determine the site layout and characteristics and assist in the identification and location of the jurisdictional wetlands and streams on the subject property, several readily-available maps and aerial photographs were reviewed, which are listed below.

- U.S. Geological Survey (USGS) 7.5 Minute topographic maps (See Attachment A)
- National Wetland Inventory (NWI) maps (See Attachment B)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey reports and maps (See Attachment C)

2.1 Wetlands and Stream Assessment

2.1.1 Wetland and Stream Assessment Methods

Many procedures currently exist for assessing wetlands and their quality. Field verification for the presence of wetlands was not performed; but rather a desk-top assessment, that utilizes the best available stream and wetland information.

National Wetlands Inventory - Potential wetlands and streams were identified utilizing the National Wetland Inventory mapping. These maps are available on the U.S. fish and Wildlife Service website (https://www.fws.gov/wetlands/data/mapper.HTML). The USFWS created the National Wetland Inventory (NWI) in 1974 to "conduct a nationwide inventory of United States wetlands to provide its biologists and others with information on the distribution of wetlands to aid in wetland conservation efforts." The wetland classification system developed by Cowardin et al. (1979) is used as the federal standard of wetland classification.

USGS Quadrangle Topographic Maps - Topographic maps, depictions of the land surface features of an area, published by the U.S. Geological Survey (USGS) represent an easily obtained and inexpensive source of landscape information. USGS topographic maps are used by a range of citizens and professionals in public and private sectors for tasks such as site and regional planning, natural resource land management, environmental monitoring and planning, national defense, law enforcement, and outdoor recreation. Topographic maps portray a range of natural and cultural features. Some of the data used to create this atlas, such as topography, hydrology, and geology, originated with the USGS. The maps have various background "layers" that allow the user to choose map types; these layers include the USGS Topographic 1:24,000 scale, 7.5 Minute Quadrangles. These maps are general in nature and show topographic contours at 20' intervals and includes major streams and drainage features, including wetlands.

Web Soil Survey - The U.S. Department of Agriculture Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent soon. The site is updated and maintained online as the single authoritative source of soil survey information. (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm). These maps can provide valuable stream and wetland assessment data.

Figure 1 - Typical NWI map

Figure 2 – Typical USGS Topographical Map

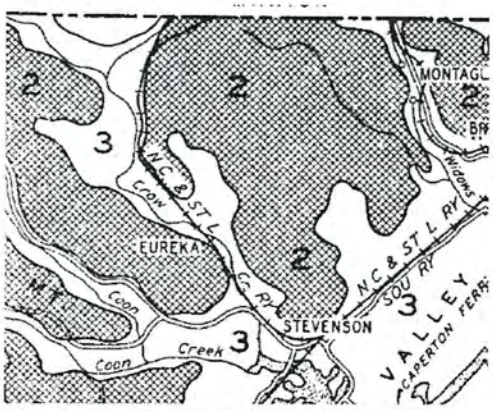


Figure 3 – Typical NRCS Soil Map

3 FINDINGS

The assessment for identifying wetlands and streams was conducted by Cahaba Consulting, LLC in December of 2017. Minimal wetlands were identified and forty-nine (49) streams and their tributaries were identified and are discussed in the following sections.

3.1 Wetlands and Streams

Due to extremely steep terrain and relatively small floodplains within Alabama Power's Skyline property, it is unlikely that large areas of wetlands would occur. According to the NWI data, there no wetlands and only a few freshwater ponds within Skyline boundary (USFWS NWI 2017).

Forty-nine (49) streams and their tributaries totaling approximately **237,425 linear feet** or **44.97 miles** were assessed on the subject site. Streams were of all classifications and include, perennial, intermittent, and ephemeral streams. Perennial streams flow throughout a typical year, intermittent streams typically flow seasonally, i.e. during the "wetter" season, and may not flow during summer and fall months; ephemeral streams generally flow during rainfall events and subside within 24 hours. Although the mapped streams as shown on the USGS maps, are shown as solid blue lines, which are usually interpreted as a perennial stream, is not accurate. Based on field observation of select streams, different classifications exist within the project.

Select streams were observed for general biological function based on the presence of macroinvertebrates, fish population and diversity. Stream evaluation on the perennial streams was selected to include examining riffle complexes, if present, for the presence of benthic macroinvertebrates assemblages such as mayflies, fishflies, alderflies, hellgrammites and other aquatic organisms. These species can be used as indicators of water quality and stream health. Smaller streams were primarily assessed utilizing visual observation, and included observation for erosion, adverse impacts and general stream integrity.

In general, the streams are typical medium steep gradient streams with minimal narrow flood plains. These streams are comprised of cobble, bolder and bed rock substrate. The intermittent (seasonal) streams on site are primarily 1st and 2nd order tributaries to larger perennial streams and generally are not as steep. It appears that many of the streams in the upper reaches would be considered ephemeral, transitioning into intermittent until they converge with the larger perennial streams. The perennial streams are flat with relatively wide floodplains, however, only a few of these exist within the project. The perennial streams would be considered receiving waters to the upper tributaries. The streams riparian zone consists of primarily mature forest vegetation.

The stream length is summarized below totaling **237,425** linear feet or **44.97** miles.

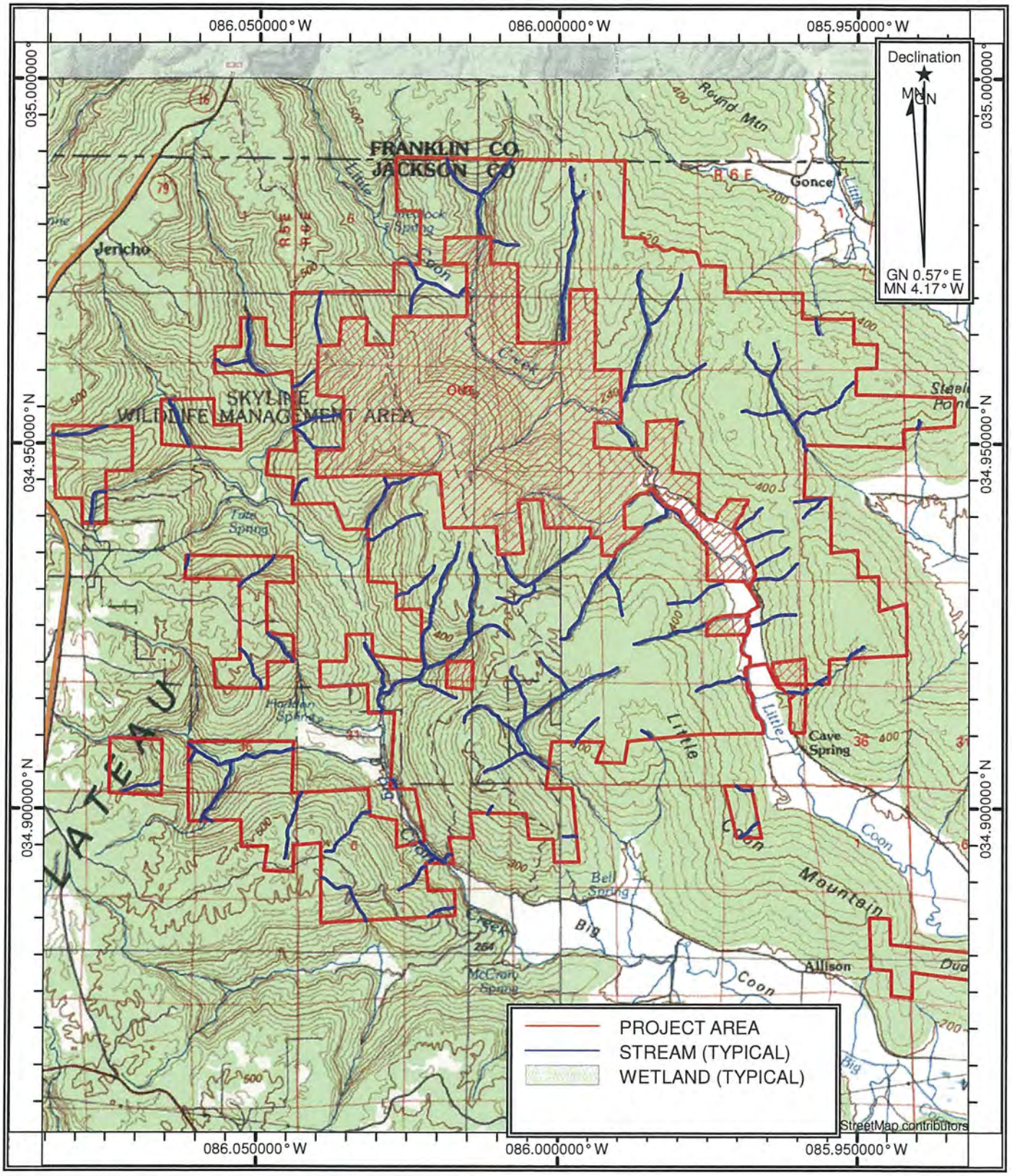
Table 1 - Streams

Stream	Length	Stream	Length	Stream	Length

1	2200		17 DS	1078		31	3324
1A	2362		17A	270		31A	2339
1B	2649		18	4265		31B	3543
1C	1424		18A	2271		31C	2835
2	8976		18B	1770		31D	4770
2A	607		18C	3960		31E	2865
3	6970		18D	2225		32	1712
3A	3176		19	824		33	1215
3B	4079		20	449		34	882
4 DS	8765		21	2698		35	2792
4A	1926		21 DS	1511		36	2121
4 US	3700		22	3133		37	683
4MID	1442		22A	1795		38	2358
4MM	4068		22B	2605		39	1920
5	1384		22C	2719		39 DS	678
5 US	6178		23	2516		40	5861
5A	2586		24	1287		40A	3517
6	8923		25	4050		40B	584
6A	2441		25A	707		41	3482
7	3160		26	3049		42	3285
8	3821		27	2609		43	1337
9	2684		28	3965		44	3538
10	589		28 MID	523		45	669
11	371		28 DS	1663		46 US	1861
12	1793		29	2823		46 DS	338
13	2016		29A	6811		47	1564
14	2036		29B	7180		47A	1358
15	2520		29C	2399		48	1943
16	2471		29D	2279		49	2349
17 US	1129		30	495		**237,425 LINEAR FEET**	
17 M	696		30 DS	631		**44.97 MILES**	

ATTACHMENTS

ATTACHMENT A
Site Location/USGS Topographic Maps

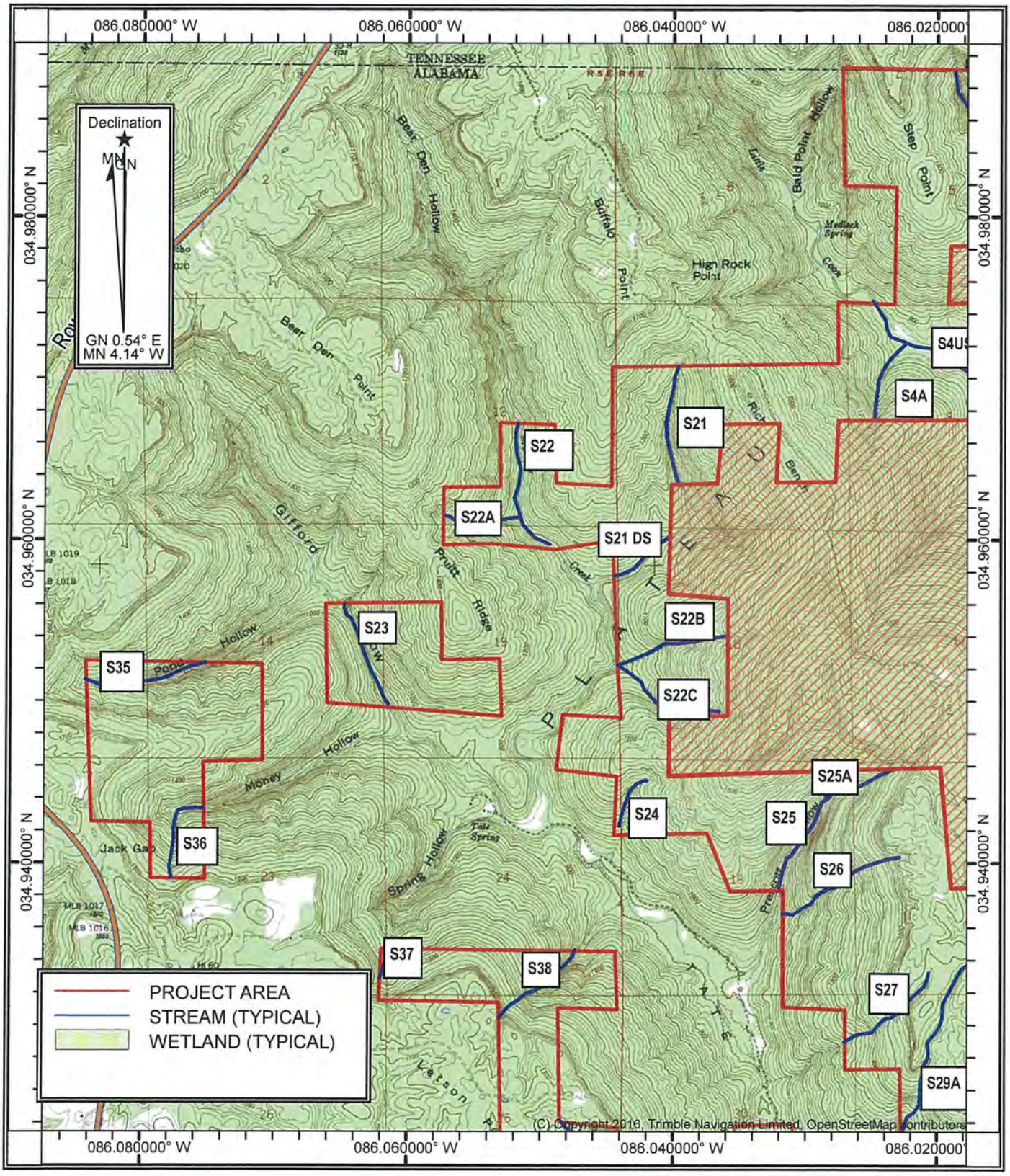


ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-East Sector
Project Map - 1:24000 Toporaphy - January 2108

Alabama Power

SCALE 1:80000

0 10000
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
North-West Sector
Map 1 - 1:24000 Toporaphy - January 2108

Alabama Power

SCALE 1:36112

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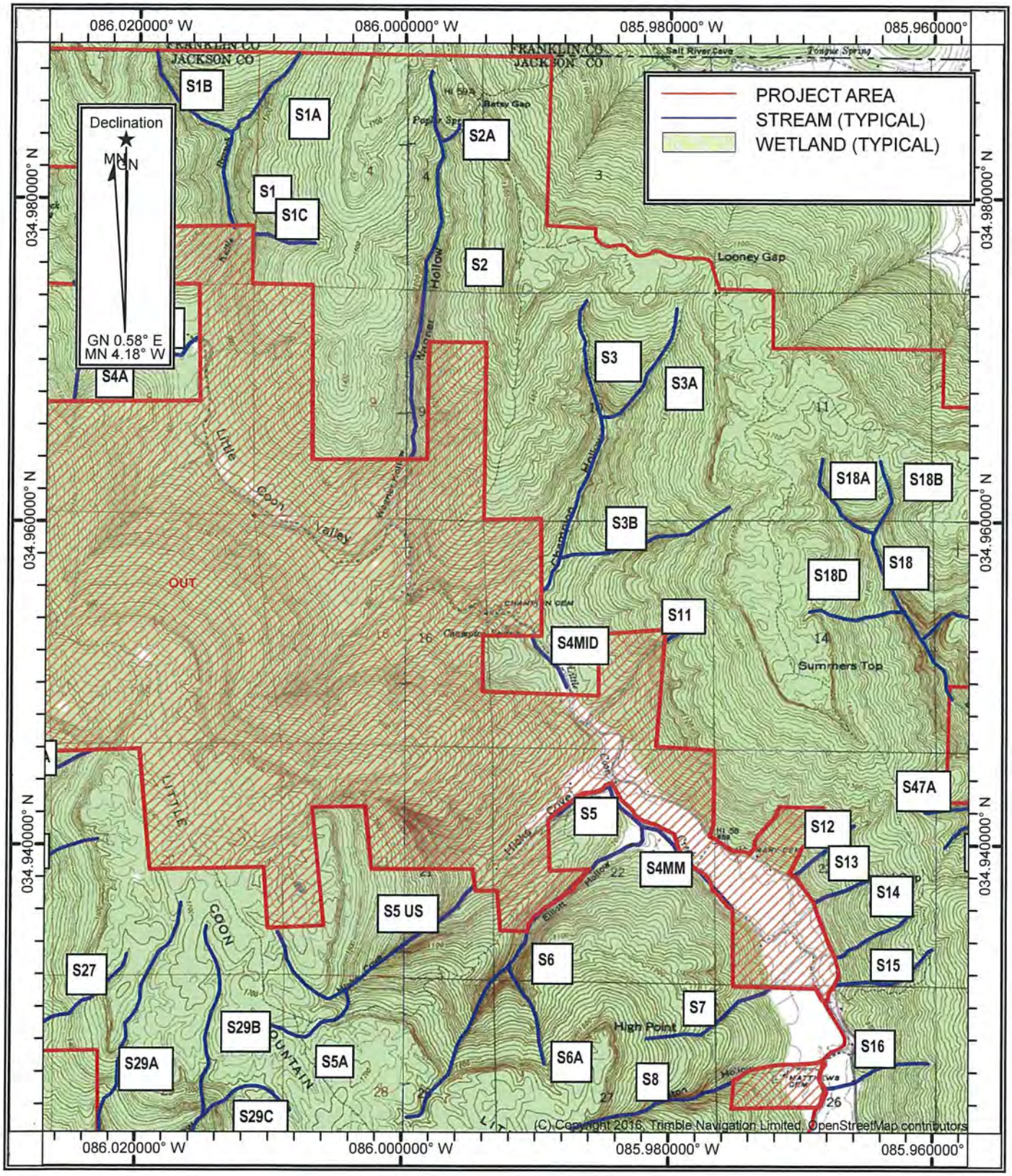

ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
North-Center Sector
Map 2 - 1:24000 Toporaphy - January 2108

Alabama Power

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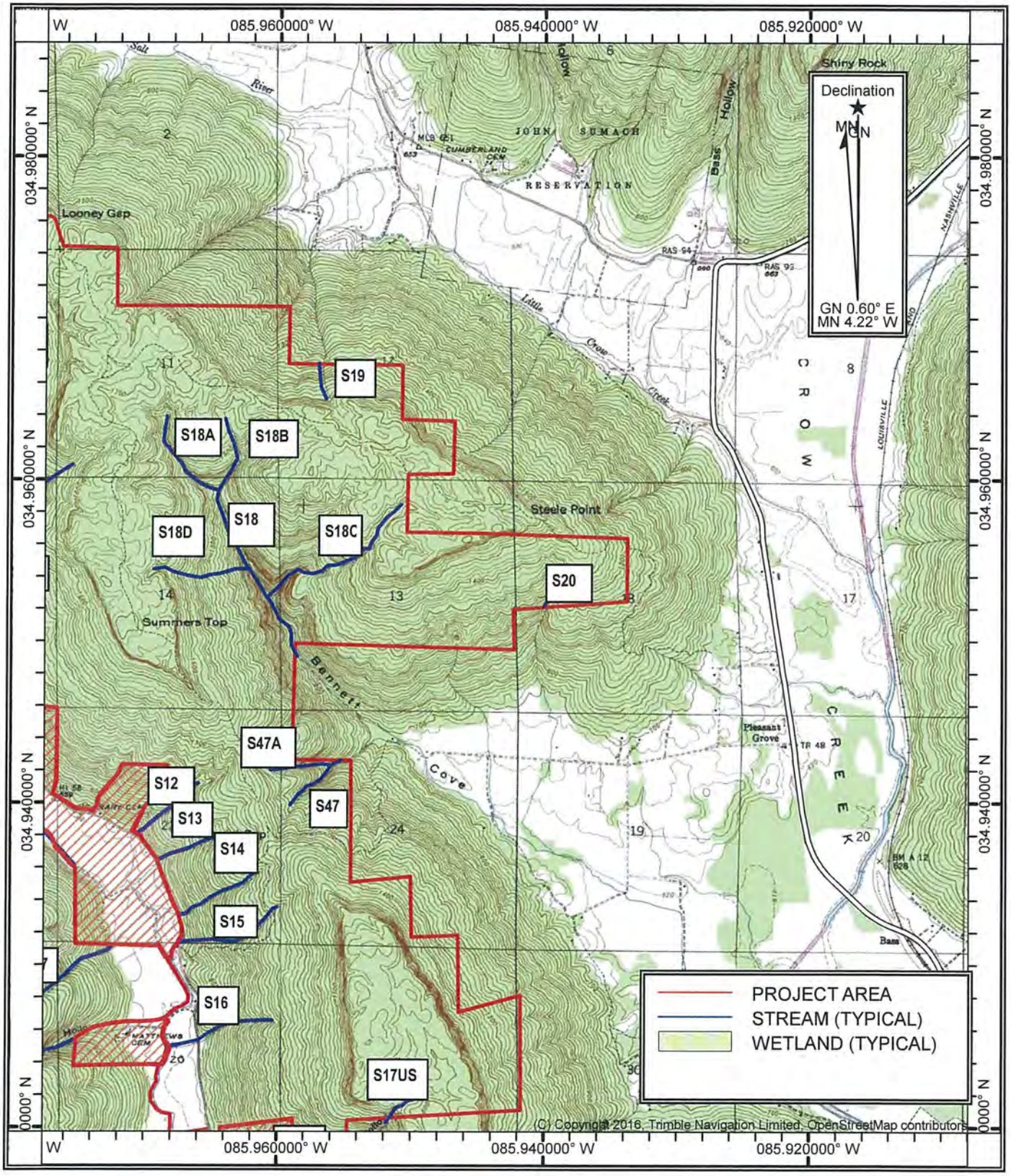
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
North-East Sector
Map 3 - 1:24000 Toporaphy - January 2108

Alabama Power

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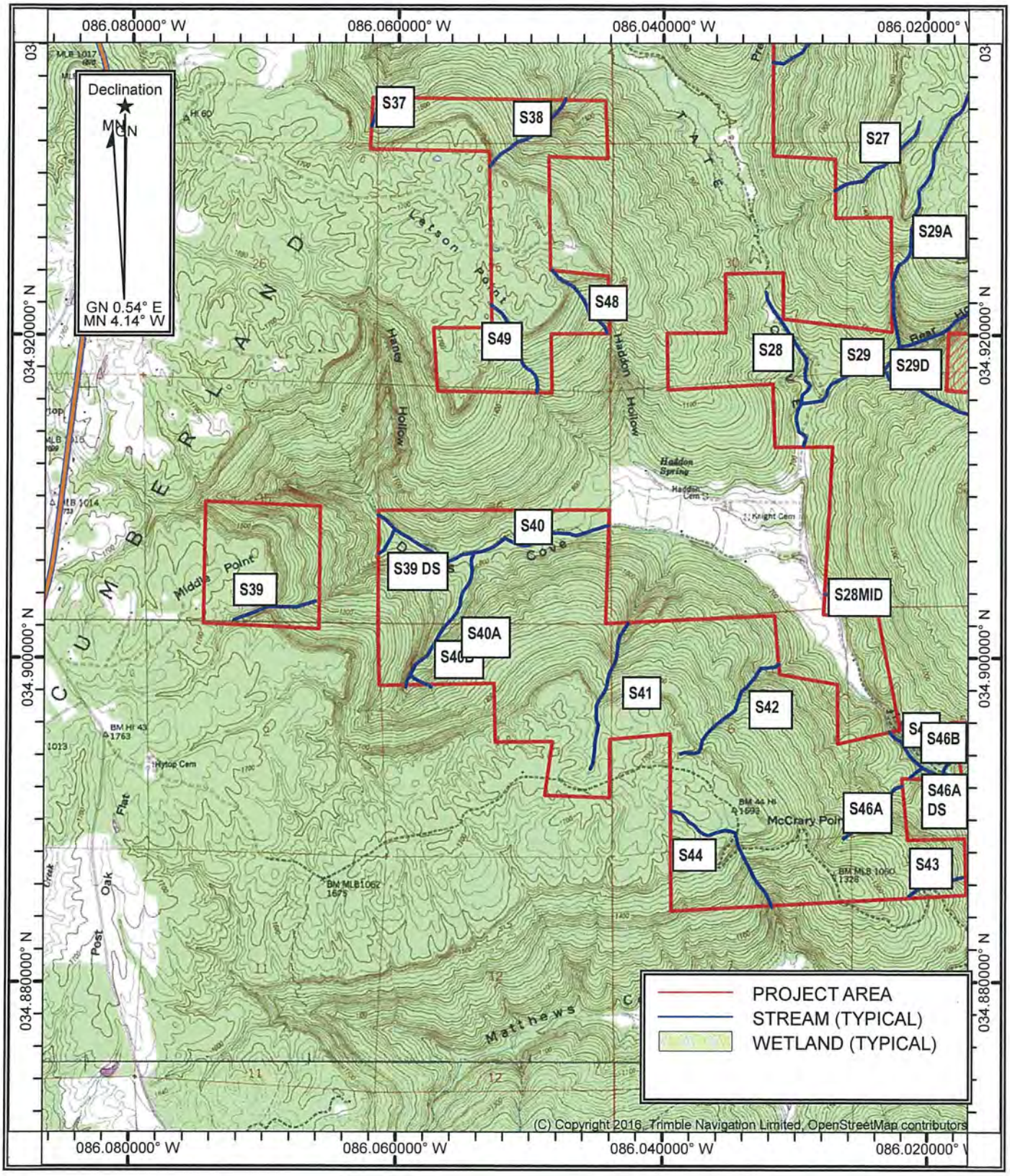

ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-West Sector
Map 4 - 1:24000 Toporaphy - January 2108

Alabama Power

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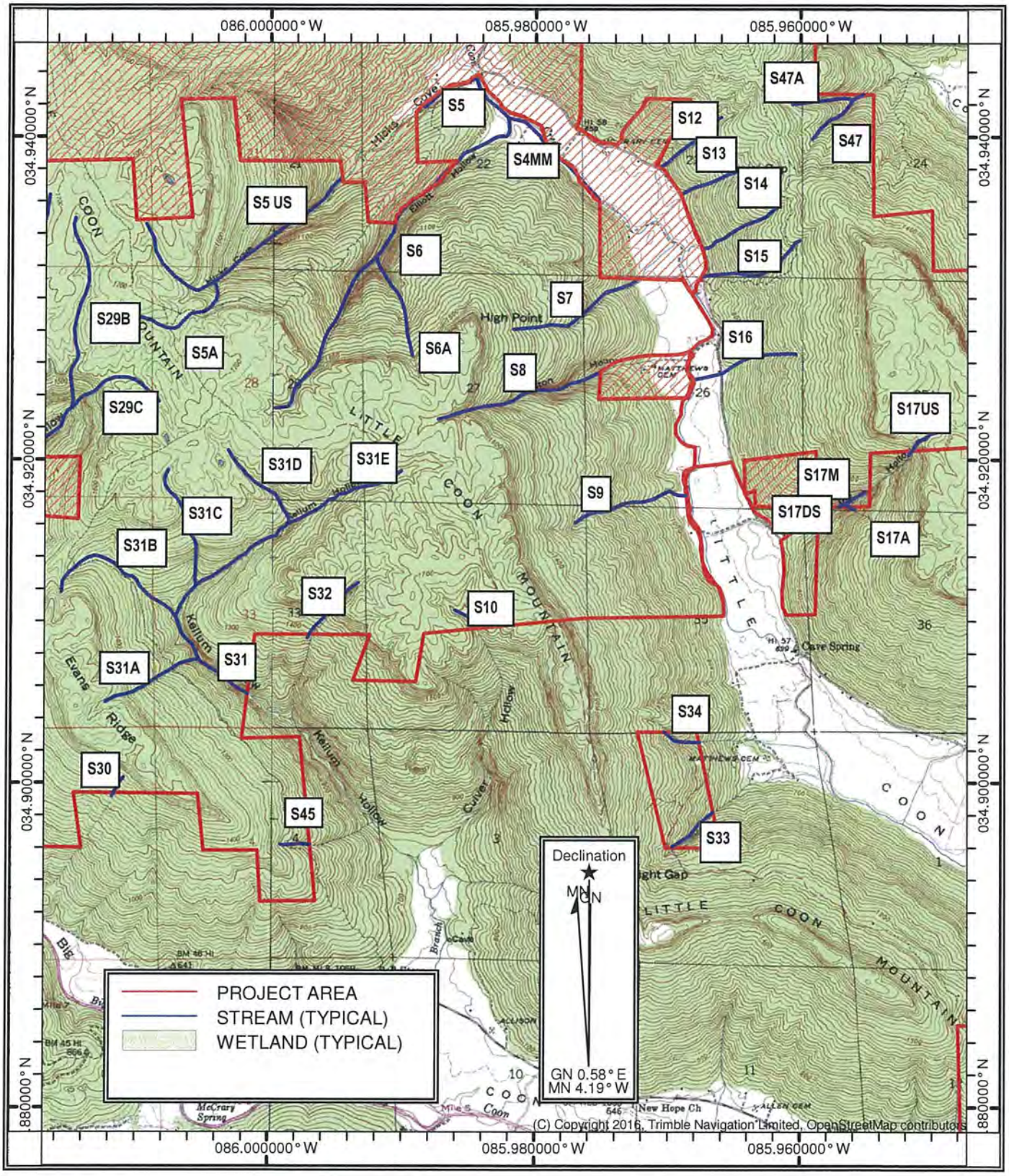
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-Center Sector
Map 5 - 1:24000 Toporaphy - January 2108

