

ENVIRONMENTAL ASSESSMENT
For the Proposed
Keys Ferry 115/25kV Substation Construction & the Ola-Ingram 115kV
Transmission Line Modification Project
Butts County, GA

Rural Utilities Service



prepared by:

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July 2012

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1. INTRODUCTION

The purpose of the Environmental Assessment (EA) is to assess potential impacts to the environment that may result from the proposed Keys Ferry (Snapping Shoals EMC #32) 115/25kV Substation Construction and the Ola-Ingram 115kV Transmission Line Modification Project in Butts County, GA (collectively, the proposed project). Georgia Transmission Corporation (Georgia Transmission) has proposed the project to address electrical reliability concerns associated with territories served by Snapping Shoals Electric Membership Corporation (Snapping Shoals EMC).

Georgia Transmission intends to request financing from the U.S. Department of Agriculture Rural Utilities Service (RUS), thereby making the proposed project a federal action subject to review by the National Environmental Policy Act of 1969, the National Historic Preservation Act (NHPA), and all applicable federal environmental law and regulation. This EA was prepared in accordance with 7 CFR Part 1794, RUS' Environmental Policies and Procedures, and 40 CFR Parts 1500-1508, the regulations promulgated by the Council on Environmental Quality for implementing the National Environmental Policy Act (NEPA). This EA will also address other laws, regulations, executive orders, and guidelines promulgated to protect and enhance environmental quality such as the Endangered Species Act, the National Historic Preservation Act, the Farmland Protection Policy Act, the Clean Water Act, and executive orders governing floodplain management, protection of wetlands, and environmental justice.

2. PROJECT PARTICIPANTS

Georgia Transmission is an electric transmission cooperative established under the laws of the State of Georgia in 1996. The not-for-profit cooperative, headquartered in Tucker, Georgia, is engaged in the business of building, maintaining, and owning electric power transmission facilities (transmission lines, substations, and switching stations) to serve 39 of the 42 Georgia Electric Membership Corporations (EMCs).

The 39 EMCs, also known as Member Systems, are local, consumer-owned distribution cooperatives that provide retail electric service on a not-for-profit basis. Membership of the electric cooperatives consists of residential, commercial and industrial consumers, generally within specific geographic areas. For example, Snapping Shoals EMC (SSEMC), the main beneficiary of the proposed Keys Ferry 115/25kV Substation, serves approximately 79,725 members in Newton, Rockdale, Henry, DeKalb, Butts, Walton, Jasper and Morgan Counties. The network for all the Member Systems is even larger. Aggregated, the 39 EMCs serve approximately 4.5 million residents and operate 183,133 miles of electric power lines, which is the largest distribution network in the state.

Georgia Transmission provides transmission capacity to the Member Systems through participation in the Integrated Transmission System (ITS), which consists of facilities owned jointly by Georgia Transmission, the Georgia Power Company, the Municipal Electric Authority of Georgia, and the City of Dalton Utilities. As of February 2012, Georgia Transmission owns and maintains approximately 3,071 miles of transmission line and 645 transmission and/or distribution substations of various voltages. Parity within the ITS, which depends on the load served by each of the owners, varies from year to year and requires periodic financial adjustments.

3. PROJECT DESCRIPTION

Georgia Transmission proposes to construct the Keys Ferry 115/25kV Substation in Butts County, Georgia (**Figure 1.0**). In order to construct the proposed project, Georgia Transmission must complete the following actions, all of which are to be assessed under this EA:

1. The construction of the Keys Ferry 115/25kV, 50 MVA Substation, which will require 3.6 acres of land disturbance to provide a level substation pad and drainage controls. Georgia Transmission intends to acquire approximately 3.9 acres of land to site the substation.
2. The modification of the Ola-Ingram 115 kV Transmission Line. The modification will involve the installation of two (2) new concrete poles with above the ground heights of approximately 80-feet. All construction associated with the line modification will occur within the existing 5.8 acres of land associated with the Ola-Ingram 115kV Transmission Line owned by Georgia Transmission.
3. The enhancement of an existing access path associated with the Ola-Ingram 115kV Transmission Line to serve as an access road for the Keys Ferry Substation. The access road, as proposed, will be 1,200-feet in length and 20-feet in width, which will require 2.8 acres of disturbance. All construction associated with the access road enhancement will occur within the existing 5.8 acres of land associated with the Ola-Ingram 115kV Transmission Line owned by Georgia Transmission.
4. The construction of 800-feet of 25kV triple-circuit distribution line to connect new substation to existing SSEMC distribution network. The construction will occur within the right-of-way along the Ola-Ingram 115kV Transmission Line.
5. In addition to those actions directly related to the construction of the substation, SSEMC will upgrade and convert 6-miles of existing distribution line to accommodate the new delivery point and relieve overloads and low voltage problems. These upgrades qualify as categorical exclusions pursuant to 7 CFR § 1794.21(b)(15), and are therefore not carried through for further review within this EA.

4. PROJECT JUSTIFICATION

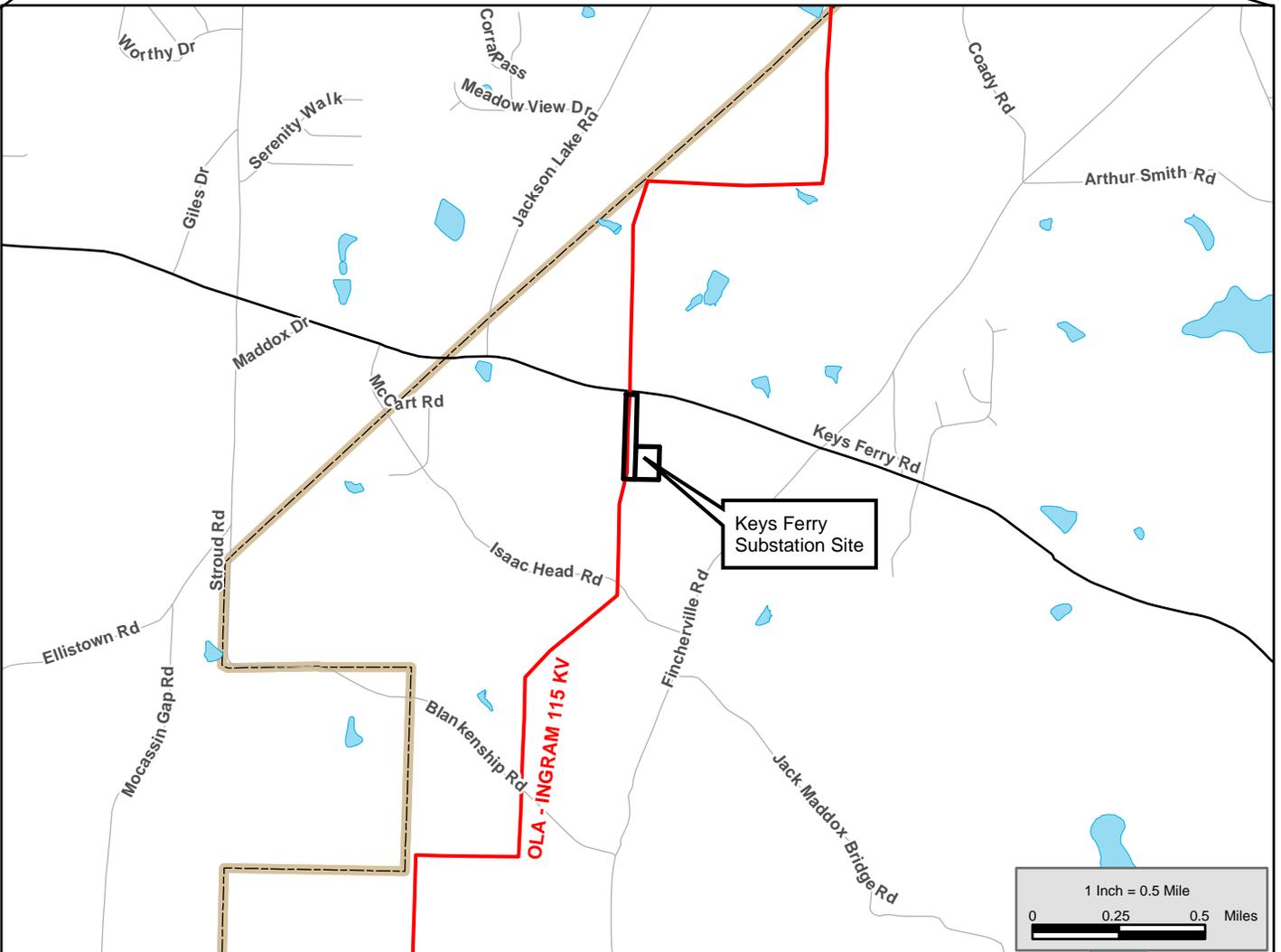
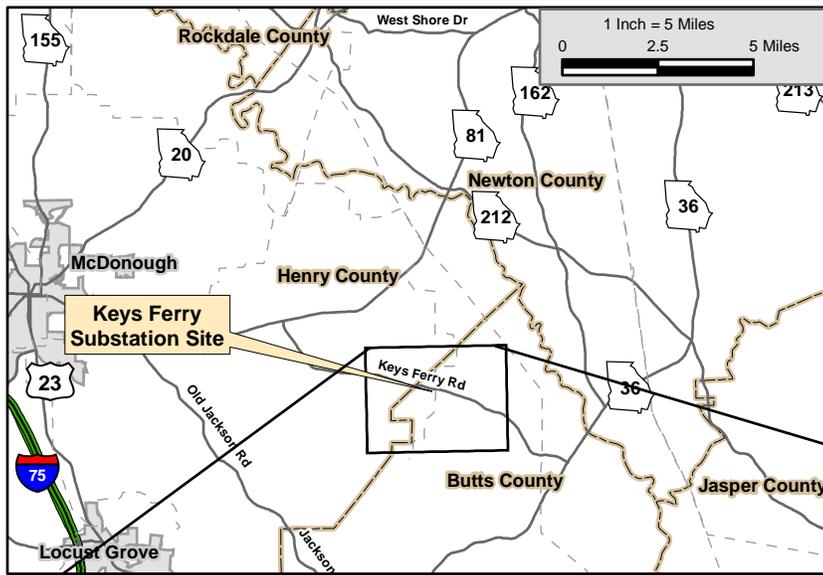
SSEMC currently serves the southern portion of their territory with distribution circuits from Jackson Lake, Island Shoals, and McGarity substations. The transformers at these substations are heavily loaded. If no action is taken to offload these facilities the following is forecasted: the Island Shoals 115/25kV, 50MVA transformer will reach 109% of nameplate capacity by winter 2013/14 and Jackson Lake 115/25kV, 41.7MVA transformer will exceed 110% nameplate capacity by winter 2016/17. In addition, SSEMC has several circuit overloads forecasted.

Please see a full explanation of the Project Necessity and Evaluation of Electrical Alternatives in **Appendix 9.1**.

5. PROJECT ALTERNATIVES

5.1 Electrical Alternatives

SSEMC considered three electrical alternatives to respond to the forecasted circuit overload and electrical reliability issues identified in



Keys Ferry

115/25 kV Substation

Figure 1.0: PROJECT LOCATION MAP

From GTC take I-285 South to I-20 East. Travel on I-20 East for approx. 17.6 miles to Exit 84 GA-162/Salem Rd. Turn right on GA-162/Salem Rd and travel approx. 5 miles to Cowan Rd. Turn right on Cowan Rd. and travel approx. 2 miles to GA-81 South. Turn right on GA-81 S and travel approx. 5.7 miles to Jackson Lake Rd. Turn left on Jackson Lake Rd. and travel approx. 4.4 miles to the Keys Ferry Rd. Turn left on Keys Ferry Rd. and travel approx. 0.4 miles to the Substation Site where existing Ola - Ingram 115 kV Transmission Line crossing Keys Ferry Rd.



Project No: P79275

Date: 10/17/2011

Source: GDT

Plot: J. Jordan

Section 4, including a “no action” alternative, an upgrading alternative, and a construction alternative.

5.1.1 No Action Alternative

The “no action” alternative would involve RUS not providing financing to Georgia Transmission and therefore Georgia Transmission not responding to the project need. Through this alternative, Georgia Transmission would fail to fulfill its obligations to ensure reliable electricity to its consumer members.

5.1.2 Upgrading Alternative

This alternative involves upgrading SSEMC’s distribution system by increasing capacity at two existing facilities, the Island Shoals Substation and the Jackson Lake Substation. 16-miles of existing distribution line would have to be upgraded to accommodate the capacity increases at the substations and to relieve overloads and low voltage problems.

5.1.3 Construction Alternative

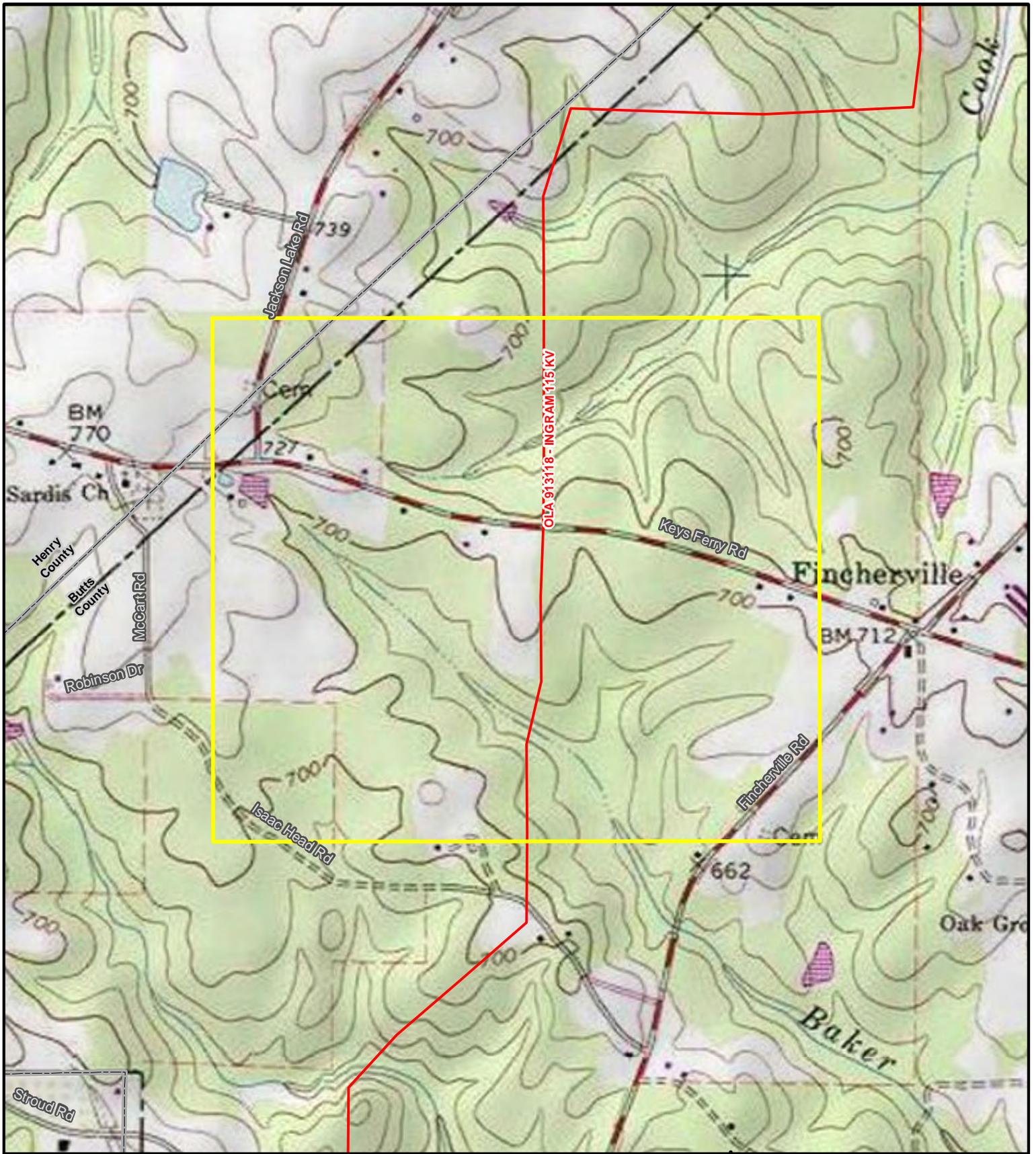
This alternative would involve the construction of a new transmission facility by Georgia Transmission, a 115/25kV, 50MVA substation, that could provide additional capacity within the southern portion of SSEMC’s service territory. Further improvements to SSEMC’s existing distribution systems are also associated with this alternative, however, only 6-miles of upgrades would be needed.

5.1.4 Alternative Selection

SSEMC determined, after careful evaluation, that the construction alternative, would be the preferred electrical solution. While both the upgrading and construction alternatives meet the project need, the construction alternative adds capacity at the load center, provides greater operational flexibility, allows for potential future load growth, and is less expensive. Please find a complete explanation and analysis of the alternatives in **Appendix 9.1**.

5.2 Substation Site Alternatives

The study area was drawn so as to include the project’s load center, which SSEMC defined as the intersection of Keys Ferry Road with the existing Ola-Ingram 115kV Transmission Line, as well as all other lands located within one-half of a mile of the load center (**Figure 2.0**). The study area is approximately one-square mile in size, an appropriate size for developing alternative sites. Information was then collected from existing databases, research, and field reconnaissance. Based on the information collected, several constructible sites were identified and analyzed to determine which alternative was optimal. The alternative sites identified are on undeveloped lands in areas near the desired load center that may be developed with minimal impacts to private property and the natural and built environments. In total, three alternative sites were identified (**Figure 3.0**). The merits of each alternate site are discussed in the following subsection but are also outlined in **Table 1.0**.



Keys Ferry

115/25 kV Substation

Figure 2.0: Study Area

County: Butts

Date: 2/13/2012

Project #: P79275

Aerial Photography: ESRI
<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>



Georgia Transmission



Study Area



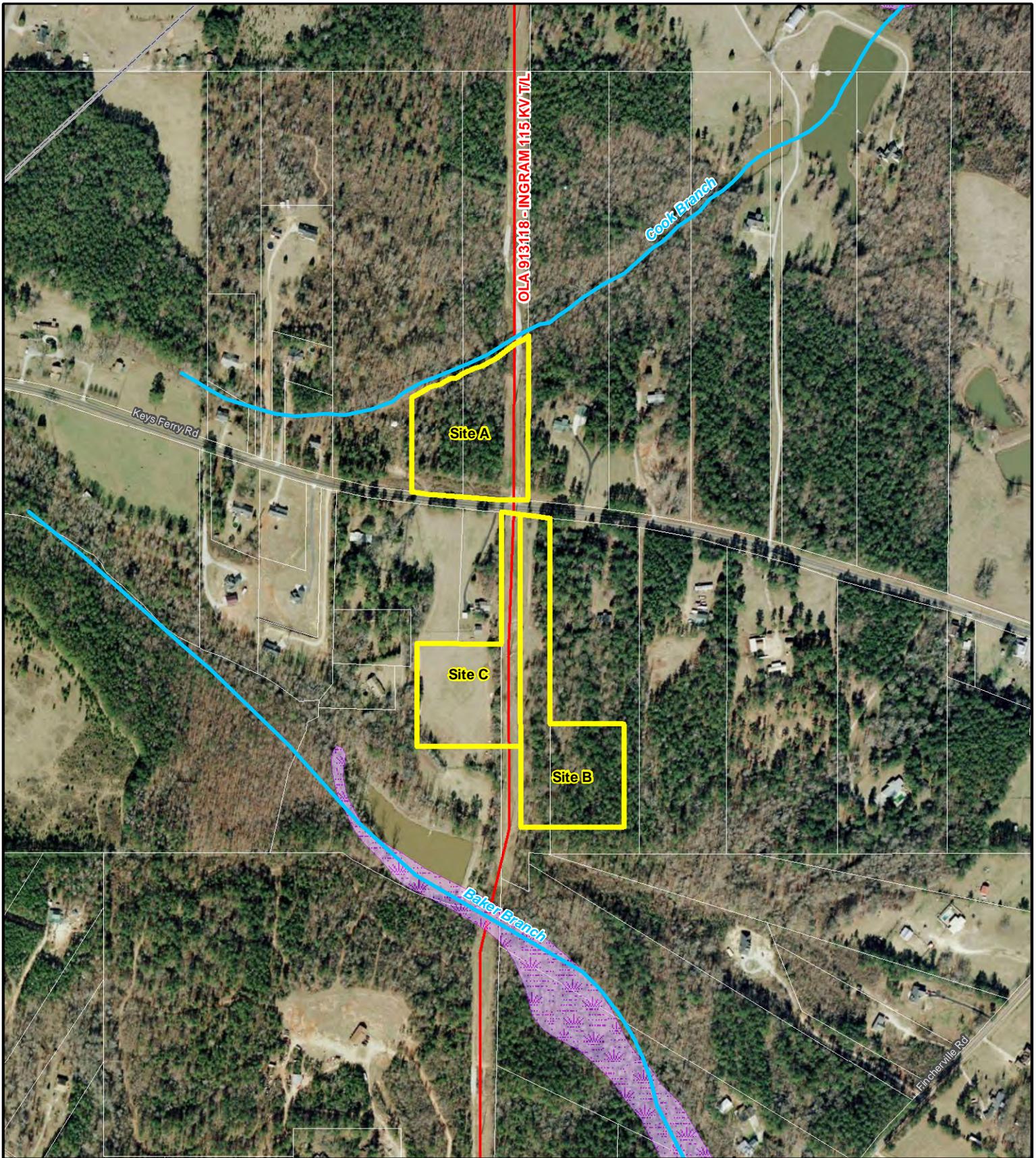
Existing 115kV Transmission Lines



Tax Parcel



Plot: J. Jordan
 1" = 1,000'
 0 500' 1,000'



Keys Ferry

115/25 kV Substation

Figure 3.0: Alternate Substation Sites

County: Butts

Date: 2/13/2012

Project #: P79262

Aerial Photography: ESRI
<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>



Georgia Transmission

Plot: J. Jordan

Alternate Sites

Existing 115kV Transmission Lines

USGS Minor Stream

Tax Parcel

National Wetlands Inventory



1" = 500'
 0 250' 500'

KEYS FERRY ROAD 115/25KV SUBSTATION -- SITE SELECTION CRITERIA					
CATEGORIES	SITE REQUIREMENTS	SITE SUITABILITY	SITE A	SITE B	SITE C
Electrical Suitability	Distance to load center (intersection of 115kV TL and Keys Ferry Rd)		immediately adjacent to load center	800 ft. (S) of load center	500 ft. (S) of load center
	Acreage		5.14 acres	5.8 acres (2.12 acres is currently owned by GTC)	4.5 acres (0.87 acre is currently owned by GTC)
	T/L ingress and egress suitability		high suitability - adjacent to T/L	high suitability - adjacent to T/L	high suitability - adjacent to T/L
	D/L ingress and egress suitability		best location for distribution circuits	good location for distribution circuits - but requires 800-ft of underground to get circuits to road	good location for distribution circuits - but requires 500-ft of underground to get circuits to road
	EMC future circuits capability		best	good	good
	Future expansion capability		good - site is large enough to accommodate future expansion	good - site is large enough to accommodate future expansion	good - site is large enough to accommodate future expansion
		GPC/MEAG future circuit capability		good	good
Construction Suitability	Vehicular access		easiest access to Keys Ferry Road	access from Keys Ferry Road but requires long access drive	access from Keys Ferry Road but requires long access drive
		Storm water control	good	good	good
		Surface – grading, soils	very deep, well drained upland soils along most of site but hydric soils represent <10% of site	very deep, well drained upland soils present	very deep, moderate to well drained upland soils present
		Subsurface – rock, water	> 6 feet to water table; seasonally high water table along northern border	> 6 feet to water table	> 6 feet to water table
Community Suitability		Existing land use compatibility	existing transmission line corridor, 50-foot stream buffer, and forestland	existing transmission line corridor and forestland	existing transmission line corridor and open field
		Adjacent land use compatibility	undeveloped forestland adjacent to 1 neighboring home that is occupied	undeveloped forestland associated with residential parcel	open fields, lake, and 3 occupied homes
		Visual compatibility	moderate	moderate	Lowest compatibility - located near 3 homes and blocks view to residential pond
		Distribution exists – overhead/underground	underground	underground	underground
		Transmission line impact	minimal - site is adjacent to T/L	minimal - site is adjacent to T/L	minimal - site is adjacent to T/L
		Construction noise	possible concern	possible concern	a concern due to proximity to residences
		Visibility from road	high visibility from road	low visibility from road	low visibility from road
Environmental & Regulatory Issues, Mitigation		DOT permit	N/A	N/A	N/A
		Railroad Permit	N/A	N/A	N/A
		FAA permit	N/A	N/A	N/A
		Listed Species, mitigation	Unlikely	Unlikely	Unlikely
		Wetlands, floodplains, creeks, creek buffers	Creek and 50-ft stream buffer along northern border but can develop site without impacting features	No concerns	No features onsite but lake just south of site
		Environmental permits	Environmental Report (ER)	ER or EA if land disturbance >5 (public notification adds time to schedule)	ER or EA if land disturbance >5 (public notification adds time to schedule)
		Hazardous materials, mitigation	Possible - abandoned trailers onsite	Unlikely	Unlikely
	Cultural resources, mitigation	No Concerns	No Concerns	No Concerns	
	NPDES permit	Yes	Yes	Yes	
Land Acquisition		Land use of parcel – entirety/remainder/frontage	2 parcels - Eastern corner of two large tracts with road frontage	1 parcel (in addition to what is owned by GTC) - behind home site	1 parcel (in addition to what is owned by GTC) - occupies center of large parcel
		Future land use – property potential	residential	residential	residential
		Relocation requirements	No	No	No
Project Cost		Acquisition cost	3.5 X Lowest Cost	Lowest	3.5 X Lowest Cost
		Site development cost	Low	Slightly Higher	Low
		Distribution cost	Lowest	Highest	Midrange
		Transmission line cost (only tap estimated)	Standard	Standard	Standard
		Landscaping cost	\$0	\$0	Highest
Total Estimated Cost			1.3 X Lowest Cost	Lowest Total Cost	1.3 X Lowest Cost
Author: T. Brooks				Preferred Site	

5.2.1 Site A

Site A is located to the north of Keys Ferry Road and is immediately adjacent to the desired load center. This alternative, consisting primarily of undeveloped forestland, involves the purchase of a 5.1 acre site that utilizes portions of an existing utility corridor associated with the Ola-Ingram 115kV Transmission Line. Undeveloped forestland, a perennial stream, residential property, and a public road border this site. Site A has following additional characteristics:

- Closest site to the load center.
- In-line facility that requires short transmission line tap.
- No wetlands or floodplains are associated with site; however, a stream and a 50-foot stream buffer comprise the northern boundaries of this site alternative.
- Abandoned modular homes that are located onsite increase risk of encountering hazardous materials.
- High land acquisition costs – site occupies the only road frontage of a large tract and the Georgia Transmission anticipates compensating landowner for damages to remaining acreage.
- Relatively isolated with only one residence within 300-feet.
- High visibility from road and to surrounding community.

5.2.2 Site B

Site B is located to the south of Keys Ferry Road and to the south of the desired load center as well. This alternative, which is also heavily forested, involves the development of a 5.8 acre site that occupies the extreme southern half of a large residential property. It also utilizes portions of an existing utility corridor that Georgia Transmission owns in fee simple. Undeveloped forestland, residential properties, and a paved road border the site. Site B has the following additional characteristics:

- Farthest site from load center - SSEMC must improve network by adding 800-feet of triple-circuits to reach load center.
- In-line substation requiring short transmission line tap.
- No streams, wetlands, or floodplains are directly associated with the site; a stream system, however, is located approximately 300-feet to the south.
- No abandoned trailers on site – low hazardous waste potential.
- Lowest land acquisition costs – site occupies southern half of rental property.
- Single-family residence located on northern end of parcel.
- Low visibility because site is setback 800-feet from the road.

5.2.3 Site C

Site C is located to the south of Keys Ferry Road and to the south of the desired load center as well. This site, which consists largely of open meadows, involves the development of a 4.5 acre site that also utilizes portions of the existing Ola-Ingram 115kV Transmission Line that Georgia Transmission owns in fee simple. Undeveloped forestland, open fields, a pond, several residential properties, and a public road border this site. Site C has the following characteristics:

-
- Closer to load center - SSEMC must improve network by adding 500-feet of triple-circuits to reach load center.
 - In-line substation requiring short transmission line tap.
 - No streams, wetlands, or floodplains are associated with the site; however, private pond located approximately 200-feet to the south.
 - No abandoned trailers on site – low hazardous waste potential.
 - Highest land acquisition costs – site occupies central location on large residential tract and cuts of access that some residences have to nearby pond.
 - Low visibility from road but higher visibility to surrounding housing complex.

5.2.4 Substation Site Selection

All of the alternate sites were considered suitable for constructing the proposed substation site. To determine the preferred substation site, a team comprised of Georgia Transmission's project management, environmental, engineering, land acquisition, and public relations specialists assessed and ranked the alternatives. Site B was selected as the preferred site for locating the proposed Keys Ferry 115/25kV Substation (**Figure 4.0**).

Site B is least visible to the community, has the fewest regulated environmental constraints (no wetlands, streams, or floodplains are located on the site, unlike sites A and C), and is the lowest total cost among the alternatives. These considerations outweighed other significant factors, such as, the preferred site requires a longer access drive, potentially more land disturbance, and slightly more improvements to SSEMC's distribution system. The cost and impacts of SSEMC constructing approximately 800 feet of triple circuit is mitigated by the fact that the distribution lines can parallel an existing transmission line and are located on property owned by Georgia Transmission.