Alabama Power

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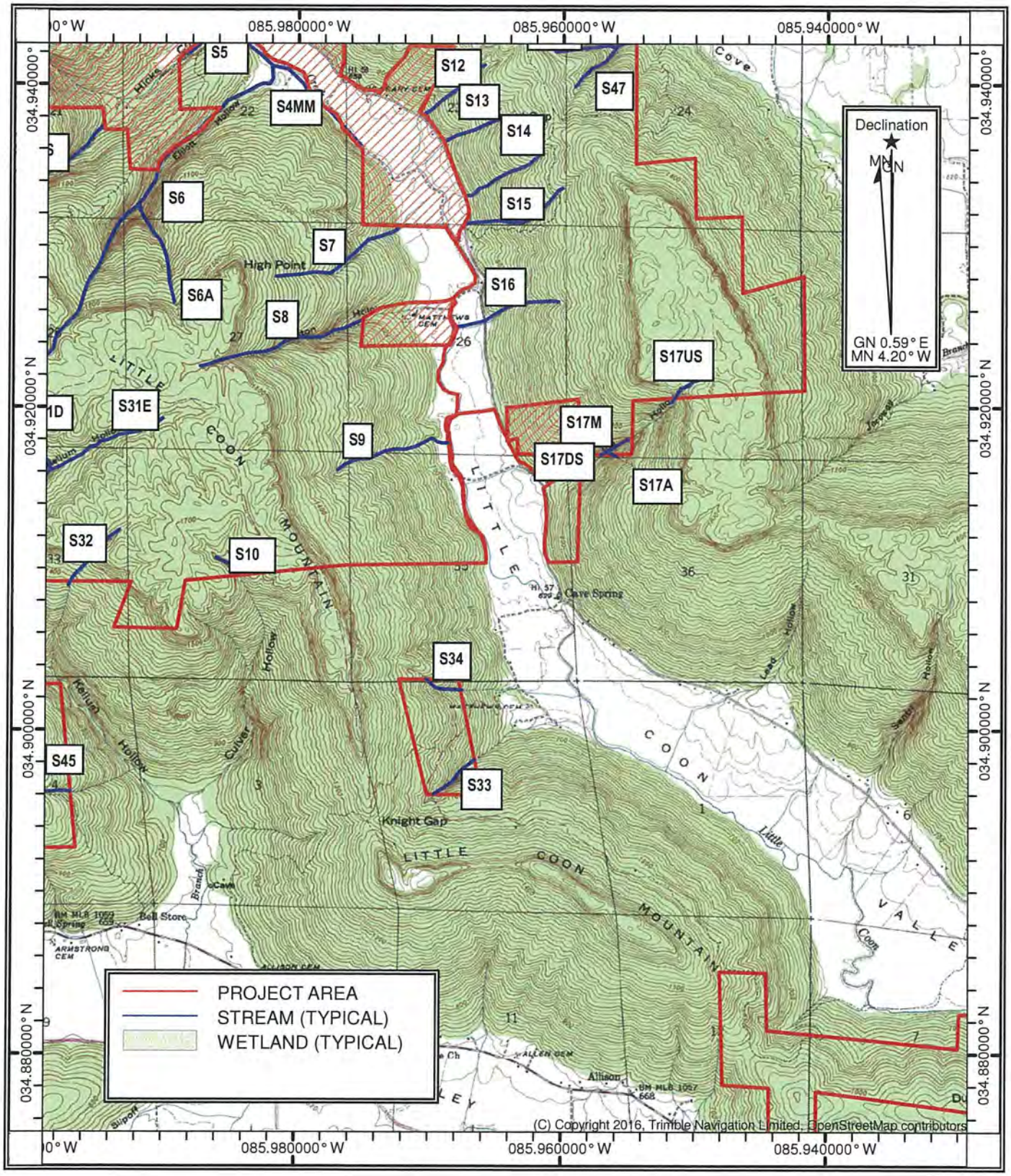

ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-East Sector
Map 6 - 1:24000 Toporaphy - January 2108

Alabama Power

SCALE 1:36112

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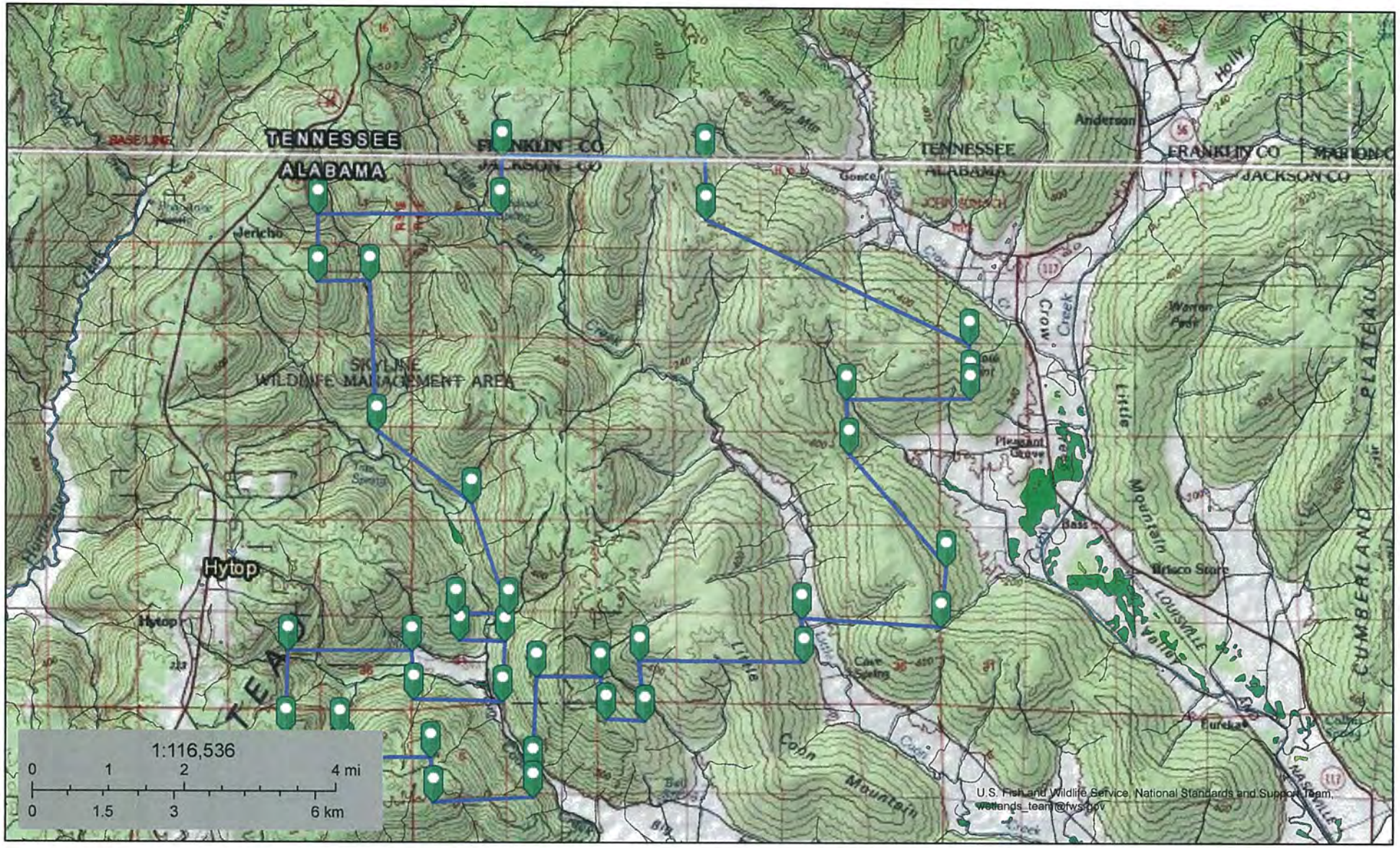
Feet

ATTACHMENT B
National Wetlands Inventory (NWI) Maps

U.S. Fish and Wildlife Service

National Wetlands Inventory

Sky Line WMA - RL Harris RL



January 5, 2018

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

Appendix O

ATTACHMENT C
Site Soil Types and Map

Appendix O

United States Department of Agriculture

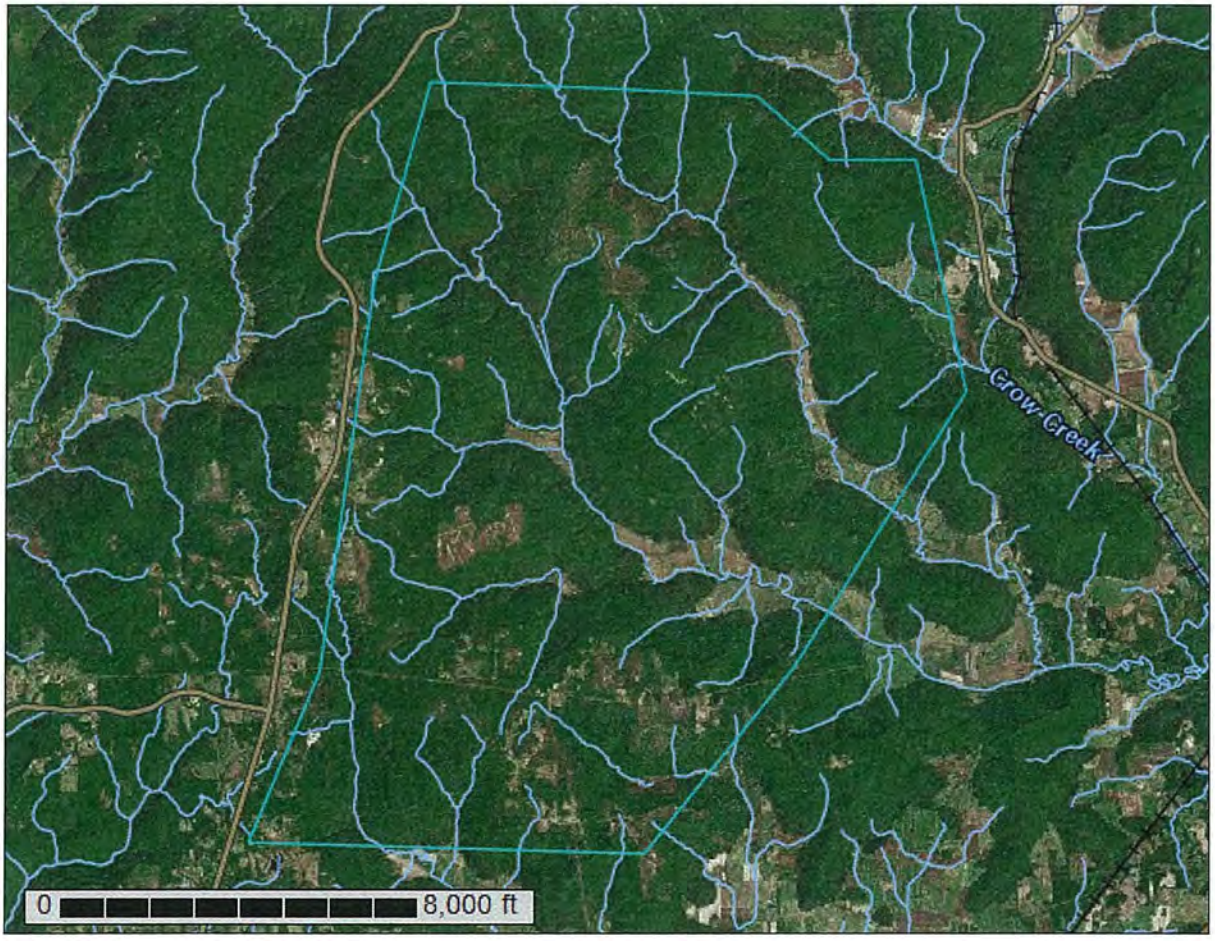
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Jackson County, Alabama

Wetland and Stream Assessment



January 2, 2018

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jackson County, Alabama
Survey Area Data: Version 9, Oct 6, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 12, 2011—Jan 4, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Appendix O

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ade	Allen fine sandy loam, eroded, undulating phase	125.2	0.2%
Adh	Allen fine sandy loam, eroded, hilly phase	14.5	0.0%
Adn	Allen fine sandy loam, eroded, rolling phase	159.5	0.3%
Ado	Allen fine sandy loam, rolling phase	45.4	0.1%
Adu	Allen fine sandy loam, undulating phase	112.4	0.2%
Af	Abernathy-Emory fine sandy loams, 0 to 2 percent slopes	5.5	0.0%
Ald	Allen loam, severely eroded, rolling phase	57.5	0.1%
Alr	Allen loam, severely eroded, hilly phase	2.5	0.0%
Asu	Emory-Abernathy silt loams, 0 to 6 percent slopes	1.8	0.0%
Asv	Abernathy-Emory silt loams, 0 to 2 percent slopes	4.6	0.0%
BC	Barbourville-Cotaco fine sandy loams	18.3	0.0%
Bf	Bruno fine sandy loam	355.9	0.7%
Bu	Bruno loamy fine sand	84.8	0.2%
Cmn	Cumberland silty clay loam, eroded, rolling phase	9.2	0.0%
CTd	Colbert-Talbott stony silty clay loams, severely eroded, rolling phases	11.1	0.0%
Cto	Colbert silty clay loam, rolling phase	11.8	0.0%
Ctu	Colbert silty clay loam, undulating phase	1.3	0.0%
Du	Dunning silty clay	17.0	0.0%
Ede	Enders silt loam, eroded, undulating phase	4.1	0.0%
Edo	Enders silt loam, rolling phase	56.0	0.1%
Eg	Egam silt loam	60.4	0.1%
Esu	Etowah silt loam, 2 to 6 percent slopes	9.7	0.0%
Ewu	Etowah loam, 2 to 6 percent slopes	113.3	0.2%
Ewv	Etowah loam, 0 to 2 percent slopes	7.3	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Fch	Fullerton gravelly silt loam, 12 to 25 percent slopes, eroded	7.4	0.0%
Fcn	Fullerton gravelly silt loam, 5 to 12 percent slopes, eroded	4.4	0.0%
Fco	Fullerton gravelly silt loam, 5 to 12 percent slopes	0.0	0.0%
Fcu	Fullerton gravelly silt loam, 2 to 5 percent slopes	6.1	0.0%
Hcv	Hollywood silty clay, level phase	49.9	0.1%
Hfa	Hartsells fine sandy loam, eroded, rolling shallow phase	36.2	0.1%
Hfe	Hartsells (Wynnville) fine sandy loam, 2 to 6 percent slopes, eroded	4.8	0.0%
Hfg	Hartsells fine sandy loam, rolling, shallow phase	1,349.9	2.6%
Hfm	Hartsells fine sandy loam, undulating, shallow phase	2.7	0.0%
Hfn	Hartsells (Nauvoo) fine sandy loam, 6 to 10 percent slopes, eroded	181.9	0.4%
Hfo	Hartsells (Nauvoo) fine sandy loam, 6 to 10 percent slopes	6,623.4	13.0%
Hfu	Hartsells fine sandy loam, undulating phase	1,151.2	2.3%
Hl	Huntington silt loam	161.8	0.3%
Hno	Hanceville fine sandy loam, rolling phase	62.8	0.1%
Hnu	Hanceville fine sandy loam, undulating phase	12.1	0.0%
HsM	Hilly stony land	35.4	0.1%
Hth	Hermitage cherty silty clay loam, eroded, hilly phase	2.2	0.0%
Huu	Holston loam, 2 to 5 percent slopes	61.1	0.1%
Huv	Holston loam, level phase	58.9	0.1%
JAh	Jefferson-Allen loams, eroded, hilly phases	26.4	0.1%
JAl	Jefferson-Allen loams, hilly phases	119.0	0.2%
JAn	Jefferson-Allen loams, eroded, rolling phases	70.8	0.1%
JAr	Jefferson-Allen loams, severely eroded, hilly phases	422.0	0.8%
JAs	Jefferson-Allen loams, severely eroded, steep phases	72.6	0.1%
JAz	Jefferson-Allen loams, steep phases	148.5	0.3%

Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Jfe	Jefferson fine sandy loam, eroded, undulating phase	137.3	0.3%
Jfn	Jefferson fine sandy loam, eroded, rolling phase	89.7	0.2%
Jfo	Jefferson fine sandy loam, rolling phase	241.4	0.5%
Jfu	Jefferson fine sandy loam, undulating phase	312.3	0.6%
Lh	Limestone rockland, hilly	449.4	0.9%
Ll	Lindside silt loam	577.4	1.1%
Lr	Limestone rockland rough	16,451.0	32.2%
Mfh	Muskingum (Gorgas) fine sandy loam, 10 to 20 percent slopes, eroded	109.7	0.2%
Mfl	Muskingum (Gorgas) fine sandy loam, 10 to 20 percent slopes	2,028.5	4.0%
Ml	Melvin silt loam	193.3	0.4%
Mnu	Monongahela loam, undulating phase	4.7	0.0%
Mo	Melvin silty clay loam	20.2	0.0%
Msl	Muskingum (Gorgas) stony fine sandy loam, 10 to 20 percent slopes, very stony	3,464.6	6.8%
Msz	Muskingum (Gorgas) stony fine sandy loam, 20 to 45 percent slopes, very stony	1,459.7	2.9%
Os	Ooltewah silt loam	8.7	0.0%
PA	Philo-Atkins silt loams	3.0	0.0%
RgD	Rough gullied land, Dewey, Cumberland, and Colbert soil material	24.0	0.0%
RlM	Rolling stony land, Muskingum soil material	20.4	0.0%
RsC	Rolling stony land, Colbert soil material	82.6	0.2%
RsM	Rough stony land, Muskingum soil material	12,775.3	25.0%
Sce	Swaim silty clay loam, eroded, undulating phase	7.3	0.0%
Scn	Swaim silty clay loam, eroded, rolling phase	36.5	0.1%
Sco	Swaim silty clay loam, rolling phase	43.9	0.1%
Scu	Swaim silty clay loam, undulating phase	25.5	0.0%
Sfu	Sequatchie fine sandy loam, undulating phase	48.9	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Sfv	Sequatchie fine sandy loam, level phase	98.3	0.2%
St	Sturkie fine sandy loam	227.7	0.4%
StM	Stony alluvium	170.9	0.3%
Tcn	Talbott silty clay loam, eroded, rolling phase	16.5	0.0%
Tuv	Tupelo silt loam, level phase	17.5	0.0%
W	Water	16.0	0.0%
Wsu	Wolftever silt loam, undulating phase	3.6	0.0%
Wsv	Wolftever silt loam, level phase	7.9	0.0%
Totals for Area of Interest		**51,134.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

ATTACHMENT D
Representative Stream Description Forms and Photographs

Skyline Wildlife Management Area

Typical Stream # 36

Inspection Date: 12/30/2017 **Latitude**: 34. 9398

Stream Length: 2121' **Stream Width:** 6' **Longitude:** -86.0780

Stream Type: ☐ Perennial ☐ Intermittent ☒ Ephemeral

Stream Quality: ☒ Good ☐ Moderate ☐ Poor

Substrate: ☐ Bedrock ☒ Boulders ☒ Cobble ☐ Gravel/Soil

Notes: Typical steep ephemeral stream flowing north; continuous bed and bank with no groundwater influences. No flow occurring

Skyline Wildlife Management Area

Typical Stream # 36

Inspection Date: 12/30/2017 **Latitude**: 34. 9435

Stream Length: 2121' **Stream Width:** 8.5' **Longitude:** -86.0755

Stream Type: ☐ Perennial ☒ Intermittent ☐ Ephemeral

Stream Quality: ☐ Good ☐ Moderate ☒ Poor

Substrate: ☒ Bedrock ☐ Boulders ☒ Cobble ☒ Gravel/Soil

Notes: Intermittent section of stream flowing south-east; continuous bed and bank with groundwater influences. Stream is in steep valley with rock out crops. Minimal flow was occurring.

Skyline Wildlife Management Area

Typical Stream # 21 Downstream-off site

Inspection Date: 12/30/2017 **Latitude**: 34. 9428

Stream Length: NA **Stream Width: 25'** **Longitude:** -86.0488

Stream Type: ☒ Perennial ☐ Intermittent ☐ Ephemeral

Stream Quality: ☒ Good ☐ Moderate ☒ Poor

Substrate: ☐ Bedrock ☒ Boulders ☒ Cobble ☒ Gravel/Soil

Notes: Perennial receiving water from project streams. The stream is flowing south-east; continuous bed and bank with groundwater influences. Previously disturbed with roadway through stream. Small fish and macroinvertebrates present.

Skyline Wildlife Management Area

Typical Stream # 24

Inspection Date: 12/30/2017 **Latitude**: 34. 9426

Stream Length: 1287' **Stream Width:** 15' **Longitude:** -86.0438

Stream Type: ☐ Perennial ☒ Intermittent ☐ Ephemeral

Stream Quality: ☐ Good ☒ Moderate ☐ Poor

Substrate: ☐ Bedrock ☐ Boulders ☒ Cobble ☒ Gravel/Soil

Notes: Intermittent stream flowing south; stream is a tributary to a perennial stream. It possesses continuous bed and bank with groundwater influences and surface run-off.

Skyline Wildlife Management Area

Typical Stream # 13

Inspection Date: 12/30/2017 **Latitude**: 34. 9366

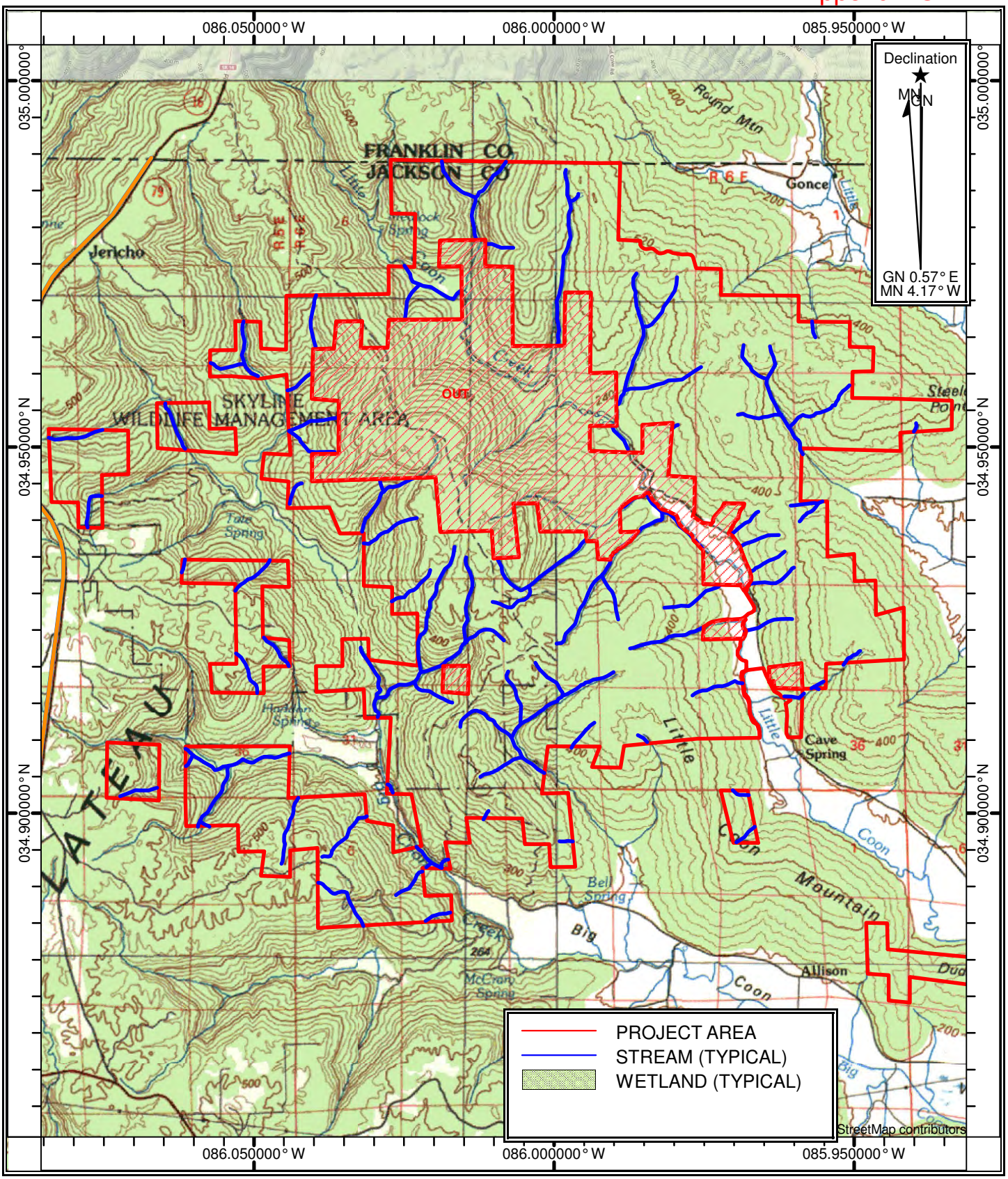
Stream Length: 2106' **Stream Width:** 12' **Longitude:** -85.9690

Stream Type: ☐ Perennial ☐ Intermittent ☒ Ephemeral

Stream Quality: ☐ Good ☐ Moderate ☒ Poor

Substrate: ☐ Bedrock ☐ Boulders ☒ Cobble ☒ Gravel/Soil

Notes: Ephemeral stream flowing west; continuous bed and bank with surface water run-off. Stream is a tributary to perennial stream. No flow occurring.