6. DESCRIPTION OF THE EXISTING ENVIRONMENT

The project study area (figure 2.0) for the proposed Keys Ferry Road 115/25kV Substation is located to the west of Fincherville, a crossroads community in Butts County, Georgia, and is situated on the Worthville, Georgia United States Geological Survey (USGS) 7.5-minute series topographic map. Tributaries of the Ocmulgee River—Cook and Baker Branch, are also located within this study area.

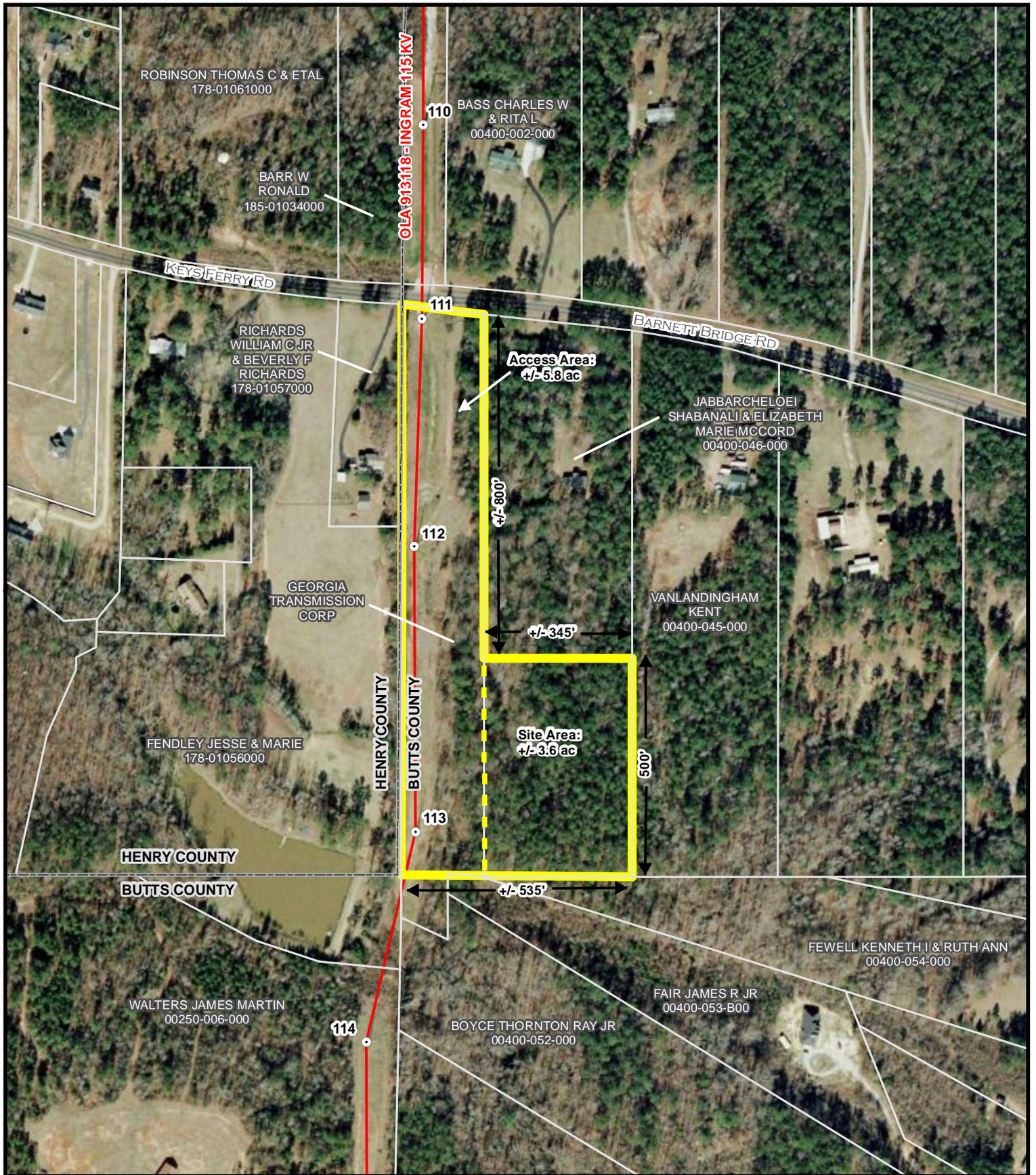
6.1 Land Use

6.1.1 General Land Use

This study area, which is rural in character, contains several utility corridors: a 115kV transmission line (the Ola-Ingram 115kV Transmission Line) and a network of county roads. Also found in this area are single-family residential properties, forested areas, agricultural land use, a potentially historic cemetery, and other utilities and communication corridors.

6.1.2 Formally Classified Lands

Formally Classified lands are properties that are either administered by



Keys Ferry

115/25 kV Substation

Figure 4.0: Preferred Substation Site

County: Butts

Date: 2/13/2012

Project #: P79262

Aerial Photography: ESRI
<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>



Georgia Transmission

Alternate Sites

Tax Parcel

Existing 115kV Transmission Lines



Plot: J. Jordan

1" = 500'

0 250' 500'



federal, state, or local agencies, or have been accorded special protection through formal designation. These lands may include, but are not limited to state and federal parks and forests, wild and scenic rivers, and recreational areas.

There are no formally classified lands in the study area.

6.1.3 *Prime Farmland Soils*

Through the passage of the Farmland Protection Policy Act of 1981 and the Final Rule for its implementation, 7 CFR Part 658, the U.S. Department of Agriculture mandated that any Federal agency contemplating a land disturbing activity should review its actions with respect to prime, unique, statewide or locally important farmland soils.

The U.S. Department of Agriculture, Soil Survey of Butts County, Georgia was reviewed for the location of prime farmland soils within the subject site (**Figure 5.0**). According to the survey, three soil mapping units are associated with the substation site and access corridor: Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded (CfC3), Cecil sandy loam, 2 to 6 percent slopes (CeB.), and Helena sandy loam, 2 to 6 percent slopes (HzB).

6.2 **Vegetative Communities**

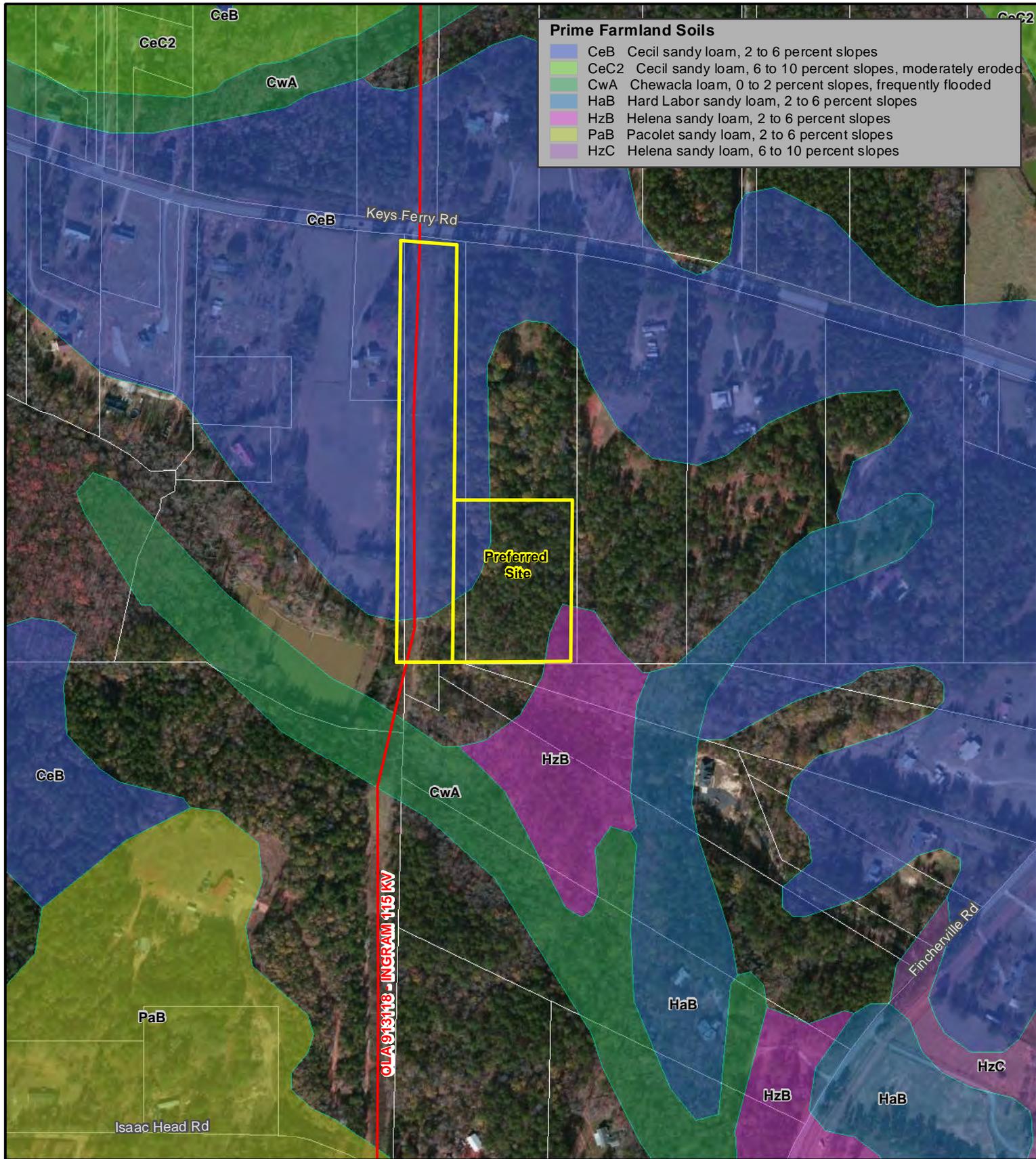
To determine possible impacts to significant ecological resources, Georgia Transmission contracted with Campbell Environmental, Inc. (CEI), CEI conducted a biological field survey of the proposed substation site and access road corridor (Appendix 9.3).

During the field survey conducted in September 2011, CEI identified two upland communities: mixed pine-hardwoods and maintained right-of-way. The mixed pine-hardwoods community is the predominant vegetation community along the substation site and is comprised primarily of sweet-gums, red maple, water oak, and loblolly pines. Maintained right-of-way is present along the access corridor. Dominant species within this community include mesic forbs, such as dog fennel, lespedeza, fescue and panic grass.

6.3 **Threatened and Endangered Species**

Section 7 of the Endangered Species Act requires every Federal agency, including RUS, to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action it authorizes is not likely to jeopardize the continued existence of any “listed species” (threatened or endangered plants or animals) or result in the destruction or adverse modification of designated critical habitat. On behalf of Georgia Transmission, the consulting biologist, CEI, reviewed a tentative list of known protected species from the U.S. Fish and Wildlife Services online database (2004) and element occurrence records on the Georgia Natural Heritage Protection (GNHP) web site (<http://www.dnr.stat.ga.us/dnr/wild>). In addition to reviewing existing sources, a letter requesting additional protected species information in the project vicinity was sent to the GNHP.

From consulting the resources mentioned above, CEI was able to determine that five protected species are known from Butts County and its nearby neighbor of Henry County. This list shown in **Table 2.0** is



Prime Farmland Soils

- CeB Cecil sandy loam, 2 to 6 percent slopes
- CeC2 Cecil sandy loam, 6 to 10 percent slopes, moderately eroded
- CwA Chewacla loam, 0 to 2 percent slopes, frequently flooded
- HaB Hard Labor sandy loam, 2 to 6 percent slopes
- HzB Helena sandy loam, 2 to 6 percent slopes
- PaB Pacolet sandy loam, 2 to 6 percent slopes
- HzC Helena sandy loam, 6 to 10 percent slopes

Keys Ferry		115/25 kV Substation	Figure 5.0: Prime Farmland Soils
County: Butts	Date: 7/9/2012	Project #: P79275	Aerial Photography: ESRI http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html
<div style="display: flex; align-items: center;"> <div style="border: 2px solid yellow; width: 20px; height: 10px; margin-right: 5px;"></div> Preferred Site </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="border: 2px solid red; width: 20px; height: 10px; margin-right: 5px;"></div> Existing 115kV Transmission Lines </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="border: 1px solid gray; width: 20px; height: 10px; margin-right: 5px;"></div> Tax Parcel </div>		<p style="font-size: small;">Plot: J. Jordan</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p style="font-size: x-small;">N</p> </div> <div style="text-align: center;"> <p style="font-size: x-small;">1" = 400'</p> </div> </div>	

comprised of three federally-protected species and of two state-protected species.

TABLE 2.0: Protected Species in Butts and Henry Counties

<i>Scientific & Common Name</i>	<i>Preferred Habitat</i>	<i>Federal Status</i>	<i>State Status</i>	<i>Habitat Present?</i>
Animals				
<i>Cyprinella xaenura</i> Altamaha shiner	Medium-sized streams in runs or pools over sand to gravel substrate	N/A	ST	No
<i>Haliaeetus leucocephalus</i> Bald eagle	Inland waterways and estuarine areas	BGEPA	SE BGEPA	No
Plants				
<i>Amphianthus pusillus</i> Pool sprite, snorkelwort	Vernal pools on granite outcrops	T	ST	No
<i>Isoetes melanospora</i> Black-spored quillwort	Vernal pools on granite outcrops	E	SE	No
<i>Sedum pusillum</i> Granite rock stonecrop	Granite outcrops among mosses in partial shade under red cedar trees	N/A	ST	No

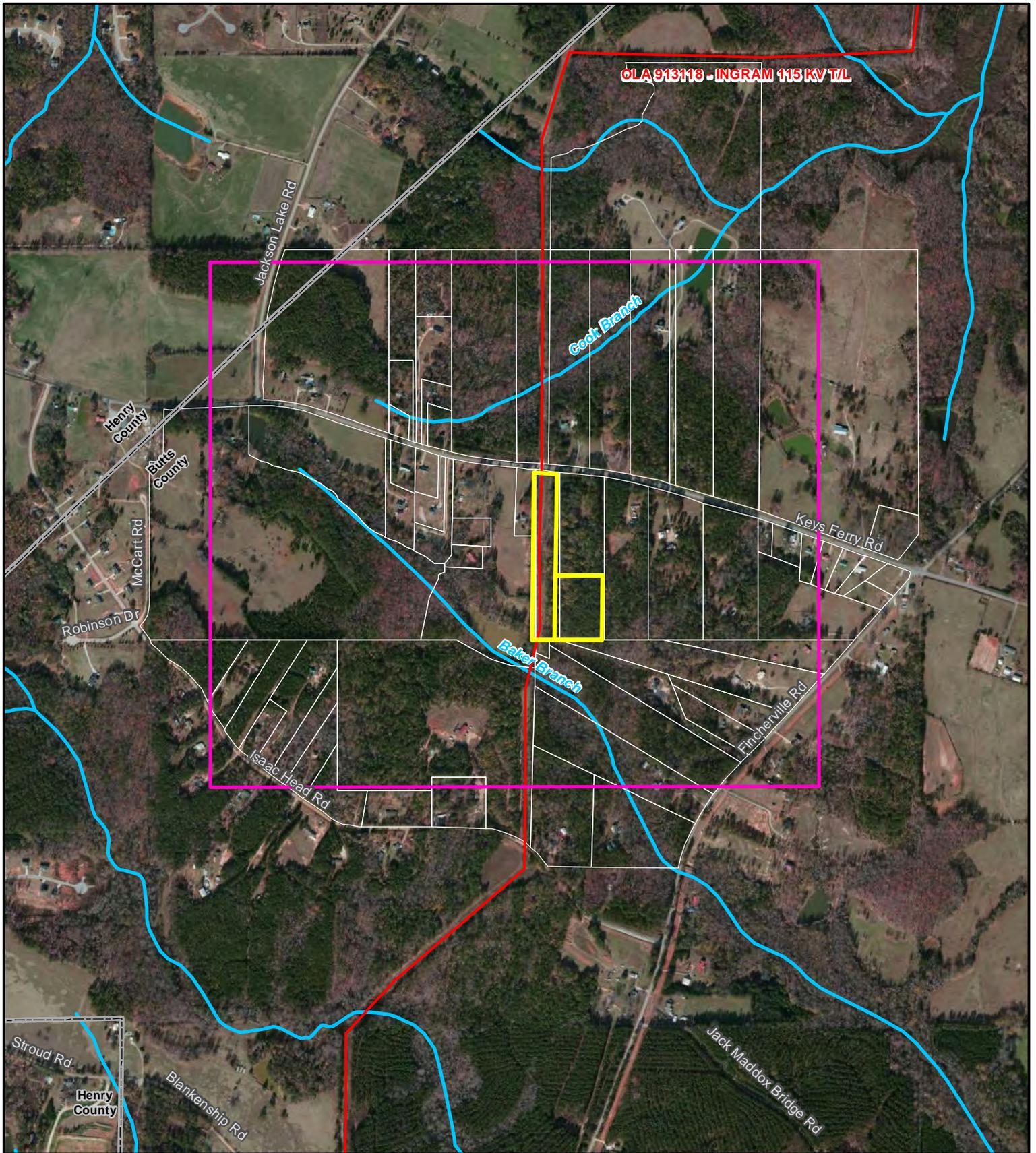
T = Federally Threatened, E = Federally Endangered, ST = State Threatened, SE = State Endangered, BGEPA = Bald and Golden Eagle Protection Act, N/A = Not Applicable

After reviewing this information, field studies of the proposed project area were conducted to verify the conditions onsite and determine if potential habitat for these species was present.

6.4 Floodplains

Executive Order 11988 directs Federal agencies to avoid to the greatest extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The location of floodplains and other flood hazard area are identified using maps produced by the U.S. Department of Housing Urban Development or the Federal Emergency Management Agency (FEMA). FEMA mappings of Butts County were reviewed.

According to the maps (Panel Number: 13035C0025C), there are no areas of FEMA designated 100-year floodplain located within the proposed substation site or within the project's study area (**Figure 6.0**).



OLA 913118 - INGRAM 115 KV TL

Gook Branch

Baker Branch

Keys Ferry

115/25 kV Substation

Figure 6.0: FEMA 100 Year Floodplains

County: Butts		Date: 7/9/2012	Project #: P79275	Aerial Photography: ESRI http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html			
Preferred Site	Existing 115kV Transmission Lines	FEMA 100yr Floodplain (no floodplain within study area)					Plot: J. Jordan
Tax Parcel	Study Area	USGS Minor Streams					1" = 1000' 0 500' 1000'

6.5 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) requires that any Federal agency to take into account the effects of their undertakings on historic properties. Historic properties, for the purposes of Section 106 review, are those properties listed or eligible for listing in the National Register of Historic Places (NRHP). In accordance with the Programmatic Agreement (PA) executed by Georgia Transmission, RUS, the Georgia State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), Georgia Transmission contracted consulting firms to identify potential historic properties through review of Georgia State Files and potential field surveys within the Area of Potential Effect (APE) in consultation with the Georgia Office of Historic Preservation. Under the terms of the PA, if a project is determined to have an adverse effect on a National Historic Landmark, a National Register-listed historic property, a traditional cultural property, archaeological site, or an eligible historic district, Georgia Transmission will initiate consultation with the SHPO as appropriate under the PA. Georgia Transmission and the SHPO will agree on a plan of resolution.

6.5.1 Archaeological Resources

Historic properties listed in or eligible for listings in the National Register of Historic Places (NHRP) include significant historic and prehistoric archaeological resources. To determine whether there are archeological sites eligible for the NRHP, Georgia Transmission contracted with Southeastern Archeological Services, Inc. (SAS)..

In September 2011, SAS completed a literature review of the proposed substation site and the access corridor (the APE), entitled *Archeological Survey for the Proposed Keys Ferry 115/25kV Substation, Butts County, Georgia*, that included an examination of files about previous investigations within the University of Georgia Archaeological Site Files and a review of maps and photographs of Butts and Henry Counties (Appendix 9.4). The research revealed that a small number of sites have been recorded within a 1-mile radius of the project site. Many of these sites were identified during transmission line, pipeline, highway, or municipal development surveys. Two previously recorded sites, a low density prehistoric lithic scatter (9BS98) and remnants of a late nineteenth century farmhouse (9BS65), are of note because they occur along the projects access corridor. The two sites identified in 2005 were not deemed eligible for the National Register.

SAS recommended that given that the APE would be primarily located on ridge crests and a sloping upland topography, there is a low potential for the existence significant prehistoric archeological sites. Archival research also suggested that no historic houses (besides the remnants of Site 9BS65) would be present. There is potential, however, for the presence of low density lithic scatters typical of temporary prehistoric camps.

6.5.2 Historic Structures

To determine the possible existence of historic structures eligible for listing on the NRHP in the APE, Georgia Transmission requested Historic Preservation Consulting (HPC) to prepare a *Historic Resources*

Survey. The entire study area was surveyed for historic resources and the resulting information was then used in the siting process.

The *Historic Resources Survey* led to the identification of one potentially-eligible resource, a cemetery located along Fincherville Road. This resource may be found near the eastern periphery of the study area (**Figure 7.0**). Following siting, potential impacts were analyzed in the *Report of No Adverse Effect* (Appendix 9.5).

6.6 Wetlands and Waters

Section 404 of the Clean Water Act charges the U.S. Army Corps of Engineers (Corps of Engineers) with the regulation of discharges of “dredged or fill” materials into water of the United States, including wetlands and other special aquatic sites. Activities associated with electrical facility construction and maintenance that requires the discharge of dredged or fill material may have to be authorized by Individual or General Nationwide Permits from the Corps of Engineers.

Georgia Transmission considered the location and extent of mapped wetlands, derived from USFWS National Wetland Inventory maps (**Figure 8.0**), during the siting of the proposed Keys Ferry Road 115/25kV Substation. Once the facility was sited, Georgia Transmission contracted with CEI to identify and delineate wetlands or waters (lakes, ponds, rivers, perennial and intermittent streams, as well as ephemeral ditches) that occurred within or adjacent to the substation site and access road corridor.

No wetlands or waters were identified during field surveys (Appendix 9.3).

7. ENVIRONMENTAL CONSEQUENCES

7.1 Land Use

7.1.1 General Land Use

Successful completion of the proposed action will convert approximately 3.9 acres of residential property into utility easement. Adjacent parcels will not be converted. As such, no significant impacts to land use are anticipated.

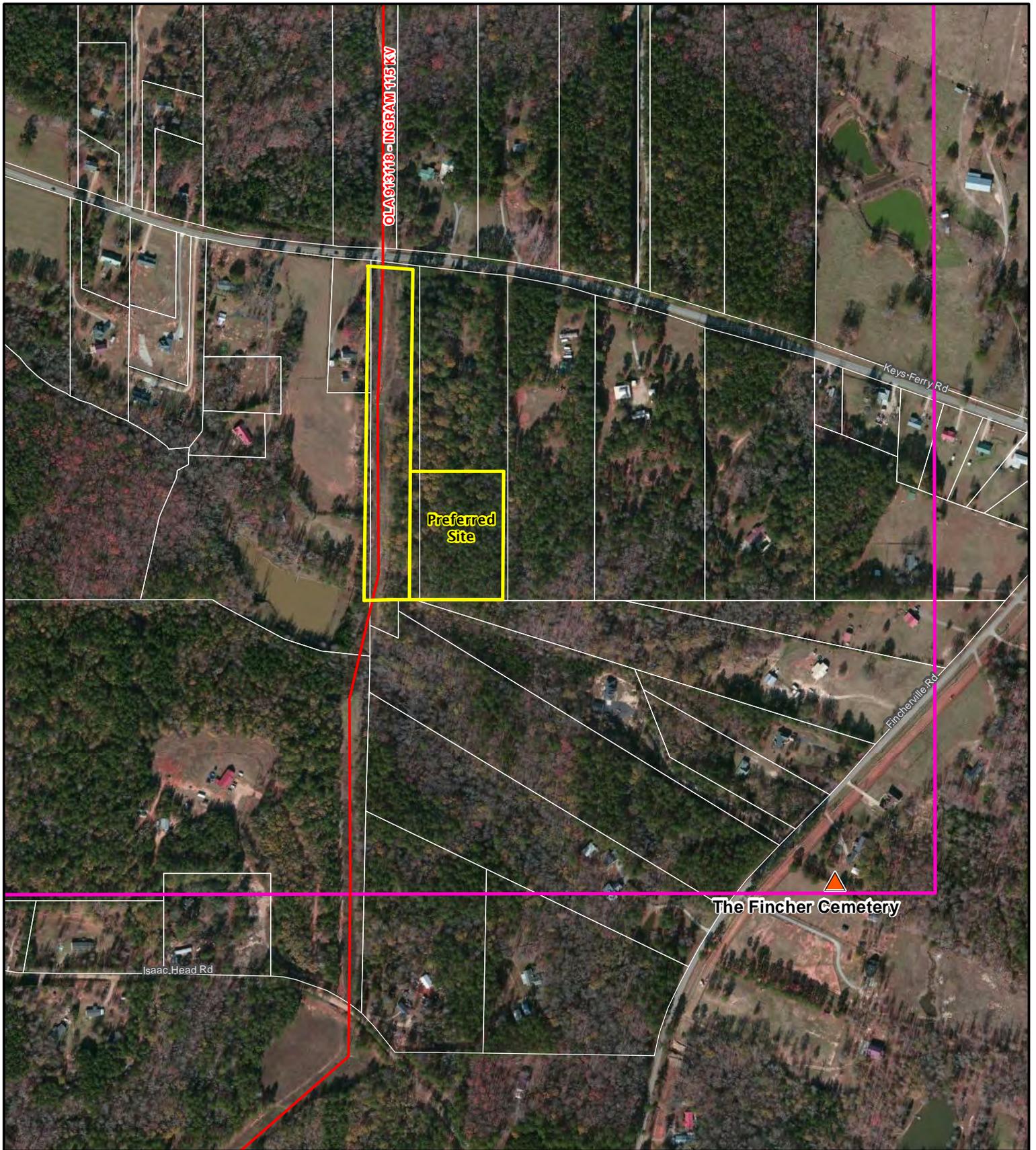
7.1.2 Formally Classified Lands

7.1.2.1 *Wild and Scenic Rivers*

In Georgia, the only river designated as a Wild and Scenic River is the Chattooga River located in the extreme northeastern part of the State (16 U.S.C. 1276). No Wild and Scenic Rivers will be affected as a result of construction and operation of the project.

7.1.2.2 *National Forests*

In Georgia, there are two National Forests. The Chattahoochee National Forest is comprised of two units in the



Keys Ferry

115/25 kV Substation

Figure 7.0: Cultural Resources

County: Butts

Date: 7/9/2012

Project #: P79275

Aerial Photography: ESRI
<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>



Georgia Transmission

Preferred Site

Tax Parcel

Existing 115kV Transmission Lines

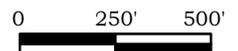
Project Study Area

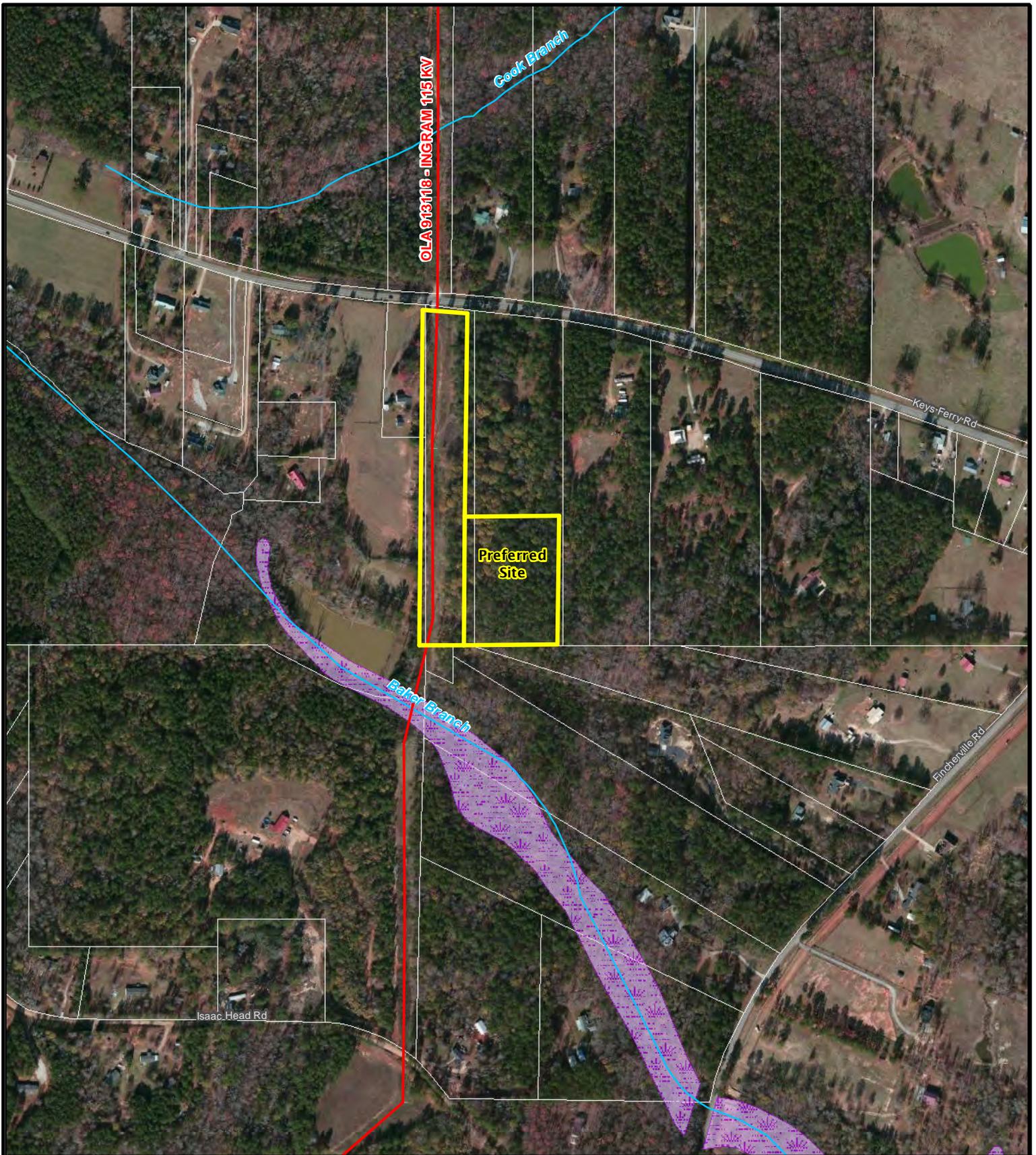
Historic Structures



Plot: J. Jordan

1" = 500'





Keys Ferry

115 kV Substation

Figure 8.0: Mapped Wetlands & Waters

County: Butts

Date: 7/9/2012

Project #: P79275

Aerial Photography: ESRI
<http://www.esri.com/software/arcgis/arcgisonline/bing-maps.html>



Preferred Site

Existing 115kV Transmission Lines

USGS Minor Stream (USGS)

Tax Parcel

National Wetlands Inventory (USFWS)



Plot: J. Jordan
 1" = 500'
 0 250' 500'

mountains of north Georgia. The Oconee National Forest, also comprised of two separate units, is located on the lower Piedmont north of Macon, Georgia.