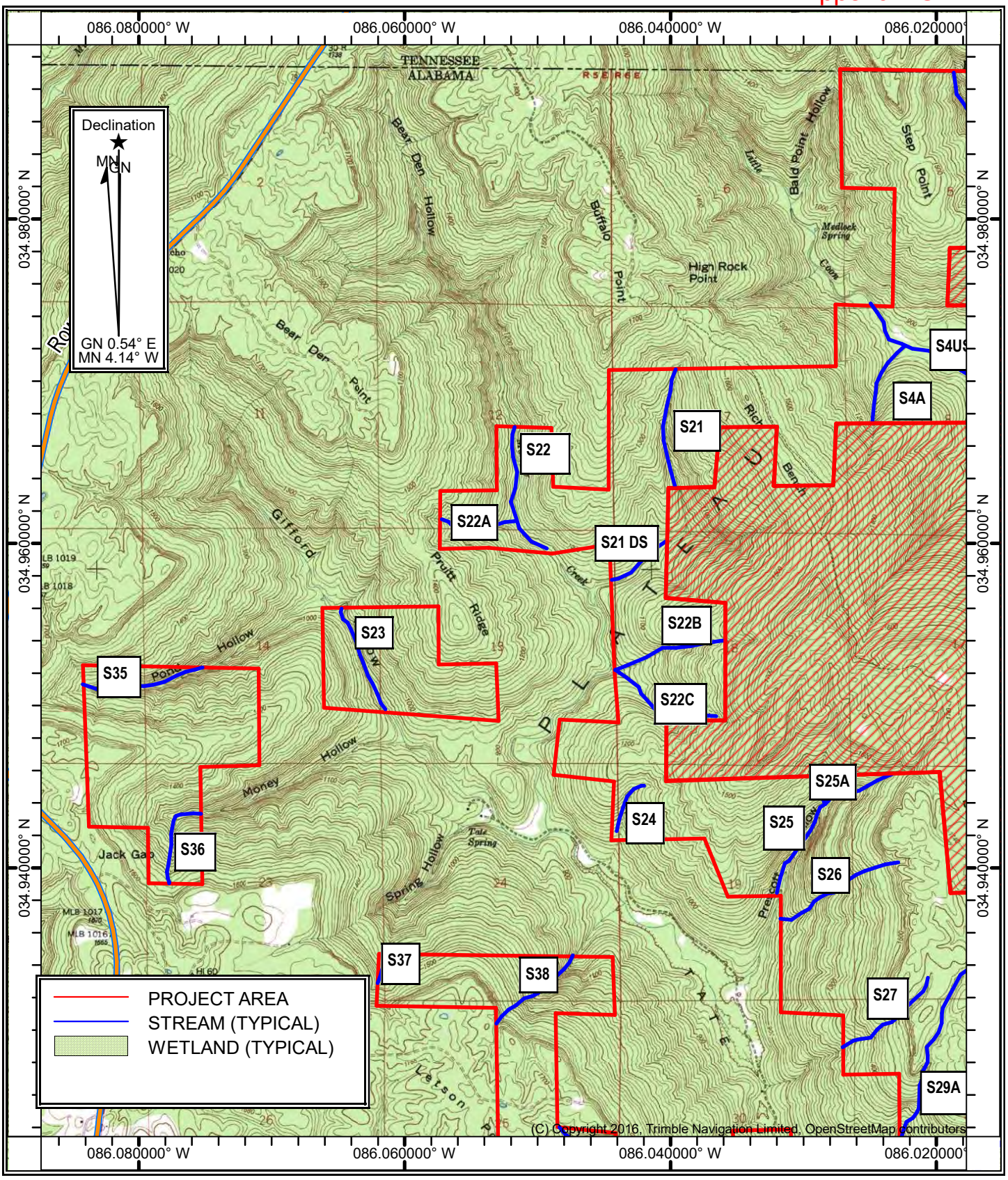


ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-East Sector
Project Map - 1:24000 Toporaphy - January 2018

Alabama Power

SCALE 1:80000

0 10000
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
North-West Sector
Map 1 - 1:24000 Toporaphy - January 2018

Alabama Power

SCALE 1:36112

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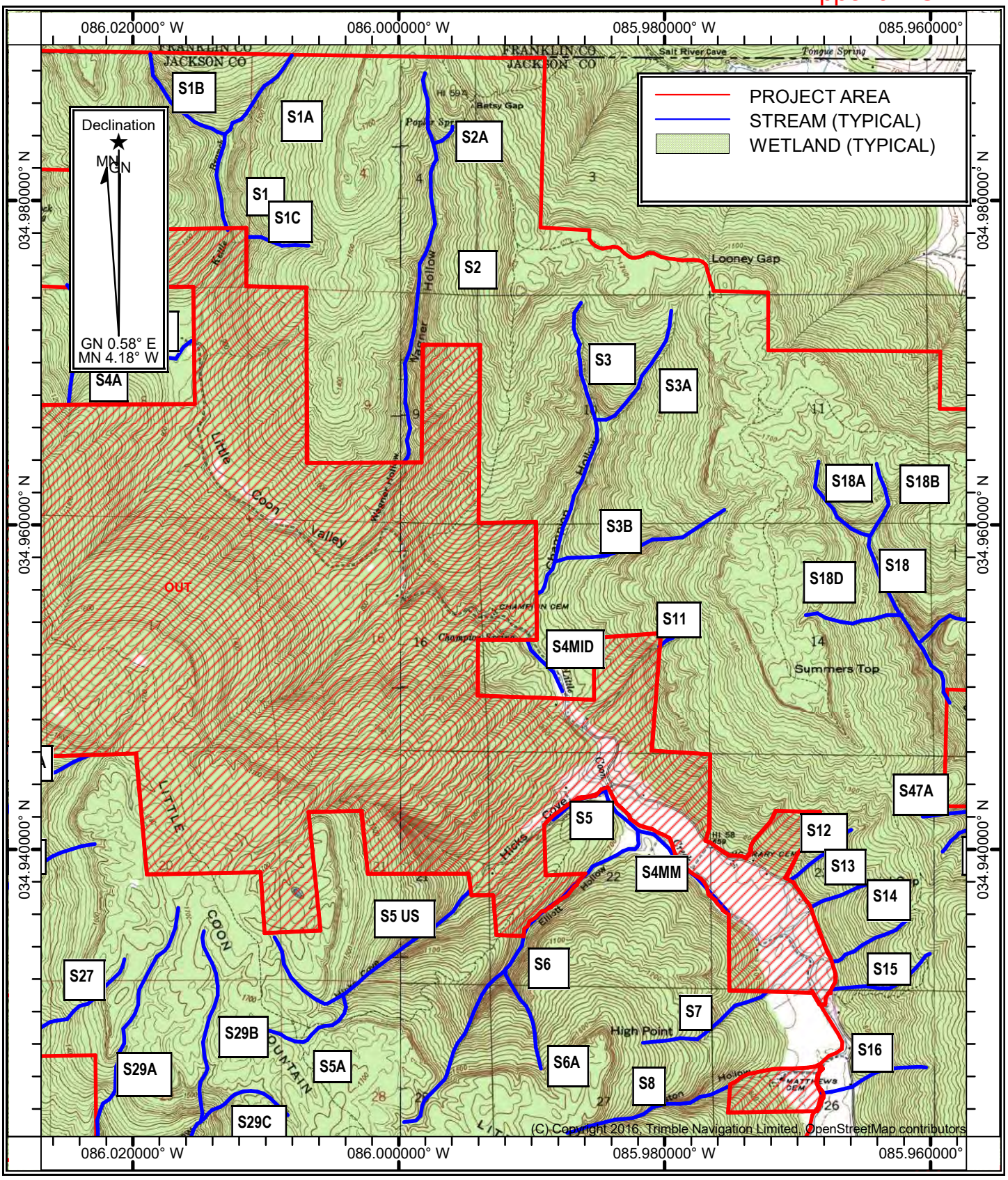
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
North-Center Sector
Map 2 - 1:24000 Toporaphy - January 2018

Alabama Power

SCALE 1:36112

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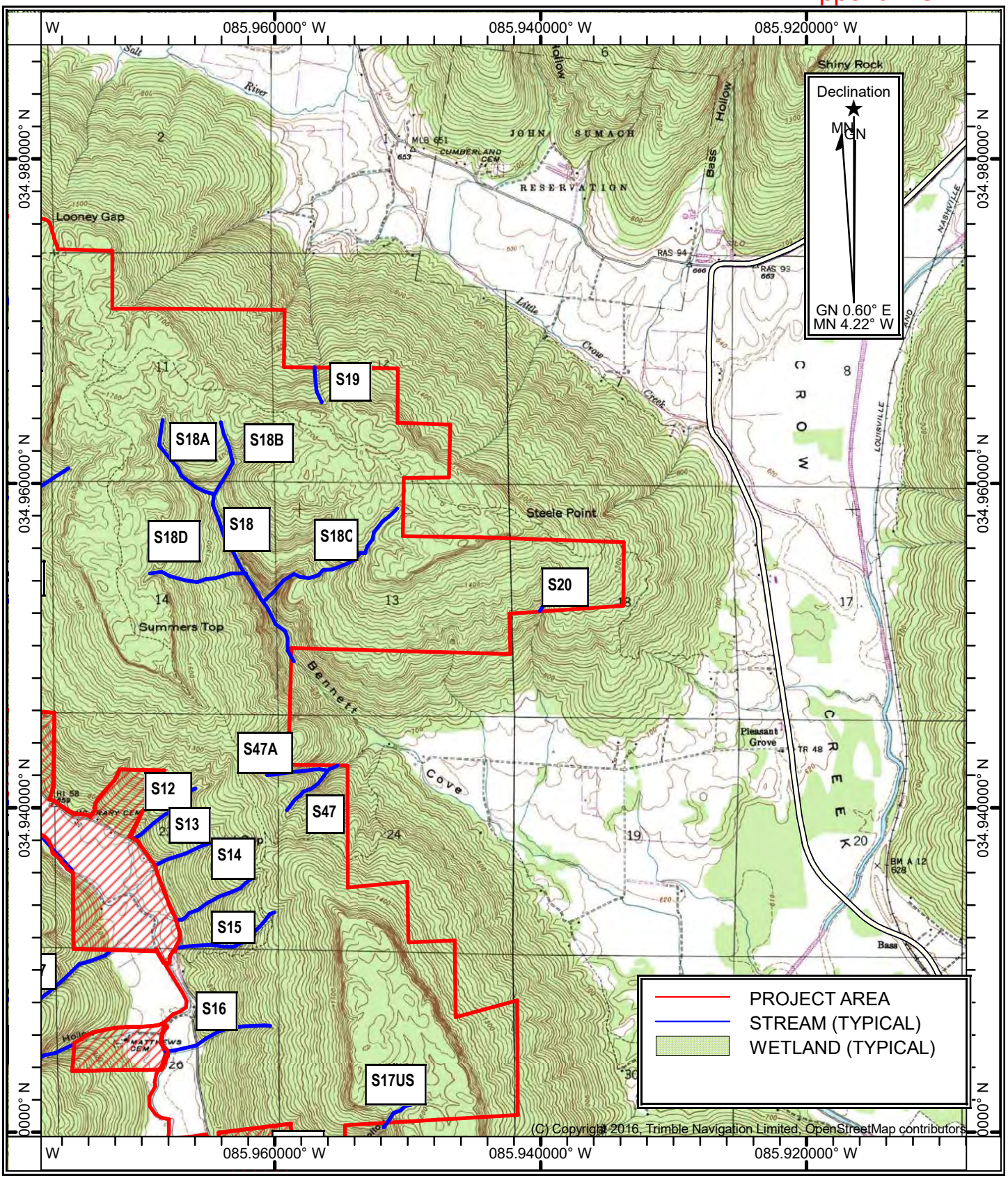
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
North-East Sector
Map 3 - 1:24000 Toporaphy - January 2018

Alabama Power

SCALE 1:36112

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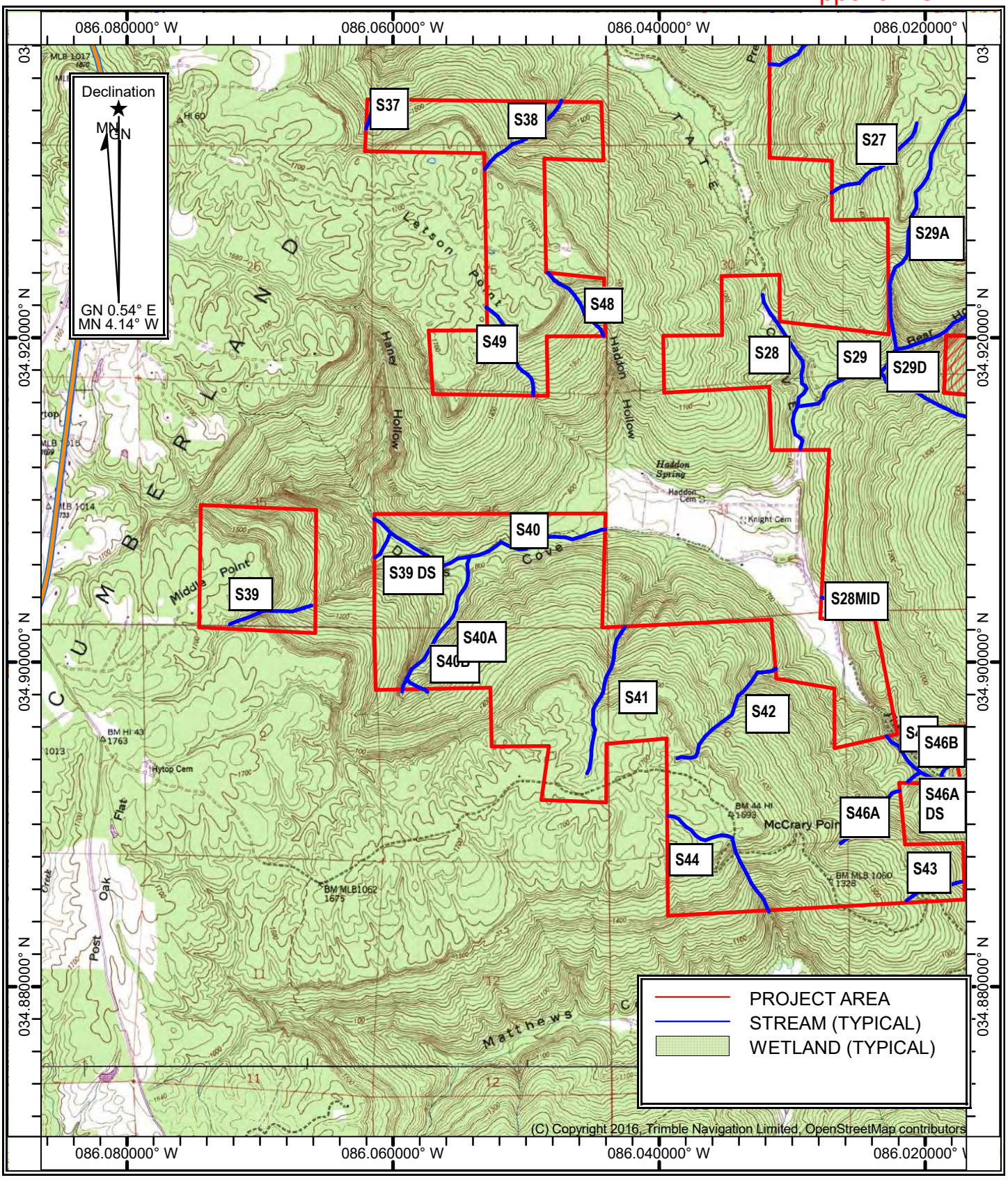
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-West Sector
Map 4 - 1:24000 Toporaphy - January 2018

Alabama Power

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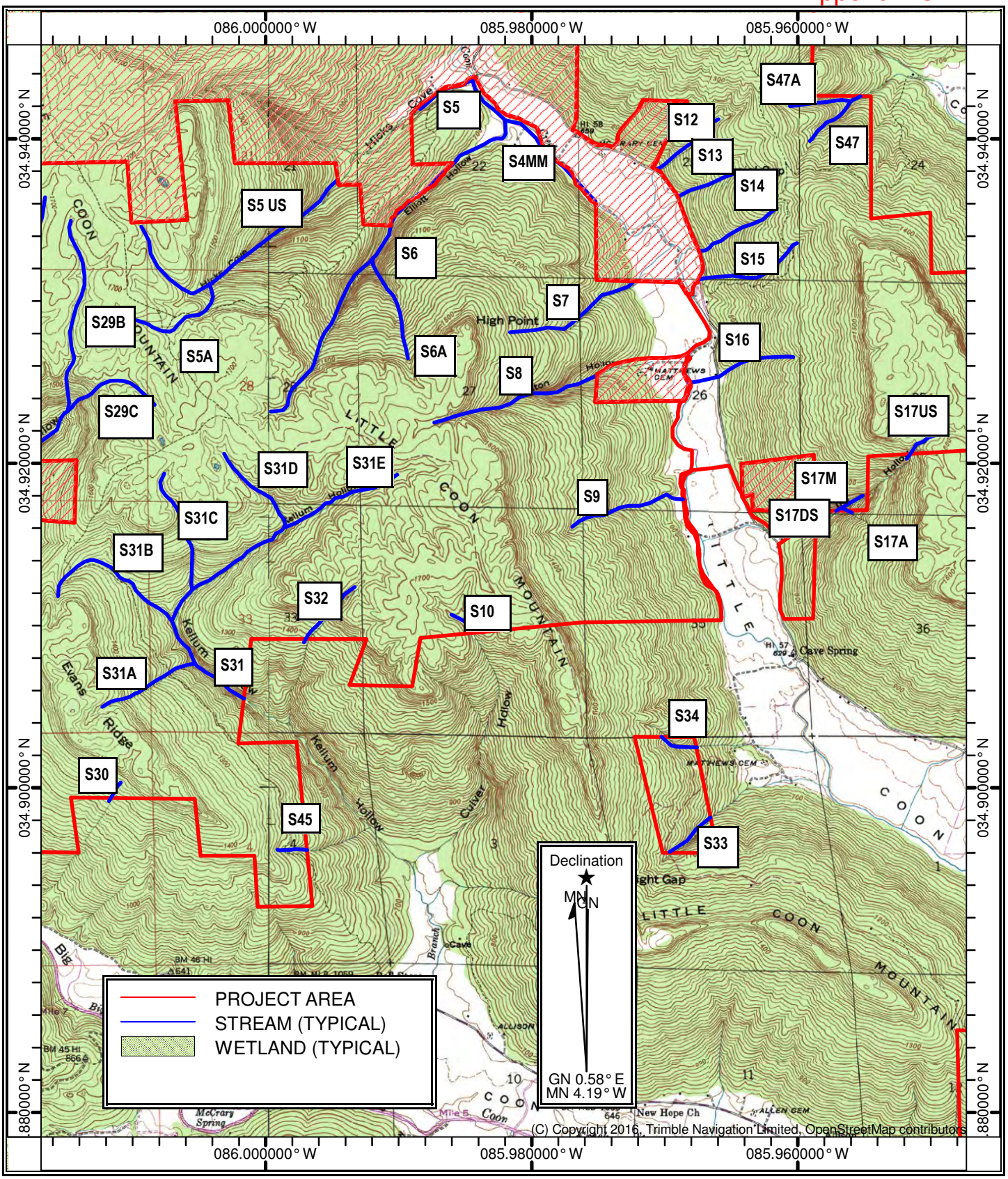
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-Center Sector
Map 5 - 1:24000 Toporaphy - January 2018

Alabama Power

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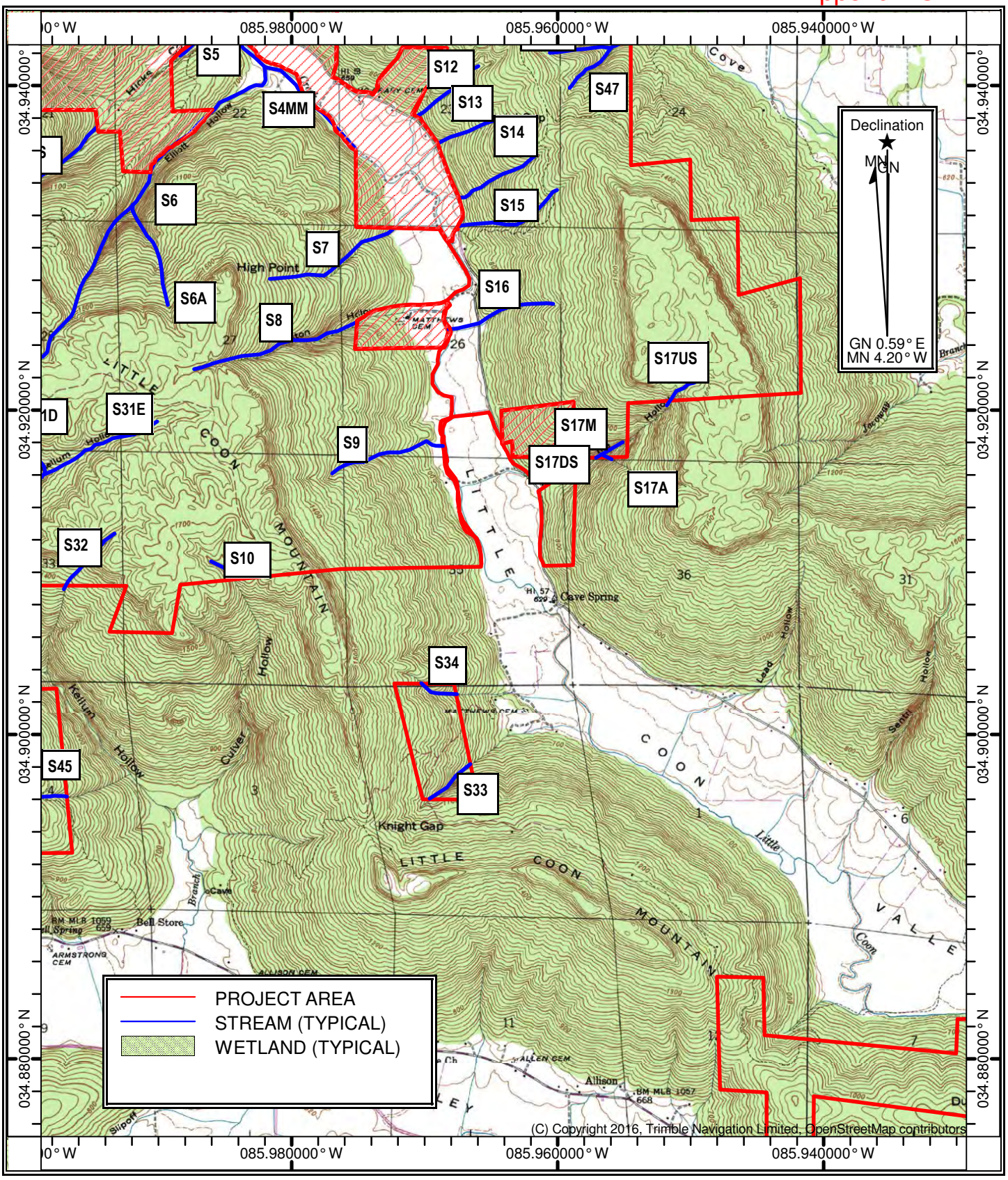
Feet



ALABAMA POWER COMPANY
RL Harris Relicense FERC - 2628
Wetland and Stream Assessment
South-East Sector
Map 6 - 1:24000 Toporaphy - January 2018

Alabama Power

SCALE 1:36112

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Feet

Appendix P
Representative Terrestrial Species Potentially Occurring in the Harris Project Vicinity

Table 1: Representative Riparian and Littoral Botanical Species Potentially Occurring in the Lake Harris Vicinity

FAMILY	SCIENTIFIC NAME	COMMON NAME
Aceraceae	*Acer barbatum*	southern sugar maple
Aceraceae	*Acer leucoderme*	chalk maple
Aceraceae	*Acer negundo*	box elder
Aceraceae	*Acer rubrum*	red maple
Aceraceae	*Acer saccharum*	sugar maple
Aquifoliaceae	*Ilex decidua*	possumhaw
Aquifoliaceae	*Ilex vomitoria*	yaupon holly
Araceae	*Arisaema triphyllum*	jack-in-the-pulpit
Aristolochiaceae	*Hexastylis arifolia*	littlebrownjug
Aspleniaceae	*Asplenium montanum*	mountain spleenwort
Aspleniaceae	*Asplenium ruta-muraria*	wall rue
Asteraceae	*Coreopsis major*	greater tickseed
Asteraceae	*Pityopsis graminifolia*	narrowleaf silkgrass
Asteraceae	*Verbesina alternifolia*	crownbeard
Betulaceae	*Betula nigra*	river birch
Caprifoliaceae	*Symphoricarpos orbiculatus*	coralberry
Caprifoliaceae	*Viburnum acerifolium*	mapleleaf viburnum
Caryophyllaceae	*Silene rotundifolia*	roundleaf catchfly
Celastraceae	*Euonymus americanus*	bursting-heart
Cornaceae	*Cornus florida*	flowering dogwood
Cupressaceae	*Juniperus virginiana*	eastern red cedar
Cupressaceae	*Thuja occidentalis*	northern white cedar
Cyperaceae	*Carex crinita*	fringed sedge
Cyperaceae	*Carex picta*	Boott's sedge
Diapensiaceae	*Galax urceolata*	wandflower
Dryopteridaceae	*Athyrium filix-femina ssp. Asplenioides*	southern lady fern
Dryopteridaceae	*Onoclea sensibilis*	sensitive fern
Ericaceae	*Gaylussacia baccata*	black huckleberry
Ericaceae	*Gaylussacia ursina*	bear huckleberry
Ericaceae	*Vaccinium angustifolium*	lowbush blueberry
Ericaceae	*Vaccinium arboretum*	farkleberry
Ericaceae	*Vaccinium pallidum*	hillside blueberry
Ericaceae	*Vaccinium stamineum*	deerberry
Ericaceae	*Vaccinium stamineum*	deerberry
Ericaceae	*Kalmia latifolia*	mountain laurel
Ericaceae	*Rhododendron catawbiense*	purple rhododendron
Fabaceae	*Tephrosia virginiana*	goat's rue
Fabaceae	*Desmodium nudiflorum*	nakedflower tick trefoil
Fabaceae	*Robinia pseudoacacia*	black locust
Fagaceae	*Castanea dentate*	American chestnut
Fagaceae	*Fagus grandifolia*	American beech

FAMILY	SCIENTIFIC NAME	COMMON NAME
Fagaceae	*Quercus alba*	white oak
Fagaceae	*Quercus coccinea*	scarlet oak
Fagaceae	*Quercus falcate*	southern red oak
Fagaceae	*Quercus michauxii*	swamp chestnut oak
Fagaceae	*Quercus muehlenbergii*	chinkapin oak
Fagaceae	*Quercus pagoda*	cherrybark oak
Fagaceae	*Quercus prinus*	chestnut oak
Fagaceae	*Quercus rubra*	red oak
Fagaceae	*Quercus shumardii*	Shumard's oak
Fagaceae	*Quercus stellate*	post oak
Fagaceae	*Quercus velutina*	black oak
Hamamelidaceae	*Hamamelis virginiana*	American witch-hazel
Hamamelidaceae	*Liquidambar styraciflua*	American sweetgum
Hippocastanaceae	*Aesculus sylvatica*	painted buckeye
Hydrangeaceae	*Hydrangea quercifolia*	oakleaf hydrangea
Iridaceae	*Iris verna var. smalliana*	dwarf violet iris
Juglandaceae	*Carya alba*	mockernut hickory
Juglandaceae	*Carya glabra*	pignut hickory
Juglandaceae	*Juglans nigra*	eastern black walnut
Lauraceae	*Lindera benzoin*	spicebush
Magnoliaceae	*Liriodendron tulipifera*	tulip tree
Magnoliaceae	*Magnolia acuminate*	cucumber tree
Oleaceae	*Fraxinus Americana*	white ash
Oleaceae	*Fraxinus pennsylvanica*	green ash
Pinaceae	*Pinus echinata*	shortleaf pine
Pinaceae	*Pinus echinata*	Shortleaf pine
Pinaceae	*Pinus rigida*	pitch pine
Pinaceae	*Pinus strobus*	white pine
Pinaceae	*Pinus taeda*	loblolly pine
Pinaceae	*Pinus virginiana*	Virginia pine
Platanaceae	*Platanus occidentalis*	American sycamore
Poaceae	*Chasmanthium sessiliflorum*	longleaf woodoats
Poaceae	*Piptochaetium avenaceum*	black seed speargrass
Poaceae	*Danthonia spicata*	poverty oatgrass
Poaceae	*Schizachyrium scoparium*	little bluestem
Pteridaceae	*Adiantum pedatum*	northern maidenhair
Pteridaceae	*Pellaea atropurpurea*	purple cliffbrake
Ranunculaceae	*Actaea racemose*	black cohosh
Rubiaceae	*Galium circaezans*	licorice bedstraw
Rubiaceae	*Houstonia purpurea*	Venus' pride
Saxifragaceae	*Saxifraga virginiensis*	early saxifrage
Saxifragaceae	*Heuchera* spp	coral bell
Staphyleaceae	*Staphylea trifolia*	bladdernut
Symplocaceae	*Symplocos tinctoria*	common sweetleaf

FAMILY	SCIENTIFIC NAME	COMMON NAME
Tiliaceae	*Tilia Americana*	American basswood
Ulmaceae	*Celtis laevigata*	sugarberry

Source: NatureServe 2009

Table 2: Representative Botanical Species Potentially Occurring in the Skyline Vicinity