The proposed project is not located within either of these National Forests. No National Forest will be affected as a result of the construction and operation of the project.

7.1.2.3 *State and Federal Parks*

Throughout Georgia, the Parks, Recreation, and Historic Sites Division of the Department of Natural Resources operates 45 State parks, 3 State historic parks, and 15 historic sites. The National Park Service of the U.S. Department of the Interior (USDI) operates 10 units in the State of Georgia, which includes facilities such as National Battlefield Parks, National Historic Sites, and National Monuments.

The proposed project is not located within any of the State Park units operated by the Georgia Department of Natural Resources or any of the National Park units operated by the National Park Service of the USDI. No State or Federal Park will be affected as a result of the project.

7.1.3 *Prime Farmland Soils*

Reviewing the Soil Survey for Butts County, Georgia revealed that the following soil mapping units underlay the proposed Sandy Flats transmission projects: Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded (CfC3), Cecil sandy loam, 2 to 6 percent slopes (CeB.), and Helena sandy loam, 2 to 6 percent slopes (HzB). The last two soil mapping units, which comprise approximately 60 percent of the project area, are classified as a prime farmland soils or as farmland of statewide importance. Nonetheless, no significant impacts to important farmland soils are anticipated: agricultural activities could theoretically be performed on lands surrounding the project site; and furthermore, much of the study area is characterized by rural residential development and thus has already been removed from agrarian land uses.

7.2 **Threatened and Endangered Species**

To determine the presence of suitable protected species habitat and the potential occurrence of protected species along the proposed substation site and the associated access corridor, field studies were conducted in September 2011. No observations of federally- or state-listed species or of preferred protected species habitats were made during the ecology survey. Consequently, no adverse impacts to threatened and endangered species are currently anticipated.

For further details, please, find a copy of the biological field survey concerning CEI's investigation of the vegetational communities, protected species, and protected species habitat in **Appendix 9.3**.

7.3 **Floodplains**

As discussed in subsection 6.2., there are no areas designated as 100-year floodplain located within the project study area. Therefore, adverse impacts to these features are not currently anticipated.

7.4 Cultural Resources

As discussed in the following subsections, significant cultural resources will not be affected by the proposed project.

7.4.1 Archeological Resources

On August 31, 2011, SAS conducted a field survey of the substation site and access corridor. The survey involved visual inspections of the project area as well as the excavation of approximately 40 shovel tests along wooded areas. The survey produced prehistoric and historic period finds, both of which were associated with two previously recorded sites: remnants of a late nineteenth century farmhouse (9BS65) and a low density prehistoric lithic scatter (9BS98). The two sites, deemed once again unlikely to produce significant information, are not eligible for the National Register. Please refer to the enclosed archeological survey found in **appendix 9.4** for more information.

7.4.2 Historic Structures

A Phase I Historic Resources Survey was performed by HPC to assess potential historic structures within the study area. Three historic resources were identified. This information was then used in the siting and the evaluation of alternative substation sites. Historic resources are detailed in the Historic Resources Survey Report found in **Appendix 9.5**.

Following selection of the preferred substation site, the potential impact on existing historic resources was analyzed. The proposed substation site is not located within the 1,500-foot area of potential effect of any significant historic resources. Therefore, the proposed project will not adversely impact historic structures.

7.5 Wetlands and Waters

Ecological surveys were performed by Campbell Environmental, Inc. (CEI) in September 2011. No wetlands or waters were located during this survey. Consequently, no adverse effects to wetlands or waters are currently anticipated. Please see the enclosed *Biological Field Survey Report* prepared by CEI for more information in **Appendix 9.3**.

7.6 Coastal Barriers

The proposed project is not located within areas protected by the Coastal Barrier Resources Act of 1972 (16 USC Part 3501 et. Seq.). No impact to any areas protected by the Coastal Barrier Resources Act is anticipated.

7.7 Coastal Zone Management

The National Oceanic and Atmospheric Administration (NOAA) approved the Georgia Coastal Management Program (GCMP) on January 26, 1998, pursuant to the provisions of Section 306 of the Federal Coastal Zone Management Act of 1972, as amended, 19 U.S.C. 1455 (CZMA). The GCMP is prescribed in the Georgia Coastal Management Program and Final Environmental Impact Statement (P/FEIS) published in the *Federal Register* on February 6, 1998. The U.S. Department of Agriculture heading, "Code 10.850, Rural Electrification Loans and Loan Guarantees," is not included in Section III as a "listed activity" requiring Federal consistency.

7.8 Airports

No glide path of any airport will be affected as a result of the construction of the new Keys Ferry 115/25kV Substation. Notification of the FAA is not required for this project.

7.9 Noise, Radio, and Television Interference

The construction, operation and maintenance of transmission facilities will not adversely affect the reception signals for radio, television or any other electronic device.

7.10 Aesthetics

There are no visually sensitive areas—areas of high scenic beauty, scenic overlooks, scenic highways, wilderness areas, integral vistas, parks, national forests, or rivers that are deemed wild and scenic, recreational, or in the national inventory—located near or along the project area. Consequently, no significant impacts to aesthetics are anticipated.

7.11 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to address potential environmental justice considerations for all federal actions by determining if a project would produce disproportionately high and/or adverse environmental and/or human health effects on minority or low-income populations.

This proposed Keys Ferry 115/25kV Substation has not been sited based the socioeconomic or racial makeup of property owners affected by the substation site. There is no disproportional impact on the health or environment of low income and/or minority populations. No additional considerations are necessary under Executive Order 12898.

7.12 Spill Prevention, Control, and Countermeasure (SPCC)

The U.S. Environmental Protection Agency, under authority of the Clean Water Act (CWA, 33 U.S.C. § 1251 *et seq.*), issued the spill prevention control and countermeasure (SPCC) regulations located at 40 CFR part 112. These regulations require non-transportation related facilities to develop a SPCC plan if that facility is engaged in the consumption, usage, or storage of oil (*in threshold quantities*¹) that due to the facilities' location could reasonably be expected to discharge oil in harmful quantities into U.S. waterways or shorelines. The SPCC regulations, which became effective on January 10, 1974, were revised on July 17, 2002. The new rule revisions become effective on November 11, 2011.

The latest rules state that a facility that has 1,320 gallons of above ground storage capacity must have adequate secondary containment in order to prevent a release of oil from that facility from reaching a navigable waterway. The proposed substation will exceed the 1,320 gallon threshold due to the presence of relatively large autotransformers, power transformers, regulators and/or oil circuit breakers. The preceding list of materials and equipment are filled with highly refined, contamination-free oil for the purpose of providing insulation between internal parts that are electrically energized. Because the proposed facility will exceed the threshold promulgated in the revised SPCC regulations, it will be equipped

with both a primary and a secondary containment. All substation facilities have a primary form of containment by nature of the substation pad itself. The nature of the substation pad allows it to act as an absorbent. The secondary containment structure for the proposed facility consists of a snout, or oil-water separator, in the outlet control structure that is located in the detention pond. As such, the proposed substation facility is in compliance with SPCC regulations, which will help prevent harmful quantities of oil from reaching navigable waters or shorelines in contingencies.

8. PERMITTING AND CONSTRUCTION

The design and construction of the Keys Ferry 115/25kV Substation will follow guidelines noted in the *Environmental Criteria for Electrical Transmission Systems* published jointly by the United States Departments of Agriculture and Interior. Georgia Transmission will comply with standards required by the Georgia Erosion and Sedimentation Control Act of 1975, as amended, which mandates that appropriate erosion control measures such as seeding, straw bales, silt screens, and vegetative buffers be utilized where appropriate to prevent degradation of surface water quality during construction and operation. Georgia Transmission will acquire any necessary permits and will comply with all pertinent local, State, and Federal regulations during the construction and operation of this project.

Currently in Georgia, a NPDES Construction Activity General Permit (GAR No. 100002) is in effect. This permit is designed to control the erosion and sedimentation resulting from construction projects with land disturbance of 1.0 acre or more, and requires preparation and implementation of an Erosion, Sedimentation, and Pollution Control Plan (ESCP) and a Comprehensive Monitoring Program.

The usual noise, fugitive dust, and vehicular emissions from construction related activity will be temporary and minimal. Construction of this transmission line project should have no significant adverse impact on the environment.

9. APPENDICES

The following appendix documents correspondence and other contacts between Georgia Transmission Corporation and appropriate state and federal agencies or external consultants.

- 9.1** Project Release
- 9.2** Agency Correspondence
- 9.3** Biological Field Survey Letter Report
- 9.4** Archeological Survey Report
- 9.5** Historic Resources Survey

9.1 Project Necessity

Memorandum

Georgia Transmission Corporation
2100 East Exchange Place
Tucker, GA 30084-5336
phone 770-270-7400
fax 770-270-7872

DATE: May 26, 2011
TO: See Attached List
FROM: Renée King 
SUBJECT: Project Release

Central Region

79275 Keys Ferry (Snapping Shoals EMC #32) 115/25 kV S/S New Construction
85987 Ola – Ingram (Snapping Shoals EMC) 115 kV T/L Termination
98461 Keys Ferry (Snapping Shoals EMC #32) 25 kV Low-side Construction

Northwest Region

86094 West Marietta (ITS) 230/115/12 kV S/S Pilot Scheme Conversion

RK

Attachments

Georgia Transmission Corporation PROJECT RELEASE

Planning Contact : ANNE MILLER
 Project Manager : ROBERT HOLLIS
 Project Manager : MICHAEL (MIKE) DAVIS

Region: Central

Required Cut-In Date: 12/01/2012

GTC Projects:

- P79275 Keys Ferry(SNAPPING SHOALS EMC#032) 115kV/25kV Substation
- P85987 Ola-Ingram(SNAPPING SHOALS EMC#032) 115kV Transmission Line
- P98461 Keys Ferry(SNAPPING SHOALS EMC#032) Low-side

Approved by J. Swell Date 5/5/2011
 Approved by Michael Hollis Date 5-11-2011
 Approved by Michael Davis Date 5/12/2011
 Approved by J. C. Ham Date 5/13/11

Scopes:

- P79275 New 115/25kV 50MVA looped substation. (1) new transformer. 115/25kV 50MVA.
- P85987 Terminate 115kV in the new Keys Ferry S/S under the Ola - Ingram 115kV T/L.
- P98461 Pour foundations and install conduits for Snapping Shoals EMC's 6 bay low side.

Justification:

Snapping Shoals EMC currently serves the southern portion of their territory with distribution from Jackson Lake, Island Shoals, and McGarity substations. Island Shoals 115/25kV 50MVA transformer is forecasted to reach 109% of nameplate capacity by winter 2013/14, and Jackson Lake 115/25kV 41.7MVA transformer is forecasted to exceed 110% nameplate capacity by winter 2016/17. In addition, SSEMC has several circuit overloads forecasted.

The new in-line Keys Ferry substation will offload Island Shoals, Jackson Lake, and McGarity substations and provide SSEMC with an additional source for the southern portion of their territory.

The alternative to constructing the substation included capacity upgrades at Island Shoals and Jackson Lake substations and upgrading approximately 16 miles of existing distribution. This alternative was not chosen because it required significant lengths of double-circuit distribution, and it did not provide the same operational flexibility and potential for future growth in the area. It was also the most expensive alternative.

The ITS Parity Investment for the substation is detailed in the 2009-2010 Schedule of Investments Table A, Item 4 for (2) 115kV switches (~~\$250,000~~) and Table C, Item 1 (~~\$20,000~~) for the RRM and PTs/CTs. The total is ~~\$270,000~~.

	Total Budget	Retirement	Reimbursement	Net Cost	DSF	NET ITS INV
P79275	\$1,055,186			\$1,055,186		\$205,000
P85987	\$540,568			\$540,568		\$540,568
P98461	\$01,404		\$01,404			
Totals:	\$2,501,950		\$01,404	\$2,500,755		\$800,568

SUBSTATION PROJECT INFORMATION

Project Name: Keys Ferry Met Pt #: SNA 032 Description: New Substation
 Facility Owner: GEORGIA TRANSMISSION CORPORATION

Area Project:
 Op H S KV: 115kV ITS Crit Proj: No Capacity Added: 50.00
 Op L S KV: 25kV Split Bus: No Capacity Removed: 0.00 Pro Type: AIM
 Land Req'd: Yes EMC Low Side: Yes Control House: Yes RTU: Yes
 Mobile Req'd: No Req'd ITS: PCD Required: No PCD Date:
 Bypass Metering: Yes JSTP Submittal: * ITS Parity Only - Fixed Cost JSTP Cost Type: * Not Subject to Cost Overrun

Transformer ID	Action	Location	Amount
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ITS Member Feeder Information

# of Feeders:	0		Regulator Size:	0							
Overhd/Undergrd:	NA		Oper. Voltage:	NA							
Load Projections:	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
EMC MVA	25.20	26.70	28.30	30.00	31.20	32.40	33.70	35.00	36.50	38.00	39.50
ITS MVA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total:	25.20	26.70	28.30	30.00	31.20	32.40	33.70	35.00	36.50	38.00	39.50

TRANSMISSION LINE PROJECT INFORMATION

Project Name: Ola-Ingram Const Voltage: 115 Oper Voltage: 115 Description: Modify T/L
 Facility Owner: GEORGIA TRANSMISSION CORPORATION
 Operational Name:

Area Project:
 Total Miles After: 13.20 Line Switch: No Will Tap To: -
 Conductor: 636 Underbuild: No
 ITS Crit Proj: No Req'd ITS:
 JSTP Submittal: ITS Parity Only - Not Fixed Cost JSTP Cost: N/A
 PCD Required: No PCD Date:

LOW-SIDE PROJECT INFORMATION

Project Name: Keys Ferry Met Pt #: SNA 032 Description: Low-side Engineer and Construct
 Facility Owner:
 Forecast: \$91,104
 Nbr Bays: 6 Overhead/Underground: Underground Regulation: - Op Voltage: 25.00

Miller, Anne (GTC)

From: Melvin Allen <mallen@ssemc.com>
Sent: Tuesday, April 26, 2011 1:57 PM
To: Miller, Anne (GTC)
Cc: Snapping Shoals EMC (Mike Milligan)
Subject: RE: Keys Ferry estimates

Ann please accept this as our formal authorization to proceed. I hope these projected cost are high rather than low.

Melvin Allen
VP of Engineering Services
Snapping Shoals EMC
770-385-2810 or 678-283-1215

From: Miller, Anne (GTC) [mailto:anne.miller@gatrans.com]
Sent: Tuesday, April 26, 2011 8:25 AM
To: Melvin Allen; Mike Milligan
Cc: Miller, Anne (GTC); Hall
Subject: Keys Ferry estimates

Melvin and Mike,

We have completed the estimates for Keys Ferry substation. The high-side project has been estimated at **\$1,955,186**.

The low-side project to pour foundations and install conduits for the 6-bay low-side has been estimated at **\$91,104.16**. Attached is a summary of the estimate and assumptions for your review. Your approval of the estimate is required for us to proceed with the project.

Please call me if you have any questions or need additional information.

Thanks!

Anne K. Miller, P.E.
Transmission Services Engineer
Georgia Transmission Corporation
770-270-7064
anne.miller@gatrans.com

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MessageLabs Scanned

Keys Ferry S/S P79275
Keys Ferry L/S P98461
Ola – Ingram T/L P85987
Scoping Meeting
2/22/2011
Held at Island Shoals Substation

Attendees

Anne Miller	Member Planning
Robert Hollis	Project Manager
Larry Joe Wallace	Substation Maintenance
Ron Milline	Test Engineer
Nelson Eunice	Substation Designer
Tasha Brooks	Environmental Specialist
Randy Wise	Civil Engineer
Keith Powery	Project Controls Specialist
Kellen Yin	Project Controls Specialist
Hunter Dixon	Land Services
Karl Ledford	Land Services
Tony Talevski	Electronic Maintenance
Long Nguyen	Area Planning
Michael Hall	SSEMC
Mike Milligan	SSEMC

Scope

- **P79275 S/S:** New 115/25kV 50MVA in-line substation. (1) new transformer. 115/25kV 50MVA.
- **P98461 L/S:** Pour foundations and install conduits for Snapping Shoals EMC's 6 bay low-side.
- **P85987 T/L:** Terminate 115kV T/L in the new Keys Ferry S/S under the Ola - Ingram 115kV T/L.

Cut-In Date

- 12/1/2012

P79275 S/S Discussion

- GTC will construct a new 115/25kV 50MVA in-line substation for SSEMC.
- Land Purchase will be required for this project.
- The substation should be located at or near the intersection of Keys Ferry Road and the Ola-Ingram 115kV T/L.
- A new transformer will be purchased.
- Install revenue metering bypass switches.
- ~~Install high side bus tie switch.~~
- A control house is required for this project.
- SSEMC will need DC circuits.

- SSEMC will need space for 6 low-side feeder bays. The feeders will exit toward Keys Ferry Road. Salem Road and Jackson Creek are two recent examples of SSEMC low-sides for spacing needs.
- SSEMC will need space in the substation fence for TWACS equipment.
- Keys Ferry Road will be meter point #32.

P98461 L/S Discussion

- SSEMC will construct their 6-bay low-side.
- GTC will perform below-grade work including pouring foundations and installing conduits. Salem Road and Jackson Creek are two recent examples of SSEMC low-sides.

P85987 T/L Discussion

- The T/L will loop into and out of the new substation.
- The T/L is single-pole concrete, vertical conductor construction at the area of interest.
- CGEMC's Ingram substation is downline of the new Keys Ferry substation at the end of the radial T/L. CGEMC has very limited back-up capability for their customer at Ingram. If a T/L outage is required for more than a day, arrangements will need to be made to keep Ingram energized.

Keys Ferry 115/25kV Substation Project Necessity and Evaluation of Electrical Alternatives

Problem Statements

Island Shoals

2013/14: Island Shoals 115/25 kV, 50 MVA bank will reach 109% of nameplate.

2013/14: Island Shoals #5 will exceed circuit design limits (15MVA).

2018/19: Island Shoals #4 will exceed circuit design limits (15MVA).

Jackson Lake

2016/17: Jackson Lake 115/25 kV, 41.7 MVA bank will reach 109% of nameplate.

2019/20: Jackson Lake #2 and #4 will exceed circuit design limits (15MVA).

2020/21: Jackson Lake #3 will exceed circuit design limits (15MVA).

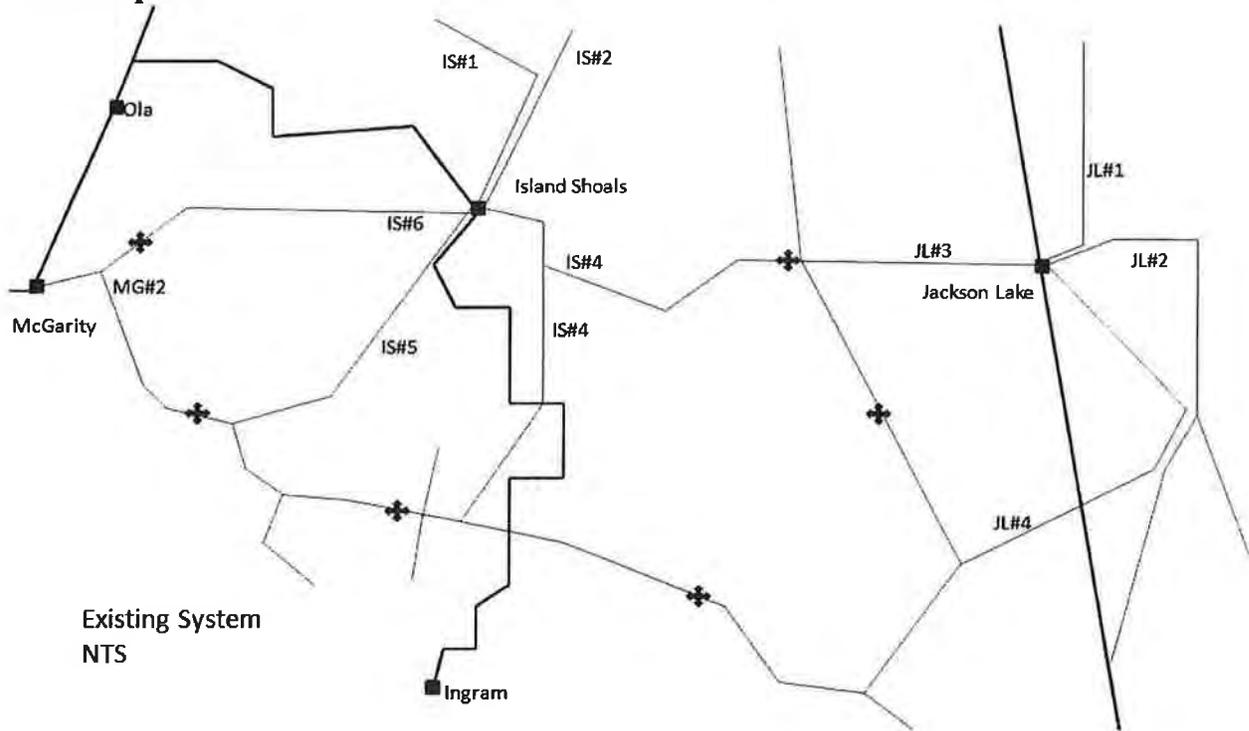
Area Description

Snapping Shoals EMC currently serves the southern portion of their territory with distribution from Jackson Lake, Island Shoals, and McGarity substations. The area is primarily residential load with very little commercial and industrial load.

Jackson Lake is served from the Lloyd Shoals – Porterdale Primary 115kV T/L. Island Shoals is served from a radial 115kV transmission line out of Ola substation. McGarity is served from the McDonough – Ola 115kV T/L.

With Island Shoals and Jackson Lake transformers so heavily loaded, SSEMC's ability to shift load in this area under contingency is severely limited.

Area Map



Keys Ferry 115/25kV Substation Project Necessity and Evaluation of Electrical Alternatives

Area Loading

WINTER LOADING (MVA)																			
SUBSTATION	NP	GR1	GR2	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	
Jackson Lake - EMC #6		6%	4%	27.7	29.5	31.1	33.3	32.4	34.3	36.4	38.6	40.9	43.3	45.1	46.9	48.7	50.7	52.7	
Jackson Lake - GPC		0%	0%	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Jackson Lake - TOTAL	41.7	---	---	28.8	30.6	32.2	34.4	33.3	35.3	37.3	39.5	41.8	44.3	46.0	47.8	49.7	51.6	53.7	
Bank Percentage		---	---	69%	73%	77%	82%	80%	85%	90%	95%	100%	106%	110%	115%	119%	124%	129%	
Island Shoals #25		6%	4%	32.8	39.8	44.3	44.8	45.8	48.5	51.4	54.5	57.8	61.2	63.7	66.2	68.9	71.6	74.5	
Bank Percentage	50.0	---	---	66%	80%	89%	90%	92%	97%	103%	109%	116%	122%	127%	132%	138%	143%	149%	
McGarity - EMC #16		5%	5%	25.7	18.5	22.7	23.2	24.2	25.4	26.7	8.0 ^{&}	8.4	8.9	9.3	9.8	10.3	10.8	11.3	
McGarity - GPC		1%	1%	0.6	0.6	2.6	3.7	3.7	3.7	3.8	3.8	3.8	3.9	3.9	4.0	4.0	4.0	4.1	
McGarity - TOTAL	41.7	---	---	26.3	19.3	23.4	26.9	27.9	29.2	30.5	11.8	12.3	12.7	13.2	13.7	14.3	14.8	15.4	
Bank Percentage		---	---	63%	46%	56%	65%	67%	70%	73%	28%	29%	31%	32%	33%	34%	36%	37%	

[&] Load shift to planned Old Jackson Road substation to offload McGarity's western circuits.

35 Year Present Worth Analysis

Preferred Alternative	Construct Keys Ferry 115/25kV 50MVA Substation and complete distribution improvements.	\$ 10,320,471
Alternative #1	Increase capacity at Island Shoals 115/25kV Substation and Jackson Lake 115/25kV Substation and complete distribution improvements.	\$ 13,600,453

Keys Ferry 115/25kV Substation Project Necessity and Evaluation of Electrical Alternatives

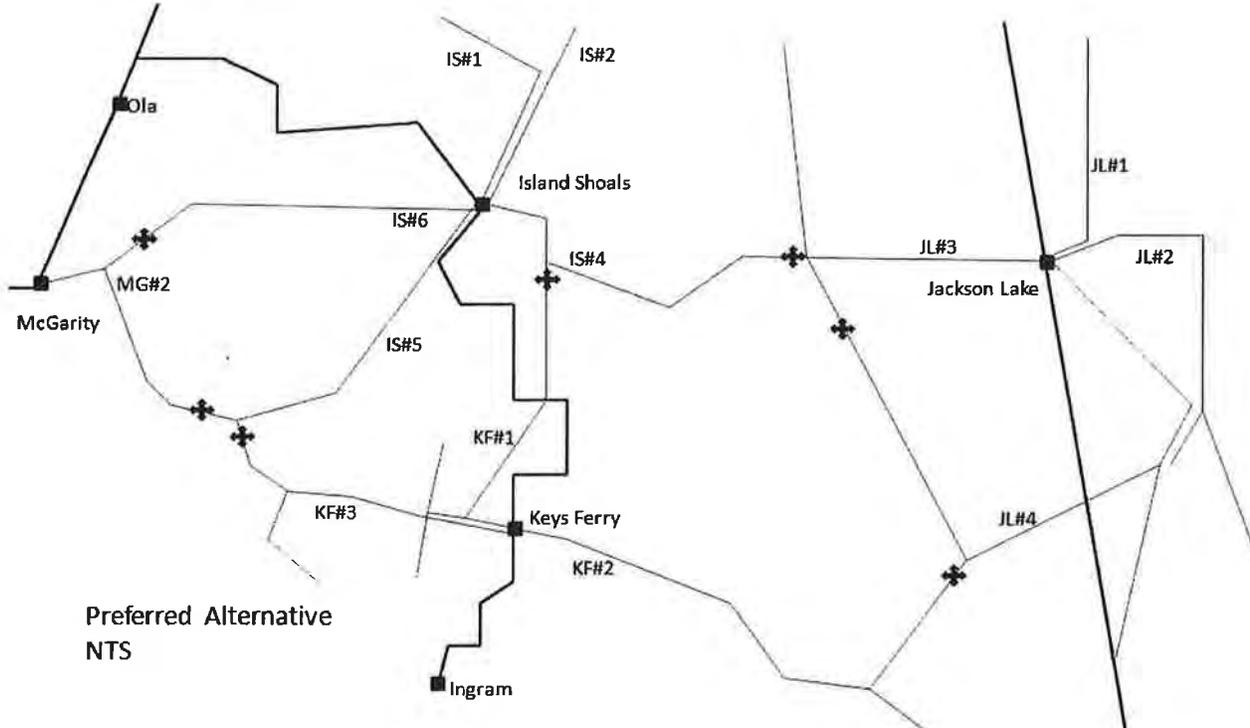
Preferred Alternative

This alternative constructs the Keys Ferry 115/25kV 50MVA Substation to provide additional capacity at the load center near the intersection of Keys Ferry Road and the Ola – Ingram 115kV T/L. The location is at the intersection of existing distribution circuits. SSEMC would upgrade approximately 6 miles of distribution to accommodate the new delivery point and to relieve overloads and low voltage problems.

2012	Construct Keys Ferry 115/25kV 50MVA Substation	\$ 1,955,186
2012	Loop T/L into substation	\$ 548,568
2012	Construct 6-bay low-side with 3 bays equipped	\$ 679,500
2012	Upgrade and convert approximately 6 miles of distribution circuits	\$ 1,152,000
	Total	\$ 4,335,254

35 Year Present Worth	
Distribution	\$ 4,325,894
Transmission	\$ 5,913,638
Total	\$ 10,239,471

Area Map After Preferred Alternative



Keys Ferry 115/25kV Substation Project Necessity and Evaluation of Electrical Alternatives

Loading After Preferred Alternative

SUBSTATION	WINTER LOADING (MVA)																	
	NP	GR1	GR2	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
Jackson Lake - EMC #6		6%	4%	27.7	29.5	31.1	33.3	32.4	34.3	28.1	29.7	31.5	33.4	34.7	36.1	35.7	37.1	38.6
Jackson Lake - GPC		0%	0%	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Jackson Lake - TOTAL	41.7	—	—	28.8	30.6	32.2	34.4	33.3	35.3	29.1	30.8	32.7	34.6	36.0	37.4	38.9	40.5	42.1
Bank Percentage				69%	73%	77%	82%	80%	85%	70%	74%	78%	83%	86%	90%	93%	97%	101%
Island Shoals #25	50	6%	4%	32.8	39.8	44.3	44.8	45.8	48.5	34.6	36.6	38.8	41.2	42.8	44.5	46.3	48.2	50.1
Bank Percentage				66%	80%	89%	90%	92%	97%	69%	73%	78%	82%	86%	89%	93%	96%	100%
McGarity - EMC #16		5%	5%	25.7	18.5	22.7	23.2	24.2	25.4	26.7	8.0	8.4	8.9	9.3	9.8	10.3	10.8	11.3
McGarity - GPC		1%	1%	0.6	0.6	2.6	3.7	3.7	3.7	3.8	3.8	3.8	3.9	3.9	4.0	4.0	4.0	4.1
McGarity - TOTAL	41.7	—	—	26.3	19.3	23.4	26.9	27.9	29.2	30.5	11.8	12.3	12.7	13.2	13.7	14.3	14.8	15.4
Bank Percentage				63%	46%	56%	65%	67%	70%	73%	28%	29%	31%	32%	33%	34%	36%	37%
Keys Ferry #32	50	6%	4%	—	—	—	—	—	—	25.2	26.7	28.3	30.0	31.2	32.4	33.7	35.0	36.5
Bank Percentage										50%	53%	57%	60%	62%	65%	67%	70%	73%

Attributes of Preferred Alternative

- Least expensive alternative.
- Resolves transformer overloads.
- Resolves distribution circuit overloads.
- Resolves voltage drop concerns on three existing distribution circuits.
- Provides capacity at the load center.
- Provides distribution operational flexibility and future growth potential.

Keys Ferry 115/25kV Substation Project Necessity and Evaluation of Electrical Alternatives

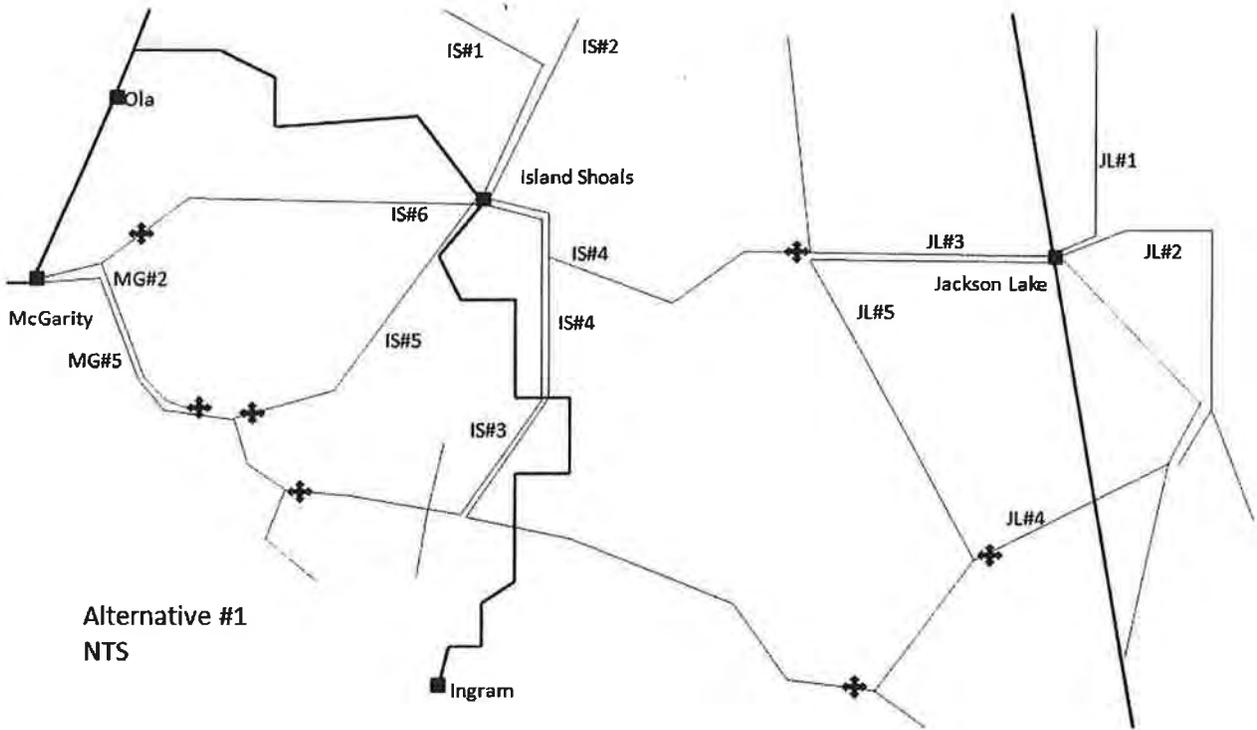
Alternative #1

This alternative increases capacity at the existing Island Shoals and Jackson Lake substations. SSEMC would upgrade approximately 16 miles of existing distribution to accommodate new circuits and to relieve overloads and low voltage problems.

2012	Upgrade and convert approximately 9 miles of distribution circuits	\$ 2,500,000
2014	Upgrade and convert approximately 7 miles of distribution circuits	\$ 1,743,500
2016	Increase capacity at Island Shoals S/S with second 50MVA transformer	\$ 800,000
2016	Distribution improvements	\$ 144,000
2018	Increase capacity at Jackson Lake S/S with second 50MVA transformer	\$ 1,000,000
	Total	\$ 6,190,500

35 Year Present Worth	
Distribution	\$ 10,061,427
Transmission	\$ 3,539,016
Total	\$ 13,600,453

Area Map After Alternative #1



Keys Ferry 115/25kV Substation Project Necessity and Evaluation of Electrical Alternatives

Loading After Alternative #1

SUBSTATION	WINTER LOADING (MVA)																		
	NP	GRI	GR2	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	
Jackson Lake - EMC #6		6%	4%	27.7	29.5	31.1	33.3	32.4	34.3	36.4	38.6	38.8	40.4	42.0	43.7	45.5	47.3	49.2	
Jackson Lake - GPC		0%	0%	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Jackson Lake - TOTAL	91.7	---	---	28.8	30.6	32.2	34.4	33.3	35.3	37.3	39.5	39.1	41.4	43.0	44.7	46.4	48.2	50.1	
Bank Percentage		---	---	69%	73%	77%	82%	80%	85%	90%	95%	94%	99%	47%	49%	51%	53%	55%	
Island Shoals #25	100	6%	4%	32.8	39.8	44.3	44.8	45.8	48.5	43.2*	45.8	51.3&	54.3	56.5	58.8	61.1	63.6	66.1	
Bank Percentage		---	---	66%	80%	89%	90%	92%	97%	86%	92%	103%	54%	57%	59%	61%	64%	66%	
McGarity - EMC #16		5%	5%	25.7	18.5	22.7	23.2	24.2	25.4	34.9*	16.7	17.5	18.4	19.3	20.3	21.3	22.3	23.5	
McGarity - GPC		1%	1%	0.6	0.6	2.6	3.7	3.7	3.7	3.8	3.8	3.8	3.9	3.9	4.0	4.0	4.0	4.1	
McGarity - TOTAL	41.7	---	---	26.3	19.3	23.4	26.9	27.9	29.2	38.7	20.5	21.4	22.3	23.2	24.2	25.3	26.4	27.5	
Bank Percentage		---	---	63%	46%	56%	65%	67%	70%	73%	28%	29%	31%	32%	33%	34%	36%	37%	

*Shift 8.3MVA from Island Shoals to McGarity in 2012/13.

&Shift 2.1MVA from Jackson Lake to Island Shoals in 2014/15.

Attributes of Alternative #1

- Most expensive alternative.
- Resolves transformer overloads.
- Resolves distribution circuit overloads.
- Does not provide capacity at the load center.
- Limits distribution operational flexibility and future growth potential.
- Requires significant lengths of double-circuit distribution.

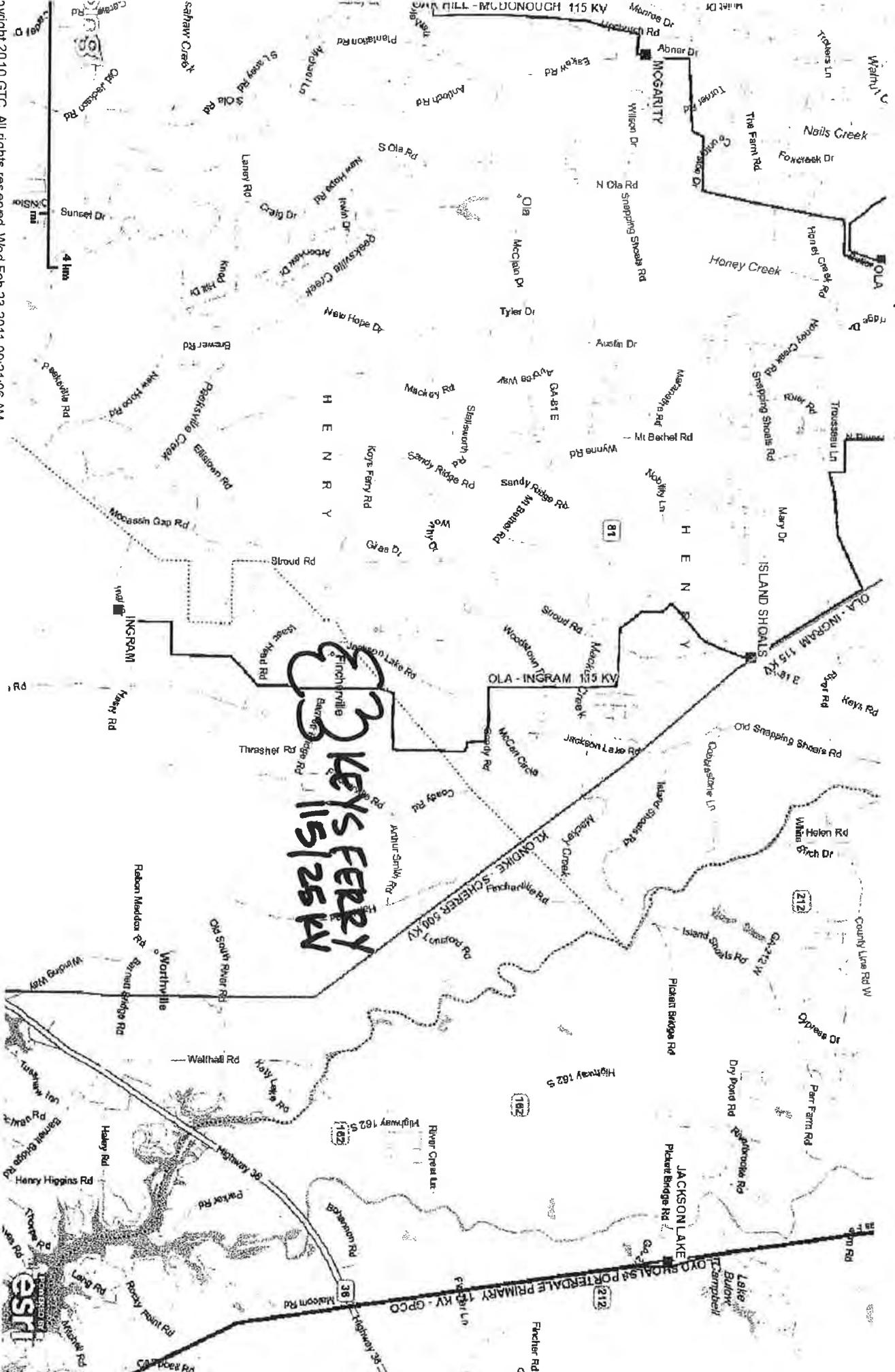
Conclusion

The construction of the new Keys Ferry 115/25kV 25MVA substation is the best solution to resolve the area problems. It is the least expensive alternative and adds capacity at the load center. It offers SSEMC the most distribution operational flexibility and potential for future growth.

Alternative #1 does resolve all of the area problems. However, it is the most expensive alternative, and requires significant lengths of double-circuit distribution. It does not provide SSEMC with the same operational flexibility and potential for future growth.

Keys Ferry

Georgia Transmission Corporation

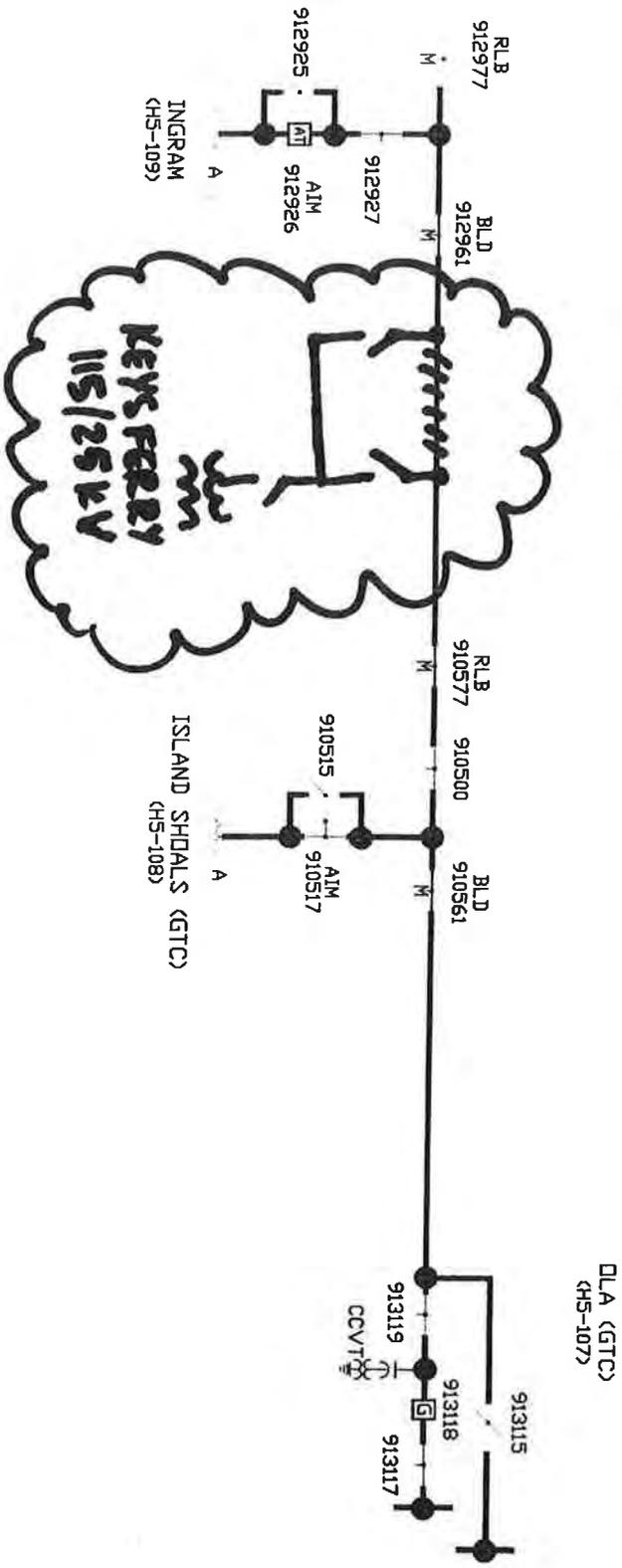


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HS

ESRI

RATING 895A



NET115 - 13

GEORGIA INTEGRATED TRANSMISSION SYSTEM SUBSTATION DIAGRAM
DLA 913118 - INGRAM 115KV
Drawn: 05-13-10 Revised: 06-16-10 CDH

Keys Ferry 115/25kV Substation
Project #79275
Estimating Assumptions
4/22/2011

The following is a list of assumptions on which the estimate for the subject substation is based:

Scope

The scope of the project is to construct a new 115/25kV 50MVA inline substation. (1) new transformer. 115/25kV 50MVA.

Assumptions:

1. Estimate based on PDSL, Drawing 3185-PD1 Rev. 1, dated 3/22/2011.
2. Estimate based on normal lead time schedule.
3. Primavera schedule assumes no land condemnation.
4. 5% contingency for E/C 50, Construction Contract and E/C 50, Site Work Contract is included in the estimate.
5. The overheads rate for this project was estimated at 23%.
6. Estimate is based off of a unit based methodology.
7. The cost of the new 50 MVA 115/25kV transformer is ~~\$176,717.00~~.
8. Line switches shown on the PDSL are included in the estimate.
9. An NPDES permit is required.
10. Due to the rising cost of new power transformers, 8% contingency has been added to the new power transformer cost of ~~\$176,717.00~~.

Ola - Ingram
Project Number 85987
Estimate Assumptions
4/25/2011

Scope: Terminate 115kV in the new Keys Ferry S/S under the Ola - Ingram 115kV T/L. .

Assumptions:

1. All work will be done with line in service.
2. The cost of temporary line in ~~\$100,000.00~~ (included in estimate).
3. The cost if line can be taken out of service for one week is \$77000.00 (one week labor) (included in estimate).
4. Assumed installation and removal of three temporary concrete poles. (2 weeks' labor)
5. No additional land will be needed.
6. Overheads were calculated using 2011 methodology.
7. Estimate includes ~~\$50,000~~ for contingency.

Keys Ferry – LSC
Project #98461
Estimating Assumptions
4/19/2011

The following is a list of assumptions on which the estimate for the subject substation is based:

Scope

The scope of the project is to pour foundations and install conduits for Snapping Shoals EMC's 6 bay low side.

Assumptions:

1. GTC will pour foundations and install conduits for Snapping Shoals EMC's 6-bay lowside.
2. SSEMC will construct their 6-bay lowside.
3. The design will be similar to the Jackson Creek and Salem Road low-sides.
4. Estimate is based on a normal lead-time schedule.
5. 5% contingency for E/C 50, Construction Contract is included in the estimate.
6. The overheads rate for this project was estimated at 23%.

9.2 Agency Correspondence



MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

September 20, 2011

Lorna Campbell, President
Campbell Environmental Inc.
2328 Sanford Road
Decatur, GA 30033

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near Keys Ferry Road 115/25kV Substation, Butts County, Georgia

Dear Ms Campbell:

This is in response to your request of August 19, 2011. According to our records, within a three-mile radius of the project site there are the following Natural Heritage Database occurrences:

US *Amphianthus pusillus* (Pool Sprite) approx. 2.5 mi. S of site
GA *Cyprinella xaenura* (Altamaha Shiner) approx. 2.0 mi. S of site in Tussahaw Creek
GA *Haliaeetus leucocephalus* (Bald Eagle) approx. 3.0 mi. SW of site
US *Isoetes melanospora* (Black-spored Quillwort) approx. 3.0 mi. S of site

* Entries above preceded by "US" indicates species with federal status (Protected, Candidate or Partial Status). Species that are federally protected in Georgia are also state protected; "GA" indicates Georgia protected species.

Recommendations:

We have no records of high priority species or habitats within the project area. However, two federally listed species, *Amphianthus pusillus* (Pool Sprite) and *Isoetes melanospora* (Black-spored Quillwort) are within three miles of the proposed project. These species rely on rock outcrop habitats and should not be impacted if these habitats are not on site. Section 9 of the Endangered Species Act states that taking or harming of a listed species is prohibited. We recommend all requestors with projects located near federally protected species consult with the United States Fish and Wildlife Service. For southeast Georgia, please contact Strant Colwell (912-265-9336, ext.30 or Strant_Colwell@fws.gov). In southwest Georgia, please contact John Doresky (706-544-6999 or John_Doresky@fws.gov). In north Georgia, please contact Robin Goodloe (706-613-9493, ext.221 or Robin_Goodloe@fws.gov).

In order to protect aquatic habitats and water quality, we recommend that all machinery be kept out of creeks during substation construction. Further, we strongly advocate leaving vegetation intact within 100 feet of creeks. We realize that some trees may have to be removed, but

recommend that shrubs and ground vegetation be left in place. We also recommend that stringent erosion control practices be used during construction activities and that vegetation is re-established on disturbed areas as quickly as possible. Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. Please use natural vegetation and grading techniques (e.g. vegetated swales, turn-offs, vegetated buffer strips) that will ensure that the project area does not serve as a conduit for storm water or pollutants into the water during or after construction. These measures will help protect water quality in the vicinity of the project as well as in downstream areas.

NEW - Data Available on the Nongame Conservation Section Website - NEW

NEW Georgia protected plant and animal profiles are available on our website. Originating with the State Wildlife Action Plan, a strategy guiding conservation in Georgia, the accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit <http://www.georgiawildlife.com/node/2223?cat=6>.

By visiting the Nongame Conservation Section Website you can view the highest priority species and natural community information by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: <http://www.georgiawildlife.com/conservation/species-of-concern?cat=conservation>

An ESRI shape file of our highest priority species and natural community data by quarter quad and county is also available. It can be downloaded from:

<http://georgiawildlife.com/sites/default/files/uploads/wildlife/nongame/zip/gnhpds.zip>

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (<http://www.georgiawildlife.com/node/1376>) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,



Katrina Morris
Environmental Review Coordinator

9.3 Campbell Environmental Inc. – Biological Field Survey

Campbell Environmental, Inc., 2328 Sanford Road, Decatur, Georgia 30033
(404) 321-4642 FAX (404) 634-5929
e-mail: lornacamp@aol.com

September 26, 2011

Georgia Transmission Corporation
Attention: Ms. Tasha Brooks
2100 East Exchange Place
P.O. Box 2088
Tucker, Georgia 30085-2088

Subject: Survey of Waters of the United States and Protected Species
Keys Ferry Road 115/25kV Substation
Butts County, Georgia

Dear Ms. Brooks:

On September 2, 2011, representatives of Campbell Environmental, Inc., conducted surveys for jurisdictional waters of the United States, including wetlands, and protected species and their habitats for your proposed project, the Keys Ferry Road 115/25kV Substation, in Butts County, Georgia. The project area includes 9.71 acres and is south of Keys Ferry Road on the east side of the Ola Ingram 115kV transmission line. The transmission line right-of-way (ROW) is within the project area.

Project location maps are attached and site information is below:

Latitude 33.41135° north and Longitude 83.96258° west
Waterway: Baker Branch drainage basin (Tussahaw Creek tributary)
State of Georgia Hydrologic Map Cataloging Unit: 03070103

Background

Impacts to waters of the United States require authorization under Section 404 of the Clean Water Act. Waters of the United States include wetlands as well as areas that do not meet the criteria for wetlands but that hold impounded or running water during some or all of the year. This term applies to such features as lakes, ponds, rivers, perennial and intermittent streams, and, in some cases, ditches. Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory 1987).

Legal protection for federally listed species, Threatened or Endangered status, is conferred by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1534). This act makes it illegal to kill, harm, harass, or remove any federally listed animal species from the wild; plants are similarly protected, but only on federal lands. Section 7 of this act requires federal agencies to ensure that actions they fund or authorize do not jeopardize any federally listed species. Species that are being considered for federal protection, though not currently listed, are designated as Candidate species and may be listed in the future.

Legal protection in the State of Georgia is provided by the Georgia Department of Natural Resources (GDNR) for state listed plants and animals, under the Wildflower Preservation Act of 1973 and the Endangered Wildlife Act of 1973. These acts establish four categories of legally protected species: (1) Endangered, (2) Threatened, (3) Unusual, and (4) Rare. The harassment or killing of any state listed animal species is prohibited on all lands in the State of Georgia, both public and private. State listed plant species receive protection only on public lands and can be removed only with written authorization from GDNR. In addition, plant and animal species that are being carefully monitored, but are not legally protected, are designated as Special Concern by GDNR. For the purpose of this report, protected species are defined as animals or plants listed as Endangered, Threatened or Candidate species by the U.S. Fish and Wildlife Service (FWS 2004) or GDNR (GDNR 2010).

Also included as a protected species is the Bald eagle. In 2007, FWS removed the bald eagle as threatened under the ESA and published National Bald Eagle Management Guidelines (Eagle Guidelines) to assist the public in understanding protections afforded to and prohibitions related to the bald eagle under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) (Eagle Act), the Migratory Bird Treaty Act (16 U.S.C. 703–712), and the Lacey Act (16 U.S.C. 3371–3378).

Methods and Results

Resources utilized to locate and delineate wetlands and potential protected species habitats include the United States Geological Survey (USGS) Worthville, Georgia quadrangle 7.5 minute topographic map (1985) and the National Wetlands Inventory (NWI) map. The *Soil Survey of Butts County, Georgia* (USDA 2007) was reviewed for mapped soils. Mapped soil series were checked for hydric classification using *Hydric Soils of the U.S.* (SCS 1991). The list of protected species known to occur in Butts County, and adjacent Henry County, including limited habitat information, was obtained (FWS 2004 and GDNR 2010). Correspondence from the GDNR concerning federally or state protected species is enclosed. The lists and various distribution guides and atlases were reviewed to determine the habitat requirements of protected species known in the counties.

The proposed project area is in the Piedmont Physiographic province of Georgia (Wharton 1978). The vegetation communities were examined on foot, classified, and mapped in order to assess their potential to support protected species. Potential protected

species habitats are ordinarily searched for protected species by traveling transects 30-50 feet apart or by using other specified techniques.

Protected Species Survey

Vegetation Communities

The dominant vegetation communities within the project area include Maintained ROW and Mixed Pine Hardwood. Figure 4 shows the approximate locations of the vegetation communities. Photographs of the dominant vegetation communities are enclosed.

Maintained ROW

This vegetation community includes the maintained ROW of the Ola Ingram 115 kV transmission line along the west edge of the project area. The vegetation is periodically maintained as an herb/shrub community. The maintained ROW vegetation community is vegetated with plant species that are primarily mesic forbs and include dog fennel (*Eupatorium capillifolium*), lespedeza (*Sericea lespedeza*), fescue (*Festuca* spp.) and panic grass (*Panicum* spp.). Shrub species include smooth sumac (*Rhus glabra*), sweet-gum (*Liquidambar styraciflua*) and loblolly pine (*Pinus taeda*).

Mixed Pine Hardwood

This vegetation community occurs throughout the project area with the exception of the maintained ROW of the transmission line. Dominant canopy species include loblolly pine (*Pinus taeda*), sweet-gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*) and water oak (*Quercus nigra*). Subcanopy species include younger specimens of the canopy species with additional species that include flowering dogwood (*Cornus florida*), blackjack oak (*Quercus marilandica*), muscadine (*Vitis rotundifolia*) and greenbrier (*Smilax* spp.). The mature canopy is approximately 40 to 50 years of age.

Protected Species

Protected animal species in Butts and Henry Counties include the Altamaha shiner (*Cyprinella xaenura*) and the Bald eagle (*Haliaeetus leucocephalus*). Protected plant species in Butts and Henry Counties are granite outcrop species which include pool sprite (*Amphianthus pusillus*), black-spored quillwort (*Isoetes melanospora*) and granite rock stonecrop (*Sedum pusillum*). Table 1 summarizes the protected species known to be found in Butts and Henry Counties and the results of the survey.

Table 1. Protected Species Found in Butts and Henry Counties (Source: FWS 2004 and GDNR 2010.)

Scientific Name Common Name	Preferred Habitat	Federal Status	State Status	Habitat Present on Project Site
Animals				
<i>Cyprinella xaenura</i> Altamaha shiner	Medium-sized streams in runs or pools over sand to gravel substrate	None	ST	No
<i>Haliaeetus leucocephalus</i> Bald eagle	Inland waterways and estuarine areas	BGEPA	SE BGEPA	No
Plants				
<i>Amphianthus pusillus</i> Pool sprite, snorkelwort	Vernal pools on granite outcrops	FT	ST	No
<i>Isoetes melanospora</i> Black-spored quillwort	Vernal pools on granite outcrops	FE	SE	No
<i>Sedum pusillum</i> Granite rock stonecrop	Granite outcrops among mosses in partial shade under red cedar trees	None	ST	No

FE Federal Endangered

SE State Endangered

FT Federal Threatened

ST State Threatened

BGEPA Bald and Golden Eagle Protection Act

Habitat is not present in the project area for protected species and no protected species were observed. No further surveys are recommended for protected species.

Jurisdictional Waters of the United States Survey

The wetlands survey was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the memorandum "Clarification and Interpretation of the 1987 Manual" (USACE 1992) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE 2010). Application of this procedure required identification of plant community types and characterization of vegetation, hydrology, and soils using established criteria. There were no wetlands or other waters of the United States found in the project area. The USACE makes the final determination of waters of the United States.

Access Issues

A gully crosses the east side of the project area. The gully is 4 to 8 feet deep and is 8 to 15 feet across. The gully is an erosional feature that was more than likely the result of extensive farming in the past. The gully appears to have stabilized upon the land use change from active farming to the establishment of the forest. There is leaf litter and other organic debris in the bottom with some vegetation on the side slopes. There is no evidence (scour, water mark, etc.) that indicates water flows at rain events. The surrounding forest is not disturbed and has a developed canopy and subcanopy with mature trees that are 40 to 50 years of age.