FAMILY	SCIENTIFIC NAME	COMMON NAME
Acanthaceae	*Justicia americana*	American water-willow
Aceraceae	*Acer negundo*	box elder
Aceraceae	*Acer rubrum*	red maple
Aceraceae	*Ageratina altissima*	white snakeroot
Anacardiaceae	*Toxicodendron radicans*	eastern poison ivy
Annonaceae	*Asimina triloba*	pawpaw
Aquifoliaceae	*Ilex decidua*	possumhaw
Aquifoliaceae	*Ilex vomitoria*	yaupon holly
Araceae	*Arisaema triphyllum*	jack-in-the-pulpit
Asteraceae	*Eupatorium serotinum*	late flowering thoroughwort
Asteraceae	*Eurybia mirabilis*	bouquet aster
Asteraceae	*Rudbeckia auriculata*	eared coneflower
Asteraceae	*Solidago plumosa*	plumed goldenrod
Betulaceae	*Carpinus caroliniana*	American hornbeam
Betulaceae	*Betula nigra*	river birch
Boraginaceae	*Mertensia virginica*	Virginia bluebells
Cyperaceae	*Carex blanda*	eastern woodland sedge
Cyperaceae	*Carex crinita*	fringed sedge
Cyperaceae	*Carex grayi*	Gray's sedge
Cyperaceae	*Carex typhina*	cattail sedge
Cyperaceae	*Cyperus squarrosus*	bearded flatsedge
Dryopteridaceae	*Onoclea sensibilis*	sensitive fern
Ericaceae	*Kalmia latifolia*	mountain laurel
Fagaceae	*Fagus grandifolia*	American beech
Fagaceae	*Quercus michauxii*	swamp chestnut oak
Fagaceae	*Quercus pagoda*	cherrybark oak
Hamamelidaceae	*Hamamelis virginiana*	American witch-hazel
Hamamelidaceae	*Liquidambar styraciflua*	American sweetgum
Lauraceae	*Lindera benzoin*	spicebush
Magnoliaceae	*Liriodendron tulipifera*	tulip tree
Oleaceae	*Fraxinus pennsylvanica*	green ash
Onagraceae	*Ludwigia palustris*	marsh seedbox
Pinaceae	*Pinus taeda*	loblolly pine
Pinaceae	*Pinus virginiana*	Virginia pine
Platanaceae	*Platanus occidentalis*	American sycamore
Poaceae	*Chasmanthium latifolium*	Indian woodoats
Poaceae	*Eragrostis hypnoides*	teal lovegrass
Poaceae	*Elymus hystrix*	eastern bottlebrush grass
Poaceae	*Elymus virginicus*	Virginia wildrye
Polygonaceae	*Polygonum lapathifolium*	curlytop knotweed
Polygonaceae	*Polygonum pensylvanicum*	Pennsylvania smartweed
Polygonaceae	*Polygonum punctatum*	dotted smartweed

FAMILY	SCIENTIFIC NAME	COMMON NAME
Ranunculaceae	*Xanthorihiza simplicissima*	yellowroot
Salicaceae	*Salix nigra*	black willow
Scrophulariaceae	*Lindernia dubia*	yellowseed false pimpernel
Ulmaceae	*Celtis laevigata*	sugarberry
Urticaceae	*Boehmeria cylindrica*	smallspike false nettle
Urticaceae	*Laportea canadensis*	Canadian woodnettle

Source: NatureServe 2009

Appendix Q
Alabama Power Shoreline Permitting Guidelines

GENERAL GUIDELINES FOR RESIDENTIAL SHORELINE PERMITTING & PERMIT TERMS AND CONDITIONS

LAKE HARRIS

FERC Project No. 2628

Corporate Real Estate – Shoreline Management
P.O. Box 488
Wedowee, AL 36278

SHEILA C. SMITH, SHORELINE MANAGER
CRYSTAL WHITE, REAL ESTATE SPECIALIST
(256) 396-5093 (Office)
(256) 231-3294 (Fax)

To apply for a permit please call:

(256) 396-5093

FOR LAKE INFORMATION, PLEASE CALL (256) 396-5093
or visit Alabama Power's website https://apcshorelines.com/

LAKE	FULL POOL (SUMMER) LEVELS	APC FEE OWNERSHIP	SCENIC EASEMENT
HARRIS	793' MSL	795' MSL	800' MSL(or 50' linear from 793' MSL in specified areas)

PURPOSE

The purpose of these guidelines is to help you understand Alabama Power Company's policies and parameters for residential permitting activities on and around lakes managed by Alabama Power Company. Alabama Power Company owns the pool property of these lakes and in some areas has additional property rights along the shoreline ("Project Lands and/or waters") and has constructed and is maintaining and operating dams on these lakes for the purpose of generating electrical energy under licenses issued by the Federal Energy Regulatory Commission ("FERC"). The FERC licenses authorize Alabama Power Company to institute a system of permits for certain activities and uses of the Project Lands and/or waters. **These guidelines are not intended to be all-inclusive** and do not attempt to address every specific situation that may exist on the lakes. They are provided as general guidelines to assist you in your decision to build or maintain structures on or within the Project Lands and/or waters. These guidelines are implemented by Alabama Power Company to facilitate orderly and reasonable shoreline management of these lakes, recognizing that peculiarities in shorelines and property lines exist and may require flexibility on the part of Alabama Power Company and/or landowners. Sizes and dimensions stated below are considered to be a maximum allowed and may not be allowable in every situation.

Alabama Power Company issues permits for activities on and around the lakes pursuant to its FERC licenses. If you have questions regarding your electric service from the power lines to the meter connection, you should contact the utility providing your electric service. For questions regarding your use or operation of, or problems with, your metered electric service/system, you should contact a licensed electrician.

ALABAMA POWER COMPANY RESERVES THE RIGHT TO MAKE EXCEPTIONS AND MODIFICATIONS TO THESE GUIDELINES AT ITS SOLE DISCRETION.

OVERVIEW OF GUIDELINES

These guidelines provide permitting criteria and procedures for the following categories of activity on Project Lands and/or waters:

Residential Shoreline Construction Activity
- includes the construction and maintenance of non-habitable structures, as well as other ground-disturbing activity, on or near the shoreline of the lake, such as and similar to: piers, landings, boat docks, boathouses, boat ramps, gazebos, bank stabilization, dredging, landscape plantings, and re-grading;

Legacy Structures
- includes maintenance of existing structures that generally have not been previously permitted by Alabama Power Company and are not compliant with the "Criteria for Non-Transferable Lakeshore Use Permits" set forth below, due to the nature, size, or dimensions of the structures and their location on or within Project Lands and/or waters.

Alabama Power Company issues two types of residential shoreline permits:

1. **Non-Transferable Lakeshore Use Permit**. Used for Residential Shoreline Construction Activity and unenclosed Legacy Structures.
2. **Conditional Legacy Lakeshore Use Permit – Enclosed**. Used for enclosed Legacy Structures.

CONTENTS OF GUIDELINES

The guidelines are broken down into the following sections: Page No.

SECTION ONE
INITIAL STEPS FOR ALL PERMITS

This section applies to all permits – Non-Transferable Lakeshore Use Permits and Conditional Legacy Lakeshore Use Permits – Enclosed.

Contact your local Alabama Power Company Shoreline Management Office prior to beginning any construction on or within Project Lands and/or waters. **A written permit must be obtained from Alabama Power Company before any construction begins. Verbal approval is not sufficient.**

A representative of Alabama Power Company will be available to meet with you at the site to discuss and review your proposed work. In order to receive a permit, you must complete the "Request for Lakeshore Use Permit" (which may be found at https://apcshorelines.com/shoreline-management/) and provide the following to your local Alabama Power Company Shoreline Management office:

(i) a signed copy of these guidelines, and

(ii) a copy of the current deed for the property or a copy of the lease if the property is being leased, along with

(iii) any other necessary supporting documentation as determined and required by Alabama Power Company.

Alabama Power Company will review the Request for Lakeshore Use Permit and determine eligibility, the appropriate permit(s) for your proposed work, and whether a retrofit or modification is required.

NO PERMITS WILL BE APPROVED AND NO CONSTRUCTION WILL BE ALLOWED WITHOUT A FULLY EXECUTED "REQUEST FOR LAKESHORE USE PERMIT" AND ALL SUPPORTING DOCUMENTS BEING PROVIDED TO ALABAMA POWER COMPANY.

SECTION TWO

CRITERIA FOR NON-TRANSFERABLE LAKESHORE USE PERMITS

APPLICABLE TO RESIDENTIAL SHORELINE CONSTRUCTION ACTIVITY AND UNENCLOSED LEGACY STRUCTURES

The following criteria pertain to Non-Transferable Lakeshore Use Permits for new and certain existing shoreline structures**.**

Lots with less than 100 linear feet of shoreline may be restricted or may not be eligible for structures.

SCENIC EASEMENT: A permit is required for any work within the scenic easement (800' MSL contour). Approval must be sought for any construction within the scenic easement before work can begin. Some typical activities requiring permits include: gazebos, decks, any tractor work, and walkways (one; four foot wide maximum). The following items will not be allowed within the scenic easement: change in contour, sod and grass, habitable structures, wells, gardens, garbage, foreign materials, removal of trees over three inches in diameter, and clearing of shrubs over four feet tall.

SETBACK: Any and all lake front property construction (piers, ramps, boathouses, wet slips, PWC flotation, etc.) should be set a minimum of 15 feet from an extension of your property line into the lake. It is solely your responsibility to ensure the setback is maintained for the life of the structure.

NARROW SLOUGH: In a narrow slough, no structure can extend over 1/3 way across the slough (including vessels moored at the structure).

STRUCTURE SIZE AND CONFIGURATION: The total allowable square footage for structures on or within the Project Lands and/or waters is **1220** square feet (up to **964** square feet over water and **256** square feet on land). Structures shall not exceed 50 feet in length. Any walkway to a pier or boathouse that is 6 feet or less in width is not counted in the allowable square footage. Covered (roofed) structures must be open and cannot be walled or enclosed; however, a portion of one exterior side may be walled for the placement/construction of an approved storage area. Storage areas must be placed on the portion of the structure closest to the shoreline, excluding any walkway. Pavilions, gazebos or any other appurtenant structure cannot be enclosed or walled except that screening may be used for the exterior walls of the structure. No garbage or foreign materials (remnants of building material, old appliances, tires, etc.) are to be placed on or within the Project Lands and/or waters. Non-reflective materials must be used. No habitable fixtures (*i.e.*, toilets, sinks, showers, bathtubs, etc.) are allowed.

FLOTATION: With regard to floating structures, flotation shall be encased or closed cell (extruded) expanded polystyrene of good quality and manufactured for marine use, which will not become waterlogged or sink when punctured. All beaded foam material being replaced shall be removed from the lake and properly disposed of within one (1) year of permit issuance.

LEGACY STRUCTURES: Notwithstanding noncompliance with some criteria in this section, unenclosed Legacy Structures may be eligible for a Non-Transferable Lakeshore Use Permit. An "unenclosed" structure is a structure containing no more than three walls, such that water can freely enter and exit the structure. See Section Four below entitled "Criteria for Conditional Legacy Lakeshore Use Permits – Enclosed" for criteria pertaining to enclosed Legacy Structures.

PWC FLOAT OR LIFT: Permittees are allowed either two PWC floats or two PWC lifts (or one of each) in addition to their permitted structure(s), so long as the permitted structure(s) is in compliance with these guidelines and the PWC floats or lifts maintain the requisite setback and length.

BOAT RAMPS: Boat ramps shall not exceed 20 feet in width and may extend into the lake only a reasonable distance from the shoreline, which will be determined by Alabama Power Company depending on location.

BANK STABILIZATION: Rip rap and natural bank stabilization are the preferred methods of erosion control; however, use of seawalls will be evaluated on a case-by-case basis. Approved seawalls should be constructed as close to the existing shoreline as possible for the purpose of preventing erosion of the shoreline bank. The source and kind of backfill must be approved by Alabama Power Company. Backfill may be placed only to the contour of the natural slope of the property. No debris or foreign materials may be used as backfill. No new creosote products may be used. Rip rap must be placed at the toe of all new and reconstructed seawalls two feet above the lakebed and two feet out from the bottom of the seawall.

DREDGING: Dredging material from the lakebed must be approved by Alabama Power Company prior to the removal of **any** material. Applications for dredging will be reviewed on a case-by-case basis and may require additional documentation. The proposed location of the spoil site for placement of dredged materials must be identified and included with the application. Spoil may not be placed in a wetland, stream, lake waters, or other "waters of the U.S." as defined by the U.S. Army Corps of Engineers. In addition, spoil material may not be placed on a known cultural resource site or a site with a potential to contain cultural resources.

RESIDENTIAL WATER WITHDRAWAL: Permittees may withdraw water from the lake for residential use. Permission may be temporarily suspended by Alabama Power Company in the event drought conditions exist. Nothing herein authorizes Permittees to withdraw water for commercial purposes.

COVENANTS/DESIGN SCHEMES: Alabama Power Company cooperates with developers on this lake and encourages compliance with covenants and/or other regulatory/design schemes put in place by the developers in order to encourage best practices for shoreline management within the developments. It is your responsibility to obtain the necessary architectural board approvals, if such approval is a requirement, prior to construction.

Lots purchased in Alabama Power Company subdivisions may be subject to additional restrictions.

ALABAMA POWER COMPANY RESERVES THE RIGHT TO MAKE EXCEPTIONS AND MODIFICATIONS TO THESE CRITERIA AT ITS SOLE DISCRETION.

PERMIT ISSUANCE: Upon approval by Alabama Power Company and payment of the requisite permit fee, you will be issued a completed Permit and a temporary construction tag will be placed on your lot. You will have **one year** to complete construction. Once construction is complete, a representative of Alabama Power Company will take photographs of the structure, remove the temporary construction tag from your lot, and **affix a permit tag to your structure that must remain on the structure for the life of the permit**.

PERMIT FEE IS $250.00 (THERE IS NO PERMIT FEE FOR UNENCLOSED LEGACY STRUCTURES)

SECTION THREE

TERMS AND CONDITIONS OF NON-TRANSFERABLE LAKESHORE USE PERMITS

{THESE TERMS AND CONDITIONS DO NOT APPLY TO CONDITIONAL LEGACY LAKESHORE USE PERMITS-ENCLOSED, WHICH ARE GOVERNED BY THE RECREATIONAL SITE AGREEMENT}

3.1 Any Non-Transferable Lakeshore Use Permit ("Permit") granted by Alabama Power Company (the "Company") to the recipient(s) of the Permit as specified therein ("Permittee") is solely for the purpose described in the Permit.

3.2 For Existing and New Structures: For structures to be modified or constructed, the Permittee shall have obtained the Company's approval prior to beginning modification or construction, and no addition or design change shall be made to the permitted facility without prior approval by the Company.

3.3 **For Legacy Structures: In the event the Legacy Structure is destroyed, any replacement structure proposed by the Permittee must comply with the Company's current "Criteria for Non-Transferable Lakeshore Use Permits" and Permittee must obtain approval for the replacement structure by the Company prior to beginning construction. Unauthorized alteration of the Legacy Structure with the exception of those retrofits or modifications specified in the Permit will cause the Permit to become null, void, and revoked.**

3.4 The Permittee agrees to complete any facility construction within one (1) year of the Permit issuance date. The Permit shall become null and void if the construction is not completed within that period, unless Permittee obtained an extension from the Company prior to the expiration of the initial one (1) year period.

3.5 The Criteria for Non-Transferable Lakeshore Use Permits set forth above shall apply to all Permits, and Permittee shall be bound thereby, unless and only to the extent that the Permit explicitly states otherwise.

3.6 The Company must retain the full, unconditional, unrestricted, and complete right and privilege to raise or lower, restrict, control, store, retain, withhold, increase, decrease, retard, stop, obstruct, divert, or use the waters of the reservoir in any manner the Company, its successors and assigns, may deem expedient; and the Permittee's erection, operation, maintenance, and use of facilities shall in no way interfere with such uses, regulations, or control of said reservoir or the waters thereof. The Permittee agrees that if subsequent operations by the Company require an alteration in the location of the permitted facility, or if in the opinion of the Company the permitted facility shall cause unreasonable obstruction to navigation or that the public interest so requires, the Permittee shall be required, upon written notice from the Company, to remove, alter, or relocate the permitted facility, without expense to the Company.

3.7 The Permit constitutes a mere license for use of the Company's lands and/or waters, and Permittee agrees, on behalf of himself and his heirs, administrators, successors and assigns, that no attempt will be made to set up any claim of property rights or interest in or to said reservoir or the adjacent lands of the Company by reason of the occupancy or use of the permitted facilities hereunder. The Permit does not convey any property rights, either in real estate or material, and does not authorize any injury to private property or invasion of private rights or any infringement of Federal, State or local laws or regulations, nor does it eliminate the necessity of obtaining Federal, State, or local assent required by law for the construction, operation, or maintenance of the permitted facility. The Permit does not convey a view or easement in light or air, and the Company makes no guarantee of any particular view. Permittee agrees, on behalf of himself and his heirs, administrators, successors and assigns, that no attempt will be made to set up any claim against the Company for view or easement in light or air.

3.8 The Permittee agrees and covenants to protect, defend, release, indemnify and hold harmless the Company, its officers, agents, and employees, from and against any and all causes of action, suits at law or equity, or claims or demands, or from any liability of any nature whatsoever for or on account of any actual or alleged damages to persons or property, including the permitted facility, growing out of the Company's issuance of this Permit to Permittee or the ownership, construction, operation or maintenance by the Permittee of the permitted or other facilities inside the Project boundary.

3.9 The Company shall in no case be liable for any damage or injury to the permitted facility that may be caused by nature or caused by or result from subsequent operations undertaken by the Company, or any Federal, State or local agency of the Government, for the improvement of navigation or for other lawful purposes and no claims or right to compensation shall accrue from any such damage.

3.10 The Permittee shall at all times insure that the permitted facilities are constructed and maintained in such a manner as to be consistent with shoreline aesthetic values, and comply with all applicable State and local health and safety regulations.

3.11 The ownership, construction, operation, maintenance, and use of the permitted facility are subject to all applicable Federal, State, and local laws and regulations. All expenses and responsibilities for the construction and maintenance of the permitted facilities, including the expenses of obtaining all necessary Federal, State, and local permits or approvals, shall be borne solely by the Permittee.

3.12 The Permittee is solely responsible for proper design, engineering, construction, modification and maintenance of the proposed facility. Issuance of the Permit is not a guarantee or assurance that Permittee's facilities and modifications thereto are safe, proper or adequate for the purpose intended. The Permittee shall solely have the obligation of insuring that the permitted facilities are maintained in a good state of repair.

3.13 The Permittee shall operate and maintain the permitted facility in a manner so as to minimize any adverse impact on fish, wildlife, shoreline wetlands, adjacent streams, lake waters, or cultural resources.

3.14 In the event artifacts or archaeological features are encountered or are believed to be encountered during construction, work shall cease and Permittee shall immediately contact the appropriate Company Shoreline Management office.

3.15 No permitted structures shall be used for human habitation.

3.16 The Permittee shall not charge others for use of the permitted facility and no commercial activity may be engaged in thereon.

3.17 The size and design of all facilities shall be kept as shown on the attached "Sketch of Permitted Structures." Any proposed changes must be approved by the Company prior to construction.

3.18 Boat mooring buoys and flotation units of floating facilities shall be constructed of materials that will not become waterlogged or sink when punctured. Un-encapsulated white beaded foam flotation is prohibited and existing un-encapsulated foam must be replaced within one (1) year of Permit issuance.

3.19 No attempt shall be made by the Permittee to forbid the full and free use by the public of all navigable waters or Project Lands adjacent to the permitted facility or to unreasonably interfere with navigation in connection with the ownership, construction, operation or maintenance of the permitted facility.

3.20 The Company will post the display permit tag on the facility or on the land areas covered by the Permit so that it can be visually checked with ease from the water. **This tag must remain in place at all times.**

3.21 Permittee shall cooperate with and participate in the program of solid waste disposal in effect in the area of the permitted facility. Permittee shall keep the lands and waters occupied by and surrounding the permitted facility free of all waste, garbage, and other unsightly debris and materials, and shall comply with local health rules and regulations.

3.22 The Permit is non-transferable. The Permit and Permittee's rights thereunder are personal to Permittee and may not be assigned without the express written consent of the Company, which the Company may grant or withhold in its sole discretion and without regard to any standard of reasonableness or otherwise; provided, however, that the Company agrees that it will not unreasonably withhold its consent to an assignment to an assignee to whom Permittee conveys the adjacent land or leasehold. In the event Permittee conveys or otherwise transfers the adjacent land or leasehold, Permittee shall give to the Company notice in writing of the name and address of the intended transferee at least seven (7) days prior to the transfer. In the event that the Company is not given such notice, then at the option of the Company exercised at any time thereafter, the Permit will terminate upon Permittee's transfer of any portion of the adjacent land or leasehold. Permittee shall provide prior notice to any potential transferee of the existence and terms of the Permit. In the event that the Company shall not give its written consent to the assignment of the Permit to any purported transferee, any attempted transfer shall be void, but such purported transferee shall nonetheless be bound by the provisions of the Permit (including the Company's right to terminate the Permit as a result of such assignment), and the continued use of the permitted facilities by any such purported transferee shall conclusively be deemed the purported transferee's agreement to be bound by all the terms and provisions hereof, including the acknowledgement of the permissive nature of the continuation of the permitted structure and the agreement to indemnify the Company.

3.23 If, in the sole opinion of the Company, the Permittee has failed to comply with any of the conditions hereof, or with any additional conditions imposed by the Company, or any Federal, State, or local agency of the Government, the Permittee shall take appropriate action to correct the violation. If the violation continues for a period of sixty (60) days after notice thereof by the Company, the Company may in its sole discretion, cancel the Permit and the Company may remove or require Permittee to remove, or cause to be removed from the Project Lands and waters within sixty (60) days, any facility constructed or maintained thereunder, at Permittee's expense. In the event the Company removes the facility, the Company may recover, from the Permittee, the expense of removing the facility.

3.24 By thirty (30) days' written notice, mailed to the Permittee by registered or certified letter, the Company may revoke the Permit whenever it determines that the public interest necessitates such revocation or when it determines that the Permittee has failed to comply with the conditions of the Permit. The revocation notice will specify the reasons for this action. Once the Permit has been revoked, the Permittee must remove the facility within sixty (60) days at his expense and restore the Project Lands and/or waters to their former condition. If the Permittee fails to remove and so restore to the satisfaction of the Company, the Company may do so by contract or otherwise and recover the cost thereof from the Permittee.

3.25 Notwithstanding the preceding condition, if in the opinion of the Company emergency circumstances dictate, the Company may summarily revoke the Permit.

3.26 At such time that the Permittee ceases to operate and maintain the permitted facility, ceases to hold an ownership or possessory interest in land adjoining the permitted facility, or upon revocation of the Permit by either the Company or Permittee, the Permittee shall remove the permitted facility within sixty (60) days, at his expense, and restore the Project Lands and/or waters to their former condition. If the Permittee fails to remove and so restore to the satisfaction of the Company, the Company may do so by contract or otherwise and recover the cost thereof from the Permittee.

3.27 In the event the Company removes a permitted facility for any reason herein, the Company may, at its sole discretion, dispose of or destroy any or all of the removed permitted facility.

3.28 Any obligation to reimburse the Company for removal of a permitted facility shall be in default if such reimbursement is not paid in full within thirty (30) days of written demand by the Company to the Permittee for said reimbursement. When in default, the delinquent amount owed (the "Delinquent Amount") shall bear interest at the rate of twelve percent (12%) per annum until the Delinquent Amount is paid in full. The Permittee also shall be responsible for the payment of all costs and expenses, including attorneys' fees and court costs, incurred by the Company in collecting the Delinquent Amount owed by the Permittee to the Company. In consideration of the premises and in order to secure the payment of the Delinquent Amount, plus interest and all costs and expenses, including attorneys' fees and court costs, incurred by the Company in collecting the Delinquent Amount, the Permittee does hereby assign, grant, bargain, sell and convey unto the Company a lien against the Permittee's real property adjacent to the Project Lands (the "Adjacent Property"). Said lien shall secure and does secure payment of the Delinquent Amount, plus interest and all costs and expenses, including attorneys' fees and court costs, incurred by the Company in collecting the Delinquent Amount. Said lien also shall secure and does secure all costs of the enforcement of the said lien. The lien granted herein may be foreclosed in the same manner as real estate mortgages in the State of Alabama, and the Permittee hereby grants to the Company the power of sale so that the Company may foreclose the lien at public auction in front of the courthouse door in the county or counties, as may be required, where the Adjacent Property is located, either in person or by auctioneer, after having given notice of the time, place and terms of sale, together with a description of the property to be sold, by publication once a week for three (3) successive weeks prior to said sale in a newspaper of general circulation published in the county or counties in which the Adjacent Property is located. The Company may bid at said sale and purchase the Adjacent Property. The lien granted herein to the Company shall be effective from and after the time of the recording of copies of these Guidelines, the Permit, and a Statement of Lien signed by the Company in the probate court of the county or counties in which the Adjacent Property is located, stating, without limitation, (i) the name of the Company; (ii) the name of the Permittee; (iii) a description of the Adjacent Property; and (iv) the amount secured by the lien granted herein as of a specific date.

3.29 Neither the Permittee nor subsequent owners of the Permittee's adjacent property will be eligible to receive a new Permit until any amounts owed by the Permittee to the Company for removal of a permitted facility have been satisfied. Permittee

agrees to provide notice to the subsequent owners of the Permittee's adjacent property of any amounts owed by Permittee to the Company for removal of a permitted facility, prior to any sale or transfer of Permittee's adjacent property.

3.30 The Company's rights contained herein, including without limitation the Company's rights to remove the Permittee's facility upon revocation of the Permit, recover the cost thereof from the Permittee, and recover attorneys' fees shall survive the revocation or termination of the Permit.

3.31 If it is determined by the Company or a Federal or State agency that the Permittee is performing work that may affect species listed as threatened or endangered under the Endangered Species Act or the habitat of such species, the Permittee must cease and desist any and all work until further notified by the Company.

3.32 Any Permittee that is issued a Programmatic General Permit (PGP) by the Company will be responsible for complying with the Special and General Conditions contained within the PGPs and with any project specific conditions listed in the Lakeshore Use Permit. A copy of the PGPs for minor activities on Company reservoirs is available from the Company and on the web sites of the Company (https://apcshorelines.com/shoreline-management/) and the U.S. Army Corps of Engineers (http://www.sam.usace.army.mil/Missions/Regulatory/GeneralPermits.aspx).

3.33 The Permittee shall minimize adverse impacts to State waters by strict adherence to the ADEM Special Conditions and Best Management Practices that can be found on the Company's Shoreline Management website at: https://apcshorelines.com/shoreline-management/.

3.34 The Permittee shall comply with any specific terms and conditions as listed in the Approval Letter from the Company's Environmental Affairs Department.

SECTION FOUR

CRITERIA FOR CONDITIONAL LEGACY LAKESHORE USE PERMITS – ENCLOSED

APPLICABLE TO ENCLOSED LEGACY STRUCTURES

The guidance and resolution options discussed in this section are intended for use in permitting and retrofitting (where appropriate) "Legacy Structures" (hereinafter sometimes referred to singularly as a "Legacy Structure").

A Legacy Structure is an existing structure that generally has not been previously permitted by Alabama Power Company and is not compliant with the "Criteria for Non-Transferable Lakeshore Use Permits" set forth above due to the nature, size, or dimensions of the structure and its location on or within the Project Lands and/or waters. The presence of unauthorized structures impedes Alabama Power Company's ability to exercise its property rights and/or flood control. This section outlines the methods by which the owner of a Legacy Structure may be issued a permit. Structures that are unenclosed (*i.e.*, at least one side is not walled) may be eligible for a "Non-Transferable Lakeshore Use Permit." Structures that are enclosed (*i.e.*, all sides are walled) may be eligible for a "Conditional Legacy Lakeshore Use Permit - Enclosed" (hereinafter referred to as "Legacy Permit") upon signing a Recreational Site Agreement.

If a structure owner can show that the entirety of the structure (including all footings, piers, and foundations) is NOT located within Alabama Power Company's property, easement, and/or flood storage area and provide documentation by a licensed surveyor or other evidence acceptable to Alabama Power Company, then no permit is necessary.