Access Roads

There are two access drives from Keys Ferry Road into the project area. One access drive is within the maintained ROW for the transmission line. The other access drive is at the edge of the maintained ROW and was apparently used to access the property prior to the construction of the transmission line. Both access drives have culverts at the roadside ditch.

Thank you for the opportunity to work on this project. Please call me if you have any questions or require more information.

Sincerely,



Lorna J. Campbell
President

Enclosures:
FIGURES

Figure 1. Project location map.

Figure 2. Soil Survey Map.

Figure 3. National Wetlands Inventory Map.

Figure 4. Vegetation Communities Map.

PHOTOGRAPHS

Photograph 1. Maintained ROW.

Photograph 2. Mixed pine hardwood.

Photograph 3. Gully.

GEORGIA DEPARTMENT OF NATURAL RESOURCES CORRESPONDENCE

REFERENCES

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Georgia Department of Natural Resources, Wildlife Resources Division, Nongame Conservation Section. 2010. Element Occurrence Records Database. Georgia Department of Natural Resources, Social Circle, Georgia.

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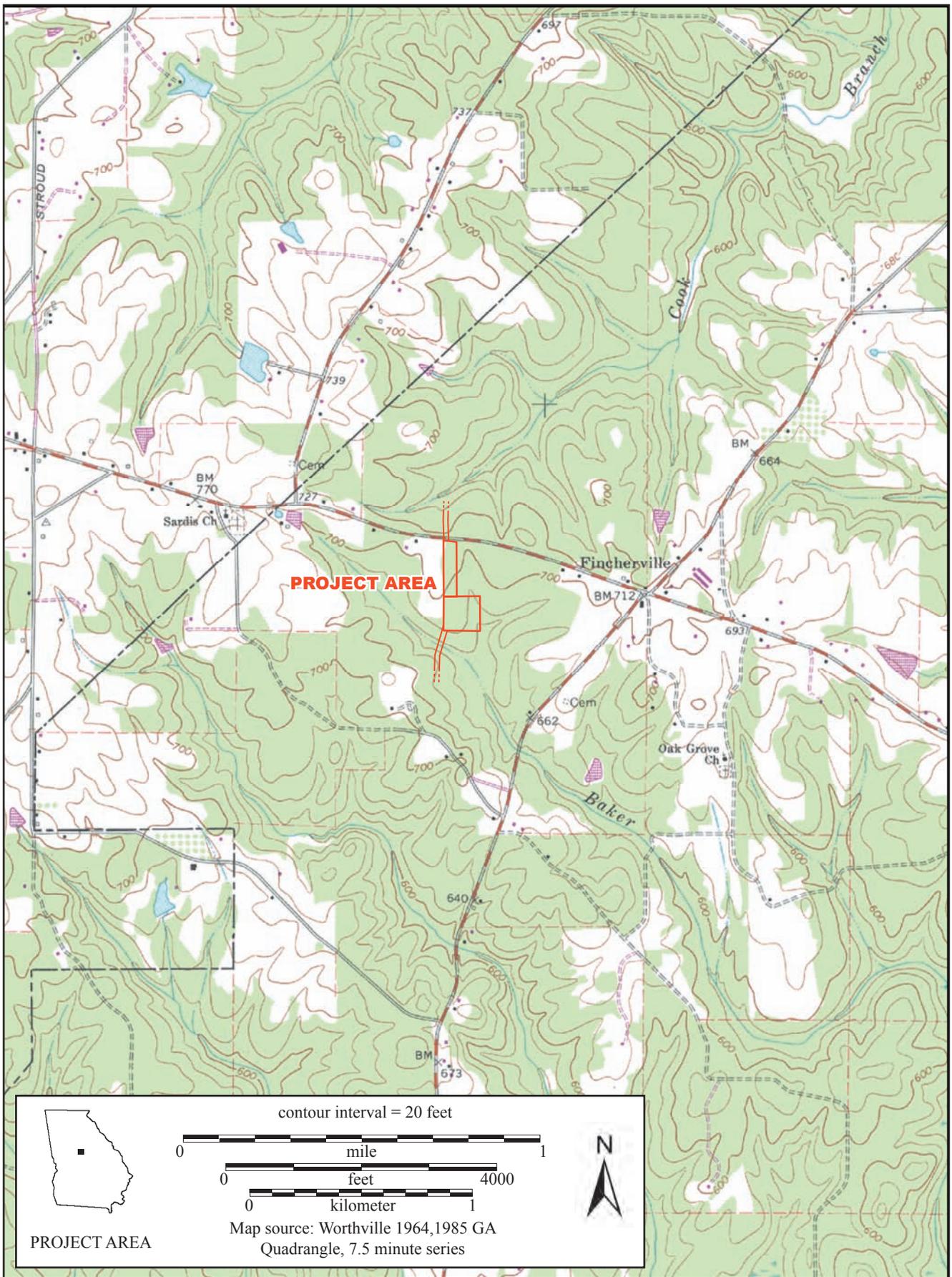


Figure 1. Project location map.

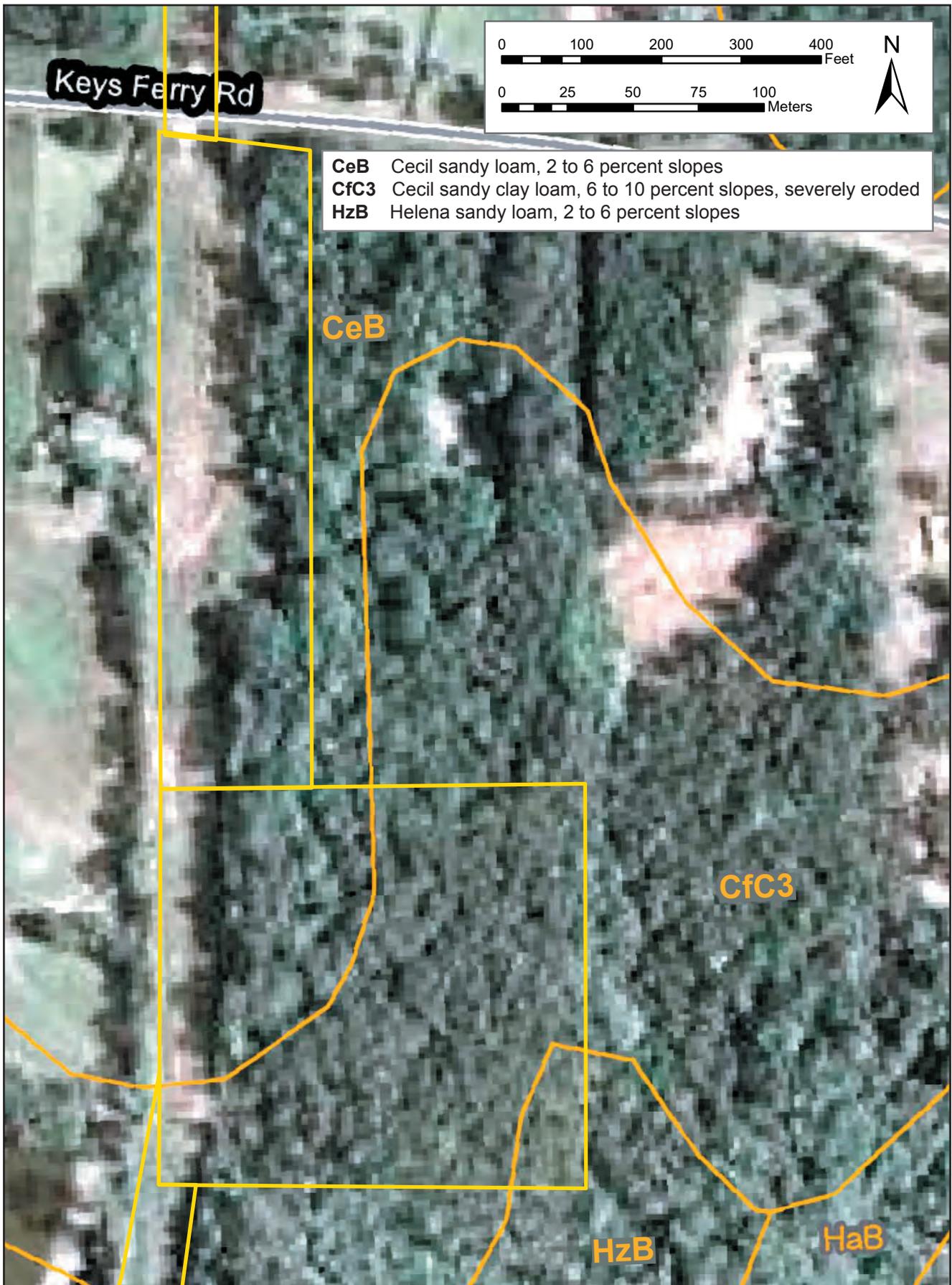


Figure 2. Soil Survey Map.



Figure 3. National Wetlands Inventory Map.

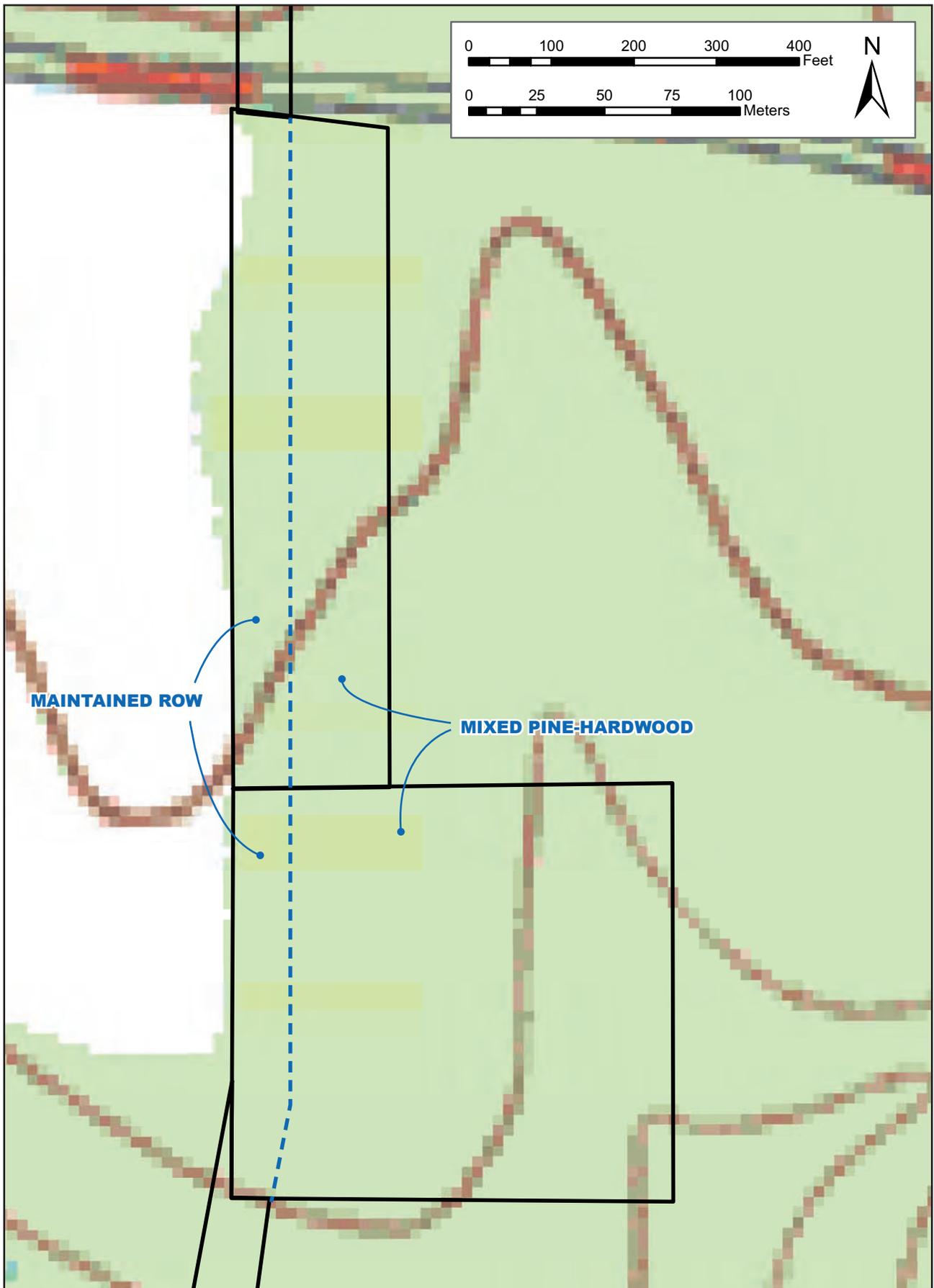


Figure 4. Vegetation Communities Map.



Photograph 1. Maintained ROW.



Photograph 2. Mixed pine hardwood.



Photograph 3. Gully.



MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

September 20, 2011

Lorna Campbell, President
Campbell Environmental Inc.
2328 Sanford Road
Decatur, GA 30033

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near Keys Ferry Road 115/25kV Substation, Butts County, Georgia

Dear Ms Campbell:

This is in response to your request of August 19, 2011. According to our records, within a three-mile radius of the project site there are the following Natural Heritage Database occurrences:

US *Amphianthus pusillus* (Pool Sprite) approx. 2.5 mi. S of site
GA *Cyprinella xaenura* (Altamaha Shiner) approx. 2.0 mi. S of site in Tussahaw Creek
GA *Haliaeetus leucocephalus* (Bald Eagle) approx. 3.0 mi. SW of site
US *Isoetes melanospora* (Black-spored Quillwort) approx. 3.0 mi. S of site

* Entries above preceded by "US" indicates species with federal status (Protected, Candidate or Partial Status). Species that are federally protected in Georgia are also state protected; "GA" indicates Georgia protected species.

Recommendations:

We have no records of high priority species or habitats within the project area. However, two federally listed species, *Amphianthus pusillus* (Pool Sprite) and *Isoetes melanospora* (Black-spored Quillwort) are within three miles of the proposed project. These species rely on rock outcrop habitats and should not be impacted if these habitats are not on site. Section 9 of the Endangered Species Act states that taking or harming of a listed species is prohibited. We recommend all requestors with projects located near federally protected species consult with the United States Fish and Wildlife Service. For southeast Georgia, please contact Strant Colwell (912-265-9336, ext.30 or Strant_Colwell@fws.gov). In southwest Georgia, please contact John Doresky (706-544-6999 or John_Doresky@fws.gov). In north Georgia, please contact Robin Goodloe (706-613-9493, ext.221 or Robin_Goodloe@fws.gov).

In order to protect aquatic habitats and water quality, we recommend that all machinery be kept out of creeks during substation construction. Further, we strongly advocate leaving vegetation intact within 100 feet of creeks. We realize that some trees may have to be removed, but

recommend that shrubs and ground vegetation be left in place. We also recommend that stringent erosion control practices be used during construction activities and that vegetation is re-established on disturbed areas as quickly as possible. Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. Please use natural vegetation and grading techniques (e.g. vegetated swales, turn-offs, vegetated buffer strips) that will ensure that the project area does not serve as a conduit for storm water or pollutants into the water during or after construction. These measures will help protect water quality in the vicinity of the project as well as in downstream areas.

NEW - Data Available on the Nongame Conservation Section Website - NEW

NEW Georgia protected plant and animal profiles are available on our website. Originating with the State Wildlife Action Plan, a strategy guiding conservation in Georgia, the accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit <http://www.georgiawildlife.com/node/2223?cat=6>.

By visiting the Nongame Conservation Section Website you can view the highest priority species and natural community information by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: <http://www.georgiawildlife.com/conservation/species-of-concern?cat=conservation>

An ESRI shape file of our highest priority species and natural community data by quarter quad and county is also available. It can be downloaded from:

<http://georgiawildlife.com/sites/default/files/uploads/wildlife/nongame/zip/gnhpds.zip>

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (<http://www.georgiawildlife.com/node/1376>) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,



Katrina Morris
Environmental Review Coordinator

9.4 Southeastern Archeological Services – Archeological Survey Report

Archaeological Survey for the
Proposed Keys Ferry 115/25kV Substation,
Butts County, Georgia

Archaeological Survey for the
Proposed Keys Ferry 115/25kV Substation,
Butts County, Georgia

Prepared for:
Georgia Transmission Corporation
2100 East Exchange Place
P.O. Box 2088
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By:



Jerald Ledbetter
Principal Investigator

September 15, 2011

SOUTHEASTERN ARCHEOLOGICAL SERVICES, INC.

P.O. Drawer 8086
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ABSTRACT

This report presents the results of an intensive archaeological survey performed by Southeastern Archeological Services, Inc. in northern Butts County where the Georgia Transmission Corporation wishes to construct a 115/25kV substation near Keys Ferry Road. The goal of the survey was to locate and evaluate any archaeological resources that may be adversely affected by the construction of the substation. The survey was undertaken in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. The area of potential effect for the project consists of approximately 9.7 ac (3.9 ha). The tract is predominately wooded but the western part of the access area has been cleared of trees as the result of construction of the Ola to Ingram transmission line. The entire tract represents old farmland and remnants of agricultural terraces are conspicuous. The southern portion of the project area lies a short distance from a minor tributary called Baker Branch. Keys Ferry Road abuts the access road on the north. The project area was surface searched and shovel tested to locate evidence of archaeological sites. A total of 41 shovel tests were dug as a part of the survey process (additional shovel tests were excavated during the investigation of the archaeological sites). Two previously recorded archaeological sites were found with the access area portion of the survey area. Both had been recorded during the previous transmission line corridor survey (Gresham 2005). One (9BS65) was a late nineteenth to early 20th century farm complex. The second (9BS98) was a very low density prehistoric lithic scatter previously recorded as an artifact occurrence. The two sites are not considered eligible for listing in the National Register of Historic Places. Thus, we conclude that the construction of the proposed substation will have no effect on significant archaeological resources and should be granted clearance to proceed.

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INTRODUCTION

This report presents the results of an intensive archaeological survey performed by Southeastern Archeological Services, Inc. (SAS) in northern Butts County, Georgia (Figure 1). Georgia Transmission Corporation wishes to construct a 115/25kV substation at the location (Figures 2 and 3). The survey was undertaken in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. The act requires that federal agencies (in this case the Rural Utilities Service) take into account potential adverse effects to significant cultural resources (archaeological sites, historic resources, cemeteries) that could result from federally sponsored or licensed undertakings. In this case, the undertaking is the construction of the substation. The goal of the survey was to locate, describe, and evaluate the significance of all archaeological sites that may be affected by the project. The area of potential effect for the survey was the entire 9.7 ac (3.9 ha) tract. The survey reported herein was conducted on August 30, 2011 by the author of this report, SAS archeologist Jerald Ledbetter.

Description of the Project and Project Area

The area of potential effect for the project (or the project area) consists of a rectangular tract of wooded rural property (Figure 4). The cleared corridor of the existing Ola to Ingram 115 kV transmission line extends along the western portion of the access area. The vegetation of the tract is primarily woodlands except in areas that have been cleared and graded for access road construction. Evidence of a recently removed late twentieth century structure remains in the access area in the form of domestic trash and a clearing. Approximately 80 percent of the project area is currently wooded. The tract extends from a ridge crest on the north along gently sloping ground toward a small tributary stream to the south called Baker Branch. The tract is bounded on the west by pasture and on the east by woodlands.

The access area of the tract is bounded by Keys Ferry (Barnett Bridge) Road on the north and by privately owned land on all other sides (see Figure 4). The northern portion of the tract contains a standing chimney and associated trash piles that appears on aerial photographs taken during the late 1930s and early 1940s (previously recorded and designated 9BS65). The boundaries on the east, west, and south adjoin pasture or wooded residential lots of land. The tract runs along Keys Ferry Road for about 111 ft. The western boundary extends for approximately 1300 ft along the existing transmission line corridor. The eastern boundary of the substation tract extends for 500 ft along wooded property. The southern portion of the tract extends for approximately 535 ft above the floodplain of Baker Branch. The late twentieth century structure shown in the access area in Figure 4 but has now been removed.

Figures 5 - 9 are photographs showing surface conditions and the vegetation cover at the time of the survey. The photographs begin at the northwestern corner of the tract and show the cleared transmission line corridor and the western edge of the wooded area that required shovel testing. Figure 6 shows the open woods that form the interior portion of the survey tract. Figures 7 and 8 show the vegetation cover along the surveyed cut lines that form the southern and eastern boundaries of the proposed substation tract. The two photographs were taken from the southeastern corner of the tract.

The photographs depict an area of mixed pines and hardwoods and a thick layer of leaf litter covering much of the project area. Because surface exposure was lacking, systematic shovel testing was required for the investigation of most of the project area.

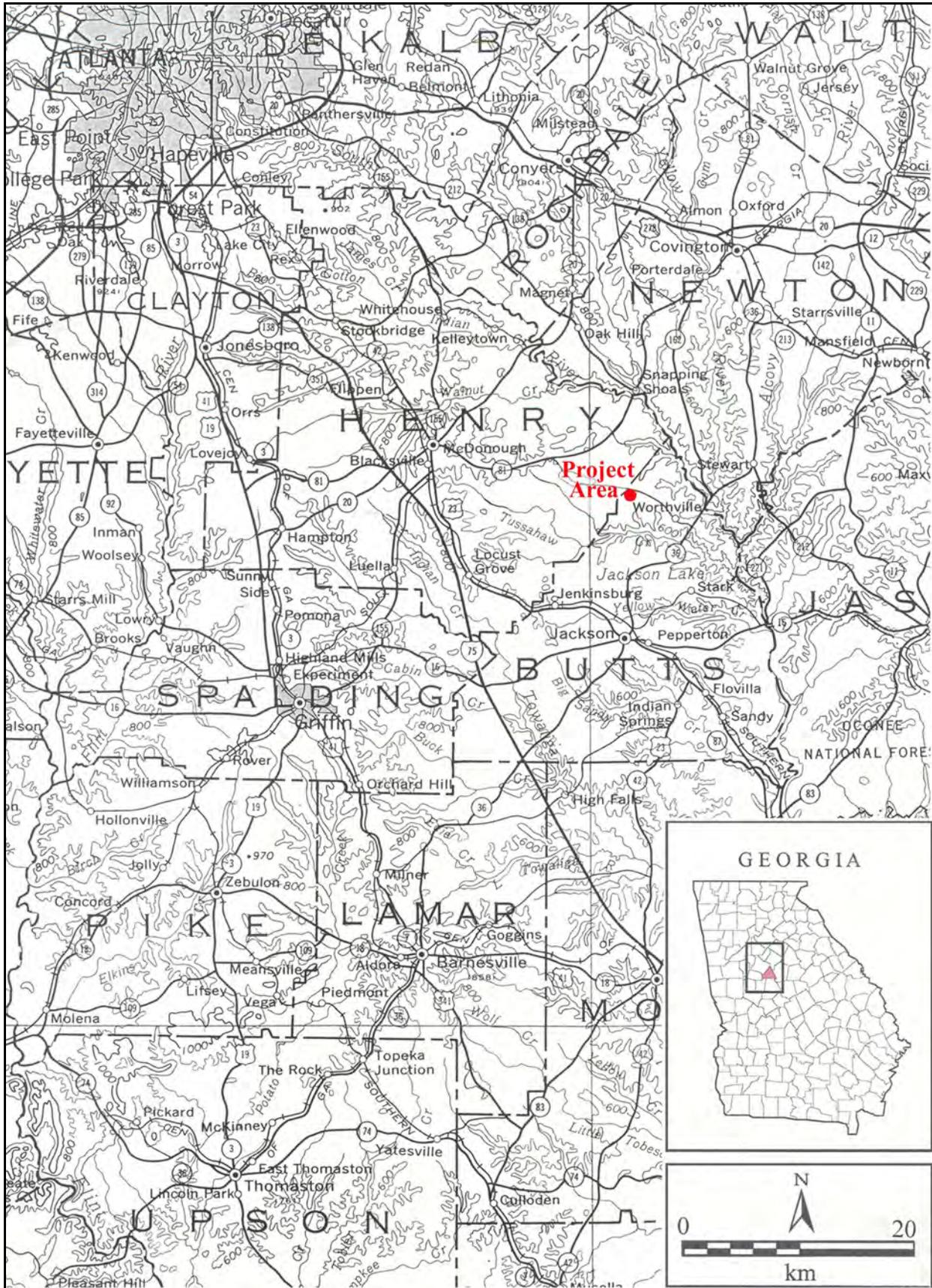


Figure 1. Map Showing Location of Project Area (USGS 1:500,000 Base Map of Georgia).

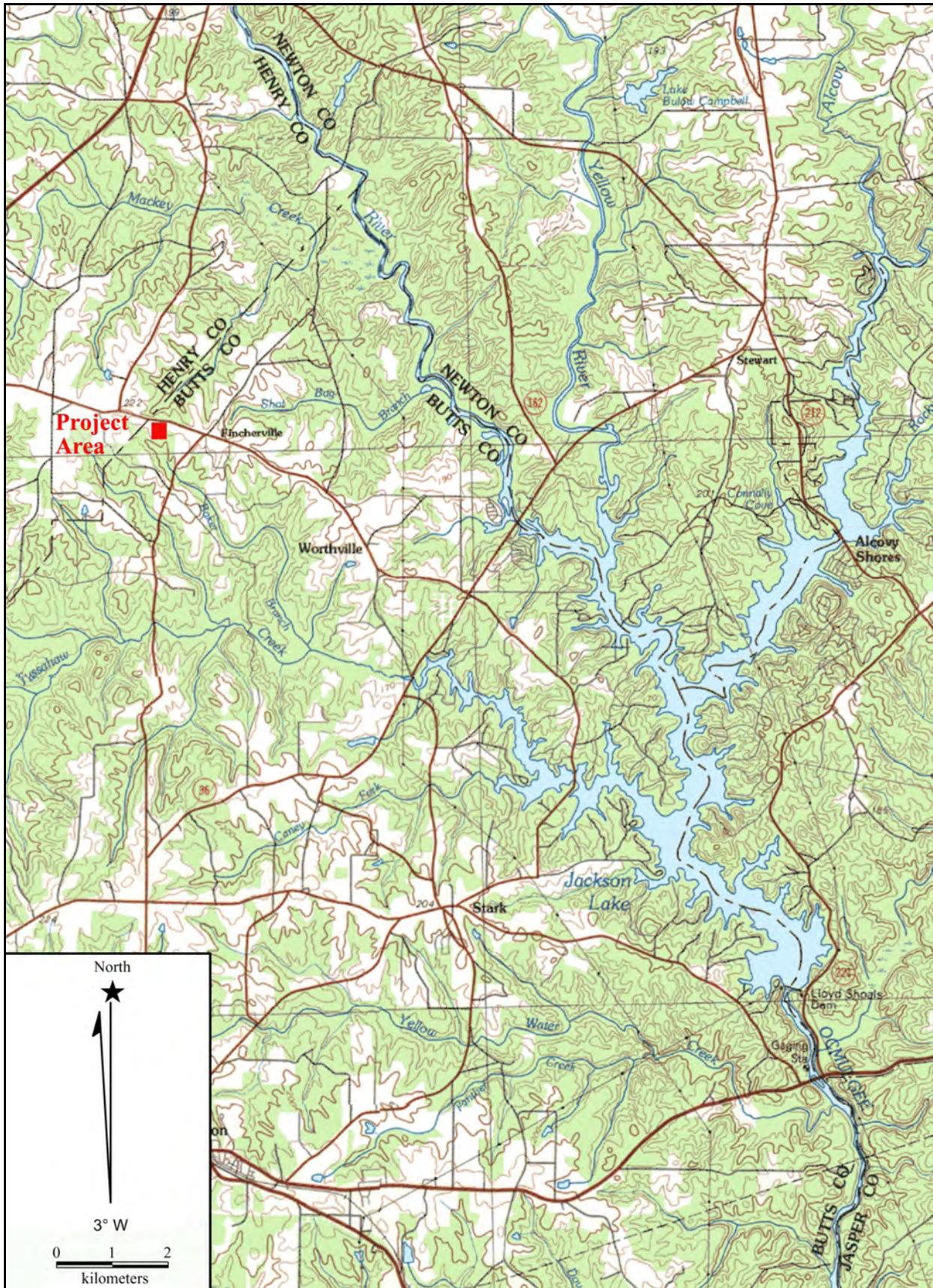


Figure 2. Project map showing location of proposed Keys Ferry Substation (source USGS 1:100,000 Milledgeville quadrangle map).