RESTRICTIONS ON MODIFICATION, MAINTENANCE, AND REPLACEMENT

Alabama Power Company has initiated the Legacy Structure permit program as a way to transition existing, non-compliant structures into the permitting and compliance program and to ensure Alabama Power Company's flood storage area and property rights are protected. However, this program is limited to the life of the Legacy Structure as it **currently exists**. Should a Legacy Structure be destroyed or need substantial repair and the Legacy Structure owner wishes to replace the structure, then any proposed replacement structure must be permitted by Alabama Power Company prior to construction and meet the "Criteria for Non-Transferable Lakeshore Use Permits" set forth above. The Legacy Structure owner may be required to remove the remains of the destroyed structure or structure that is beyond repair from Alabama Power Company's property, easement, or flood storage area. **Any expansion, substantial rebuilding or replacement of the structure without Alabama Power Company's expressed written consent will be considered a breach of the terms of the permit, and the permit will be revoked.**

PREVIOUS AGREEMENTS

Alabama Power Company will honor all previous written agreements with Legacy Structure owners related to their shoreline structure(s) provided the owner submits a copy of the agreement to Alabama Power Company and the terms of the agreement have not been breached. Holders of previous agreements will be required to apply, at no cost, for a new permit if a valid permit does not already exist. After approval of a new permit by Alabama Power Company, a copy of the existing written agreement will be incorporated into the permit documentation. The permit will remain valid as long as the terms of the original written agreement are not breached.

GUIDELINES FOR MODIFICATION

NO MODIFICATION REQUIRED: The owner of a Legacy Structure may be eligible for a Legacy Permit without the need for any modifications if either:

- The portion, if any, of the structure located beneath the flood storage area elevation can be shown to allow water to freely enter and exit the structure. Alabama Power Company may require the owner to provide Alabama Power Company with certification from an engineer or contractor licensed in good standing affirming the ability for water to freely enter and exit the structure. Alabama Power Company reserves the right to require recertification of this requirement at any time.
  OR
- The entirety of the lowest floor of the structure is located above the flood storage elevation for the lake, and the portion, if any, of the structure located beneath the lowest floor can be shown to allow water to freely enter and exit the structure.

Permanent structures adjacent to recreational vehicles or mobile homes that meet the criteria for a Legacy Structure are also subject to these guidelines, and the term "Legacy Structure" includes such facilities.

MODIFICATION REQUIRED: Owners of Legacy Structures that do not meet the conditions shown above may be required to retrofit or modify their structures in order to accommodate Alabama Power Company's flood storage area by allowing the free flowage of water.

The permit will specify if a modification is required. If modification is required, the structure owner may refer to the methods for retrofitting (*i.e.*, making changes to existing) structures in floodplains outlined in FEMA's *Homeowner's Guide to Retrofitting*, FEMA P-312 (current edition available on FEMA's website: http://www.fema.gov/library). **The structure owner will be responsible for choosing one of the following four methods to accommodate Alabama Power Company's flood storage area (additional mitigation may be required at the discretion of Alabama Power Company personnel):**

1. Relocation;*
2. Demolition;*
3. Elevation; or
4. Wet Flood-proofing.

* If the owner chooses options 1 (Relocation) or 2 (Demolition), no Legacy Permit or Recreational Site Agreement is necessary. The owner must, however, contact the local Alabama Power Company Shoreline Management Office before beginning any relocation or demolition work.

NOTE: Alabama Power Company does not allow levees and floodwalls in its flood storage area, as the functioning of these structures directly interferes with the ability of Alabama Power Company to exercise its flowage rights.

Alabama Power Company does not represent or warrant that any retrofits and/or modifications are safe or suitable for the structure. **Alabama Power Company requires retrofitting and/or modification ONLY to protect its flood storage area and/or property rights and makes no warranty for the safety or suitability of any structure retrofits and modifications.** Alabama Power Company personnel are not authorized to instruct owners on how to become compliant with local flood ordinances or on which method for retrofitting or modifications they should choose in order to become compliant with Alabama Power Company's guidelines.

LEGACY STRUCTURES SHALL NOT BE MODIFIED OR EXPANDED EXCEPT AS CONTEMPLATED HEREIN AND/OR IN THE APPICABLE PERMIT. ANY ATTEMPT TO IMPERMISSIBLY MODIFY OR EXPAND A LEGACY STRUCTURE WILL PRECLUDE ISSUANCE OF A PERMIT AND WILL CAUSE EXISTING LEGACY PERMITS TO BECOME NULL, VOID, AND REVOKED.

PROCESS FOR OBTAINING A LEGACY PERMIT

LEGACY STRUCTURE RECREATIONAL SITE AGREEMENT: In addition to completing the "Initial Steps for All Permits," a structure owner seeking a Legacy Permit must sign a Legacy Structure Recreational Site Agreement that will be filed with the local probate court.

CERTIFICATION: For structures requiring modification, the owner may be required to provide Alabama Power Company with certification from an engineer or contractor, licensed in good standing, affirming that water may freely enter and exit the modified structure. Alabama Power Company reserves the right to require recertification of this requirement at any time.

PERMIT ISSUANCE: For structures requiring no modification, Alabama Power Company will verify any required certification, photograph the structure and issue to the owner the appropriate permit(s). For structures requiring modification, Alabama Power Company will verify that the modification has been completed, verify any required certification, photograph the modified structure, and issue to the owner the appropriate permit(s).

THERE IS NO PERMIT FEE FOR A LEGACY PERMIT

ATTORNEYS' FEES

By accepting a permit from Alabama Power Company and/or maintaining a structure on Alabama Power Company property or easement, Permittee agrees and acknowledges that Alabama Power Company has a right to request, and Permittee has an obligation to pay, any and all attorneys' fees, expenses, and/or costs incurred by Alabama Power Company relating to the enforcement of the rules, regulations, provisions, terms and/or conditions of these General Guidelines for Residential Shoreline Permitting & Permit Terms and Conditions ("Guidelines"), including, without limitation, any and all attorneys' fees, expenses, and costs incurred by Alabama Power Company relating to remedying any action, construction or activity that is not in compliance with these Guidelines, whether caused by Permittee, Permittee's family members, guests, agents, employees and/or contractors.

Permittee Statement: I have received, read, understand and agree to abide by these Guidelines.

Signed: _____ **Date:** _____
Permittee

**** By and through the act(s) of accepting a Permit and/or maintaining a structure or structures on Alabama Power Company property or easement rather than removing said structure(s), Permittee is deemed to have read, understood, accepted, and agreed to be bound by the Guidelines, regardless of whether the Guidelines are signed by Permittee.**

Revised May 2017

Appendix R
Cultural Resources Information **(PRIVILEGED)**

Appendix S
January 8, 2018 Consolidated Issues from Stakeholders

Harris Project Relicensing ***Consolidated Issues from Stakeholders (January 8, 2018)***	
Operations	
Lake Level Fluctuation	➢ 3-4 feet drawdown was discussed (for recreation use and access primarily) ➢ New license should have a Rule Curve Change (RCC) and Alabama Power should conduct an economic study associated with RCC ➢ Desire to have the reservoir levels change depending on existing conditions (use long range forecasting to set lake levels, real time) – better for recreation and fish habitat ➢ Add shoulder season change – raise pool earlier in spring and lower later in the fall ➢ Periodically go back to 8 ft for maintenance; someone commented that 5 feet drawdown for maintenance may be enough ➢ Stakeholders requested a gage on Crooked Creek ➢ Stakeholders want to understand U.S. Army Corps of Engineers (USACE) and Alabama Power interaction ➢ How does the proposed rule curve change affect Alabama Drought Response Operations Protocol (ADROP)?
Downstream Flooding	➢ Property loss due to peaking/pulsing operations ➢ Request to shift evening peak to after 6 PM (maybe 9 PM) ➢ Downstream flooding is a concern especially since the 2003 flood ➢ Is Georgia going to tap into the Little Tallapoosa to divert water to West Georgia? ➢ Minimum flows - Will this be part of FERC process? ➢ Rule Curve Change effects on navigation, flood control and drought management ➢ Use of HEC-FDA (this is the model the USACE recommends) to assess flood damage analyses ➢ The USACE recommends the geographic scope for navigation effects go to Mobile Bay
Erosion & Sedimentation	
Lake Erosion and Sedimentation	➢ Upstream erosion along shoreline – they want to get permits that allow them to compensate for original property line o Property is different from original property lines due to erosion ➢ Take core samples of sediment to determine original lake bed vs. sedimentation ➢ Bent River subdivision is a concern- sand bar has been growing ➢ Wave action caused by boats- can Alabama Power permit higher sea walls ➢ A lot of lake erosion is caused by construction on the lake (e.g., cove of 431) ➢ Stakeholders noted a lot of erosion at south end of the lake ➢ Upper end of lake is extremely bad (see if this is the same area noted in project ops) ➢ Dredging in front of private docks ➢ Sedimentation issue in subdivision – Big Tallapoosa, west of Rt 82, between fuller crossroads and Center West area ➢ Stormwater run-off & sediment transport ➢ Siltation specifically in upper Little River ➢ Siltation above Foster Bridge ➢ Creation of sandbars on reservoir (i.e., Randolph City intake, Wedowee Creek, Highway 82, Big Tallapoosa River) ➢ Enforcing silt fencing and codes – Alabama Power is not enforcing silt fences ➢ Make sure to enforce Best Management Practices (BMPs) for construction ➢ Sedimentation rates with new project operations – how will sediment change?
Downstream Erosion	➢ Erosion has occurred upstream of Price Island (downstream of Harris Dam) ➢ Downstream releases resulted in erosion for 7 miles downstream ➢ Lack of info on tailrace erosion and its impact on fishery – need more data/information ➢ Use historical imagery to evaluate downstream erosion

Recreation	
Lake Facilities & Access	➢ Add additional boat ramp near old Hwy 431 (Randolph County) ➢ Need more opportunities – develop a day use public park near Wedowee that the City could manage ➢ Add mile markers on lake for location identification ➢ Marilyn Lott suggested that she host all groups to develop consensus on lake recreation facilities and commercial development on Lake ➢ Add bathrooms and lighting at boat ramps ➢ Maintenance needed at New Harmony boat ramp ➢ Add mountain bike trail somewhere around lake, several acres, also used for hiking ➢ Another day use area should be developed north of Hwy 48 (all day use areas should be accessible by car and boat) ➢ Improved access to shoreline for primitive camping ➢ Would like to have a sandy beach at a day use area ➢ Extend boat ramps for use during winter under existing conditions ➢ Add camping facilities or access on the lake ➢ Need maps of hunting lands – are there any WMA's on Harris? ➢ Need an increase of public hunting lands around lake – address any conflicts with residential lands ➢ Would like opportunities for small game hunting and archery around the reservoir ➢ Additional kayak/canoe launch on the lake ➢ Hwy 48 boat ramp is too crowded ➢ Need more public fishing access on lake/shoreline fishing ➢ Need a hiking trail – connecting the Appalachian trail to the Bartram Trail (link near Cheaha) ➢ Need trash receptacles at public use areas
Downstream Facilities and Access	➢ Downstream recreation – need better access from Harris to Wadley ➢ Provide weekend releases to support recreation downstream of dam – want to increase more boatable days downstream (canoe/kayak) ➢ No specific season for more boatable days but something similar to Jordan would be good ➢ Need more signage about available facilities like portage and floating opportunities ➢ Need a better downstream canoe portage ➢ No existing access to canoe trail near Horseshoe Bend
Skyline Facilities and Access	➢ Need a hiking trail – connecting the Appalachian trail to the Bartram Trail ➢ At Skyline, revisit timber management and hunting agreements on leased land
Public Education	
Public Safety & Communication	➢ Communication issues o Add audible alarms further downstream o Would like text notifications, timing of downstream releases o Lake property owners – notify when there are reservoir elevation changes ➢ Stakeholders want physical human to monitoring flood control operations at Harris Dam, not remotely manned ➢ Need "no wake zones" because too many boats going to fast on the reservoir ➢ Want to have more buoys to make boats slow down ➢ Wake Board boats are causing safety and erosion issues (some people noted that these are larger boats and others just said they were "wake board" boats). ➢ Boat engine size was also raised as an issue ➢ Restrict boat size on Lake Harris ➢ Zoning for wake boats – note a specific area of lake where these would be allowed

	➢ Increase marine police presence ➢ Mark or remove stumps in the lake o Woody debris as a public safety issue ➢ Restrict houseboats ➢ Safety concerns over unscheduled releases
Public Education	➢ Need an education program for water safety on lake Harris/downstream ➢ Education on fishing license requirements
Horseshoe Bend	➢ Primary issues are erosion and bridge piers – piers are on the National Register; concern that downstream flows are damaging these piers and other cultural resources downstream ➢ Improve access associated with existing boat ramp – develop a canoe trail for day paddling ➢ No access to the current water trail ➢ Concern over the erosion that occurs around the bend and at the Miller Bridge crossing
Woody Debris	➢ Woody Debris and trash– especially bad after heavy rains o Specifically, at the Highway 82 bridge ➢ Can anything be done about this?
Cultural Resources	➢ Possible native American graves in Danley Cove ➢ Harris will be National Register eligible in 2033
Shoreline Management	➢ Replanting sod vs. erosion – why can't Alabama Power allow people to replant or restore sod? ➢ Dredging in front of personal/private docks should be allowed ➢ Reclassify lands that surround private land (specifically Brad Mitchell – south end of lake) ➢ Extend the distance allowed in a permit to build a dock (50 ft plus-this is due to erosion and original property lines) ➢ Develop a brochure of types of vegetation that can be planted in the scenic easement ➢ Maintain natural/undeveloped lands around the reservoir ➢ Brochure for BMPs to reduce erosion ➢ Alabama Department of Conservation and Natural Resources (ADCNR) wants to limit seawall construction on Lake Harris
Water Quality	
Lake	➢ Sedimentation, temperature, erosion, and downstream pulsing scheme – how do all these affect water quality? ➢ Septic Tanks – there are new regulations for septic tanks – must be 50 ft from water (just informational - not noted as an "issue" just FYI) ➢ Levels of nitrogen due to agriculture affecting fish and habitat (specifically from highway 431 bridge to Foster's Bridge downstream on Tallapoosa River arm of Lake) ➢ Right of Way (ROW) management spraying chemicals that get into the lake (Hunter's Bend area of the Lake) ➢ Data from Lake Watch for Lake Harris is available through Auburn, Alabama Water Watch ➢ Fuel spills from boats negatively affects water quality ➢ Effects of siltation on water quality and habitat ➢ Lake Harris is cleanest lake around ➢ Pollution Sources o Chicken processing plant in Heflin o Wastewater plant in Heflin Non-point source is general agriculture in the basin ➢ USACE noted that geographic scope for water quality should extend into Lake Martin ➢ Climate change effects on water quality/use
Downstream	➢ Water quality effects on mussel presence/absence downstream ➢ Sedimentation, temperature, erosion, and downstream pulsing scheme – how do all these affect water quality?

	➢ Effects on temperature and Dissolved Oxygen in tailrace ➢ Provide data on any long term, continuous monitoring of DO and temperature at the tailrace during both generating and non-generating periods ➢ Include information on temperature, turbidity, biological monitoring, any identified impairments, and any TMDLs in the PAD
Skyline	➢ Are there any water quality studies for Skyline, specifically Little Coon Creek? ➢ Need to assess water quality at Skyline
Water Quantity	➢ Need a study on how water quantity effects the water quality ➢ Water withdrawals – where are these currently happening (Lake)? ➢ Concern about water quantity because of siltation – lake can't hold as much water because of increased sedimentation
Wildlife & Vegetation	
Lake	➢ How is development affecting land use around the reservoir especially in the riparian and scenic easement? ➢ Need for public education about invasive species ➢ Need to maintain or repair existing wood duck boxes around the lake ➢ Raising the winter pool can have negative impacts on aquatic vegetation and encourage invasive species ➢ Provide education on wood duck boxes and osprey nests
Downstream	➢ Erosion and sedimentation effects on freshwater turtles and herps
Skyline	➢ Effect of timber harvest on bats and other threatened and endangered species at Skyline ➢ Leave shagbark oaks and white oaks for bats ➢ Keep Skyline in the Project Boundary
Fisheries	
Lake	➢ Crappie population has dropped significantly the last five years ➢ Could improve crappie population with an increase in habitat ➢ Don't remove trees/habitat from Little Tallapoosa ➢ Hydrilla upstream of Harris – is it in the lake and how will Alabama Power keep it out of the lake; also concerns about zebra mussels ➢ Entrainment and impingement of fish ➢ Bryozoan colonies on the lake-do they exist? ➢ Negative impacts of electro-fishing on fish population (in lake and downstream) ➢ Do fluctuating reservoir levels affect reservoir fish habitat? ➢ Increase public education encouraging people to come fish on Lake Harris ➢ Add woody debris for habitat
Downstream	➢ Operation impacts on yellow catfish (flatheads) downstream of Harris ➢ Impacted in the first 12 miles by flow releases ➢ What is the status of Green Plan/Harris Adaptive Management Plan (AMP) ➢ Negative impacts of electro-fishing on fish population (in lake and downstream) ➢ Downstream water temperatures – how does the withdrawal zone effect temperatures downstream (yellow catfish populations are affected by water temperatures ➢ Better fishery was noted by stakeholder since pulsing (Green Plan/Harris AMP) began ➢ Include a review of downstream impacts and an update of the Green Plan as a specific working group topic

Appendix T
Draft Harris Relicensing Study Plans

Appendix T

HARRIS DAM
RELICENSING

OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

OPERATING CURVE CHANGE FEASIBILITY ANALYSIS
STUDY PLAN

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1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl).

Background and Existing Data

During stakeholder one-on-one meetings and at the October 19, 2017 Issue Identification Workshop, stakeholders requested that Alabama Power investigate changing the winter operating curve for the Harris Project. Stakeholders believe that a higher winter operating curve will enhance recreation opportunities on Harris Reservoir during the winter, or typical drawdown period. Alabama Power has performed similar analyses at several of their hydroelectric projects as part of the FERC relicensing process. Alabama Power has developed this study plan to investigate this requested change and the potential impacts of a winter operating curve change on other resource areas within Harris Reservoir and in the Tallapoosa River downstream of Harris Dam. Alabama Power does not have any existing information that would address this request without performing extensive modeling and analysis of the hydrologic record and baseline information for the Project. This study plan provides a list of tools, methods, and analyses that will be performed to address this request.

1.1 Resource Management Goals

The Harris Project is licensed by FERC. All proposed operational changes must be disclosed, and any identified effects must be addressed in the license application to FERC. The Operating Curve Change Feasibility Analysis will assist Alabama Power with developing an operations proposal to include in the Preliminary Licensing Proposal and will assist with FERC's analysis in determining new license conditions for the Harris Project. Alabama Power will work with agencies and other stakeholders to ensure that resource management goals for individual resource areas are considered and any applicable environmental, cultural, or recreational resource analyses examine and discuss effects of any proposed operating curve change.

1.2 Baseline and Operational Alternatives

Stakeholders have requested that Alabama Power investigate the feasibility of modifying the current winter operating curve at the Harris Project annually from October through March to enhance recreation access on Harris Reservoir. The Operating Curve Change Feasibility Analysis study will evaluate, in increments of 1 foot from 785 feet msl to 789 feet msl (i.e., 786, 787, 788, and 789 msl), Alabama Power's ability to increase the winter pool elevation and continue to meet project purposes (Figure 1-1). This study will use information from the Pre-Application Document (PAD) and technical reports and the results of Alabama Power's proposed relicensing studies, as applicable, to examine the effects of a winter operating curve change on the following operational parameters and resources:

- Hydropower ~~G~~generation
- Green Plan flows[2]
- Flood control
- Navigation
- Drought ~~O~~operations (ADROP)

[2] See *Summary of R.L. Harris Downstream Flow Adaptive Management History and Research* Technical Report (Kleinschmidt 2018a).

- Water quality and water use
- Erosion and sedimentation (including invasive species)
- Aquatic species (reservoir and tailwater)
- Wildlife and terrestrial resources (including wetlands)
- Threatened and endangered species
- Recreation resources
- Cultural resources

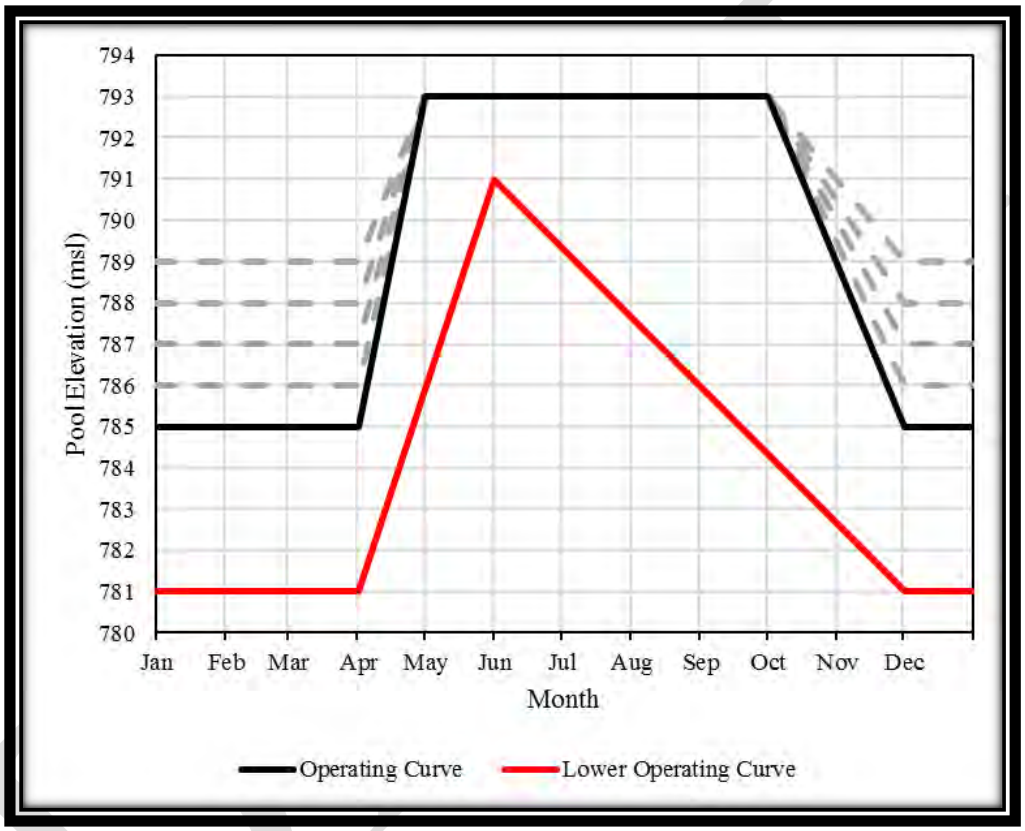

Figure 1-1. Harris Operating Curve with Proposed 1-foot Incremental Changes

2.0 GOALS AND OBJECTIVES

The Operating Curve Change Feasibility Analysis will assist Alabama Power in determining the feasibility of proposing an operating curve change as part of its license application. Changes to the operating curve must be approved by FERC, with consultation by the U.S. Army Corps of Engineers (USACE) relating to flood control issues. The current license requires the project to be operated in the interest of flood control based on agreement between USACE and Alabama Power, and the current operating guide curve and flood control operations are included in the USACE-issued Water Control Manual (WCM) for the Harris Project. Changes to the guide curve and flood control operations would also require changes to the WCM to make it consistent with the requirements in the new license.

The objective of this study is to use industry-accepted methods to develop simulation models for analyzing proposed alternatives to the existing (baseline) winter operating curve. Simulation models will provide the tools to evaluate feasibility, identify impacts, and provide data to compare existing operations with potential increases to the winter operating curve on an incremental basis.

The modeling simulations will be performed in **Phase 1** of this study. Tools and models may include, but not be limited to, the USACE HEC-RAS[3] and HEC-SSP, HEC-ResSim, the Alabama-Coosa-Tallapoosa (ACT) unimpaired flow data set developed by the USACE and other stakeholders, and Alabama Power's Hydro Energy model. Descriptions of these models and data sets are included in Appendix A.

Phase 2 of this study will use the results of the simulation models developed in Phase 1 in conjunction with the results of the other FERC-approved Harris relicensing studies and existing information (e.g., PAD, technical reports) to conduct qualitative and quantitative evaluations of the effect(s) of an operating curve change on resources listed in Section 1.2. Methods for the analyses in Phase 1 and Phase 2 are presented in Section 4.0.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

The Harris Project operations have direct, indirect, and potential cumulative effects on lake and downstream resources. The geographic scope (i.e., the study area) of Phases 1 and 2 of this study corresponds with the physical area and/or resource influenced by the operational change, which may or may not be consistent with the Harris Project boundary. The geographic scope of analyses for each operational parameter and resource is listed in Table 3-1. The operational zone of influence is Lake Harris and the Tallapoosa River downstream of Harris Dam to Horseshoe Bend (Figure 3-1).

[3] These models were developed by the USACE's Hydrologic Engineering Center (HEC). Use of these models is described in greater detail in Appendix A of this Study Plan. Additional information can be found at: http://www.hec.usace.army.mil/.

Table 3-1: Summary of Operational Parameters, Resources, Geographic Scope and Rationale

Operational Parameter/Resource	Geographic Scope	Rationale
Hydropower Generation	Alabama Power's Coosa and Tallapoosa Projects	Effects on hydropower generation would impact system-wide operations
Flood Control	Harris Dam to Horseshoe Bend	Model parameters are set to evaluate flood operation effects to Montgomery Water Works
Navigation	ACT Basin	Model parameters are set to evaluate effects on the ACT Basin per the USACE Master Water Control Manual
Drought Operations	ACT Basin	Model parameters are set to evaluate effects on the ACT Basin per the USACE Master Water Control Manual
Green Plan Flows	Tallapoosa River downstream from Harris Dam to Horseshoe Bend	Green Plan zone of operational influence is from Harris Dam to Horseshoe Bend.
Water Quality and Water Use	Lake Harris; Downstream from Harris Dam to Horseshoe Bend	Zone of operational influence
Erosion and Sedimentation (and invasive species)	Lake Harris; Downstream from Harris Dam to Horseshoe Bend	Zone of operational influence
Aquatic Resources	Lake Harris; Downstream from Harris Dam to Horseshoe Bend	Zone of operational influence
Wildlife and Terrestrial Resources, including Threatened, and Endangered Species; and Wetlands	Lake Harris; Downstream from Harris Dam to Horseshoe Bend	Zone of operational influence
Recreation Resources	Lake Harris; Downstream from Harris Dam to Horseshoe Bend	Zone of operational influence
Cultural Resources	Lake Harris; Downstream from Harris Dam to Horseshoe Bend	Zone of operational influence

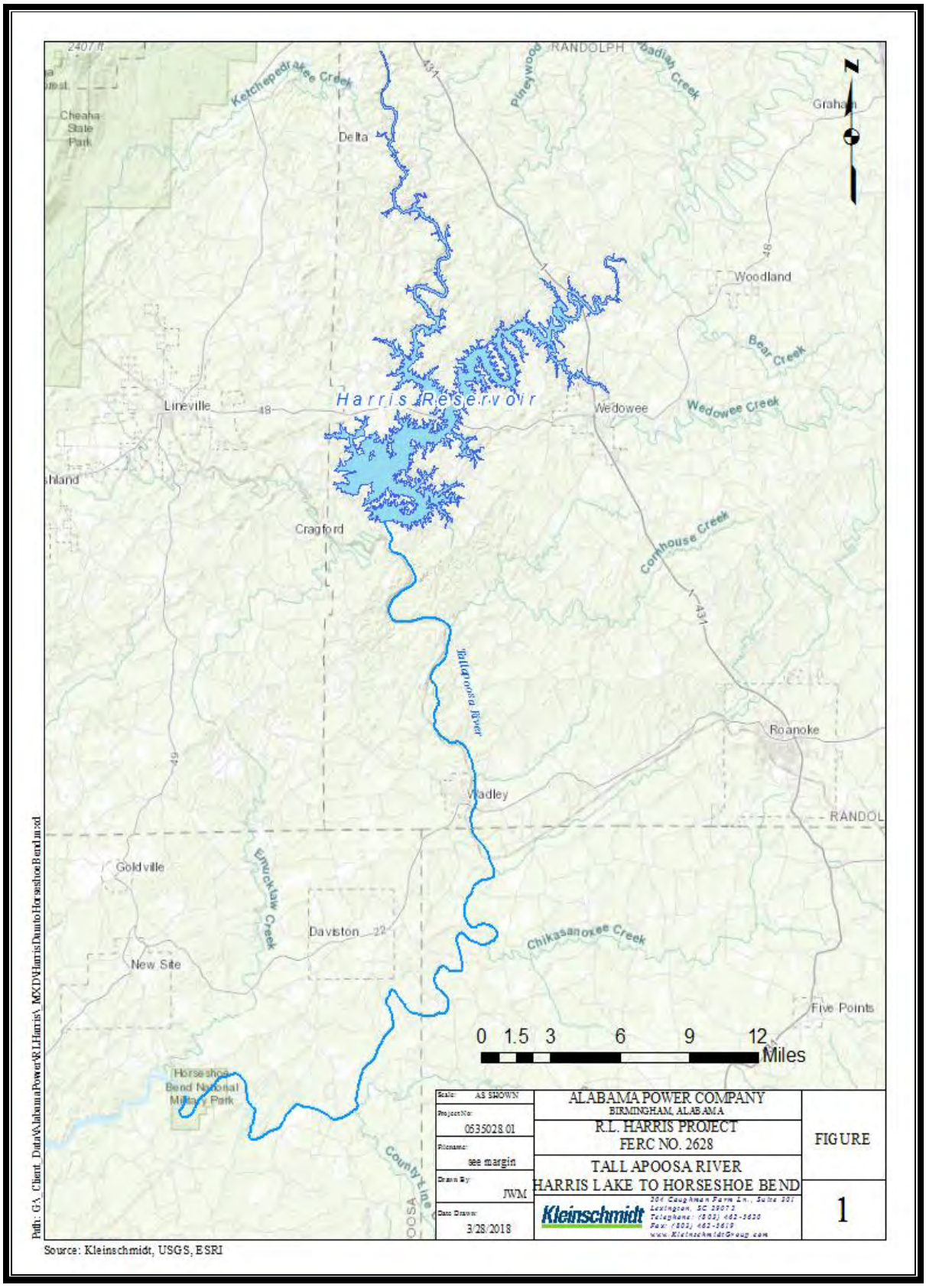

Figure 3-1. Tallapoosa River - Lake Harris to Horseshoe Bend

4.0 METHODS

This study is divided into two phases. In Phase 1, Alabama Power will conduct modeling simulations using specific methods, tools, and processes that are described in Appendix A and in Section 2.0. Alabama Power has previous experience with this overall process, because it was used and accepted by FERC in the analysis for the Martin Dam Project rule curve change (FERC No. 349), conducted from 2010 through 2014.

The detailed process for completing Phase 1 will be as follows:

1. Alabama Power will present the proposed methodology to the Harris Action Team (HAT) 1 (including USACE representatives) for review and comment. Alabama Power may modify the methodology based on HAT 1 comments/recommendations.
2. Once Alabama Power has completed the model(s) according to the methods described in Appendix A, Alabama Power will present the models and assumptions to HAT 1. The review may result in additional simulations or refinement of the alternatives.
3. Initial screening of each alternative's ability to manage significant flood events will be accomplished by subjecting each alternative to a representative flood with a 1 percent recurrence probability. These models will utilize hourly time steps.
4. Impacts to navigation, flood control, drought operations, ability to provide Green Plan flows, and hydropower generation will be evaluated using long term models with daily time steps.
5. Upon completing the model runs, Alabama Power will develop a Phase 1 Draft Harris Operating Curve Change Feasibility Analysis Report for HAT 1 review and comment.
6. Based on comments, Alabama Power will develop a Phase 1 Final Harris Operating Curve Change Feasibility Analysis Report.

Phase 2 will use the modeling results from Phase 1 along with FERC-approved relicensing study analyses and existing information to conduct quantitative and qualitative evaluations of potential resource impacts.

The detailed process for completing Phase 2 will be as follows:

1. Gather information from FERC-approved relicensing studies, existing information (PAD and technical reports), and results from Phase 1 analyses to incorporate into the Phase 2 resource analysis.
2. Conduct resource analyses according to the FERC-approved study plan (as described below).
3. Develop a Phase 2 Draft Harris Operating Curve Change Effects Analyses Report for HAT 1 (and other affected HAT resource groups) review and comment.
4. Based on comments, Alabama Power will develop a Phase 2 Final Harris Operating Curve Change Effects Analyses Report.

4.1 Effects Analysis Methods

For the Phase 2 analyses, Alabama Power has developed specific methodologies for the potentially affected resources, which are discussed below.

4.1.1 Water Quality

Alabama Power will use CE-QUAL-W2 and HEC-ResSim to evaluate potential changes in Harris Reservoir water quality, which would be predicted to result from a change in the winter operating curve. CE-QUAL-W2 is a 2-Dimensional water quality and hydrodynamic model for lake and river basin analysis. Data from the Baseline Water Quality Report (Kleinschmidt 2018), FERC-approved Water Quality Study, and other pertinent information that becomes available will be used in the model to assess potential changes to water quality in the reservoir forebay. In addition, HEC-ResSim will be used to quantify the lake retention time for operations under the current/existing license and for operations that would result from each incremental 1-foot increase in the winter operating curve. Areas of water quality concern identified and evaluated in the FERC-approved Water Quality Study plan will also be considered in this analysis.

Alabama Power will use the quantitative data in the CE-QUAL-W2 to qualitatively evaluate potential downstream effects on dissolved oxygen in the tailrace that may occur due to changes in forebay water quality.

4.1.2 Water Use

Alabama Power will use the results of the Phase 1 modeling to determine if there are any effects (direct, indirect, and/or cumulative) on existing and potential water withdrawals in Harris Reservoir and the Tallapoosa River downstream of Harris Dam to Horseshoe Bend. Alabama Power will also use existing information in the Water Quantity, Water Use, and Discharges Report (Kleinschmidt 2018b).

4.1.3 Erosion and Sedimentation

Alabama Power will review data (e.g. soil types, slope, etc.) from the FERC-approved Erosion and Sedimentation Study. These data will help identify the risk of erosion hotspots or sedimentation areas that could potentially change with each incremental winter operating curve elevation. In addition, Alabama Power will use information to determine the potential increase in recreation user days and its impact on erosion hotspots and sedimentation areas. Alabama Power will also use the results of the FERC-approved Erosion and Sedimentation Study to determine if the risk for occurrence of nuisance aquatic vegetation may improve or worsen due to changes in erosion and sedimentation areas resulting from changes to the operating curve. Areas of sedimentation in the reservoir and near creek mouths will be qualitatively assessed, and Light Detection and Ranging (LIDAR) and a Geographic Information System (GIS) will be used for Harris Reservoir to estimate the area that could be impacted at each site by each one-foot change in the operating curve.

Using the erosion hotspots identified downstream in the Tallapoosa River from Harris Dam to Horseshoe Bend in the FERC-approved Erosion and Sedimentation Study, Alabama Power will

overlay LIDAR data with the results of the Phase 1 study to determine the potential impacts to erosion and sedimentation associated with a change in magnitude and frequency of flood events predicted with each 1-foot increment of operating curve change.

4.1.4 Aquatic Resources

Alabama Power will use existing reservoir fishery data and the results of Phase 1 to qualitatively evaluate potential changes to the reservoir fishery associated with potential changes to the operating curve. Alabama Power will also use the results of Phase 1, reservoir forebay CE-QUAL-W2 model predictions for changes to downstream water temperatures, and the results of the other FERC-approved studies to assess the direct, indirect, and/or cumulative effects of the operating curve change on aquatic resources in the Tallapoosa River downstream of Harris Dam to Horseshoe Bend.

4.1.5 Wildlife, Threatened, and Endangered Species

Using information in the PAD and information gathered in the FERC-approved Threatened and Endangered (T&E) Species Study, Alabama Power will examine the potential effects of an operating curve change on wildlife and T&E species located in and around the Harris Reservoir and in the Tallapoosa River downstream of Harris Dam to Horseshoe Bend. Alabama Power will compare the habitats of T&E species, if any, at the existing winter operating curve to each of the 1-foot increments of a possible winter lake level change to identify whether these habitats may be potentially affected.

4.1.6 Terrestrial Wetlands

Alabama Power will use existing wetlands data (as identified in the PAD) in and around Harris Reservoir and downstream of Harris Dam in the Tallapoosa River to Horseshoe Bend. These data will be incorporated into GIS, and the evaluation of changes to the winter operating curve (in 1-foot increments) will indicate if the reservoir wetland areas will be inundated or dry for each of the possible winter operating curve changes.

4.1.7 Recreation

Alabama Power proposes to examine the potential effects of a change in the winter operating curve on recreational use in Lake Harris by using the information gathered in the FERC-approved Recreation Evaluation Study. This information includes data on recreational access points (the number of private docks useable during the current winter drawdown and the lowest possible elevation that public boat ramps can be used). Alabama Power will then compare the number of access points (both private docks and public boat ramps) available at each 1-foot increment change in winter operating curve elevation. Alabama Power will use LIDAR data and field observations to make quantitative determinations.

For recreation access downstream of Harris Dam (Tallapoosa River to Horseshoe Bend), Alabama Power will identify recreational access points affected by the estimated changes in downstream flows and/or water levels. These access points will be assessed for the magnitude and frequency

of high flow events resulting from the proposed operational curve changes (e.g., additional days that access roads or access areas are underwater).

4.1.8 Cultural Resources

Alabama Power will use existing information to evaluate sites identified in the Cultural Resources Study that may be impacted by reservoir fluctuation and the resulting potential change in erosion and sedimentation. Undercut and eroded banks along the shoreline can expose artifacts and features, making a site more visible and, therefore, more susceptible to looters. Alabama Power will use elevation data (LIDAR), aerial imagery, and expert opinions provided by persons familiar with the study area to determine (in 1-foot increments) the quantitative effects of any operational curve changes to specific cultural resources sites.

A summary of the resources to be studied, geographic scope, and study methods are described in Table 4-1.

Table 4-1: Summary of the Resources, Geographic Scope and Study Methods

Resource	Method	
	Lake Harris	**Harris Dam to Horseshoe Bend**
Water Quality	• Phase 1 results • Existing information • CE-QUAL-W2 and HEC-ResSim	• Existing information • CE-QUAL-W2 to qualitatively evaluate potential effects on dissolved oxygen in the tailrace
Water Use	• Phase 1 results • Existing information - Water Quantity, Water Use, and Discharges Report	• Phase 1 results • Existing information - Water Quantity, Water Use, and Discharges Report
Erosion and Sedimentation (including invasive species)	• Phase 1 results • FERC-approved Erosion and Sedimentation Study • LIDAR, aerial imagery, historic photos • Quantitative and qualitative evaluation of areas most susceptible to increase in nuisance aquatic vegetation	• Phase 1 results • FERC-approved Erosion and Sedimentation Study • LIDAR, aerial imagery, historic photos
Aquatics	• Phase 1 results • Existing information on the Harris Reservoir fishery	• Phase 1 results • CE-QUAL-W2 • Other FERC approved studies as appropriate
Wildlife and Terrestrial Resources-including Threatened, and Endangered Species; and Terrestrial Wetlands	• Phase 1 results • FERC-approved Threatened and Endangered Species Study • GIS	• Phase 1 results • FERC-approved Threatened and Endangered Species Study • existing wetlands data • GIS
Recreation Resources	• Phase 1 results • FERC-approved Recreation Evaluation Study • LIDAR data	• Phase 1 results • FERC-approved Recreation Evaluation Study • LIDAR data
Cultural Resources	• Phase 1 results • LIDAR, aerial imagery, and expert opinions	• Phase 1 results • LIDAR, aerial imagery, and expert opinions

5.0 REPORTS

Alabama Power will develop a draft and final report for Phase 1 and Phase 2 of this study and provide opportunity for HAT 1 discussion, review, and comment.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 1 members upon FERC approval of the study.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT 1	November 2018-March 2021
FERC Study Plan Determination	April 2019
Phase 1 Modeling Analysis	Fall 2018-2019
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
Phase 2 Effects Analysis and Consultation	Fall 2019- Spring 2021
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
Updated Study Report Meeting	April 2021
File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs for all modeling and developing the draft and final reports. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

Alabama Power Company. 2018. Preliminary Application Document for the R.L. Harris Hydroelectric Project (FERC No. 2628). Alabama Power Company, Birmingham, AL.

Kleinschmidt Associates. 2018a. *Summary of R.L. Harris Downstream Flow Adaptive Management History and Research* Technical Report. Birmingham, AL.

APPENDIX A

MODEL METHODOLOGY

PROPOSED HYDROLOGIC AND HYDRAULIC STUDY

Models and Datasets

Alabama Power plans to use the following data and models to conduct the analysis of the operating curve study at Lake Harris.

1) Alabama-Coosa-Tallapoosa (ACT) unimpaired flow database – this database was developed by the United States Army Corps of Engineers (USACE) with input and data from other stakeholders in the ACT comprehensive study, including both the states of Georgia and Alabama, Alabama Power, and others. This dataset is average daily flows from 1939 – 2016 with regulation influences removed. This dataset will be utilized in the HEC-SSP and HEC-ResSim.
2) Other data – Other data sources will include United States Geological Survey (USGS), USACE, and Alabama Power records.
3) HEC-Statistical Software Package (HEC-SSP) – this model is the USACE's newest version of the Flood Frequency Analysis. This model will be used to determine the statistical frequency of flooding on a monthly basis.
4) HEC-River Analysis System (HEC-RAS) – this model will be utilized in the flood study portion of evaluating the operating curve. It will route flows in the unsteady state along the river.
5) HEC-Reservoir Simulation Model (HEC-ResSim) – this model will look at operational changes at the Harris Project in conjunction with operating curve change on a daily timestep. It will also be used to focus on the hourly flood study operations. This model in conjunction with the HEC-RAS model, will show impacts, if applicable, to the Martin Dam Project operations.
6) HEC-DSSVue – This is the USACE's Data Storage System that is designed to efficiently store and retrieve scientific data that is typically sequential. Data in HEC-DSS database files can be graphed, tabulated, edited, and manipulated with HEC-DSSVue. This program will be used to display some of the output of the other HEC models.
7) Alabama Power Hydro Energy Model – This model is a proprietary model that will be used to evaluate the net economic gains or losses that could result from proposed operating curve changes at the Harris Project.

Methodology

For the flood study portion of the analysis, Alabama Power will utilize the USACE's unimpaired flow data set in the HEC-SSP model to determine the statistical frequency of historical floods in the Tallapoosa Basin. The historical flood closest to the 100-year frequency will then be increased or lowered to approximate the 100-year flood in peak flow and 1, 3, and 5-day volume. The inflow hydrograph will then be routed thru the Harris Dam using the HEC-ResSim model for both the baseline existing operating curve as well as each alternative (1-4 ft change). The resulting outflow hydrographs will then be routed downstream using the HEC-RAS model below Harris Dam, and impacts from resulting elevations will be evaluated (based on the flood stage at Wadley).

Coordination and Evaluation

Through consultation with the Harris relicensing stakeholders, Alabama Power has developed a list of operating curve changes to model including the following:

1. Model a rise in elevation of the winter operating curve in one-foot increments from 785 ft msl to 789 ft msl (i.e., 786, 787, 788, and 789 msl).

2. Downstream impacts, with respect to flooding, will be evaluated by developing an approximate 100-year Flood and comparing peak elevations generated by the downstream HEC-RAS model for each 1-foot increment in the winter operating curve to the peak elevations for the existing operating curve. A probability analysis (seasonal or monthly comparisons) will also be incorporated in the analysis. HEC-ResSim will be used to generate outflow hydrographs in operational criteria at Harris.

3. Magnitude, frequency and duration of flood events downstream of Harris Dam can be analyzed using HEC-Res-Sim.

4. Total cost associated with the proposed operating curve changes will be documented and presented. The Hydro Energy Model analysis will provide economic gains and/or losses associated with power generation with the respective operational procedural changes.

5. All analyses, procedures, modeling, and coordination will be properly documented and discussed with the Harris Action Team (HAT) 1. HAT 1 members will be provided documentation of the analysis for review throughout the study process.

Appendix T

HARRIS DAM
RELICENSING

WATER QUALITY STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

WATER QUALITY STUDY PLAN

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WATER QUALITY STUDY PLAN

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl)

Background and Existing Information

Section 401(a)(1) of the Clean Water Act requires Alabama Power, as part of FERC relicensing, to obtain a certification from the Alabama Department of Environmental Management (ADEM) that there is reasonable assurance that the discharge from the Harris Project will not violate water quality standards. This is commonly referred to as a 401 Water Quality Certification. Alabama Power will prepare and submit an application to ADEM for the 401 Water Quality Certification using existing data and new data collected during the relicensing process.

An extensive amount of water quality data exists for the Harris Project. In preparation for the relicensing process, Alabama Power prepared a *Baseline Water Quality Report* (Kleinschmidt 2018c) that summarized water quality data collected by ADEM between 2005 and 2016. The report included data from six monitoring sites on Harris Reservoir, three sites on the Tallapoosa River below Harris Dam, and six sites on three streams that drain portions of Skyline.

Available data for Harris Reservoir sites consisted of vertical profiles of water temperature, dissolved oxygen, pH, and conductivity, which was collected at regular depth intervals (approximately 3 feet) from April to October in the years that samples were collected. The samples in the reservoir, Tallapoosa River, and at Skyline sites included analyses for over twenty additional parameters, such as chlorophyll *a*, nutrients, alkalinity, pathogens, and turbidity and were also summarized in the *Baseline Water Quality Report*.

The State of Alabama does not list Lake Harris as impaired on Alabama's 2016 303(d) list nor does it require a Total Maximum Daily Load (TMDL). Impaired waters upstream of Lake Harris include the Little Tallapoosa River (from Wolf Creek upstream to the Alabama-Georgia state line) and the mainstem of the Tallapoosa River (from Cane Creek, near Heflin, upstream to the Alabama-Georgia state line) (ADEM 2016a). No 303(d) impaired waters are located within the Lake Harris Project Boundary. Monitoring data collected in 2015 associated with Section 314 (a)(2) of the Clean Water Act show that Harris Reservoir is currently mesotrophic, which indicates that substantial nutrient loading is not occurring in the reservoir.

Little Coon Creek, which flows through portions of Skyline, is listed as impaired on Alabama's 2016 303(d) list due to siltation. According to the list, the impairment is due to non-irrigated crop production and pasture grazing.

1.1 Resource Management Goals

The ADEM is vested with the authority to issue a Section 401 Water Quality Certification for the Harris Project to ensure that operation of the Project will not violate applicable water quality standards. Any conditions of the Water Quality Certification will become conditions of the FERC operating license. The U.S. Fish and Wildlife Service (USFWS) and Alabama Department of Conservation and Natural Resources (ADCNR) have similar goals to reduce or eliminate any water quality impacts to aquatic resources associated with the Harris Project. Both goals are relevant in protecting the public resources associated with the Harris Project.

1.2 Baseline and Operational Alternatives

This water quality study will involve summarizing existing baseline information as well as collecting additional data that is needed for the 401 Water Quality Certification application. Any effects on water quality from potential changes in operations will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Study.

2.0 GOALS AND OBJECTIVES

The goal of this study is to supplement the *Baseline Water Quality Report* (Kleinschmidt 2018c) to provide a robust characterization of water quality under current conditions. Alabama Power will collect additional water quality data and compile and append that information to the *Baseline Water Quality Report*. Alabama Power will use the results of this study to develop an application for a Section 401 Water Quality Certification for the Harris Project. Alabama Power will also work with stakeholders to identify and assess potential areas of water quality concern on Harris Reservoir.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

Although water quality in Harris Reservoir and the immediate tailrace of Harris Dam is influenced by point and non-point source pollution, annual hydrology, and weather patterns, it is also affected by Harris Project operations. The geographic scope for the water quality study is Harris Reservoir and approximately 1400 feet downstream of the Harris Dam on the west bank of the river at the point agreed upon between Alabama Power and ADEM.

4.0 METHODS

Alabama Power will compile the water quality information available for Harris Reservoir and the tailrace collected from 2017 through 2019. Sources for this information will include: Alabama Power, ADEM, U.S. Geological Survey (USGS), Alabama Water Watch, and other credible sources identified by stakeholders.

Alabama Power is conducting dissolved oxygen monitoring in the tailrace at the tailrace monitor placed near latitude 33.255448 and longitude -85.615760, per agreement with ADEM, from June 1 through October 31 (2017 through 2019). Measurements of dissolved oxygen and temperature will be recorded continuously at 15-minute intervals during generation from June 1 through October 31 of 2017 through 2019. Alabama Power will also collect monthly vertical profiles of temperature and dissolved oxygen in the Harris Reservoir forebay between March and October of 2018 and 2019 to compare to historic profiles as well as profiles collected in 2017.

Alabama Power will work with stakeholders and resource agencies to identify areas on the reservoir where they believe degraded water quality conditions could exist. Alabama Power will work with the stakeholders and resource agencies to determine if identified areas warrant further examination. Where appropriate and available, existing data will be used to assess these areas of water quality concern.

5.0 REPORTS

Data and draft analyses from this study will be discussed with the agencies and the Harris Action Team (HAT) 2. Study results will be included as an Addendum to the Baseline Water Quality Report and will be provided as part of the Preliminary Licensing Proposal. The Addendum will include a summary of data for the collection years 2017-2019 and maps of sample sites.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 2 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT 2	November 2018-March 2021
FERC Study Plan Determination	April 2019
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
Prepare and file 401 Water Quality Certification	2020
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
Updated Study Report Meeting	April 2021
File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs for developing the draft and final Addendum and application for Water Quality Certification. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

ADEM. 2016a. 2016 Integrated Water Quality Monitoring and Assessment Report-Water Quality in Alabama 2014-2016. Alabama Department of Environmental Management, Water Division-Water Quality Branch. Montgomery, AL.

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b. Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

Alabama Power Company. 2018. Pre-Application Document for the Harris Hydroelectric Project (FERC No. 2628). Alabama Power Company, Birmingham, AL.

Kleinschmidt Associates. 2018c. Baseline Water Quality Report for the R.L. Harris Project (FERC No. 2628). Kleinschmidt Associates, Hoover, AL.

Appendix T

HARRIS DAM
RELICENSING

EROSION AND SEDIMENTATION STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA
Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

EROSION AND SEDIMENTATION STUDY PLAN

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EROSION AND SEDIMENTATION STUDY PLAN

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl).

Background and Existing Information

During the October 19, 2017 issue identification workshop, several stakeholders noted the location of some possible erosion areas and suggested causes. Erosion areas were located both around Lake Harris as well as downstream of Harris Dam. Specific causes cited by stakeholders included wave action from boats, construction adjacent to the Project Boundary, and the effect of Harris Project operations in the Tallapoosa River downstream. Information provided by the Natural Resources Conservation Service (NRCS) describes the erodibility of soils around the Harris Project shoreline as slight to moderate (NRCS 2017a). The NRCS also describes the erodibility of soils downstream of the Harris Project as slight to moderate, with a small area of severe erodibility downstream of the confluence of Chikasanoxee Creek (NRCS 2017b).

Stakeholders also noted the location of areas on Harris Reservoir where sedimentation may be a problem. Although no existing information sources regarding sedimentation rates or amounts have been identified, Alabama Power does have Light Detection and Ranging (LIDAR) data and aerial photography for Lake Harris that may provide some value in evaluating sedimentation issues. In addition, Alabama Power has an Aquatic Vegetation Control group that periodically inspects Lake Harris for nuisance aquatic vegetation. Nuisance aquatic vegetation may occur in areas where excessive sedimentation has occurred.

Little Coon Creek, which flows through portions of Skyline, is currently listed as impaired due to siltation. The sources of this impairment include non-irrigated crop production and pasture grazing (ADEM 2016).

1.1 Resource Management Goals

The Alabama Department of Conservation and Natural Resources (ADCNR) and Alabama Department of Environmental Management (ADEM) regulate recreational fishing and water quality resources, respectively, at the Harris Project. As part of that responsibility, their goals are to limit project related shoreline erosion and its impacts on water quality; to identify areas of sedimentation; to identify areas that currently have or could potentially have nuisance aquatic vegetation; and to identify ways to reduce adverse impacts related to Project operation on these issues.

1.2 Baseline and Operational Alternatives

The erosion and sedimentation study will involve collecting and summarizing existing baseline information. Any effects on erosion and sedimentation from potential changes in operations will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Study.

2.0 GOALS AND OBJECTIVES

The goals of this study are to identify problematic erosion sites and sedimentation areas and determine the likely causes. Alabama Power will consult with stakeholders to identify erosion and sedimentation “hotspots” around Lake Harris, along the Tallapoosa River downstream of Harris Dam to Horseshoe Bend, and at Skyline. Once hotspot areas are identified, Alabama Power will perform assessments and collect additional information, as necessary, to describe and categorize each area according to its severity and potential cause(s). Additionally, Alabama Power will assess sedimentation areas for the presence of nuisance or invasive aquatic vegetation.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

Erosion sites may occur along the lake shoreline or in the Tallapoosa River downstream of Harris Dam due to Project operations and/or other causes. Sedimentation of eroded materials often deposits along the lake (upstream river channel and tributary mouths) and can create areas that are prone to the establishment of nuisance aquatic vegetation and hinder recreation use. In addition, agricultural and land use practices in and around Skyline may cause sedimentation and erosion in Little Coon Creek.

The geographic scope for this study includes Little Coon Creek at Skyline, Lake Harris, and the Tallapoosa River from Harris Dam downstream to Horseshoe Bend.

4.0 METHODS

4.1 Erosion Data Collection and Analysis

Erosion sites on Lake Harris and in the Harris Project tailrace will be identified by stakeholders and will be investigated during low water elevations in the fall through spring (during the fall/winter pool drawdown). Each identified site will be photographed, georeferenced, and examined to determine the cause of erosion – Harris Project operation, land disturbance (development), or natural processes. The site evaluation form is included in Appendix A. Once each erosion site has been evaluated, a draft report of the field surveys will be prepared and issued to Harris Action Team (HAT) 2 for review and comment. Comments received from HAT 2 will be incorporated or addressed in the final report.

At Skyline, erosion will be qualitatively assessed using LIDAR and GIS to review the Little Coon Creek area and identify any local agricultural and land use practices that may be having an impact on erosion and/or sedimentation.

4.2 Sedimentation Data Collection and Analysis

Sedimentation areas will be identified by stakeholders and by examining available lake photography and LIDAR data. The LIDAR data will be analyzed using a Geographic Information System (GIS) to identify elevation or contour changes around the reservoir from historic conditions. Changes in lake surface area can be quantified to estimate sedimentation rates and volumes within the reservoir. Identified sedimentation areas will likely be limited to areas exposed during reservoir winter-pool elevations as LIDAR cannot penetrate the reservoir water surface. The GIS exercise will be accompanied by field observations to verify sedimentation areas. Each of these areas will be surveyed for nuisance aquatic vegetation. In addition, Alabama Power will review its records to determine if treatment of these areas has occurred. A summary of surveys and recommendations will be prepared and issued to the HAT 2 members for review and comment. Comments received from HAT 2 will be incorporated or addressed in the final report.

5.0 REPORTS

Once this study is complete, a draft report including maps, photographs, and assessments of erosion spots and sedimentation areas will be distributed to HAT 2 for review and comment. Upon review and discussion, Alabama Power will file a final report with the Harris License Application.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 2 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT	November 2018-March 2021
FERC Study Plan Determination	April 2019
Develop GIS Overlays and Maps	April-July 2019
Field Verification	Fall-Winter 2019-2020
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
Updated Study Report Meeting	April 2021
File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs to collect and review existing information, conduct site visits, and develop draft and final reports. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b. Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

Alabama Department of Environmental Management (ADEM). 2016. 2016 Alabama §303(d) List. [Online] URL: http://adem.state.al.us/programs/water/wquality/2016AL303dList.pdf. Accessed December 5, 2017.

Alabama Power Company. 2018. Pre-Application Document for the Harris Hydroelectric Project (FERC No. 2628). Alabama Power Company, Birmingham, AL.

Natural Resources Conservation Service (NRCS). 2017a. Web Soil Survey. [Online] URL: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed December 1, 2017.