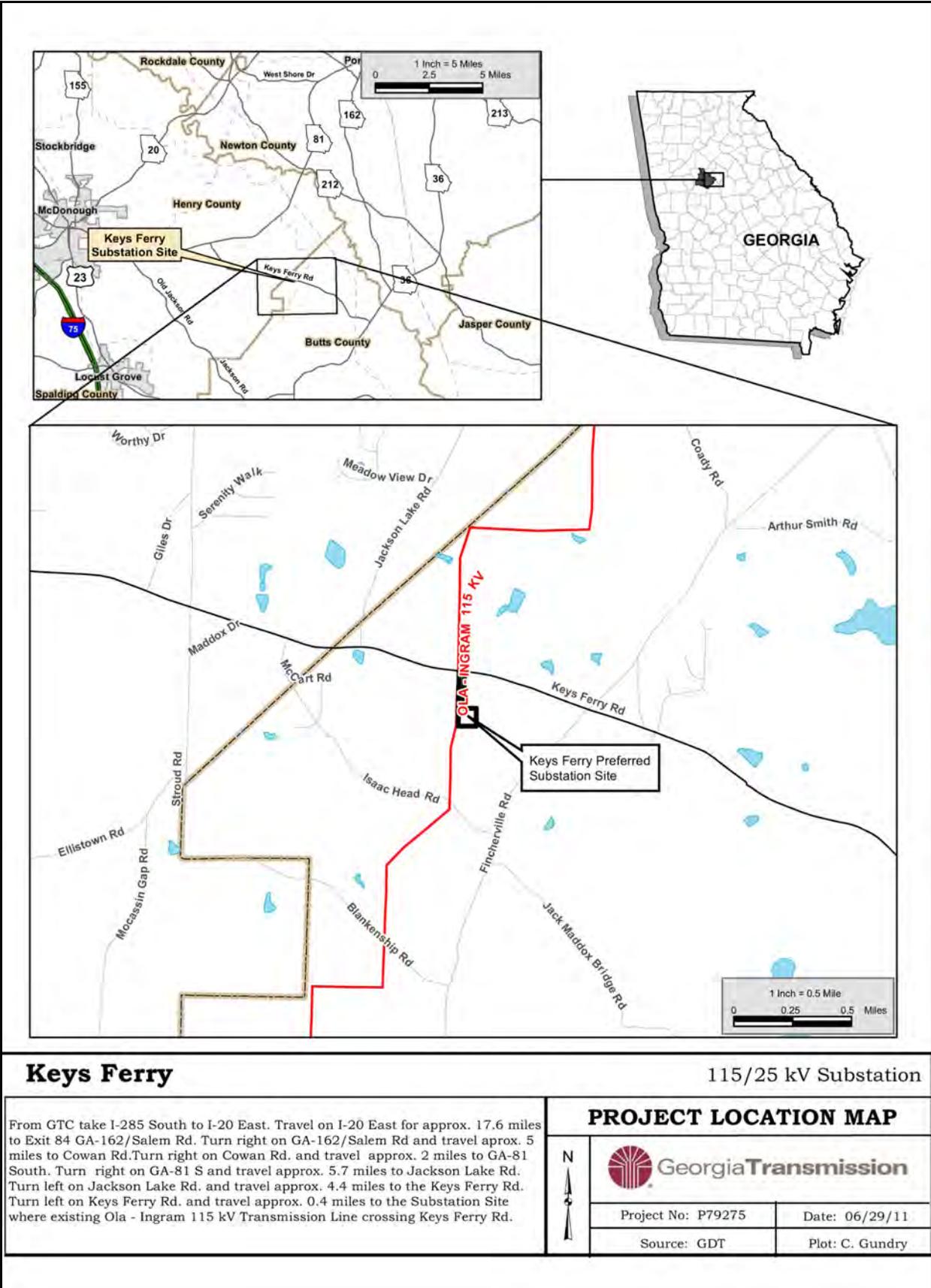


Figure 3. Project location map provided by Georgia Transmission Corporation.

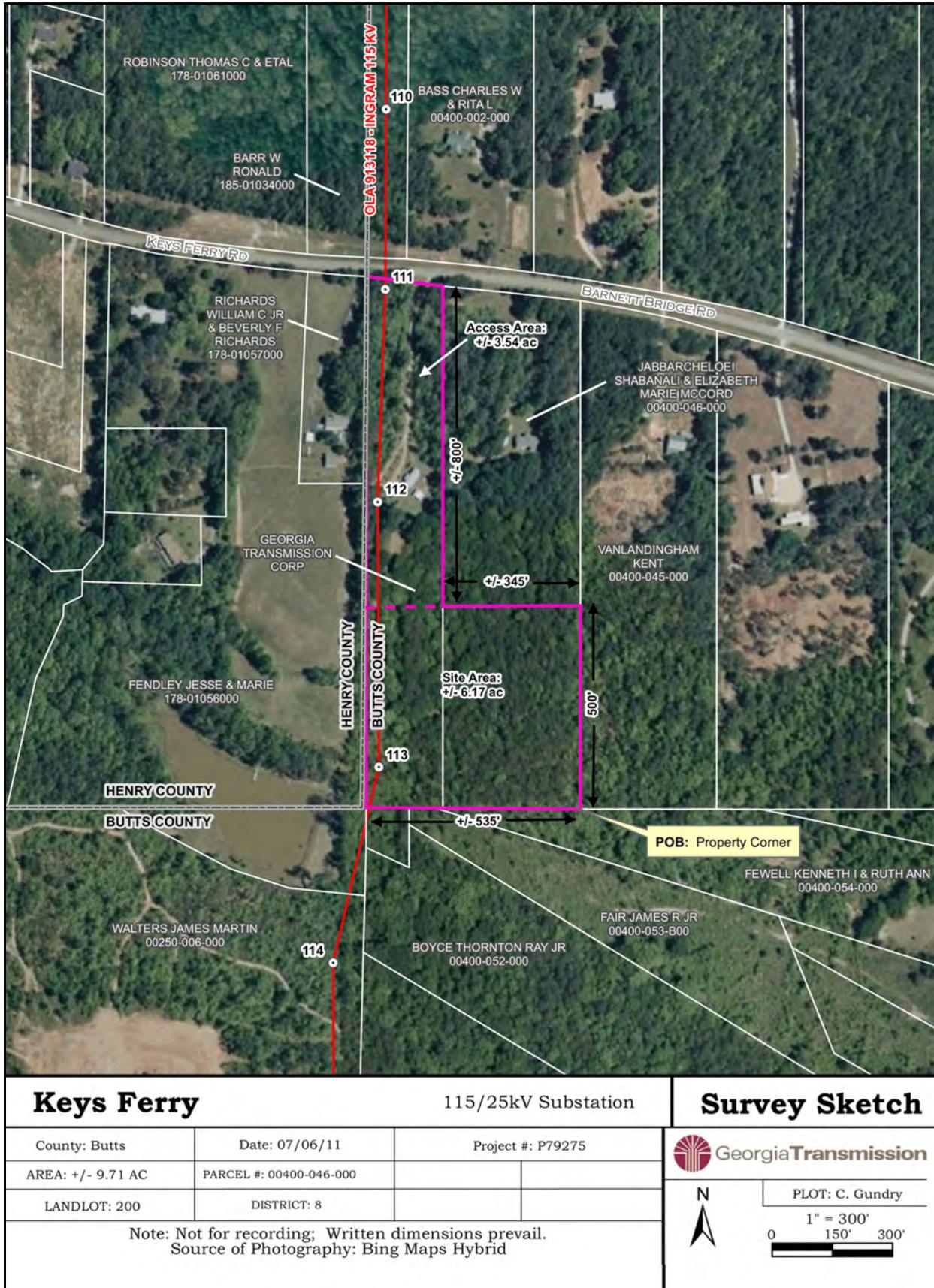


Figure 4. Survey sketch map of project area.



Figure 5. Photograph showing the northwestern portion of the project area, view to the south.



Figure 6. Photograph showing interior portion of the substation tract, view to the west.



Figure 7. Photograph showing surveyor's cut line along southern boundary of tract, view to the west.



Figure 8. Photograph showing surveyor's cut line along eastern boundary of tract, view to the north.

Physical Setting

Butts County is located in the Washington Slope District of the Piedmont Physiographic Province of middle Georgia (Hodler and Schretter 1986). This district is characterized by gently undulating ridges, separated by broad, shallow valleys. Long gentle slopes separate broad, rounded stream divides. Relief is generally moderate. The project area is drained by Baker Branch which flows into Tussahaw Creek. Tussahaw Creek flows in a southeasterly direction joining the South River in Lake Jackson, where along with other rivers and creeks, the Ocmulgee River is formed. In this respect, the project area is in the headwaters of the Ocmulgee River drainage basin (see Figure 2).

The project area is underlain by crystalline rocks of the lower Piedmont. The entire project area falls within the biotitic gneiss/ mica schist/amphibolite geologic province on the state's geological map (Georgia Geological Survey 1976). Quartz can be expected to occur as outcrops, float in the soil matrix and in stream beds, and would be the lithic resource most likely used by prehistoric populations. Coastal Plain chert would outcrop about 100 km to the south. Metavolcanic rock would occur about 60 to 70 km to the northeast. Soapstone occurs erratically in the Piedmont, and large, well known sources occur about 35 km to the north, in southern DeKalb County.

Soils in the portion of Butts County surrounding the project area are of two primary associations, the Cecil-Madison-Pacolet and the Pacolet-Gwinnett-Madison (Murphy 1979). As the names imply, there is considerable overlap and duplication with these broad associations. The uplands, which compose the vast majority of the corridor, are dominated by Cecil Sandy Loam, with lesser areas of Gwinnett Sandy Clay Loam. Slopes are dominated by Pacolet Sandy Loam and Cecil Sandy Clay Loam. As the soil names imply, the soils are mainly sandy loams and sandy clay loams. The typical profile for Cecil Sandy Loam is 0-6 inches, brown (10YR4/4) sandy loam; 6-10 inches, red (2.5YR4/6) sandy clay loam; 10-36 inches, red (2.5YR4/6) clay. A typical soil profile consists of a sandy loam topsoil or plowzone over red clay subsoil.

The environment relating to human occupation in the project area has changed substantially through time. Prior to 10,000 B.P., the predominant vegetation in the Piedmont was relatively stable, consisting of oak-hickory-southern pine forests, with pine increasingly abundant. Predominant fauna consisted of large grazers and browsers, many of which are now extinct. Various species of water fauna were also present such as fish, alligators, and turtles. Generally, the environmental mosaic for this period is described as fine-grained, meaning that there was a heterogeneous environmental mix across broad landscapes (Carbone 1983). From 10,000 B.P. to the present the forest composition fluctuated over time and across space, but still oak, pines and to a lesser degree hickory dominated the forests. Today the uplands are dominated by vast tracts of planted pines except for narrow strips along creeks.

The climate of Butts County is generally mild and favorable for cultivation. However, summers are long and hot and winters are short and generally mild. Winter temperatures are mild enough for the growth of some garden crops and a number of row crops. Rainfall averages just under 50 inches per year.

The project area of today is largely composed of pine forest. However, it can be safely assumed that virtually all of the project corridor has been cleared of the original forest and tilled for agriculture, even though it is almost entirely wooded now. Agricultural terraces are commonplace in the tract.

Cultural Setting

Evidence from archeological sites in North and South America indicate that people have inhabited the New World for at least 12,500 years (Meltzer et al. 1997), but perhaps for as long as 33,000 years (Dillehay 1997; Meltzer et al. 1997). Evidence from archeological sites in North and South America indicate that people have inhabited the New World for at least 12,500 years (Meltzer et al. 1997), but perhaps for as long as 33,000 years (Dillehay 1997; Meltzer et al. 1997). The following cultural history review provides a broad overview of cultural patterns in the Southeast along with a more specific material culture chronology for the northwestern Georgia. Much of the source material for the following summary is taken from the *Georgia Archaeological Research Design Papers* published in the University of Georgia's Laboratory of Archaeology Report series (Hally and Langford 1988; Hally and Rudolph 1986; Joseph et al. 2004; Smith 1992; Stanyard (2003); Wood and Bowen 1995) and culture history overviews prepared for the Georgia Department of Transportation (Espenshade 2008; Ledbetter et al. 2009, Shah and Whitley 2009).

The Paleoindian Period (ca 10,000 - 7800 B.C.)

The first inhabitants of the Georgia Piedmont lived in an environment with much less seasonality than we experience today. Tropical and boreal species of animals and plants coexisted in a climate where temperatures did not fluctuate extremely between summer and winter (Holman 1985). Subsistence was based on hunting and gathering. Large herd animals or megafauna were hunted, such as mastodon and giant bison. Smaller game and fish were also important in the annual subsistence round. Wild plant foods such as fruits, berries, nuts, and wild grains also formed a major part of the diet. Diagnostic artifacts from this period include formalized unifacial scraping and butchering tools and lanceolate projectile points. Clovis, Redstone and Beaver Lake points identify the early part of this period, while Simpon, Quad and Dalton points mark the termination of the period (Cambron and Hulse 1975; De Jarnette et al. 1962). The Quad and Dalton types are sometimes referred to as Transitional Paleoindian/Early Archaic.

Early Paleoindian sites that may produce Clovis points are relatively rare in the lower Piedmont and examples have yet to be recorded in Butts County (Anderson et al. 1990). Ongoing research has recorded only four late Paleoindian points in the county (Ledbetter et al. 2008). The scarcity of reported Paleoindian points would appear to reflect a low level of utilization rather than collection bias.

The Early Archaic Period (7800 - 6000 B.C.)

With the extinction of the large herbivores, greater emphasis was placed on hunting smaller animals. These adaptations probably included settlement changes and the introduction of new tool types. Projectile points changed through time, probably reflecting a change in the equipment and techniques needed to hunt the smaller animals, while unifacial tools remained unchanged from the Paleoindian period. Corner notched, side notched, and stemmed points evolved from the lanceolate forms of the earlier period. Diagnostic types found on northwestern Georgia sites include Big Sandy Side Notched (Lewis and Kneberg 1959), Kirk Corner Notched, Kirk Serrated (Coe 1964), and LeCroy (Kneberg 1956). Based on the large number of recorded sites, population increased, but social structure may have changed little from the Paleoindian period.

Intensively occupied base camps or aggregation sites and numerous small sites characterize settlement in the Southeast during the Early Archaic period (Anderson and Hanson 1988; Chapman 1985; O'Steen 1996). The base camps, located primarily in floodplain settings on larger rivers, appear to be long term, seasonal or multi-seasonal sites, with evidence of varied activity and diverse resource use. Smaller sites, found in both floodplain and upland settings, are believed to be short term seasonal habitation sites or specialized logistical sites (Anderson and Joseph 1988; Chapman 1985; Ledbetter et al. 2001; O'Steen 1996). Previous research in Butts County and adjoining counties show Early Archaic sites distributed throughout the upland areas and along the floodplains of streams of various sizes (Stanyard 2003:102).

The Middle Archaic Period (6000 - 3000 B.C.)

A warming trend known as the Hypsithermal Interval marks the end of the Early Archaic and the beginning of the Middle Archaic period. To the south, pine forests in the Coastal Plain became established during this period (Carbone 1983:9). Middle Archaic people continued a hunter-gatherer subsistence strategy and the extensive use of local raw materials appears to indicate that foraging groups may have been restricted to smaller territories (Anderson 2001:160; Anderson and Joseph 1988:135). The scarcity of Middle Archaic sites south of the Fall Line and in the Ridge and Valley Province of north-western Georgia suggests that certain habitats, such as those found in upland areas in the Piedmont, were more conducive to these people.

The transition from the Early Archaic to the Middle Archaic is characterized by the appearance of stemmed rather than notched projectile points, and an increased incidence of bone and ground stone tools, including atlatl weights, axes, and grinding implements (Chapman 1985; Coe 1964; Lewis and Lewis 1961). A variety of specialized tools appeared, and the increased number and diversity of ground stone tools is particularly noticeable in many Middle Archaic assemblages.

Diagnostic Middle Archaic projectile points found in the lower Piedmont region of Georgia include Stanley, Morrow Mountain, and Guilford (Coe 1964). The Middle Archaic in Piedmont Georgia is primarily identified by Morrow Mountain points (Coe 1964) and an abundance of small, predominately quartz, lithic scatters. For many years archaeologists associated these upland lithic scatters with the Old Quartz Culture (Caldwell 1954). We now know that these upland sites were occupied over an extended portion of the Archaic period (Johnson 1981). We are also beginning to recognize that many of the upland lithic scatters are not associated with Morrow Mountain points but instead contain small stemmed points (Piedmont Allendale) that date to the transitional Middle Archaic/Late Archaic period (Jones 2006:45, Jordan et al. 2003:77; Whatley 2002:16).

The Late Archaic Period (3000 - 700 B.C.)

During this period of time, an essentially modern climate and vegetation landscape emerged (Anderson 2001:161). In portions of the Coastal Plain, and to a lesser extent the southern Piedmont, the period is associated with the introduction of ceramic technology. Craft specialization and evidence of a more sedentary lifestyle identify this period. In some regions of the southeast, such as the Savannah River valley near Augusta and the lower Tennessee River valley, extensive exploitation of shellfish and aquatic resources also begins in this period. In areas where fiber-tempered pottery does appear, the Late

Archaic period is often divided into a preceramic phase (Savannah River) characterized by large Savannah River points (Coe 1964), and a ceramic phase (Stallings Island), characterized by plain and then decorated fiber-tempered pottery (Claflin 1931:37-42; Fairbanks 1942:230). Throughout much of North Georgia, the earliest late Archaic points are typed as Paris Island Stemmed (Elliott 1985; Whatley 2002). During the Late Archaic period point styles evolved from medium sized points with broad-blade and square stems, to larger points of similar form, to smaller stemmed points of highly variable form. The widespread adoption of soapstone vessels during the latter portion of the period characterizes much of the Late Archaic period in the region (Elliott 1981).

Although large Late Archaic sites tend to be situated in riverine settings, there is evidence of widespread use of tributary valleys in the Piedmont. Occupation of upland areas near floodplains appears to have been seasonal. Numerous specialized sites and smaller habitation sites are located along the interior tributary streams such as the South River near the project area.

Some archaeologists now distinguish a transitional time between the Late Archaic and the Woodland period as the Terminal Archaic Period (Faulkner and Graham 1966, Ledbetter et al. 2009). A period of transition dating beginning around 1100 and ending ca. 700- 600 B.C. represents a regional manifestation of a population who appear to continue Late Archaic traditions when people in other parts of the Southeast were adapting cultural and subsistence strategies of the Woodland period. Terminal Archaic sites may be recognized by distinctive projectile point types of the Terminal Archaic Barbed Cluster (Justice 1987:179), an absence of ceramic vessels, and continued use of soapstone vessels (Ledbetter et al. 2009:7).

Woodland Period (ca. 700 B.C. - A.D. 900)

The Woodland period in the Piedmont is marked by extensive use of pottery, increased reliance on agriculture, ceremonialism, and greater evidence of permanent occupation sites. Extensive research in the region indicates more extensive use of floodplain areas along major rivers and smaller tributaries, and increased exploitation of local resources during the Woodland period (Anderson and Mainfort 2002; Espenshade 2008, Garrow 2009; Ledbetter et al. 2009; Wood and Bowen 1995). In North Georgia Woodland period sites are identified primarily by a relatively few pottery types decorated with fabric marking, check stamping, simple stamping, and complicated stamping (Espenshade 2008; Garrow 2009; Williams and Thompson 1999; Wood and Bowen 1995).

The Early Woodland period (700 - 200 B.C.) in northwestern Georgia represents a transition from the Archaic period and occupations are most commonly recognized by fabric marked pottery (Dunlap) and medium-sized triangular points. The pottery type Cartersville Check Stamped was added in greater proportions by the end of the period. Based originally on data from northwestern Georgia, the Early Woodland is best defined by the Kellog phase in the area near Lake Allatoona. In northern Georgia, storage pits and circular houses are associated with the Early Woodland Kellog phase (Caldwell 1957, 1958; Garrow 2009; Wood and Bowen 1995).

Ceramic types, such as Cartersville Check Stamped and Simple Stamped, are typically found on sites of the Middle Woodland period (200 B.C. - A.D. 600) in northwestern Georgia. It is during this time that economic and religious influences from Hopewell cultures of the Mississippi/Ohio River

valleys entered Georgia (Caldwell 1958, Espenshade 2008). Middle Woodland sites producing Cartersville pottery are common along the major tributaries of the Georgia Piedmont. These sites, which are typically situated in floodplain settings may contain midden and numerous features (Caldwell 1957; Espenshade 2008; Garrow 2009; Wood and Bowen 1995).

The Late Woodland period (A.D. 600 - 900) throughout northern Georgia is characterized by the spread from the south of Swift Creek pottery and the later development of Napier. The pottery type Woodstock Complicated Stamped occurs towards the end of the subperiod. In the lower Piedmont, Vining Simple Stamped appears at this time (Garrow 2009:41). Hopewellian influence seems to fade and is replaced by cultural influences from the southern coastal areas in the Late Woodland period. Small triangular projectile points, and types called Jacks Reef Corner Notched and Pentagonal points appear during the Late Woodland period (Ritchie 1961:28).

In the Eastern Woodlands, the Late Woodland period witnessed the continuation of a generalized Woodland hunting and gathering lifestyle, coupled with an increasing dependence on domesticated plants. Previous archaeological investigations in the region have produced a number of Late Woodland sites but little information exists for outlying areas such as Butts County (Espenshade 2008).

The Mississippian Period (A.D. 900 - 1540)

During the Mississippian period large population centers emerged in the major river valleys of northwestern Georgia. A stratified society based on lineage or clan distinctions developed, with village or tribal chief's power depending on the control of agricultural production. Villages were sometimes fortified by palisades to protect the inhabitants from attacks by rival groups. Flat top temple mounds appear as manifestations of the emerging Southeastern Ceremonial Complex (Hudson 1976). A thorough review of the early mound research in the Etowah Valley may be found in King (2003:33-49). In the region Mississippian phases are distinguished by a variations or combinations of pottery types identified by type of stamping or incised designs (Hally and Rudolph 1986; Hally and Langford 1988; Williams and Thompson 1999). Small triangular projectile points occur on most sites during the Early and Middle Mississippian but are rare on Late Mississippian sites.

Etowah phase ceramics emerge out of the Woodstock tradition and a truly Mississippian culture became established in portions of northern Georgia around AD. 1000. The Etowah phase has been divided into as many as four sub-phases based on the evolution of stamped designs on pottery (Hally 1975) but King (1997:37) recognizes only two (early and late). Major sites of this time period are found on major waterways with broad floodplains and for that reason are poorly represented in Butts and adjoining counties that lie outside these major waterways. In northwestern Georgia, the Middle Mississippian period (A.D. 1200 - 1350) is associated with Wilbanks phase ceramic types, but sites of this time period are typically identified as Savannah in the lower Piedmont region.

The Late Mississippian period (A.D. 1350 - 1650) is associated with Lamar culture. Lamar sites are plentiful near the smaller streams such as those found in Butts County where they are found dispersed in alluvial settings. These Lamar sites are characterized by complicated stamped and incised pottery and applied "folded" rims. Because of style changes and intensive excavation, the chronology of the Mississippian period is well known in much of northern Georgia, but as alluded to earlier, not very well known

in the upper Ocmulgee River area. Slightly lower on the Ocmulgee, a Stubbs Phase and a Cowerts Phase are recognized, based on the continuance of Savannah ceramics in the earlier Stubbs Phase. Middle Georgia, mainly around Macon, is famous for the sudden appearance of a new culture, characterized by Ocmulgee Fields pottery, in the 17th and 18th centuries.

Historic Period (A.D. 1650 to present)

During much of the three centuries following initial Spanish exploration of the region, the Spanish, French and English began colonizing the Southeast. Creek Indians inhabited much of south and central Georgia. The southern Creek tribes spoke languages of the Muskogean language family and the tribes were autonomous and under no central authority. However, after the Yamasee War of 1715, the Muskogean tribes banded together in the Creek Confederacy for mutual defense against and trade with the European powers. Also, after the Yamasee War, the eastern tribes migrated west, first settling west of the Ocmulgee River and finally moving on to settle along the Chattahoochee and Coosa Rivers in western Georgia and Alabama. This area soon became the center of the Creek Confederacy. The Lower Creeks' towns were situated on the Lower Chattahoochee River. At times the Confederacy acted in concert, as in the French and Indian War of the 1760s, but usually the tribes acted independently. At one point, during the Red Stick War of 1813, they were decidedly against each other. The Red Stick War was actually a civil war with the Upper Creeks acting against the Americans and the Lower Creeks supporting the Americans.

By the mid-eighteenth century, Creek towns usually consisted of one or more main towns along the Chattahoochee and Flint Rivers with outlying towns and hamlets. After the Revolutionary War, the outlying towns were of a more dispersed nature with farmsteads strung along major waterways, usually centered where a trail crossed the waterway (Wood and Ethridge 1987). At this time, under the auspices of the U.S. government, Benjamin Hawkins, Indian Agent to the Creek Indians, began a development program to incorporate the Creeks into the American farming economy. If successful, Creeks not only would become dependent upon the American economy but also would be contributing citizens to the newly founded United States. The incorporation would also provide a buffer against the French and Spanish remaining along the American borders. The consequence was a dispersed settlement pattern with individual families working their own plots of land. The land, however, was not privately owned because the Creek Confederacy owned all the lands.

By the 1830s, with the Spanish and French threats removed, the American citizenry had no further use for the Indians. In fact, the Eastern tribes, owning vast amounts of land, were viewed as a hindrance to American development. This viewpoint, along with other convoluted historical forces, eventually led to the removal of the 'five civilized tribes'--the Creek, Cherokee, Chickasaw, Seminole and Choctaw. At the time of the Removal, the Creeks were living very much like other Americans on the frontier. Many Indians were businessmen and entrepreneurs, some were plantation owners, and most were farmers. They had a constitutional government and elected leaders. However, the cotton economy was booming and southern landowners wanted Indian lands. The Creek treaty for Removal, like all the Removal treaties, was signed by men unauthorized to do so and against the wishes of the majority. The U.S. government, under Andrew Jackson, accepted these fraudulent treaties and began the Removal process. The Removal began in the 1820s and by the end of the 1830s the Southeast was virtually devoid of Indians.

The area that would become Butts County was acquired from the Indians by treaty in 1821. Butts County was formed in 1825 from the original 1821 Henry County. Land was distributed to eager settlers by lottery and was quickly settled. As was true for most of this middle Georgia region, the earliest settlers cleared the best land, subsistence farmed then quickly moved into cash crops, such as corn, cotton and certain grains. Grist and saw mills, ferrys, small stores, churches and then communities soon developed. Roads, and then later railroads penetrated the area allowing the flourishing of agriculture and commerce. The nineteenth and twentieth century history of the two counties mirrored that of the state as a whole, with agriculture playing a major role throughout and the Civil War and Reconstruction being a major disruption to the economy and social fabric of the region. The region bounced back in the 1870s and then declined with the boll weevil and depression of the 1920s. In the last several decades commerce, residency, industry and tourism have boomed as Atlanta became a major metropolitan area. More specific history related to the project area is presented in the Archival Research section of the Results chapter of this report.

Expectations

Prehistoric sites are generally located on nearly level land in proximity to good water sources, raw material sources, or food hunting/gathering areas. Typically in the Piedmont, small, low density lithic scatters representing temporary camps can be found in many upland locations, while larger, more artifact rich sites with pottery tend to occur along the larger drainages. The project area consists primarily of ridge crest and sloping upland topography. A minor tributary stream lies at the edge of the project but floodplain features suitable for prehistoric habitation are not present. As such, the project area has the potential to produce limited activity prehistoric sites but potentially significant prehistoric archaeological sites are unlikely to be found. During an earlier survey SAS (Gresham 2005) recorded a single late nineteenth to mid-twentieth century farm house on the tract so we expected to encounter additional evidence of historic period occupation. Archival research related to that earlier survey suggested that no other historic house sites would be present on the present survey tract. The previously recorded farm house (9BS65) had been recommended ineligible for nomination to the National Register of Historic Places (Gresham 2005:70). Thus the probability of recording a historic site of significance in the larger survey tract was viewed as minimal.

METHODS

Literature Review

A literature review for the current project area was undertaken previously as part of the Ola to Ingram Transmission Line survey report (Gresham 2005:16-17). A limited amount of additional research was conducted for this report. Prior to the beginning of field work, the records of the Georgia Archaeological Site Files at the University of Georgia in Athens were examined to locate known sites and to develop a general prehistoric and historic context for the area. Topographic maps housed there were examined to locate reported sites in or near the project area and reports of archaeological surveys near the project area were examined to learn about the density and distribution of sites in the area. In addition, previous archaeological reports detailing survey and testing in the area, cited previously, were consulted. As an update, site forms and reports produced after the earlier literature review were examined for the current project.

A variety of archival and cartographic sources were consulted for general historic background information, specific developmental history of the project tract, and for specific locations of individual structures. Most of this research took place at the University of Georgia Libraries, and in particular at the Georgia Room and the Map Room. Primary sources relating to specific early twentieth century house sites included the 1919 Soil Survey map of Henry and Butts Counties (one map) and aerial photographs dating to 1940 and 1950. Other aerial photographs, both older and more recent, were also perused, but the 1940 and 1950 photos showed the most detail for the period in which we were most interested (greater than 50 years old). Old county road maps dating to 1940 for Butts County were also useful for identifying historic period sites, but these maps are too inaccurate to pinpoint locations of structures. These sources are available at the University of Georgia Libraries map room. A series of early to late nineteenth century state and regional maps were consulted, including detailed Civil War maps, to learn how the area developed during that century. Our focus here was on when various roads in the project area were constructed, to give us an idea where older house sites would be located.

Field Survey

The archaeological fieldwork was conducted on August 30, 2011 by the principal investigator. The limits of the project area were readily identified in the field using survey cut lines and stakes, the existing transmission line, and the paved road. These boundaries were shown on the project sketch map provided by Georgia Transmission (see Figure 4). The survey involved the visual inspection of exposed surface areas and the excavation of shovel tests throughout the project area on a 25 m grid (Figure 9).

Generally good surface exposure was found along the transmission line corridor located at the western side of the tract. These areas were carefully examined for artifacts and rock outcrops which may have been exploited during prehistoric and historic times. Small portions of the wooded area displayed limited surface exposure but this was not sufficient for site detection. The majority of the project area lacked sufficient surface exposure for site detection and required shovel testing. The project area contained agricultural terraces but the slopes were not viewed as being too steep for prehistoric or historic period occupation and thus required testing.

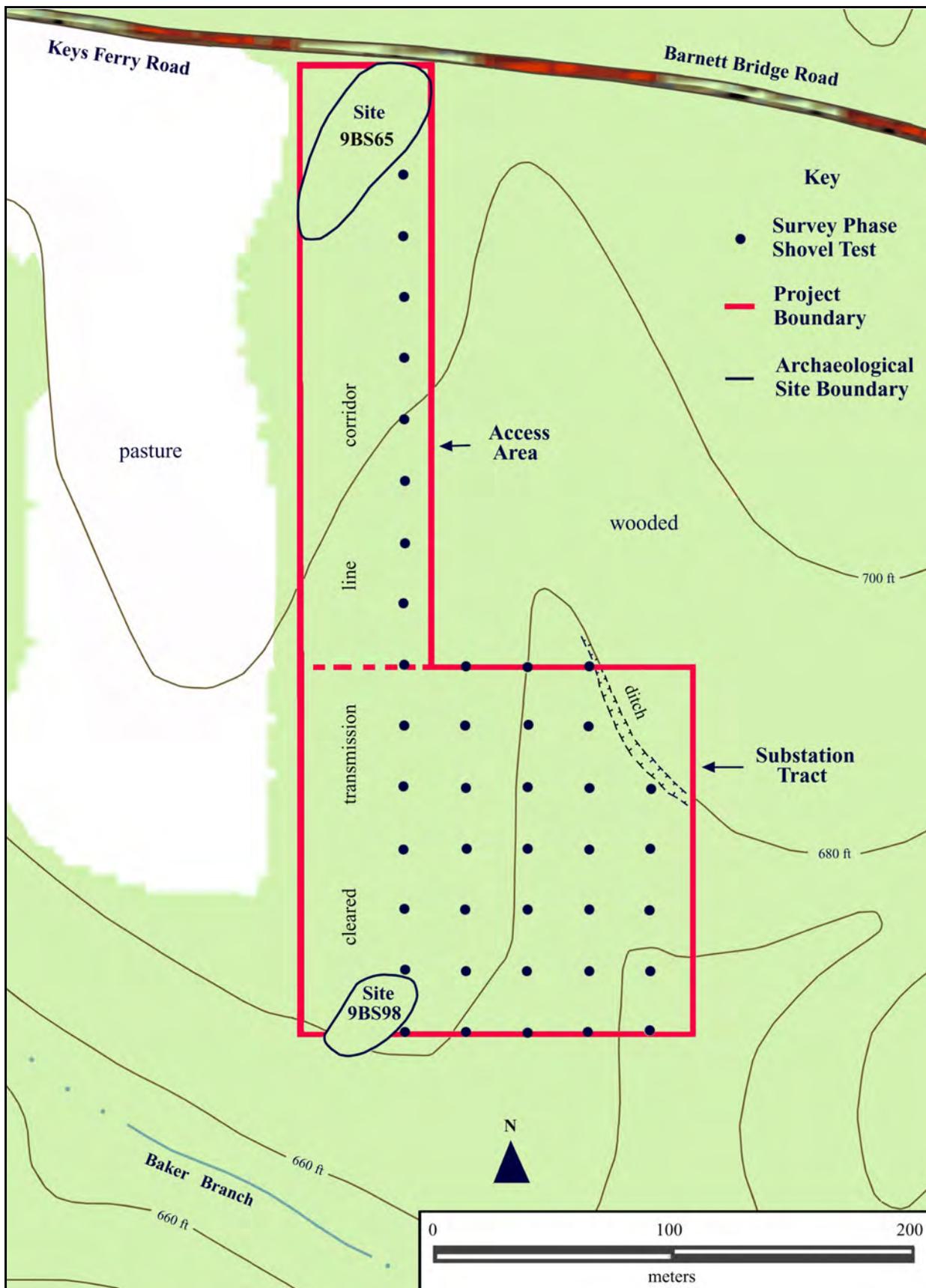


Figure 9. Map of project area showing shovel tests and the location of two sites (9BS65 & 9BS98)

Shovel tests consisted of 30 cm diameter holes excavated to subsoil, with all excavated fill screened through .64 cm (1/4 in) wire mesh. A total of 41 shovel tests were excavated as part of the inspection process and an additional 11 shovel tests were excavated to define archeological site areas. Floodplain deposits were not present in the tract thus deep tests were not required. The location of shovel tests and landscape features were noted directly on the 1:12,000 scale project map. Stratigraphic information of shovel tests was recorded in the field notes and on site forms. The project area and all sites were photographed using a digital camera.

For this project, a site (or artifact occurrence) was defined as any location of past human activity more than 50 years old that exhibits tangible evidence of that activity in a relatively intact context. More specifically, a site is any two artifacts recovered from shovel tests and/or any surface collection of three or more artifacts from the same general time period. Anything less than this would be considered an artifact occurrence. The survey encountered two previously recorded sites (one was formerly recorded as an occurrence) but no new sites were identified.

Artifact Analysis, Evaluation, and Curation

The survey produced both prehistoric and historic period artifacts. These were washed in the laboratory and analyzed by the author. The prehistoric artifacts were sorted as chipped stone tools and debris (entirely made from quartz). No prehistoric ceramics temporally diagnostic projectile points were recovered. Chipped stone tools and debris were sorted by categories utilized by the author in previous research in the region (see Ledbetter et al. 2006:28-30 for detailed descriptions). Historic period artifacts. Historic period artifacts were analyzed and described using standard terminology. The ceramics were quantified by ware-groups (refined earthenwares, stonewares, porcelain, etc.) and by temporally sensitive differences in the manufacturing technique and decoration. Bottle glass was described by color, and if possible, by manufacturing technique and functional criteria (soft drink, medicine). Flat glass was identified as such and measured for thickness. Milk glass was identified to function (decorative, jar, liner, etc.) when possible. Nails were categorized by manufacturing technique (machine-cut versus wire nail) when possible. Miscellaneous artifacts which were often fragmentary were described as thoroughly as possible. Artifacts were tabulated by provenience (shovel test or surface collection).

The two recorded sites were evaluated for significance in terms of its qualification for listing on the National Register of Historic Places under criterion d, the ability to yield important information on the prehistory of the area. The sites were evaluated using established criteria for inclusion of sites in the National Register of Historic Places, primarily criterion d. No architectural evaluations (criterion c) were made because there were no standing structures on any of our sites. Criteria a and b, related to important persons and events or trends in history, were applied to the historic period sites. Criterion d specifically addresses archeological sites and states that significant sites “have yielded, or may be likely to yield, information important in prehistory or history.” While the range of “important information” is wide and diverse, it can be simply defined to allow site evaluations at a survey and/or testing level. Important information may consist of data that provides new, non-redundant, non-trivial information beyond which can be gathered by survey or archival methods. This essentially equates to sites with well preserved artifact distributions and features, which can yield insights into lifeways, subsistence and absolute chronology.

The series of research design papers for the Piedmont of Georgia (Hally and Rudolph 1986, Smith 1992, Wood and Bowen 1995, Stanyard 2003, Anderson et al. 1990) was consulted to help define current research themes, gaps in knowledge, and the types of sites and data bases needed to address current research issues. However, these volumes are highly variable in their treatment and specificity. For the purpose of this survey, a site is considered potentially eligible if:

- 1) it appears relatively undisturbed; and
- 2) there are sufficient quantities of cultural material present for meaningful analysis or to suggest the presence of intact features, or
- 3) the types and diversity of artifacts suggest an unusual or rare type of site.

The primary reasons for recommending a site ineligible are:

- 1) the site has been disturbed to the extent that there is little potential for identifying meaningful artifact distribution patterns or locating features; or
- 2) the site is relatively undisturbed but so little cultural material is present that there is little potential for conducting further meaningful research.
- 3) the site is relatively undisturbed and material is not sparse, but the archeologically recoverable data is not considered important, relative to data that can be gathered by other means.

The artifacts and records from the project are temporarily stored at the office of Southeastern Archeological Services in Athens, Georgia. The material will be permanently curated at the Laboratory of Archaeology at the University of Georgia in Athens.

RESULTS

Archival Research

An examination of archaeological sites recorded on the Worthville quadrangle map at the Georgia Archaeological Site Files showed that one site (9BS65) and one isolated artifact occurrence (Occ. 5) was previously recorded within the project area. These are attributed to the earlier survey of the Ola to Ingram transmission line survey conducted by SAS for Georgia Transmission (Gresham 2005). 9BS65 had been described as the remains of late nineteenth to mid-twentieth century farm house complex and Occurrence 5 was a prehistoric quartz flakes. The site and the occurrence were recommended ineligible for nomination to the National Register of Historic Places (Gresham 2005:70).

A few additional sites had also been recorded with 1 - 2 km of the current project area as the result of the SAS transmission line survey and a more recent pipeline survey (Valk 2011). SAS recorded a 20th century liquor still site, 9BBS67, approximately 2 km south of the Keys Ferry substation tract (Gresham 2005:73). A recent pipeline survey in the nearby Fincherville area recorded five sites within 2 km of the Keys Ferry substation tract (Valk 2011). The report is not currently available but site forms indicate the sites included components dating to the historic period, predominantly farm houses and other structures dating to the late nineteenth to mid-twentieth centuries. One of the recorded sites was a mid-to-late nineteenth century cemetery (9BS97).

The majority of the other archaeological sites shown on the Worthville quadrangle map have been recorded as the result of recent cultural resources surveys related to transmission line surveys, highway projects, and municipal developments. The SAS survey of the Ola to Ingram transmission line corridor identified a total of 12 sites on the Worthville quadrangle map the consisted primarily of prehistoric lithic scatters (n = 6) and historic artifact scatters associated with late nineteenth to mid-twentieth century farm houses (n = 6). Only one of the prehistoric sites found by SAS produced pottery (Gresham 2005).

An 1650 acre survey of the Tussahaw Reservoir basin by Gantt et al. (1999) located 33 site. All of the recorded sites were prehistoric and all were located on slight rises above a tributary of Tussahaw Creek. One Late Woodland site (9BS36) was recommended as eligible to the NRHP. Partially overlapping with this survey area and extending further north was the survey of a 60-ac tract proposed for a water treatment plant (Bloom et al. 2003). This survey revisited one of the previously recorded sites (9BS39, a non-eligible lithic scatter) and discovered three new sites. The new sites included two historic sites and a lithic scatter, all recommended as not eligible. A third survey of 581 acres on Walnut Creek in southern Henry County (Webb 2008) produced 26 archaeological sites, five occurrences and three historic structures (20th century). The prehistoric sites included Archaic, Woodland and Mississippian components. All of the cultural resources found during the Walnut Creek project were considered ineligible (Webb 2008:i).

Highway projects on the Worthville quadrangle map include a bridge replacement project (Patton 2001) and a few Georgia Department of Transportation letter reports related to negative findings (UGA Laboratory of Archaeology Reports 3720, 5000, 5001). The bridge replacement project across Tussahaw Creek on Fincherville Road encountered a disturbed prehistoric lithic scatter (Patton 2001:6).

An outline of the developmental history of the area immediately surrounding the Ola to Ingram transmission line corridor is presented in the survey report (Gresham 2005:24-25). That report also provides more detailed information on the farm house located at the edge of the highway in the north-eastern corner of the project area designated 9BS65 (Gresham 2005:69-70). The survey report noted that the 1940 Soil Conservation Service aerial photograph (ATM 11-18) showed the house and a couple of nearby small outbuildings set within a wooded area.. The house was also depicted on both the 1919 soil survey map and the 1940 Butts County highway map but not on the 1964 USGS Worthville topographic map (Gresham 2005:70). The conclusion was that the farm house stood from some point in the late nineteenth century until the 1940s (Gresham 2005:70). The history of the structure was not researched further for this phase of investigation. Figures 10-11 show the farm house as it appears on the 1919 soil map and the 1940 aerial photograph. The structures shown on the 1940 aerial photograph will be discussed in the site description for 9BS65.

Aerial photographs show the project area under cultivation during the period of the late 1930s until the 1960s when it was allowed to revert to woodlands. Based on the presence of agricultural terraces, it is obvious that the tract had been cultivated for an extended length of time prior the 1930s. The aerial photographs for the early period indicate the presence of trees and tree lines near the farm house, along the property line to the west, and near the stream on the south. The photographs also show the route of the main road (Keys Ferry) has remained relatively unchanged since 1938. The aerial photographs clearly show the extent to which the area has been modified by agricultural terracing which would have been particularly destructive to any prehistoric (or earlier historic period) cultural deposits that may have been located on the landforms.

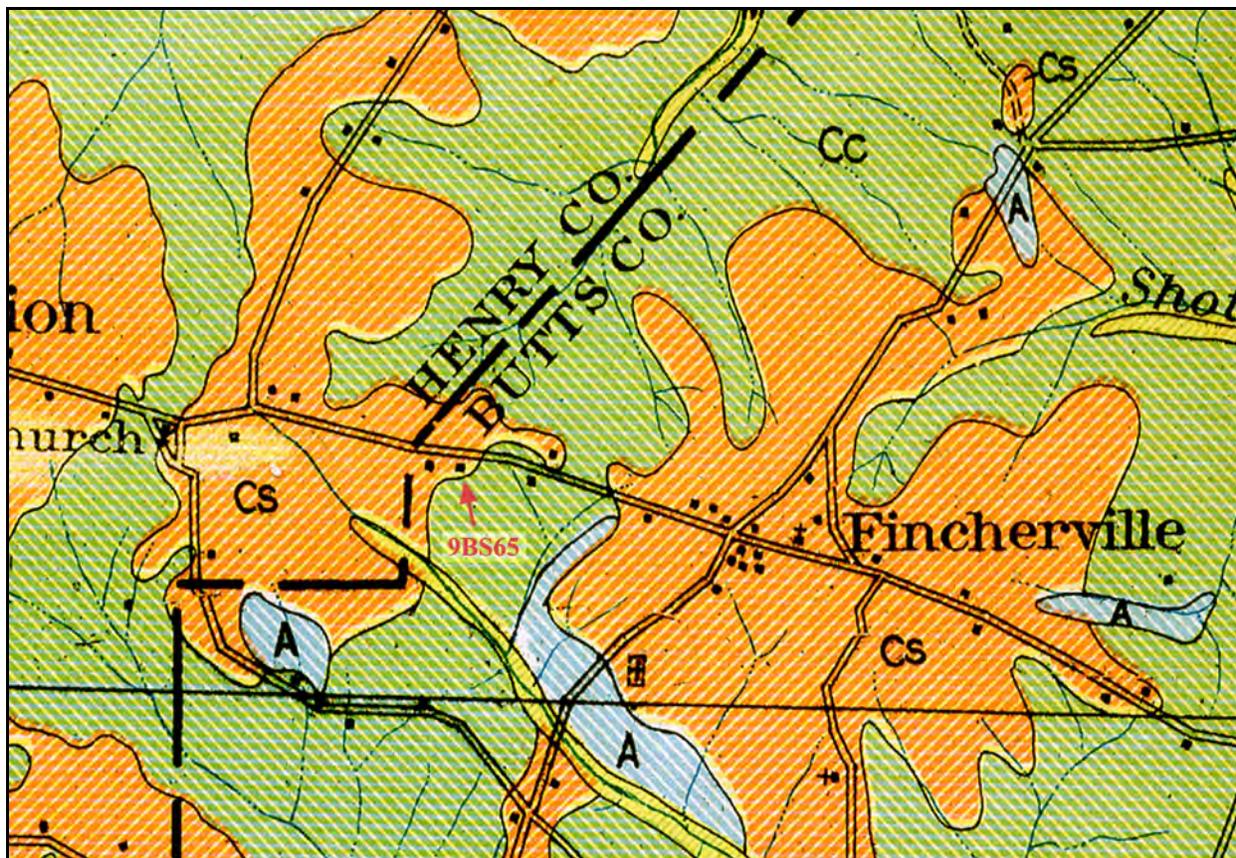


Figure 10. Portion of the 1919 Butts County soil survey map showing a structure at site 9BS65.



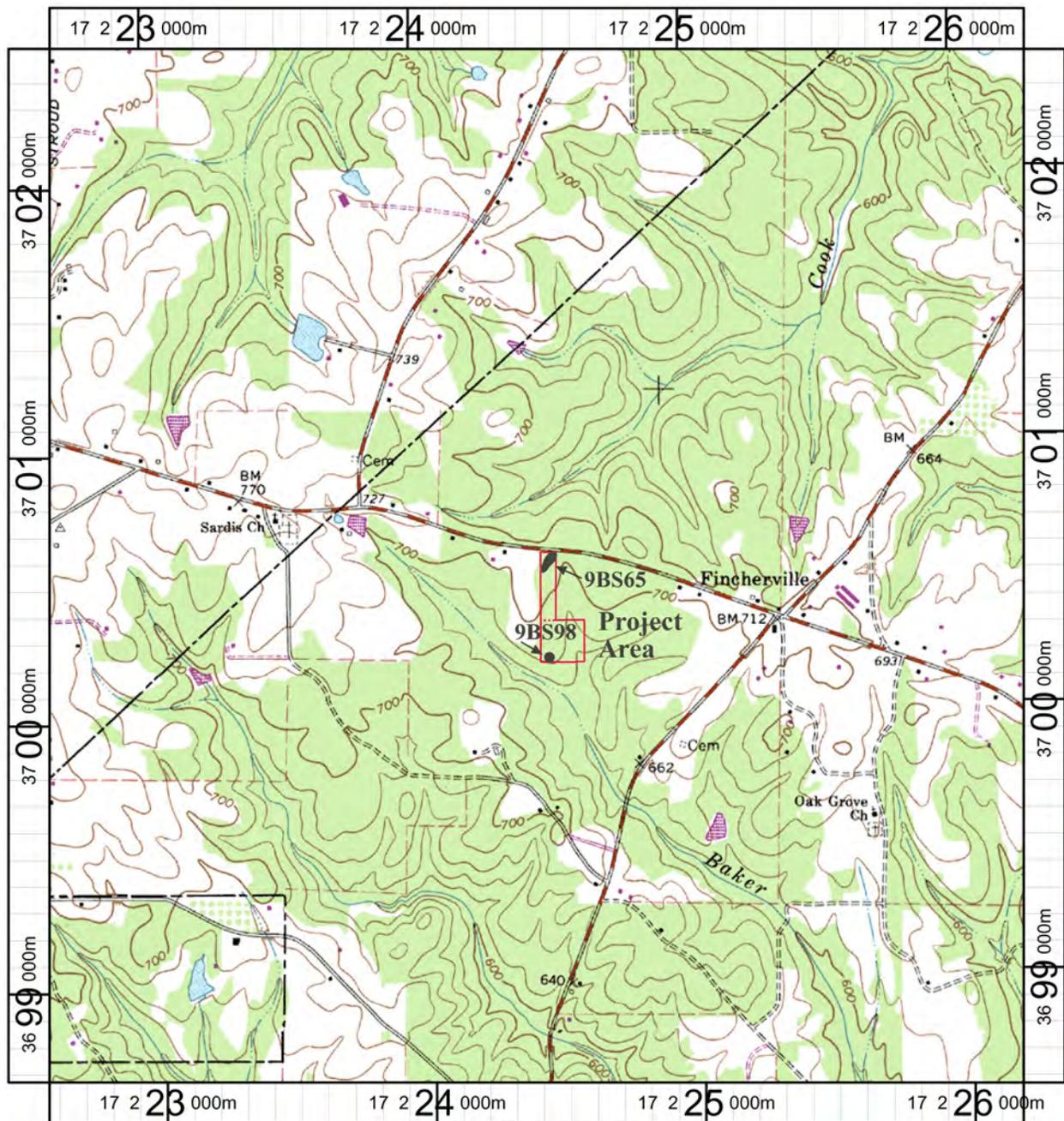
Figure 11. Portion of the 1940 SCS aerial photograph showing a structure at site 9BS65.

Our archival research indicates the survey tract contains one recorded archaeological site associated with a farm structure shown on maps and aerial photographs from the first half of the twentieth century. A second site recorded during the present project had been previously recorded as an isolated artifact occurrence (Gresham 2005).

The records for the National Register of Historic Places presently list only four historic period landmarks in Butts County that include the county courthouse and the old hotel at Indian Springs Park. Currently, there are no National Register sites located in close proximity to the project area.

Field Survey

Two archaeological sites were identified during the survey of the substation tract and access area (Figure 12, see Figure 9). Both had been previously identified during the earlier Ola to Ingram transmission line survey conducted by SAS for Georgia Transmission (Gresham 2005). Table 1 provides summary data and locational information for the two sites. Site 9BS65 consists of a farm house and associated structures that was occupied from the late nineteenth to the middle part of the twentieth century. The second (9BS98) is a very sparse prehistoric lithic scatter that was originally designated Occurrence 5 by the transmission line survey crew (Gresham 2005:30).



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Figure 12. Map showing locations of sites 9BS65 and 9BS98 within the Keys Ferry Substation tract project area (map source USGS 7.5' Worthville).

Table 1. List of Archaeological Sites found in the Keys Ferry Substation Project Area.

Site Number	Description	UTMs Zone 17	Elevation (meters)	Recovery Method
9BS65	late 19th-20th century farm complex and sparse prehistoric lithic scatter	E. 0224433 N. 3700538	213 m	Shovel Tests (6 positive shovel tests) Surface Collection
9BS98	sparse prehistoric lithic scatter	E. 0224457 N. 3700215	202 m	Shovel Test (1 positive) Surface Collection

The remainder of the project area failed to produce evidence of prehistoric or historic period occupation. Overall, the ridge slopes, which contained agricultural terraces, produced shallow plowzone deposits that were generally sterile of cultural material (the exceptions were on sites 9BS65 and 9BS98). The shallow plowzone soils were generally 10-15 cm thick and were composed of light brown to reddish brown clay loams. Some shovel tests encountered rocky soils containing quartz or quartzite. Slightly deeper soils were encountered at the interior edges of the agricultural terraces and very shallow soils (< 5 cm thick) were found on some of the more eroded or gullied areas. Surface exposure was generally poor in most of the project area with the exception of the cleared transmission line corridor. A small amount of cultural material was surface collected at the edges of the corridor.

Descriptions of the Recorded Archaeological Sites

9BS65 is characterized as an historic period farm complex consisting of a standing chimney, a trash pile near the old farm house, and a few other surviving surface features. The site also produced a very small amount of prehistoric chipped stone. The house is located near the ridge crest and the site extends to the southwest along a gentle slope. A paved road (Keys Ferry) is located at the northern edge of the defined site area. Shovel tests were used to define the site boundaries within the project area but not beyond (to the east). Figure 13 shows the site area as viewed from across Keys Ferry Road. The house is located in the heavily wooded area on the left side of the photograph. Figure 14 shows the site area in plan view and Figures 15 and 16 shows some of the surface features identified on the site.



Figure 13. Photograph of 9BS65 taken from the opposite side of Keys Ferry Road (view to the south).

Location/Environment

Field Site Number: FS 17*
County: Butts
USGS Quad: Worthville

* FS No. from the original survey (Gresham 2005)

Topography: ridge slope

Elevation: 213
Length: 130 m
Width: 100 m
Vegetation: privet, pines, some hardwoods
Site Nature: late 19th to mid-20th century farm house and sparse lithic scatter

Collection/Condition

Surface Exposure: 10%
Surface Collected: yes
Positive Shovel Tests: 6
Negative Shovel Tests: 11
Disturbance: cultivated
Percent Disturbance: > 50%
Eligibility: ineligible

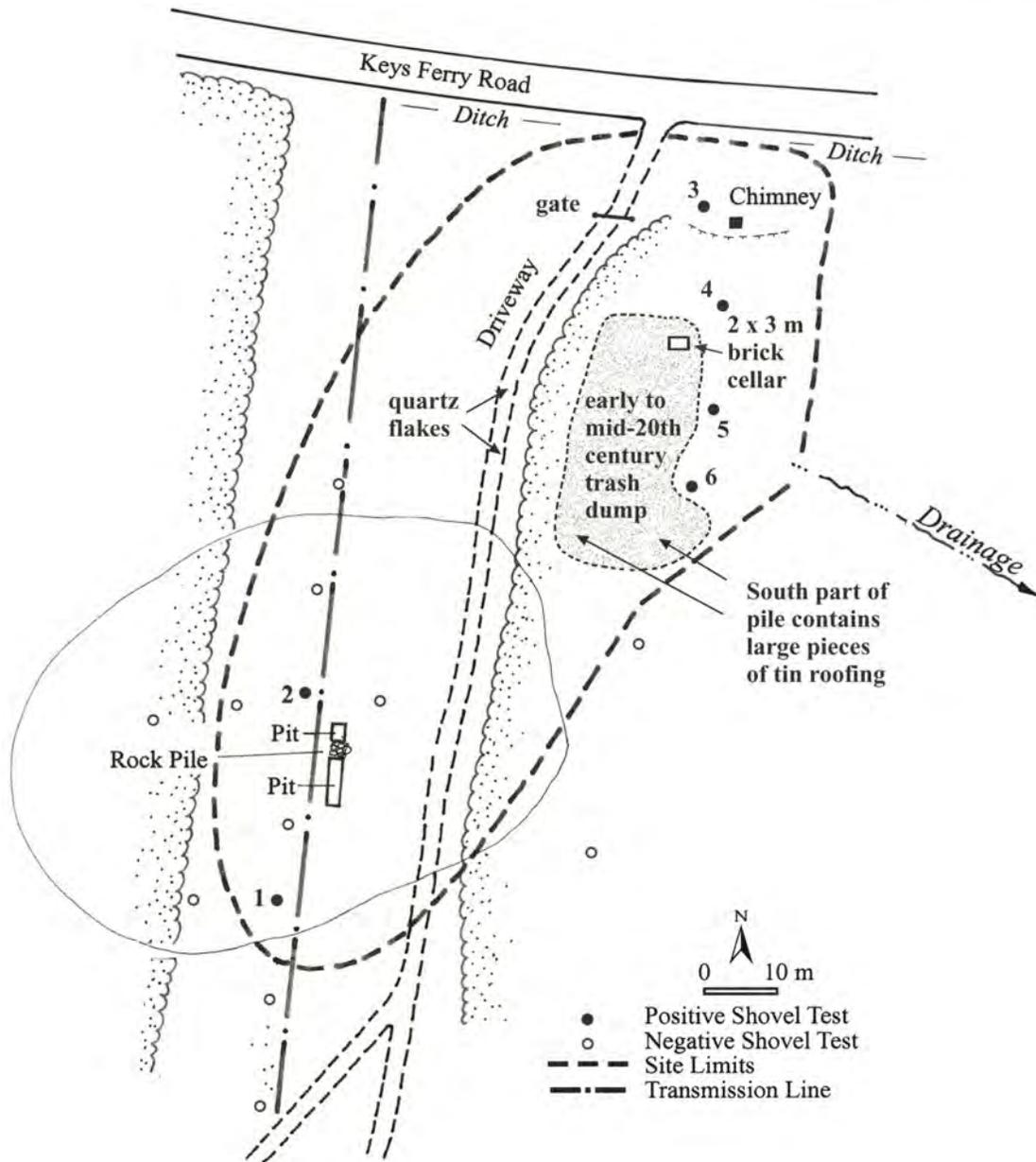


Figure 14. Site map and relevant information pertaining to 9BS65.



Figure 15. Three photographs of standing chimney on 9BS65. Top two photographs show the eastern side of the chimney. Bottom view shows the north facing fireplace opening.



Figure 16. Photograph showing the southeast corner of a small brick-lined cellar on 9BS65, view south.

9BS65 was originally found and described as the result of the survey of the Ola to Ingram transmission line conducted for Georgia Transmission (Gresham 2005:69-70). The site map shown in Figure 14 is modified from the original survey map shown in that report (Gresham 2005:69). The revised site map includes the additional survey information procured during the current project. The following paragraphs contain the original description of the site as found in Gresham's report.

Site 9BS65 is the largely intact remains of a late nineteenth to mid-twentieth century house/farmstead complex that exists on both sides of a former driveway/farm road on the south side of Keys Ferry Road. The site was detected when artifacts and a pair of linear pits were encountered near the proposed centerline of the transmission line at the southern end of the site. The extent of the site was then investigated and we found that the actual house site, marked by a standing rock and brick chimney, was nearly 70 m to the north and a little over 30 m beyond (east of) the proposed corridor. We mapped the chimney and house location, but focused our investigation on the portion of the site within the project corridor. The portion of the site in the proposed transmission line corridor consists of two linear pits, somewhat end to end, but separated by a rock pile. The pits are 2x4 and 2x7 m and about a half meter deep. A couple of brick fragments were observed a few meters to the southwest of the pits. We do not know what the pair of pits and rock pile represent, but assume that it somehow relates to the farmstead that was once here and are the remnants of an outbuilding or activity area, such as a syrup cooking mill. The two positive shovel tests near the pits yielded terra cotta, bottle glass and sheet metal. The terra cotta pieces appear to be fragments of a large flower pot.

Our investigation of the site focused on the portion of the site within the proposed transmission line right-of-way. We excavated a line of shovel tests on 15-m intervals along the centerline, which was just west of the pits, and a perpendicular line of three tests at the pits. Two of these ten tests were positive. The shovel testing revealed a simple stratigraphy of about 15 cm of brown clay loam plowzone overlying red clay subsoil. Artifacts came from the 15 cm thick plowzone. The following material was recovered at the depths indicated in parentheses:

Shovel Test 1	4	terra cotta fragments
(0-15 cmbs)	1	UD rusted sheet metal
Shovel Test 2	2	aqua bottle glass
(0-15 cmbs)	1	clear bottle glass

A 1940 aerial photograph (ATM 11-18) showed the house with a couple of nearby small outbuildings set within woods. The area around the pits and rock pile is wooded, and we could not see any structures here. A house is depicted here on both the 1919 soil survey map and the 1940 Butts County highway map. A house is not depicted here on the 1964 USGS topographic map (Worthville), and the site area is shown as being at the interface between an open (not wooded) and wooded area. Based on maps, artifacts and the nature of the rock and brick chimney, we conclude the house stood from some time before 1919 (perhaps several decades back into the nineteenth century) to the 1940s.