Natural Resources Conservation Service (NRCS). 2017b. Web Soil Survey. [Online] URL: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed December 5, 2017.

APPENDIX A – HARRIS PROJECT

EROSION & SEDIMENTATION STUDY
SITE EVALUATION FORM

R. L. HARRIS PROJECT

EROSION & SEDIMENTATION STUDY SITE EVALUATION FORM

Water Body: _____ Date: _____

Field Personnel: _____ Photo No.: _____

1. Erosion Area Location:
   ID: _____ Lat: _____ Long: _____ Time: _____

2. Potential Cause:
   - ☐ Project operations (water level fluctuations)
   - ☐ Natural factor independent of operations (e.g., seasonal flooding, riverine processes, etc.
   - ☐ Land use (e.g., farming, ranching, mining, development, etc.)
   - ☐ Anthropogenic (Foot/bike paths, vehicle traffic, waves from boats, etc.)
   - ☐ Other: _____

3. Position in Landscape:
   - ☐ Levee/Embankment
   - ☐ Steep bank
   - ☐ Floodplain Terrace
   - ☐ Main Channel/Main Body of Lake
   - ☐ Cove
   - ☐ Other: _____

4. Physical Properties:
   Length: _____
   Width: _____
   Shape: _____
   Slope:
   - ☐ Steep (> 20%)
   - ☐ Moderate (8% to 20%)
   - ☐ Gentle (< 8%)

5. Erosion Processes:
   - ☐ Direct scour from river or tributary flows
   - ☐ Piping
   - ☐ Slumping due to scoured toe of bank
   - ☐ Gully or rill erosion from overland flows towards lake
   - ☐ Other: _____

6. Adjacent Land Use / Vegetable Cover:
   - ☐ Agricultural
   - ☐ Undeveloped, Grassy
   - ☐ Undeveloped, Wooded
   - ☐ Road Crossing/Bridge
   - ☐ Roadway, Gravel
   - ☐ Roadway, Paved
   - ☐ Park
   - ☐ Other: _____
   - ☐ Unvegetated
   - ☐ Early successional vegetation
   - ☐ Exposed roots or root undercutting
   - ☐ Leaning or fallen trees
   - ☐ Other: _____

7. Hydrologic Impact Information (Erosion area affected during or by):
   - ☐ Extreme Floods
   - ☐ Above normal high-water level
   - ☐ Within range of normal water level fluctuations

8. Description of Exposed Soils:
   _____
   _____
   _____

9. General Comments:
   _____
   _____
   _____ (Provide additional comments on back of sheet)

Appendix T

TALLAPOOSA RIVER FISHERIES STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

TALLAPOOSA RIVER FISHERIES INVESTIGATION-HARRIS DAM TO HORSESHOE BEND STUDY PLAN

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TALLAPOOSA RIVER FISHERIES INVESTIGATION-HARRIS DAM TO HORSESHOE BEND STUDY PLAN

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl)

Background and Existing Information

Alabama Power began operating the Harris Project in 1983. Initially, the Project only operated in a peaking mode with no intermittent flows in between peaks. Agencies and non-governmental organizations requested that Alabama Power modify operations to potentially enhance the downstream fishery. In 2005, based on recommendations developed in cooperation with stakeholders, Alabama Power implemented a pulsing scheme for releases from Harris Dam known as the Green Plan (Kleinschmidt 2018a). The purpose of the Green Plan was to reduce the effects of peaking operations on the aquatic community downstream.

Monitoring conducted since initiation of the Green Plan has indicated a positive ecosystem response due to increased habitat diversity; however, some research indicates that cooler stream temperatures may be affecting the reproduction, growth, and recruitment of certain fish species downstream of Harris Dam (Goar 2013, Irwin and Goar 2015) (Table 1-1). Alabama Department of Conservation and Natural Resources (ADCNR) has noted the abundance of some species is below expected levels. This could be due to several factors including sampling methodologies, thermal regime and/or nutrient availability.

During the October 19, 2017 issue identification workshop and meetings with resource agencies, stakeholders noted that stream temperatures in the Tallapoosa River downstream of Harris Dam are generally cooler than other unregulated streams in the same geographic area and this portion of the Tallapoosa River experiences temperature fluctuations related to peaking flows from Harris Dam. There is concern that the lower stream temperatures and temperature fluctuations are impacting the aquatic resources (especially fish) downstream of Harris Dam. The ADCNR recommended use of a Bioenergetics Model to evaluate the potential effects of current Project operations on the downstream fishery.

Table 1-1 Fish Species Potentially Affected by Cooler Temperatures In the Tallapoosa River Downstream of Harris Dam.

SCIENTIFIC NAME	COMMON NAME
Campostoma oligolepis	Largescale Stoneroller
Lepomis auritus	Redbreast Sunfish
Percina smithvanizi	Muscadine Darter
Hypentelium etowanum	Alabama Hogsucker
Noturus leptacanthus	Speckled Madtom
Micropterus ssp.	Black Bass
Ictalurus punctatus	Channel Catfish

1.1 Resource Management Goals

FERC has a responsibility to evaluate project impacts. Stakeholders believe that temperature associated with Project operations are adversely affecting fishery resources downstream of Harris Dam. Alabama Power is working with ADCNR to develop specific resource management goals for the fishery in the Tallapoosa River downstream of Harris Dam.

1.2 Baseline

As discussed in Section 1.0, Alabama Power implemented a pulsing scheme in 2005 for releases from Harris Dam known as the Green Plan (Kleinschmidt 2018a). The purpose of the Green Plan was to reduce the effects of peaking operations on the aquatic community downstream. From 2005 to 2017, the Alabama Cooperative Fish and Wildlife Research Unit (ACFWRU) conducted monitoring of shallow-water fish and benthic macroinvertebrate communities. Based on results of those monitoring efforts, the Green Plan has resulted in positive ecosystem response due to increased habitat diversity and is considered baseline operations.

2.0 GOALS AND OBJECTIVES OF STUDY

The goals of this study will be to address the research questions listed below. Specific methods to address these questions are being developed in consultation with resource agencies and HAT 3 members. Alabama Power is working with ADCNR, Auburn University, Alabama Department of Environmental Management (ADEM) and other stakeholders to develop a study or studies that will address the following research questions:

1. What is the status of the gamefish population in the Tallapoosa River below Harris Dam to Horseshoe Bend?
2. What are the temperature requirements of fish species of importance to ADCNR's management goals?
3. How similar or different are water temperatures from regulated and unregulated sites?
4. What existing information is available from previous research to characterize the condition of the fishery and potential effects of water temperatures or other factors?
5. Will a Bioenergetics Model for select species help determine if, and to what extent, temperature fluctuations affect reproduction, growth and recruitment?

Any effects on Green Plan flows from potential changes in operations due to a change in winter pool will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Study.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

The Harris Project operations have direct, indirect, and potential cumulative effects on lake and downstream resources. The geographic scope of this study is the Tallapoosa River downstream of Harris Dam to Horseshoe Bend and in unregulated reference streams.

4.0 METHODS

Existing information, supplemented by field and laboratory data may be used to address the research questions identified in Section 2.0.

5.0 REPORTS

Alabama Power will provide a draft report (both electronic and hard copy) to HAT members with a synopsis of the research conducted. The draft report will be distributed for review and comment upon completion. The final report will be provided as part of the Preliminary Licensing Proposal.

The results of the study will feed into the identification and investigation of potential protection, mitigation, and enhancement measures.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 3 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT 3	November 2018-March 2021
FERC Study Plan Determination	April 2019
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
Updated Study Report Meeting	April 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs for developing the draft and final Report Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b. Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

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HARRIS DAM
RELICENSING

THREATENED AND ENDANGERED SPECIES STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA
Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

THREATENED AND ENDANGERED SPECIES STUDY PLAN

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1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl).

Background and Existing Information

During the October 19, 2017 issue identification workshop, representatives from the United States Fish and Wildlife Service (USFWS) and Alabama Department of Conservation and Natural Resources (ADCNR) noted that there may be several species of federally protected bats using project lands around the Harris Project. The USFWS also noted that there may be some aquatic species of concern in the Project Area (areas adjacent to the Project Boundary that could be influenced by Project operations). The USFWS and ADCNR requested that potential impacts to threatened or endangered species currently in the Harris Project Boundary be addressed during the relicensing process.

During preparation of the Harris Pre-Application Document (PAD), research identified several federally protected species that are present in the counties where the Harris Project is located (Table 1). Additionally, research concluded a potential for federally protected species to be located within the Lake Harris or Skyline Project Areas.

1.1 Resource Management Goals

The FERC has a responsibility under Section 7 of the Endangered Species Act (ESA) to consult with USFWS on the presence of federally protected species that may be adversely impacted by operation of the Harris Project. FERC may require Alabama Power to implement measures to protect or enhance any critical habitat or populations of protected species impacted by the Project.

1.2 Baseline and Operational Alternatives

The Threatened and Endangered (T&E) Species study will assess the presence of any Federal and/or State protected species occurring on Harris Project lands and determine if Project operations would likely have an effect (positive or negative) on these species. If Harris Project effects are identified, Alabama Power will consult with USFWS and ADCNR to ensure adequate protection for these species. If Section 7 consultation is necessary, the study will also provide the basis for such need. Any effects on T&E species from potential changes in operations will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Study.

2.0 GOALS AND OBJECTIVES

The goals of this study are to assess the probability of populations of T&E species or their critical habitat occurring within the Harris Project Boundary or Project Area and determine if operations impact them. Section 7 of the ESA gives USFWS federal mandatory conditioning authority to identify and limit the impacts of the Harris Project on any species federally listed as threatened or endangered within the Harris Project Boundary or Project Area. ADCNR has developed a policy to enhance T&E species through protection of habitat, supplemental stocking, and/or reintroduction of species to historic habitats. If Project related impacts are identified, ADCNR and USFWS have expressed interest in determining ways to limit those impacts.

Table 1: Federally Threatened and Endangered Species Potentially Occurring in Alabama Counties Within the R.L. Harris Project

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS[1]	COUNTY(IES) OF OCCURRENCE	OCCURRENCE[2]	DOCUMENTED HISTORIC RANGE IN AL[3]
Picoides borealis	Red-Cockaded Woodpecker	E	Clay & Randolph		Statewide in appropriate habitat
Hamiota altilis	Fine-lined Pocketbook mussel	T	Cleburne	Yes Critical Habitat may be present in Project boundary	Coosa, Tallapoosa, Cahaba River systems
Lampsilis virescens	Alabama Lampmussel	E	Jackson		Tennessee River system
Villosa trabalis	Cumberland Bean	E	Jackson		Tennessee River system
Fusconaia cuneolus	Finerayed Pigtoe	E	Jackson		Tennessee River system
Toxolasma cylindrellus	Pale Lilliput	E	Jackson		Tennessee River system
Quadrula cylindrica	Rabbitsfoot	T	Jackson		Tennessee River system
Fusconaia cuneolus	Shiny Pigtoe	E	Jackson		Tennessee River system
Epioblasma triquetra	Snuffbox	E	Jackson		Tennessee River system
Pleuronaia dolabelloides	Slabside Pearlymussel	E	Jackson		Tennessee River system
Myotis sodalis	Indiana Bat	E	Clay, Cleburne, Randolph, Chambers, Tallapoosa, & Jackson	Yes	Statewide in appropriate habitat
Myotis septentrionalis	Northern Long-eared Bat	T	Clay, Cleburne, Randolph, Chambers, Tallapoosa, & Jackson	Yes	Piedmont and Cumberland regions
Myotis grisescens	Gray Bat	E	Jackson	Yes	Statewide in appropriate habitat
Amphianthus pusillus	Little Amphianthus	T	Randolph, Chambers, & Tallapoosa	Yes	Piedmont region (Bridges 1988)
Platanthera integrilabia	White Fringeless Orchid	T	Clay, Cleburne, Jackson, Chambers, & Tallapoosa		Talladega National Forest
Apios priceana	Price's Potato-bean	T	Jackson	Yes	Statewide in appropriate habitat
Clematis morefieldii	Morefield's Leather Flower	E	Jackson		Northern regions of state (USFWS 2007)

Source: Mirarchi et.al. 2004, USFWS 2016a, USFWS 2016b, Williams et.al. 2008.

1 E = Federally listed as Endangered, T = Federally listed as Threatened, C = Candidate for federal listing, P = not federally listed, but protected under Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

The study will assess the likelihood of aquatic and/or terrestrial T&E species occurring within the Harris Project Boundary or in the Tallapoosa River downstream of Harris Dam to Horseshoe Bend. The study will determine if Harris Project operations impact these populations or habitat. The study will assess the likelihood of T&E species occurring within the Skyline Project Boundary, with an emphasis on potential impacts of current operations (timber management) on populations of bats or their habitats.

4.0 METHODS

Information will be collected from various sources, including ADCNR, USFWS, and Alabama Natural Heritage Program databases, to appropriately characterize the present status of T&E species in the Project vicinity.

4.1 Threatened and Endangered Species

- Compile a list of T&E species and critical habitats documented as occurring in counties surrounding the Harris Project and the downstream reach of the Tallapoosa River from Harris Dam to Horseshoe Bend.
- Additional species of concern may be added at the request of USFWS and/or ADCNR if determined to be appropriate.
- Review literature of agreed upon species to gather habitat requirement data.
- Use a Geographic Information System (GIS) to map habitat information (land use, tree stand data, aquatic habitat data) to determine possible areas in the geographic scope that T&E species may utilize.

4.2 Data Analysis

- Summarize collected data of areas within the geographic scope that provide habitat requirements for T&E species.
- Determine if these areas are potentially impacted by Harris Project operations.
- Consult with stakeholders.
- Provide GIS overlays to consulting agencies.
- If applicable, recommend potential future field sampling.

5.0 REPORTS

Alabama Power will provide a draft report of potential T&E species locations, including maps [2], within the Harris Project geographic scope. The report will include a recommended determination on potential impacts associated with Project operations. The draft report will be distributed to Harris Action Team (HAT) 3 members for review and discussion. However, detailed location data

[2] T&E species location information is viewed as sensitive information and will not be distributed beyond state and federal agencies.

for T&E species will not be provided to the public without prior approval of USFWS. The draft report will be revised to include edits and recommendations from the HAT 3 members. The final report may serve as the basis for USFWS to determine the need for a Biological Assessment or formal Section 7 consultation. The report, potential protection and/or mitigation measures, and recommendations from USFWS will be provided as part of the Preliminary Licensing Proposal.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 3 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT 3	November 2018-March 2021
FERC Study Plan Determination	April 2019
Develop GIS Overlays and Maps	April-July 2019
Field Verification, if required	September 2019-February 2020
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
Updated Study Report Meeting	April 2021
File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs to develop the T&E species database and prepare a draft and final report. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b. Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

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Appendix T

HARRIS DAM
RELICENSING

PROJECT LANDS EVALUATION STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

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PROJECT LANDS EVALUATION STUDY PLAN

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl).

Background and Existing Information

Alabama Power's current Harris Land Use Plan defines land use categories within the existing Project Boundary (Alabama Power 2008). Harris Project classifications are Recreational Use, Hunting, Prohibited Access, and Natural Undeveloped, as defined below.

- *Recreational Use (Public Use Areas)* – Includes lands where existing public recreation access and facilities occur and those lands set aside for future recreational use access depending on future recreation demand and needs. Within these areas, specific locations are identified as "Quasi-Public Use Areas" to provide potential use by non-profit groups, such as scouts, youth organizations, and educational groups, for outdoor recreational activities.
- *Hunting* – Includes lands that are managed to provide hunting opportunities (either through hunting leases or individual permits) as prescribed in accordance with the existing Harris Project Wildlife Mitigation Plan. Non-hunting related public access is allowed from May 1 until September 30 of each year for activities such as hiking, backpacking, camping, wildlife observation, and bank fishing opportunities.
- *Prohibited Access* – Includes lands where public use and access are prohibited to avoid hazards to the public and to prevent interference or damage to Harris Project facilities and operations (the tailrace fishing area is one exception to this use type where public access is allowed).
- *Natural Undeveloped* – Includes lands to remain in an undeveloped state to serve as protective buffer zones around public recreation areas and shoreline areas, preserve natural aesthetic qualities, prevent overcrowding, as well as to protect environmentally sensitive areas. These lands allow public access for hiking and primitive camping activities and are managed for timber production in accordance with the existing Harris Wildlife Mitigation Plan.

Additional information that will help inform this evaluation includes Alabama Power's shoreline permitting program for Harris and other Alabama Power FERC-approved Shoreline Management Plans (SMP) and Wildlife Management Programs (WMP). These documents will be used only as a reference to understanding the format and content that FERC approved.

1.1 Resource Management Goals

The FERC requires that project lands and waters be protected and maintained for their designated project purposes (as part of the Standard License Articles). In addition, Licensees have an obligation to confirm that shoreline development, timber management, and wildlife management activities that occur within a project boundary are consistent with project license purposes and requirements.

1.2 Baseline and Operational Alternatives

The project lands evaluation study will involve evaluating baseline Harris Project lands information. Any effects on project lands from potential changes in operations will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Study. Relevant information from the operating curve change analysis may be used in developing the Harris WMP and SMP.

2.0 GOALS AND OBJECTIVES

The FERC is responsible for issuing licenses for the construction, operation, and maintenance of non-federal hydropower projects. Alabama Power, as Licensee, is responsible for operating and maintaining its FERC-licensed projects in accordance with the license requirements and Harris Project purposes (*i.e.*, power generation, public recreation, environmental protection, aesthetic values).

Alabama Power intends to conduct a Harris Project lands evaluation study to identify lands around Lake Harris and at Skyline that are needed for Harris Project purposes and to classify these lands. The study will identify lands to be added to, or removed from, the current Harris Project Boundary and/or be reclassified to conform to Alabama Power's current land classification system and other Alabama Power FERC-approved Shoreline Management Plans.

Once this evaluation is complete, Alabama Power proposes to use the project lands evaluation information to develop a WMP and a SMP. Alabama Power will use the FERC guidance applicable at the time these plans are developed.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

The proposed project lands evaluation study plan will identify lands necessary for the Harris Project. Additionally, the study plan will be used to develop a WMP and SMP, as required by FERC for hydroelectric projects under its jurisdiction.

The geographic scope for this study includes the Harris Project Boundary and the associated Project Area.

4.0 METHODS

This study is divided into two phases: Phase 1, project lands evaluation and Phase 2, developing the WMP and SMP based on the results of Phase 1. The detailed process for completing Phase 1 will be as follows:

1. Meet with Harris Action Team (HAT) 4 members to discuss potential changes to the project lands (add, delete, or reclassify). All proposed changes to the Harris Project lands will include a tract by tract description and will be presented in Geographic Information System (GIS) format.
2. All proposed land changes will consider the location of any threatened or endangered species (T&E), wetlands, and cultural resources (i.e., "Sensitive Areas"), timber management tracts and current practices, and the impaired waters GIS layer developed by the Alabama Department of Environmental Management (ADEM).
3. Alabama Power will develop a draft map using GIS to show all proposed changes to Harris Project Lands.
4. Alabama Power will develop a Phase 1 Draft Project Lands Evaluation Study Report for stakeholder review and comment.

5. Alabama Power will develop and issue a Phase 1 Final Project Lands Evaluation Study Report for use in Phase 2.

Phase 2 - Phase 2 includes developing a SMP (Phase 2A) and a WMP (Phase 2B). In addition to the results from the land use evaluation, Alabama Power will also integrate results of other relicensing studies (e.g., T&E study, water quality), as appropriate, to the SMP and WMP.

Phase 2A – SMP

1. Form a HAT for persons interested in working on the SMP issues.
2. Review existing and develop new, if applicable, Best Management Practices (BMPs) and evaluate how these BMPs would apply to the different land classifications.
3. Review the Harris Guidelines for Shoreline Permitting; discuss potential modifications.
4. Incorporate the Aquatic Nuisance Vegetation and Vector Control Program into the SMP.
5. Include existing Alabama Power policies for the Harris Project (i.e., dredging, primitive camping);
6. Develop a Draft SMP to file with the license application (see Section 5.0).

Phase 2B - WMP

1. Form a HAT for those persons interested in collaborating on the WMP. This HAT will likely include agency representatives from Alabama Department of Conservation and Natural Resources (ADCNR), ADEM, U.S. Fish and Wildlife Service (USFWS), and other interested groups/individuals. In preparation for facilitated meetings, Alabama Power will prepare GIS overlays that depict:
   - lands within the Project Boundary and current land use classifications for those lands (from Phase 1);
   - forest stand data showing cover type, composition, and age of forest stands within the Project boundary;
   - current timber management objectives and any existing BMPs;
   - locations of known populations of T&E species;
   - impaired waters list; and
   - characterization and composition of riparian, wetland, and littoral habitats within the Project Boundary
2. This information will provide the basis of knowledge for discussions about management goals to enhance wildlife resources at the Harris Project.
3. Alabama Power will facilitate HAT meetings to collaborate on developing a WMP using information obtained during this study.
4. Develop a Final WMP to file with the license application (see Section 5.0).

5.0 REPORTS

During Phase 1, Alabama Power will develop a report, including GIS maps, identifying any Harris Project land additions and/or deletions, as well as any classification changes for HAT 4 review and comment. Phase 2 reports include a Draft SMP and WMP that will be distributed to the HAT 4 for discussion, review, and comment. Alabama Power will file the SMP and WMP with the final license application.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 4 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT 4	November 2018-March 2021
FERC Study Plan Determination	April 2019
Phase 1 - Develop GIS Overlays and Maps	April-September 2019
Phase 2 A -SMP	2020-2021
Phase 2 B -WMP	2020-2021
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
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File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs for completing Phase 1 and Phase 2A and 2B tasks. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b. Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

Alabama Power Company. 2008. 1995 Land Use Plan for the R.L. Harris Project (Revised 2008) submitted to the Federal Energy Regulatory Commission by Alabama Power Company, on June 30, 2008. Alabama Power Company, Birmingham, AL.

Alabama Power Company. 2018. Pre-Application Document for the Harris Hydroelectric Project (FERC No. 2628). Alabama Power Company, Birmingham, AL.

Appendix T

HARRIS DAM
RELICENSING

RECREATION EVALUATION STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

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RECREATION EVALUATION STUDY PLAN

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Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl).

Background and Existing Information

Alabama Power intends to conduct a Recreation Evaluation study that will describe the existing Harris Project recreation facilities, discuss current and future use estimates, and evaluate the need for additional recreational facilities at the Harris Project in the future.

The Lake Harris Project Area, located within Clay, Cleburne, and Randolph counties, Alabama, provides both reservoir and riverine recreation opportunities. The Project Boundary includes Lake Harris and extends upstream on the Tallapoosa River, providing additional, more riverine boating and fishing opportunities. Recreation within the Lake Harris Project Area typically includes boating (non-motorized and motorized), fishing, water sports, swimming, picnicking, and hiking. Project lands and waters are generally available for public recreational use.

The Skyline Project Area located in Jackson County, Alabama provides public hunting opportunities. Notable recreation opportunities in addition to hunting in this area (but not located in the Skyline Project Boundary) include the "Walls of Jericho" and a stop on the Alabama Birding Trail.

The following Project recreation sites located within the existing Project Boundary are currently on lands owned by Alabama Power and will be included in this Recreation Evaluation study.

Table 1. Summary of Harris Project Recreation Sites

Recreation Site Name	Type of Facility
Lee's Bridge Boat Ramp	Boat Launch
Foster's Bridge Boat Ramp	Boat Launch
Swagg Boat Ramp	Boat Launch
Lonnie White Boat Ramp	Boat Launch
Crescent Crest Boat Ramp	Boat Launch
Highway 48 Bridge Boat Ramp	Boat Launch
Wedowee Marine South	Marina
Little Fox Creek Boat Ramp	Boat Launch
Big Fox Creek Boat Ramp	Boat Launch
Flat Rock Park	Day Use Park
R. L. Harris Management Area	Hunting
Harris Tailrace Fishing Platform	Fishing Access

1.1 Resource Management Goals

Recreation is a recognized project purpose under Section 10(a) of the Federal Power Act. As part of 18 CFR § 5.6(viii), FERC requires a description of the existing and future recreation and land uses opportunities. The resource management goals are to identify and provide for long-term management and potential recreation enhancement of public recreational opportunities associated with the Harris Project.

1.2 Baseline and Operational Alternatives

The recreation evaluation study will involve evaluating baseline recreation at the Harris Project. Any effects on recreation from potential changes in operations will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Analysis.

2.0 GOALS AND OBJECTIVES

The goal of this study is to gather baseline information on existing recreation facilities, existing recreational use and capacity, and estimated future demand and needs at the Harris Project.

The objectives of the study are as follows:

- Review existing information and inventory and map (using Geographic Information Systems) existing public recreation sites and access areas within the Project Boundary, including site locations and facilities/amenities;
- Summarize who owns, operates, and maintains each recreation site;
- Evaluate the condition of the Harris Project recreation sites and facilities within the Project Boundary, including existing information on the suitability of facilities to provide opportunities for persons with disabilities to participate in recreation opportunities (i.e., compliance with current Americans with Disabilities Act [ADA] design standards), where feasible, and public safety features;
- Estimate current recreation use and the current and projected use capacity at Harris Project recreation sites; and
- Evaluate the adequacy of Harris Project recreation facilities (both on Lake Harris and downstream of Harris Dam) and identify if any changes or upgrades to the existing sites are needed to meet current or future recreation needs and demand.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

The FERC policy requires Alabama Power to provide reasonable public recreation opportunities consistent with the safe and effective operation of the Harris Project. Alabama Power provides recreational opportunities according to the existing Harris Project license conditions and has undertaken measures, including ongoing maintenance of recreation facilities, throughout the license term. The proposed Recreation Evaluation Study will provide information about available recreational facilities, current use, and assess future recreational needs at the Harris Project.

The geographic scope includes public recreation sites located within the Harris Project. The geographic scope also includes the Tallapoosa River downstream from Harris Dam to Horseshoe Bend.

4.0 METHODS

The following describes the proposed methodology for the Harris Project Recreation Evaluation.

4.1 Project Recreation Site Inventory and Condition Assessment

Alabama Power will compile a site inventory and condition assessment information for each of the Harris Project recreation sites. The recreation site inventory and condition assessment will:

1. Describe the type and map the location of the recreation site in relation to the Project Boundary;
2. Describe the type, number, and condition of amenities provided at each site;
3. Estimate recreation facility capacity;
4. Evaluate the condition of the recreation sites and facilities, including suitability of facilities to provide opportunities for persons with disabilities to participate in recreation opportunities (i.e., compliance with current ADA design standards) and public safety features;
5. List entities responsible for the operation and maintenance of each facility; and
6. Document recreation facilities using photographs.

4.2 Project Area Recreation Use and Future Recreation Demand

The FERC requires licensees to file Form 80 recreation reports for each project development every six years, unless the licensee obtains an exemption from FERC. The Form 80 report includes summaries of annual use and average use on peak weekends for both daytime and nighttime periods to characterize use of these facilities during the calendar year preceding the year when the reports were filed. The Form 80 report also includes an assessment of the capacity utilization of the identified recreation amenities.

For recreation use at Project recreation sites, Alabama Power will compile existing 2014 FERC Form 80 data and collect data during 2019 following the methodology applied for the 2014 Form 80 data collection period (Alabama Power 2015) (see Appendix A). This will allow for analysis and comparison of recreation facility use and capacity between the 2014 and 2019 data collection periods. Counts will be conducted as summarized in Appendix A. For each month, sites are counted a minimum of six weekdays (8 am to 5 pm) and three weeknights (after 5 pm) at varying times of day and days of the week. Two weekend days and one weekend night are observed each month, and one count will be conducted during each holiday weekend (Memorial Day, July 4th, and Labor Day). Recreation use at Skyline will be characterized based on existing available recreation use data obtained from Alabama Department of Conservation and Natural Resources (ADCNR).

Alabama Power will conduct roving creel surveys immediately downstream of Harris Dam. These surveys will be conducted on the same schedule (during 2019) as the Form 80 data collection methods. See Appendix B for Creel Survey form. For downstream use below Harris Project lands and within the study area, Alabama Power will compile existing available recreation use data from key recreational use areas, such as Horseshoe Bend National Military Park, to characterize existing recreational use downstream of the Project.

Alabama Power will assess future regional recreation demand and participation based on information provided in the Alabama State Comprehensive Outdoor Recreation Plan (SCORP), as well as assessment of population projections within the Harris Project region (e.g., Clay, Cleburne, Randolph, and Jackson counties, Alabama) (ADECA 2013).

4.3 Identify Potential Recreation Facility Needs and Upgrades

Alabama Power will consult with the Harris Action Team (HAT) 5 members to review the recreation facility and use data and assess potential development of additional recreation sites and

upgrades to existing sites at the Harris Project. Alabama Power intends to hold HAT 5 meetings as necessary to accomplish this task.

5.0 REPORTS

Alabama Power will summarize the information in the Recreation Evaluation Report, including documentation of existing baseline conditions and potential recreation facility needs and upgrades for the Harris Project. Alabama Power will develop a draft and final report for this study and provide opportunity for HAT 5 to discuss, review, and comment.

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on June 1, 2018. Consultation meeting dates will be finalized with HAT 5 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
Consultation with HAT 5	November 2018-March 2021
FERC Form 80 Data Collection	January - December 2019
FERC Study Plan Determination	April 2019
Develop Form 80 Report	March 2020
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020
File Preliminary Licensing Proposal	April 2021
Updated Study Report	April 2021
Updated Study Report Meeting	April 2021
File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost of consulting on the study plan, conducting the recreation evaluation, and developing a draft and final report. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b. Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

Alabama Department of Economic and Community Affairs (ADECA). 2013. Statewide Comprehensive Outdoor Recreation Plan, 2013-2018, Prepared by South Central Alabama Development Commission 5900 Carmichael Place, Montgomery, Alabama. Available at: http://www.adeca.alabama.gov/Divisions/ced/Recreation/Trail%20Plan/SCORP%202013-2018.pdf. Accessed December 2017.

Alabama Power Company. 2018. Pre-Application Document for the Harris Hydroelectric Project (FERC No. 2628). Alabama Power Company, Birmingham, AL.

Alabama Power Company (Alabama Power). 2015. FERC Form 80 Report for the 2014 calendar year period. Filed with the Federal Energy Regulatory Commission on March 30, 2015. Alabama Power Company, Birmingham, AL.

APPENDIX A

ALABAMA POWER FERC FORM 80

Appendix T

600 N. 18th Street
Post Office Box 2641
Birmingham, AL 35203

Tel 205.257.1000

March 30, 2015

VIA ELECTRONIC FILING

FERC Project No's. 349 (Martin Dam)
2146 (Coosa River)
2165 (Warrior River)
2203 (Holt)
2407 (Yates and Thurlow)
2628 (R L Harris)

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington DC 20426

RE: FERC Form No. 80's

Dear Ms. Bose:

Alabama Power Company (APC) is the licensee for the Martin Dam (FERC No. 349), Coosa River (FERC No. 2146), Warrior River (FERC No. 2165), Holt (FERC No. 2203), Yates and Thurlow (FERC No. 2407), and R L Harris (FERC No. 2628) Hydroelectric Projects which includes the following 14 developments:

Project Number	Development
349	Martin Dam
2146	Weiss
2146	Neely Henry
2146	Logan Martin
2146	Lay
2146	Mitchell
2146	Jordan
2146	Bouldin
2165	Lewis Smith
2165	John Hollis Bankhead Dam
2203	Holt
2407	Thurlow
2407	Yates
2628	R L Harris

In accordance with 18 CFR § 8.11, APC is required to gather recreation use data for a 12-month period beginning no later than March 15, 2014, to be filed on the Licensed Hydropower Development Recreation Report, FERC Form No. 80 (Form 80) by April 1, 2015, for each of its hydropower project developments.

In conjunction with these filings, APC is also filing herein its detailed methods of data collection and estimations of recreational use on its reservoirs that was used to complete each Form 80.

Please contact me at 205-257-1207 or twstjohn@southernco.com if you need additional information.

Sincerely,

Thomas W. St. John

Alabama Power Company

Appendix T

ALABAMA POWER COMPANY

2014 FERC FORM 80 METHODS

SUMMARY REPORT

600 18TH STREET NORTH
BIRMINGHAM, AL 35203

DATA COLLECTION METHODS

DESCRIPTIONS BY TYPE

TRAFFIC/TRAIL COUNTS (20%)

- Definition: count of the total number of vehicles or trailers parked for the use of a specific amenity at a given moment.
- This method is used for amenities in which users are not centrally congregated for an accurate count, such as boat launch and trail users.
- Vehicle and trailer counts are later converted into an estimation of people using the formulas described later in this document.
- Counts are conducted various months throughout the calendar year. For each month, sites are counted a minimum of six weekdays (8am to 5pm) and three weeknights (after 5 pm) at varying times of day and days of the week. Two weekend days and one weekend night is observed each month, not including required holiday weekend counts.

ATTENDANCE RECORDS (10%)

- Definition: count of total users for a site for the entire calendar year, not broken out by amenity or time of day or week.
- This method is used for larger parks with gate attendants, particularly Flat Rock Park and DARE Park, in which counts are taken of each user that passes its gates year round.
- Generalizations of this type of data must be made by comparing overall numbers to similar situations in order to assess utilization of individual amenities. Total Recreation Days, however, will be 100% accurate in this scenario.

STAFF OBSERVATIONS (60%)

- Definition: counts of the total number of people utilizing a specific amenity at a given moment.
- This method is used for the majority of amenities in which users are centrally congregated for an accurate count, such as a picnic area, swim area, or fishing area.
- Counts are conducted various months throughout the calendar year. For each month, sites are counted a minimum of six weekdays (8am to 5pm) and three weeknights (after 5 pm) at varying times of day and days of the week. Two weekend days and one weekend night is observed each month, not including required holiday weekend counts.

VISITOR COUNTS OR SURVEYS (10%)

- Definition: count or estimation of total users for a site for the entire calendar year, broken out by amenity and time of day and week, if possible.

- This method is implemented at third party facilities such as private marinas or state parks that collect their own counts, observations, and visitor records throughout the year for their own use and often in great detail.

- Information requested from these entities mirrored that of what was being collected by APC personnel on other sites. Each entity has its own data collection method. Therefore, a variety of answers are received which must then be normalized to a common figure for use in this report. Despite its increased complexity, this data is often very accurate at the amenity level, and much like the aforementioned attendance records, provides a very clear picture of Total Recreation Days at the site.

SCHEDULE 1

DEFINITIONS AND CALCULATIONS FOR RELEVANT LINE ITEMS

DOLLAR VALUES

- Construction, Operation and Maintenance Costs = 2014 costs for both capital and O&M projects on all APC operated and/or maintained recreation sites

- Recreation Revenues for Calendar Year = 2014 revenue accrued by APC from recreation site users on APC reservoirs

TOTAL RECREATION DAYS

FERC Definition: Each visit by a person to a development for recreational purposes during any portion of a 24-hour period.

Total Recreation Days = Annual Total Daytime + Annual Total Nighttime

NOTE: These values are further defined below.

ANNUAL TOTAL: DAYTIME

Annual Daytime Total = [Average Non-Peak Weekday Daytime Use x Number of Non-Peak Weekdays Open in 2014] + [Average Non-Peak Weekend Daytime Use x Number of Non-Peak Weekends Open in 2014] + [Average Holiday Weekend Day Daytime Use x Number of Holiday Weekend Days Open in 2014]

WHEREAS:

- Average Daytime Use = Average use from 12:01am until 5pm, calculated based on the formulas provided in the following section for each amenity.

  NOTE: Totals account for all amenities at all sites for each development. In some cases, counts for amenities were redundant in terms of site users as at many sites the use of one amenity implies the use of another. These redundancies were eliminated within our calculations.

ANNUAL TOTAL: NIGHTTIME

Annual Nighttime Total = [Average Non-Peak Weekday Nighttime Use x Number of Non-Peak Weekdays Open in 2014] + [Average Non-Peak Weekend Nighttime Use x Number of Non-Peak Weekends Open in 2014] + [Average Holiday Weekend Day Nighttime Use x Number of Holiday Weekend Days Open in 2014]

WHEREAS:

- Average Nighttime Use = Average use from 5pm to midnight, calculated based on the formulas provided in the following section for each amenity.

  NOTE: Totals account for all amenities at all sites for each development. In some cases, counts for amenities were redundant in terms of site users as at many sites the use of one amenity implies the use of another. These redundancies were eliminated within our calculations.

PEAK WEEKEND AVERAGE: DAYTIME

Peak Weekend Daytime Average = Average Daytime Use on a Holiday Weekend Day x 3

WHEREAS:

- Average Peak Weekend Daytime Use = Average use of recreation facilities on a Holiday weekend (Labor Day, July 4th, Memorial Day) from 12:01am until 5pm, calculated based on the formulas provided in the following section for each amenity. In 2014, these weekends fell on Saturday, Sunday, and Monday for Labor Day and Memorial Day and on Friday, Saturday, and Sunday for July 4th.

  NOTE: Totals account for all amenities at all sites for each development. In some cases, counts for amenities were redundant in terms of site users as at many sites the use of one amenity implies the use of another. These redundancies were eliminated within our calculations.

PEAK WEEKEND AVERAGE: NIGHTTIME

Peak Weekend Nighttime Average = Average Nighttime Use on a Holiday Weekend Day x 3

WHEREAS:

- Average Peak Weekend Nighttime Use = Average use of recreation facilities on a Holiday weekend (Labor Day, July 4th, Memorial Day) from 5pm to midnight, calculated based on the formulas provided in the following section for each amenity. In 2014, these weekends fell on Saturday, Sunday, and Monday for Labor Day and Memorial Day and on Friday, Saturday, and Sunday for July 4th.

  NOTE: Totals account for all amenities at all sites for each development. In some cases, counts for amenities were redundant in terms of site users as at many sites the use of one amenity implies the use of another. These redundancies were eliminated within our calculations.

SCHEDULE 2

DEFINITIONS AND CALCULATIONS BY RECREATION AMENITY TYPE

BOAT LAUNCH AREAS

FERC Definition: Improved areas having one or more boat launch lanes that are usually marked with signs, have hardened surfaces, and typically have adjacent parking.

TOTAL UNITS

- Lanes: total number of lanes from which a boat may be launched simultaneously on a given development

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Trailer Rig Parking Spaces **x** 2 (average users per boat) **x** 3 (average turnover throughout the day)

- Estimated Daily Use = [Total # of Trailer Rigs Counted on Non-Peak Weekend Days **x** 2 (average users per boat) **x** 3 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

MARINAS

FERC Definition: Facilities with more than 10 slips on project waters, which include one or more of the following: docking, fueling, repair and storage of boats; boat/equipment rental; or sell bait/food.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Boat Slips and Dry Storage Available Within the Project Boundary (both annual and courtesy)
- Estimated Daily Use = Average Number of Slips and Dry Storage Within the Project Boundary in Use Daily (both annual and courtesy)

NOTE:

- All marina estimates were obtained from marina personnel and were not broken down by time of day or week as there was no uniform response from which to normalize the data. Therefore, these estimates do not account solely for non-peak weekend usage but for the entire year.

WHITEWATER BOATING

FERC Definition: Put-ins/Take-outs specifically designated for whitewater access.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Maximum Number of Paddlers Ferried in a Day by Both Paddling Companies
- Estimated Daily Use = Total # of Paddlers Ferried on Non-Peak Weekend Days / Total # of Non-Peak Weekend Days Open

TAILWATER FISHING

FERC Definition: Platforms, walkways, or similar structures to facilitate below dam fishing.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = [Length of Pier or Bank Available for Fishing / 8 (average horizontal space needed per fisherman)] **x** 3 (average turnover throughout the day)
- Estimated Daily Use = [Total # of Fishermen Counted on Non-Peak Weekend Days **x** 3 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

NOTE:

- For T-shaped piers, only the end portion of the pier was considered available for fishing.

RESERVOIR FISHING

FERC Definition: Platforms, walkways, or similar structures to facilitate fishing in the reservoir pool or feeder streams.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = [Length of Pier or Bank Available for Fishing / 8 (average horizontal space needed per fisherman)] **x** 3 (average turnover throughout the day)
- Estimated Daily Use = [Total # of Fishermen Counted on Non-Peak Weekend Days **x** 3 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

NOTE:

- For T-shaped piers, only the end portion of the pier was considered available for fishing.

SWIM AREAS

FERC Definition: Sites providing swimming facilities (bath houses, designated swim areas, parking and sanitation facilities).

TOTAL UNITS

- Acres: total acreage of beach and buoyed swim area

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Acreage of Swim Area **x** 0.01 (suitable acreage per swim user) **x** 2 (average turnover throughout the day)
- Estimated Daily Use = [Total # of Swimmers Counted on Non-Peak Weekend Days **x** 2 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

TRAILS

FERC Definition: Narrow tracks used for non-automobile recreation travel which are mapped and designated for specific use(s) such as hiking, biking, horseback riding, snowmobiling, or XC skiing (excludes portages, paths or accessible routes).

TOTAL UNITS

- Miles: total length of trail system

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Single Car Parking Spaces **x** 2 (average users per vehicle) **x** 2 (average turnover throughout the day)
- Estimated Daily Use = [Total # of Single Cars Counted on Non-Peak Weekend Days **x** 2 (average users per vehicle) **x** 2 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

ACTIVE RECREATION AREAS

FERC Definition: Playground equipment, game courts/fields, golf/disc golf courses, jogging tracks, etc.

TOTAL UNITS

- Acres: total acreage of active recreation area

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Single Car Parking Spaces **x** 2 (average users per vehicle) **x** 2 (average turnover throughout the day)
- Estimated Daily Use = [Total # of Single Cars Counted on Non-Peak Weekend Days **x** 2 (average users per vehicle) **x** 2 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

PICNIC AREAS

FERC Definition: Locations containing one or more picnic sites (each of which may include tables, grills, trash cans, and parking).

TOTAL UNITS

- Sites: total number of picnic tables in area

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Picnic Tables **x** 6 (maximum users per table) **x** 2 (average turnover throughout the day)

- Estimated Daily Use = [Total # of Users Counted on Non-Peak Weekend Days **x** 2 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

OVERLOOKS/VISTAS

FERC Definition: Sites established to view scenery, wildlife, cultural resources, project features, or landscapes.

TOTAL UNITS

- Acres: total acreage available from which to view the area

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Single Car Parking Spaces **x** 2 (average users per vehicle) **x** 3 (average turnover throughout the day)
- Estimated Daily Use = [Total # of Single Cars Counted on Non-Peak Weekend Days **x** 3 (average users per vehicle) **x** 2 (average turnover throughout the day)] / Total # of Non-Peak Weekend Days Counted

VISITOR CENTERS

FERC Definition: Buildings where the public can gather information about the development/project, its operation, nearby historic, natural, cultural, recreational resources, and other items of interest.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Maximum # of Visitors Per Tour **x** Maximum # of Tours Available Per Day
- Estimated Daily Use = Total # of Visitors Counted in 2014 / Total # of Days Open in 2014

INTERPRETIVE DISPLAYS

FERC Definition: Signage/Kiosks/Billboards which provide information about the development/project, its operation, nearby historic, natural, cultural, recreational resources, and other items of interest.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

- Not Applicable

HUNTING AREAS

FERC Definition: Lands open to the general public for hunting.

TOTAL UNITS

- Acres: total acreage within the project boundary available for hunting

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Maximum # of Hunters Allowed Daily (1 per site)
- Estimated Daily Use = Total # of Hunters Counted in 2014 / [Total # of Days Open in 2014 **x** Total # of Slots Available at Each Site in 2014]

CAMPGROUNDS

FERC Definition: Hardened areas developed to cluster campers (may include sites for tents, trailers, recreational vehicles [RV], yurts, cabins, or a combination, but excludes group camps).

TOTAL UNITS

- Acres: acreage available within the project boundary for campsites

CAPACITY UTILIZATION

- Not Applicable

CAMPSITES

FERC Definition: Sites for tents, trailers, recreational vehicles [RV], yurts, cabins, or a combination of temporary uses.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Campsites Available **x** 4 (average campers per site)
- Estimated Daily Use = [Total # of Campsites Used in 2014 Provided By Operator **x** 4 (average campers per site)] / Total # of Days Open in 2014

COTTAGE SITES

FERC Definition: Permanent, all-weather, buildings rented for short-term use, by the public, for recreational purposes.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Cottage Sites Available **x** 4 (average users per site)
- Estimated Daily Use = [Total # of Cottage Sites Used in 2014 Provided By Operator **x** 4 (average users per site)] / Total # of Days Open in 2014

DISPERSED CAMPING AREAS

FERC Definition: Places visitors are allowed to camp outside of a developed campground.

TOTAL UNITS

- Sites: total number of sites available within the project boundary for primitive camping in an area

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = Total # of Campsites Available **x** 4 (average campers per site)
- Estimated Daily Use = [Average # of Campsites Used in 2014 on Non-Peak Weekend Days **x** 4 (average campers per site)] / Total # of Non-Peak Weekend Days Open in 2014

INFORMAL USE AREAS

FERC Definition: Well used locations which typically do not include amenities, but require operation and maintenance and/or public safety responsibilities.

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = See Formula for Informal Amenity Type (amenity to which site most resembles)
- Estimated Daily Use = See Formula for Informal Amenity Type (amenity to which site most resembles)

NOTE:

- Informal Use Areas have no infrastructure but are commonly used as a recreation opportunity. They are not actively managed or maintained. These sites are treated as the amenity for which they most closely resemble and could possibly be developed formally in the future. Their calculations, therefore, mirror that specific amenity.

ACCESS POINTS

FERC Definition: Well-used sites for visitors entering project lands or waters, without trespassing, for recreational purposes (may have limited development such as parking, restrooms, signage).

TOTAL UNITS

- Not Applicable

CAPACITY UTILIZATION

Capacity Utilization = Daily Capacity / Estimated Daily Use

WHEREAS:

- Daily Capacity = See Formula for Informal Amenity Type (amenity to which site most resembles)
- Estimated Daily Use = See Formula for Informal Amenity Type (amenity to which site most resembles)

NOTE:

- Access Points contain some sort of infrastructure that lends itself to recreation opportunity but is not actively managed or maintained. These areas are treated as the amenity for which they most closely resemble and could possibly be developed formally in the future. Their calculations, therefore, mirror that specific amenity.

APPENDIX B

DRAFT HARRIS CREEL SURVEY FORM

R.L. HARRIS PROJECT **DRAFT**
HARRIS TAILRACE CREEL SURVEY

Survey ID No.:_____ Survey Clerk Name:_____ Weather:_____

Date:_____Time:_____Location:_____

Demographic Information

1. **Gender: Male_____ Female_____ Age: _____**

2. **Residence: Town:_____ State: _____ Zip Code: _____**

Fishing Trip Information

3. **Number of hours spent fishing: Boat_____ Bank_____ Instream_____**

4. **What time begin fishing _____ am or pm What time end fishing _____ am or pm**

5. **Fishing Method: Bait_____ Lure_____ Fly____**

6. **Target Species**

Species Name	Size				Retained	Released
	<6 inches	6-12 inches	12-15 inches	>15 inches		

7. **How often do you fish at the Harris Project Tailrace?**

   Often (≥ 10 days/yr) ___ **Moderate** (5-10 days/yr) ___ **Infrequent** (2-4 days/yr) ___ **First Time** ___

8. **When do you using fish at the Harris Project Tailrace?**

   Season: Spring (March-May) __ **Summer** (June-Aug) ___ **Fall** (Sept-Nov) ____ **Winter** (Dec-Feb) ____

   Day: Weekdays ___ **Weekends** __ **Holidays**____

   Time: Morning (6 am -12 pm) ___ **Afternoon** (12 pm- 5 pm) ___ **Evening** (6 pm-12 am) ____

9. **How would you rate your fishing success?**

   Very Satisfied____ **Satisfied** ____ **Unsatisfied**____ **Very Unsatisfied**____ **No Opinion**_____

10. **Additional Comments:**

Appendix T

HARRIS DAM
RELICENSING

CULTURAL RESOURCES PROGRAMMATIC AGREEMENT
and
HISTORIC PROPERTIES MANAGEMENT PLAN STUDY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

June 2018

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
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CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN STUDY PLAN

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CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN STUDY PLAN

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is initiating the Federal Energy Regulatory Commission (FERC) relicensing of the 135-megawatt (MW) R.L. Harris Hydroelectric Project (Harris Project), FERC Project No. 2628. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795 feet mean sea level (msl)[1], as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.

The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b).

For the purposes of this study plan, "Lake Harris" refers to the 9,870-acre reservoir, adjacent 7,392 acres of project land, and the dam, spillway, and powerhouse. "Skyline" refers to the 15,063 acres of project land within the Skyline WMA in Jackson County. "Harris Project" refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary (Alabama Power Company 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

[1] Also includes a scenic easement (to 800 feet msl or 50 horizontal feet from 793 feet msl, whichever is less, but never less than 795 feet msl)

Background and Existing Information

Before and after Harris Project construction, several cultural resources studies were conducted at the Harris Project. In total, eighteen surveys were conducted in the Harris Project Area. In 1974, the University of Alabama Department of Anthropology[2] performed an archaeological survey of the dam construction area, proposed Lake Harris area, and a proposed thermal plant site to be situated adjacent to the Harris Reservoir[3]. Following this initial survey, the Department of Anthropology performed two additional studies: one in 1974 and another in 1975. The University of Alabama Museum's Office of Archaeological Research (OAR) conducted additional studies in the proposed Harris Project Area in 1976 and 1977. The purpose of the 1977 survey was to synthesize the results of previous investigations. In 1985, after Harris Reservoir was inundated, OAR performed surveys primarily focused on shoreline areas within the scenic easement (OAR 2016a). These additional surveys were conducted to assess lands to be used for various project construction permitting, including building and maintaining transmission lines, creating food plots for hunting lands around Lake Harris, and building bridges (OAR 2016a).

The National Park Service (NPS) has expressed concern that flows from Harris Dam are damaging the Miller Covered Bridge pier and other cultural resources located at the Horseshoe Bend National Military Park. The Miller Covered Bridge was built in 1908 and, at 600 feet, was once the longest covered bridge in the United States. In the late 1950s, a new concrete bridge was constructed parallel to the Miller Covered Bridge.

The University of Alabama, in conjunction with Alabama Power, conducted two surveys at Skyline. From November 1990 to March 1991, the University of Alabama performed a survey of approximately 3,000 acres within the Skyline Project Boundary. In October 2006, OAR performed a cultural resources survey on two areas within the Skyline WMA in Jackson County near Stevenson, Alabama (OAR 2016b).

Additional background information on the basin setting, general prehistory of Alabama, prehistory within the Tallapoosa and Tennessee River basins, and historic overview are contained in the Pre-Application Document (PAD) for the Harris Project.

1.1 Resource Management Goals

The FERC has responsibility to consult with the Advisory Council on Historic Preservation (Advisory Council) and the Alabama Historical Commission (AHC or State Historic Preservation Office [SHPO]) pursuant to the Advisory Council's regulations (36 CFR part 800) implementing the National Historic Preservation Act (54 U.S.C. 306108; hereinafter, "Section 106"). FERC will likely require Alabama Power to implement the provisions of a Programmatic Agreement (PA) as a condition of issuing a new license for the Harris Project to satisfy FERC's Section 106 responsibilities during the term of the new license.

[2] The Department of Anthropology at the University of Alabama conducted surveys and archaeological investigations prior to the creation of the Office of Archaeological Research.
[3] The proposed thermal plant was never built.

1.2 Baseline and Operational Alternatives

The cultural resources study will involve collecting and summarizing existing cultural resources baseline information. Any effects on cultural resources from potential changes in operations will be analyzed in the R.L. Harris Project Reservoir Operating Curve Change Feasibility Study. Information from the baseline and effects analyses will be included the Harris Project Historic Properties Management Plan (HPMP) that will be developed as part of this study.

2.0 GOALS AND OBJECTIVES

The goal of the study is to develop a plan to assess cultural resources identified in the Harris Project Area of Potential Effects (APE).

The first objective of the study is to develop a draft PA (among FERC, the SHPO, Alabama Power, and applicable federally recognized tribes) for managing Historic Properties that may be affected by a new license issued to Alabama Power for the continued operation of the Harris Project.

The second objective of the study is to develop a HPMP for the Harris Project to fulfill the stipulations in the draft PA. The HPMP will describe the Harris Project, APE, anticipated effects, and Alabama Power's proposed measures to protect Historic Properties.

3.0 PROJECT NEXUS AND GEOGRAPHIC SCOPE

The cultural resources study will determine if cultural resources are present or are likely to be present within the APE and whether the authorized Harris Project uses may cause changes in the character or use of Historic Properties, if Historic Properties exist.

The geographic scope of the study will be the APE and will include Lake Harris, Skyline, and the area below the Harris Dam to Horseshoe Bend.

4.0 METHODS

The overall purpose of this study is to gather additional information for preparing the draft PA and HPMP. The procedures to attain additional information may include, but are not limited to:

1. Determine the APE for the Harris Project;
2. Determine the presence and location of known Historic Properties in the APE (including a pier evaluation for the Miller Covered Bridge at Horseshoe Bend National Military Park Boat Ramp);
3. Obtain detailed topographical information for the Harris Project Area;
4. Obtain data (high resolution aerial imagery, current soils maps, past surveys, etc.) to determine appropriate areas of high probability for containing Historic Properties, as needed;
5. Consult with SHPO and applicable federally recognized tribes that have an active interest in the Harris Project; and

6. Evaluate methods for determining the Harris Dam and associated facilities' eligibility for the National Register of Historic Places (NRHP).

To accomplish this, the study may involve the following components:

1. Consult with SHPO and applicable federally recognized tribes that have an interest in the Harris Project to develop the APE for the Harris Project.
2. Complete an analysis of the Miller Covered Bridge pier at Horseshoe Bend National Military Park Boat Ramp to determine eligibility for the NRHP.
3. Update the literature search of the Alabama State Site File (ASSF) and the National Archaeological Database Bibliography (NADB) to identify any additional known historic sites and consult with applicable federally recognized tribes and the Alabama SHPO to identify any known additional cultural resources which are not recorded in the ASSF or NADB.
4. Collect Light Detection and Ranging (LIDAR) data and process into contour maps of the Harris Project lands.
5. Collect high resolution, ground controlled aerial imagery of Harris Project lands. This data will be processed to determine Harris Project lands that have not been developed and to provide a visual assessment of existing Harris Project lands which may contain cultural resources.
6. Review data from Items 4 and 5 and determine any additional areas for survey. Review existing surveys and current methods and determine if any updated surveys are needed.
7. Develop a PA with the consulting parties.
8. Develop a HPMP for the Harris Project, which will include provisions to conduct an analysis in 2033 of the Harris Dam and Powerhouse to determine eligibility for the NRHP.

5.0 REPORTS

The study will have two reports: a draft PA and a draft HPMP. Draft reports will be distributed to the Harris Action Team (HAT) 6 for review and comment, and comments will be incorporated in the final reports (PA and HPMP).[4]

6.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC in June 2018. Consultation meeting dates will be finalized with HAT 6 members upon FERC approval of the study plan.

Alabama Power Files Final Study Plan	November 2018
FERC Study Plan Determination	April 2019
Develop draft PA and HPMP	May 2019-May 2020
Initial Study Report	May 2020
Initial Study Report Meeting	May 2020

[4] Due to the sensitive and protected nature of archaeological information, the distribution of this information will be limited to SHPO, FERC, and applicable federally recognized Native American tribes with an interest in the Harris Project.

Updated Study Report	April 2021
Updated Study Report Meeting	April 2021
Execute final PA & File Draft HPMP	November 2021
File Final License Application with FERC	November 2021

7.0 COST AND EFFORT

Alabama Power is estimating the cost to consult on and implement this study plan, including costs to review cultural data and develop a PA and HPMP. Alabama Power will include a final cost in the November 2018 Final Study Plan.

8.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2016b Wildlife Management Areas. Available at: http://www.outdooralabama.com/wildlife-management-areas. Accessed November 2016.

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Office of Archaeological Research. 2016a. Summary of Previous Surveys of R.L. Harris Reservoir: 1974:2010. Tuscaloosa, AL.

Office of Archaeological Research. 2016b. Summary of Two Previous Surveys within the Skyline Wildlife Management Area: 1992 and 2006. Tuscaloosa, AL.