The bulk of the site, including the house site itself and the main body of associated outbuildings, lies well outside of the proposed transmission line corridor, near Keys Ferry Road. The portion within the proposed corridor consists of the probable remains of an outbuilding or activity area associated with the house/farmstead. We do not know what this activity or outbuilding was, but think it would be something like a syrup cooking facility or an animal pen. There is very little to this aspect of the site, and we have documented it well.

Site 9BS65 is not known to be associated with persons or events important in local or state history and the site has no intact architecture. Therefore, it is not eligible for the National Register under criteria a, b or c. In spite of the relatively good preservation status of the house site itself, we believe there is little to no important archeological research potential at such common, recent sites. The dimensions and layout of the site are visibly discernible and can be studied from several sets of aerial photographs. Archival sources, informants and similar standing, occupied examples of farmsteads probably can provide a great deal more information than could be gathered through excavation (Gresham 2005:69-70).

Site 9BS65 was examined once more as a part of the current substation tract survey. As mapped, the remains of the farm house lie in the extreme northeastern corner of the access road area (see Figures 9 and 12). The house remains are not visible on recent aerial photographs because of the wooded location (see Figure 4). Additional site investigation consisted of visual inspection of the standing chimney and the surrounding area and shovel testing in the area of the structure to procure additional artifacts for dating purposes. Four positive shovel tests were excavated in the area of the farm house and all produced artifacts suggesting a period of occupation from the late nineteenth to mid twentieth century. A few prehistoric quartz flakes were found on the dirt road within the transmission line corridor (Table 2).

Table 2. List of Artifacts Collected from 9BS65 during the Current Project.

Collection Method	Depth of Cultural Material (below surface)	Artifact Count and Description	Count
surface collection from the road (driveway) in transmission line corridor		quartz PP/K distal	1
		quartz tertiary flake < 2 cm	1
		quartz flake fragment < 2 cm	1
Shovel Test 3	0-10 cm	clear bottle glass	1
		cut nail (3 inches long)	1
		cut nail (2 1/4 inches)	1
		wire nails (4 inches)	2
		wire nails (2 3/4 inches)	3
Shovel Test 4	0-10 cm	whiteware sherd (blue interior glaze)	1
		plain whiteware sherd	1
		pieces of clear bottle glass	4
		piece of amber bottle glass	1
		hard rubber comb fragment	1
		cut nail fragments	2
		wire nail fragment	1
		small pieces of coal	3
Shovel Test 5	0-12 cm	whiteware sherd (green exterior glaze)	1
		pieces clear of bottle glass	5
		window pane glass (2.2 mm thick)	1
		small pieces of sheet zinc (canning jar liner)	2
		small cinders	3
Shovel Test 6	0-10 cm	pieces of clear bottle glass	2
Total Count			39

Note: on site 9BS65, Shovel Tests 1 and 2 were used during the survey. For this survey, the numbering began with No. 3.

Shovel Tests 3-5 appear to represent domestic debris directly associated with the occupation of the farm house. Shovel Test 6 produced only two pieces of bottle glass that may be related to the trash dump. It is unclear at this time if the trash dump is associated with the farmhouse or if it was deposited after the house burned. The recovery of a few pieces of coal and cinders suggests the use of that fuel for heating.

The standing chimney is estimated to be 8 m high and rests on a rocky foundation approximately 50 cm higher than the surrounding ground surface. The chimney is made primarily with fieldstones set with a lime mortar. The upper quarter of the chimney is brick (commercially manufactured) and the crown is expanded and relatively ornate. At the level of the firebox, the chimney is 125 cm wide (east to west) and 135 cm deep (north to south). Fireplace openings are present on the north and south faces. Areas of plaster remain preserved above the fireplace opening in the mantle area.

One possible fieldstone pier was noted a few meters northwest on the chimney adjacent to Shovel Test 3. Otherwise, no house foundation remains were noted. There is a bank cut immediately south of the chimney which appears to indicate the back of the house was elevated by as much as a meter. The remains of a small (2-x-2-m) brick lined cellar was identified approximately 15 m southwest of the chimney. The bricks were bound together with mortar similar to that found on the chimney.

The extensive trash dump was surface inspected but no material was collected. The dump contained a variety of bottles dating from the 1940s through the 1960s along with metal containers and a few more recent items such as tires. The southern edge of the dump contains large pieces of roofing tin which may be associated with the farm house or an outbuilding such as a barn.

9BS65 is an example of a commonplace and relatively recent archeological site. As previously noted (Gresham 2005:70), further field work is unlikely to produce significant information and for that reason the site is recommended ineligible for nomination to the National Register of Historic Places.

9BS98 is defined as a low density scatter of quartz associated with a undefined prehistoric occupation. The site was originally recorded as an isolated artifact occurrence (No. 5) during the earlier Ola to Ingram transmission line survey (Gresham 2005:75). A few additional artifacts were found at the edge of the cleared corridor during the current survey and the location was designated an archaeological site. The original description follows:

Occurrence 5 (Zone 17, 0224466 Easting, 3700231 Northing). This consists of a single quartz tertiary flake found in the top 22 cm of a routine shovel test placed in the proposed location of a guy wire anchor along the proposed transmission line corridor. Five subsequent shovel tests, placed at 10-m intervals in cardinal directions from the positive test were all sterile (Gresham 2005:75).

The site is located on a ridge slope that levels out to a bench-like feature that overlooks the floodplain area along Baker Branch (Figure 17). As noted, the few artifacts recovered during the current survey were found along the woods edge. No cultural material was found to the west in the cleared corridor and no material was found in the additional shovel testing. Figure 18 shows a site map originally created during the 2005 survey and modified for the present project.



Figure 17. Photograph showing the lower portion of site 9BS98, view to the south toward Baker Branch.

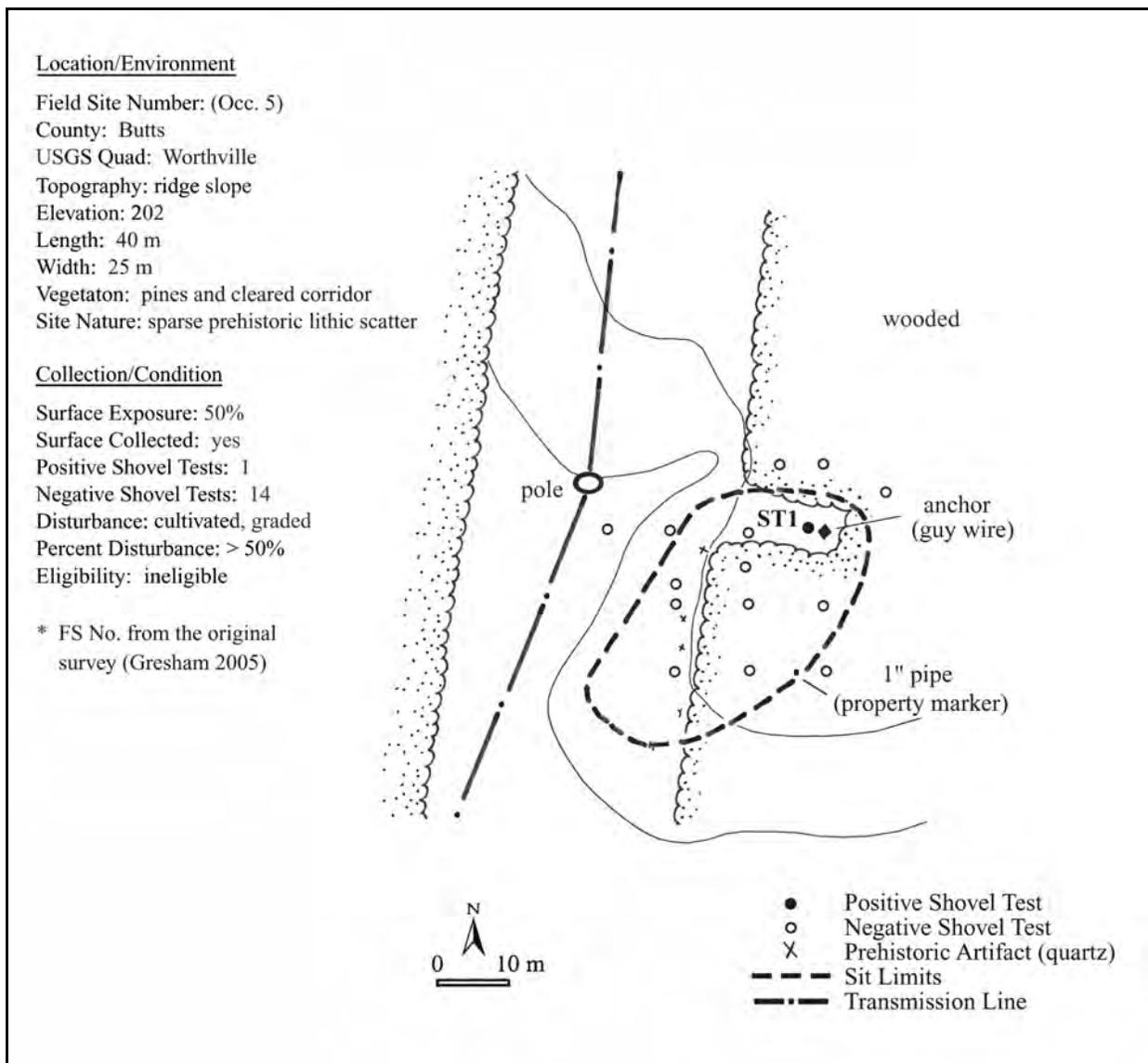


Figure 18. Site map of 9BS98.

The area containing the guy wire contained excellent surface exposure but no additional cultural material was found. Shovel tests encountered badly eroded soils with maximum plowzone depths in the wooded areas of approximately 15 cm. Little soil remained in the cleared transmission line corridor. The majority of the artifacts were chipped stone debris. One small fragment of a finished biface or projectile point was found but the piece was too small for identification. The site probably dates to the Archaic period but possibly later (Woodland). The artifacts collected during the current survey consisted of the following.

- 1 quartz thin biface fragment
- 1 quartz biface thinning flake < 2 cm
- 2 quartz flake fragments < 2 cm

9BS65 represents a disturbed prehistoric lithic scatter that retains limited research potential. For that reason, additional field work is unlikely to produce significant information. The site is recommended ineligible for nomination to the National Register of Historic Places.

CONCLUSIONS AND RECOMMENDATIONS

On August 30, 2011, Southeastern Archeological Services, Inc. conducted a Phase I archaeological survey in northern Butts County of an approximately 9.7 ac (3.9 ha) tract for the proposed 115/25kV Keys Ferry substation and access area. The proposed substation will connect with Georgia Transmission's existing Ola to Ingram line. The survey was undertaken in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. The area of potential effect for the survey was the entire 9.7 ac tract.

Based on surface inspection and excavation of numerous shovel tests, two archaeological sites were encountered within the access area. Both were previously recorded and both were found within the access area portion of the survey area. Both had been recorded during the previous transmission line corridor survey (Gresham 2005). 9BS65 is recorded as a late nineteenth to early twentieth century farmstead complex that had been previously recommended ineligible for listing on the National Register of Historic Places (Gresham 2005:70). The second (now site 9BS98) is a very low density prehistoric lithic scatter that had been previously recorded as Isolated Artifact Occurrence 5 (Gresham 2005:75). A site number was assigned to Occurrence 5 because additional artifacts were recovered during the current project. Neither site is recommended eligible for listing in the National Register of Historic Places. Thus, we conclude that the construction of the proposed substation will have no effect on significant archaeological resources and should be granted clearance to proceed.

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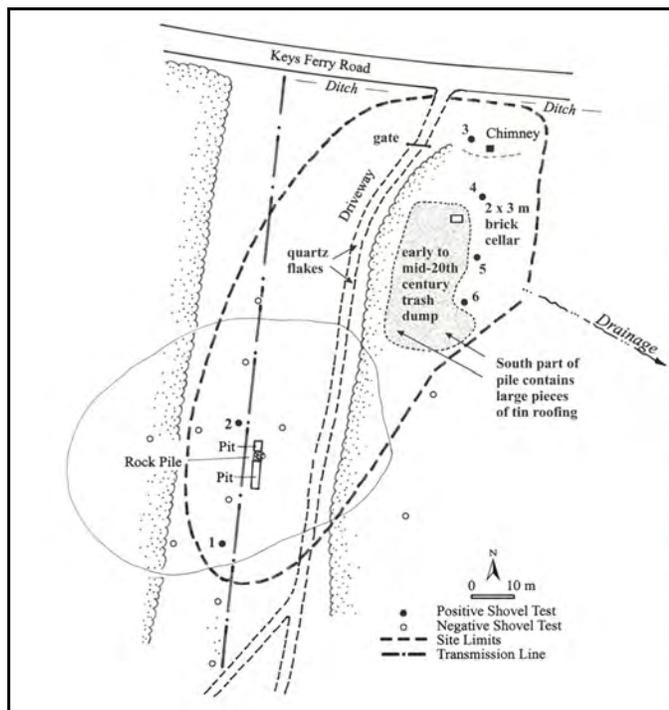
APPENDIX A

SITE FORMS

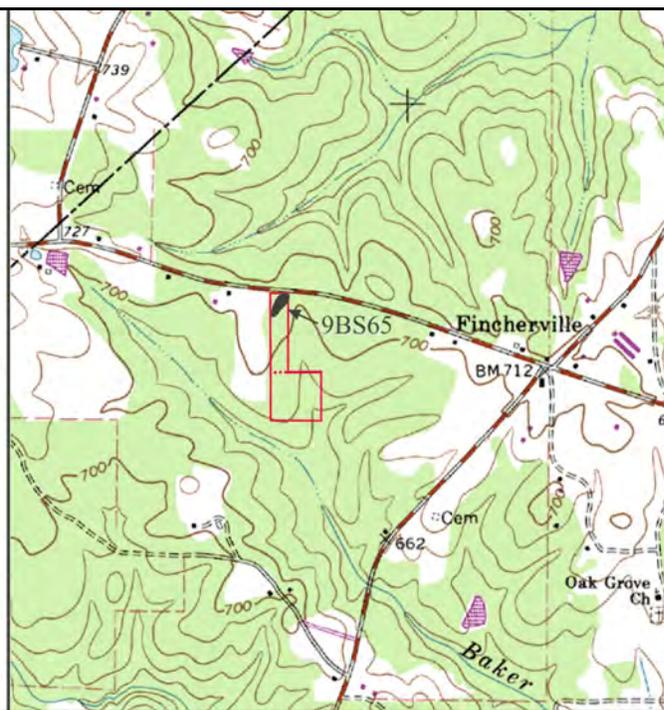
GEORGIA ARCHAEOLOGICAL SITE FORM

Official Site Number: 9BS65 (revisit)

Institutional Site Number: FS 17 **Site Name:** _____
County: Butts **Map Name:** Worthville **USGS OR USNOAA**
UTM Zone: 17 **UTM East:** 0224433 **UTM North:** 3700538
Owner: Georgia Transmission Corp. **Address:** Norcross, Georgia
Site Length: 130 meters **Width:** 100 **meters** **Elevation:** + - 213 meters
Orientation: 1. N-S 2. E-W 3. NE-SW 4. NW-SE 5. Round 6. Unknown
Kind of Investigation: 1. Survey 2. Testing 3. Excavation 4. Documentary
 5. Hearsay 6. Unknown 7. Amateur
Standing Architecture: 1. Present 2. Absent
Site Nature: 1. Plowzone 2. Subsurface 3. Both 4. Only Surface Known
 5. Unknown 6. Underwater
Midden: 1. Present 2. Absent 3. Unknown **Features:** 1. Present 2. Absent 3. Unknown
Percent Disturbance: 1. None 2. Greater than 50% 3. Less than 50% 4. Unknown
Type of Site (Mill, Mound, Quarry, Lithic Scatter, etc.): late 19th to early 20th century farm complex
Topography (Ridge, Terrace, etc.): ridge crest and slope
Current Vegetation (Woods, Pasture, etc.): planted pine and cleared transmission line corridor
Additional Information: Originally found during the 2005 Ola to Ingram transmission line survey (Gresham 2005: 30, 69). The site was revisited following construction of the transmission line for a survey of a proposed substation tract. The eastern part of the site which contains the old farm house and a 20th century trash dump was investigated further. The old house had burned many years ago but the chimney remained standing. Moderate amounts of trash are preserved but little research potential exists.



SKETCH MAP
(Include sites, roads, streams, landmarks)



OFFICIAL MAP
(Xerox of proper map)

State Site Number: 9BS65 Institutional Site Number: FS17

Public Status: 1. National Historic Landmark 2. National Natural Landmark
3. Georgia Register 4. Georgia Historic Trust 5. HABS 6. HAER

National Register Standing: 1. Determined Eligible 2. Recommended Ineligible
3. Recommended Eligible 4. Nominated 5. Listed 6. Unknown 7. Removed

National Register Level of Significance: 1. Local 2. State 3. National

Preservation State (Select up to Two): 1. Undisturbed 2. Cultivated 3. Eroded
4. Submerged 5. Lake Flooded 6. Vandalized 7. Destroyed 8. Redeposited
9. Graded 10. Razed 11. Logging/replanting

Preservation Prospects: 1. Safe 2. Endangered by: Substation Construction
3. Unknown

RECORD OF INVESTIGATIONS

Supervisor: Jerald Ledbetter Affiliation: Southeastern Archeological Services Date: Sept. 2011
Report Title: Archeological Survey of the Proposed Keys Ferry Road Substation Tract, Butts County, Georgia. Southeastern Archeological Services, Athens. Prepared for The Georgia Transmission Corporation.

Other Reports: Thomas H. Gresham (2005) Archeological Survey of the Proposed Ola to Ingram 115kV Transmission Line and Associated Substations, Henry and Butts Counties, Georgia. Southeastern Archeological Services, Athens. Prepared for The Georgia Transmission Corporation.

Artifacts Collected: 1 quartz PP/K distal, 2 quartz debris, 3 whiteware sherds, 12 clear bottle glass, 1 amber bottle glass, 1 window glass, 1 rubber comb fragment, 2 pieces of zinc jar liner, 4 cut nails, 6 wire nails, 3 small pieces of coal, 3 small cinders.

Location of Collections: University of Georgia, Riverbend Curation Facility, Athens
Location of Field Notes: University of Georgia, Riverbend Curation Facility, Athens, and SAS offices in Athens.

Private Collections: _____
Name: _____ Address: _____

CULTURAL AFFINITY

Cultural Periods: undefined prehistoric, Historic farmstead, late 19th to mid 20th century.

Phases: _____

FORM PREPARATION AND REVISION

Date Sept. 5, 2011 Name Jerald Ledbetter Institutional Affiliation Southeastern Archeological Services

GEORGIA ARCHAEOLOGICAL SITE FORM

Official Site Number: 9BS98

Institutional Site Number: FS1 Site Name: _____

County: Butts Map Name: Worthville USGS OR USNOAA

UTM Zone: 17 UTM East: 0224457 UTM North: 3700215

Owner: _____ Address: _____

Site Length: 40 meters Width: 25 meters Elevation: + - 202 meters

Orientation: 1. N-S 2. E-W 3. NE-SW 4. NW-SE 5. Round 6. Unknown

Kind of Investigation: 1. Survey 2. Testing 3. Excavation 4. Documentary

5. Hearsay 6. Unknown 7. Amateur

Standing Architecture: 1. Present 2. Absent

Site Nature: 1. Plowzone 2. Subsurface 3. Both 4. Only Surface Known

5. Unknown 6. Underwater

Midden: 1. Present 2. Absent 3. Unknown Features: 1. Present 2. Absent 3. Unknown

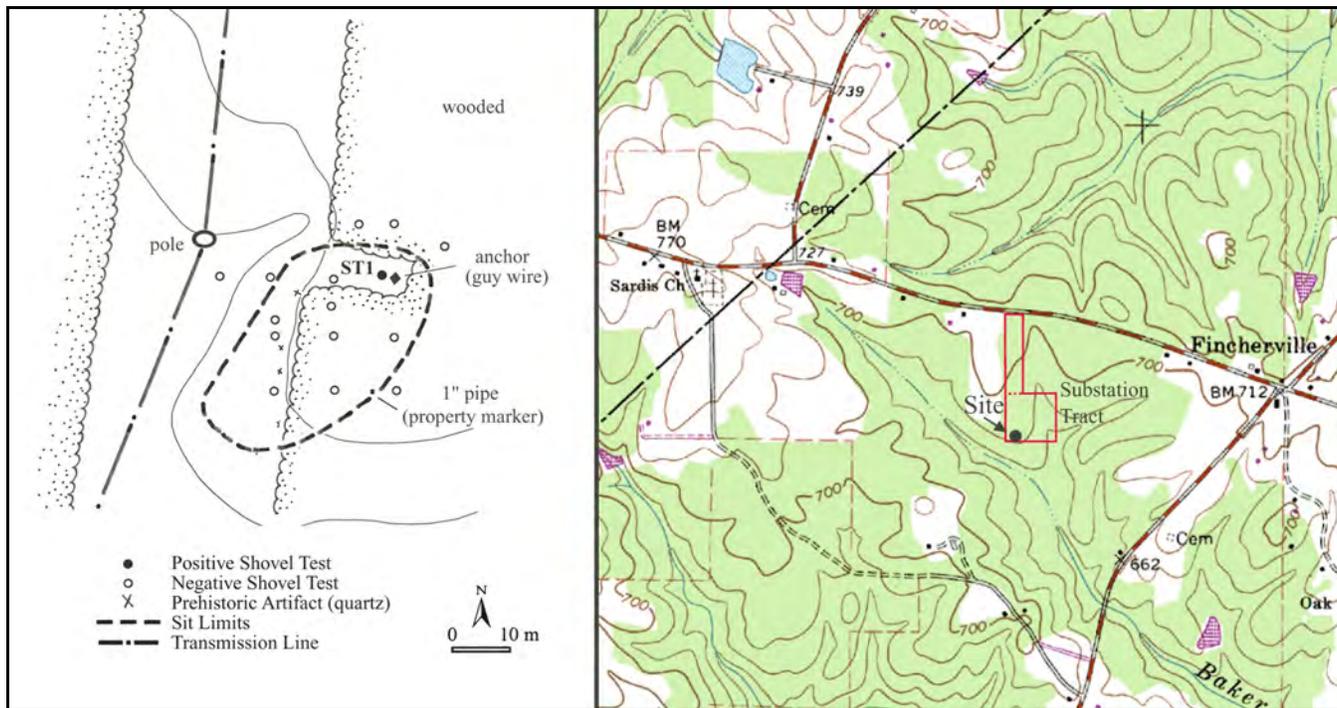
Percent Disturbance: 1. None 2. Greater than 50% 3. Less than 50% 4. Unknown

Type of Site (Mill, Mound, Quarry, Lithic Scatter, etc.): Sparse lithic scatter (quartz)

Topography (Ridge, Terrace, etc.): Ridge slope

Current Vegetation (Woods, Pasture, etc.): Cleared transmission line (grass) and planted pine

Additional Information: Site was originally found during the Ola to Ingram transmission line survey for Georgia Transmission (Gresham 2005) as an isolated quartz flake found in a shovel test (designated Occurrence 5 (Gresham 2005:30, 75). The location was revisited following construction of the line during a survey for a proposed substation. A few quartz flakes were found along the eastern edge of the cleared transmission line corridor. All additional shovel tests were sterile. The site appears to be a sparse lithic scatter that is located on a toe slope above a small stream (Bakers Creek). Little research potential remains for the site due to erosion and past agricultural disturbance.



SKETCH MAP
(Include sites, roads, streams, landmarks)

OFFICIAL MAP
(Xerox of proper map)

State Site Number: 9BS98 Institutional Site Number: FS1

Public Status: 1. National Historic Landmark 2. National Natural Landmark
3. Georgia Register 4. Georgia Historic Trust 5. HABS 6. HAER

National Register Standing: 1. Determined Eligible 2. Recommended Ineligible
3. Recommended Eligible 4. Nominated 5. Listed 6. Unknown 7. Removed

National Register Level of Significance: 1. Local 2. State 3. National

Preservation State (Select up to Two): 1. Undisturbed 2. Cultivated 3. Eroded
4. Submerged 5. Lake Flooded 6. Vandalized 7. Destroyed 8. Redeposited
9. Graded 10. Razed 11. Logging/replanting

Preservation Prospects: 1. Safe 2. Endangered by: GTC Substation Construction
3. Unknown

RECORD OF INVESTIGATIONS

Supervisor: Jerald Ledbetter Affiliation: Southeastern Archeological Services Date: Sept. 2011
Report Title: Archeological Survey of the Proposed Keys Ferry Road Substation Tract, Butts County, Georgia

Other Reports: Thomas H. Gresham (2005) Archeological Survey of the Proposed Ola to Ingram 115kV Transmission Line and Associated Substations, Henry and Butts Counties, Georgia.
Southeastern Archeological Services, Athens. Prepared for The Georgia Transmission Corporation.

Artifacts Collected: 1 quartz thin biface fragment. 3 quartz debris

Location of Collections: University of Georgia, Riverbend Curation Facility, Athens

Location of Field Notes: University of Georgia, Riverbend Curation Facility, Athens

Private Collections: _____

Name: _____ Address: _____

CULTURAL AFFINITY

Cultural Periods: Undefined prehistoric, probably Archaic

Phases: unknown

FORM PREPARATION AND REVISION

Date: Sept. 5, 2011 Name: Jerald Ledbetter Institutional Affiliation: Southeastern Archeological Services

APPENDIX B

VITA OF PRINCIPAL INVESTIGATOR

R. JERALD LEDBETTER

Education

B.S., 1971, Biology, Union University, Jackson, Tennessee

Areas of Specialization

Large Scale Excavations
Paleoindian-Archaic Lithic Analysis
Prehistory of the upper Oconee Valley
Artifact Illustration

Professional Experience

1983-present Senior Archeologist, Southeastern Archeological Services, Inc., Athens, Georgia
1980-1982 Project Archeologist, Memphis State University and several consulting firms
1980 Crew Member, Testing Phase of Kings Bay Project, Camden County, Georgia; University of Florida
1977-1979 Field Director, various projects, University of Georgia, Athens.
1977 Crew Member, Survey of the Valley of Oaxaca, Mexico; Pennsylvania State University
1976-1977 Crew Member, Fort Loudon Project, Monroe County, Tennessee; Tennessee Division of Archeology, Nashville
1975 Crew Member, Pinson Mounds and various survey and excavation projects, Tennessee Division of Archeology, Nashville.

Professional Affiliations

Society for Georgia Archeology
Georgia Council of Professional Archeologists
Southeastern Archeological Conference

Publications

The Late Archaic to Early Woodland Transition in Northwest Georgia: Evidence for Terminal Archaic (ca. 1100 - 600 B.C.) Period Occupation in the Region. 2009. Georgia Department of Transportation *Occasional Papers in Cultural Resource Management* No. 14. Co-authored with Lisa D. O'Steen and Scott Jones.

A Discussion of Joseph Caldwell's Late Archaic Stamp Creek Focus of Northwest Georgia. 2007. *The Profile*, No. 135:9-14.

Caught Knapping, A Modern Flintknapping Station in Greene County, Georgia. 2006 *Early Georgia* 34 Number 1 pp. 17-26. Co-authored with Scott Jones.

Archeological Investigation of the Vulcan Site, Bartow County, Georgia. 2001. *Early Georgia* (29).

Isabel Garrard Patterson: Advocate for Georgia Archaeology 1999. In *Grit-Tempered, early Women Archaeologists in the Southeastern United States*, edited by N.M. White, L.P. Sullivan, and R.A. Marrinan.

Publications, continued

Paleoindian and Early Archaic Research in Georgia. 1996. In *The Paleoindian and Early Archaic Southeast*, edited by D.G. Anderson and K.E. Sassaman. Co-authored with D.G. Anderson, L.D. O'Steen, and D.T. Elliott.

Middle and Late Archaic Architecture. 1996. In *Archaeology of the Mid-Holocene Southeast* edited by K.E. Sassaman and D.G. Anderson. Co-authored with K.E. Sassaman.

Dear Isabel: Archeological Correspondence A.R. Kelly and Isabel Patterson 1934-1953. 1995. R.J. Ledbetter, editor. Lamar Institute Publication 33.

Paleoindian and early Archaic in the Lower Southeast: A View from Georgia. 1994. *Ocmulgee Archaeology 1936-1986*. Co-authored with David G. Anderson, Lisa D. O'Steen, Daniel T. Elliott, Dennis Blanton, Glen T. Hanson, and Frankie Snow.

The Grayson Site: Late Archaic and Late Woodland Occupations in the Little Sandy Drainage. 1993. Kentucky Heritage Council. Co-authored with Lisa D. O'Steen.

Upland Mississippian Occupation in the Allatoona Area. 1992. *Early Georgia* Vol. 20(2). Co-authored with Adam King.

Late Archaic/Early Woodland Structures from the Mill Branch Sites, Warren County, Georgia. 1992. *Early Georgia*.

Paleoindian Period Archaeology of Georgia, 1990. Co-authored with David Anderson and Lisa O'Steen

A Comment on the Research Value of Upland Lamar "Plowzone" Sites. 1988. *The Profile* 60-61:5-6.

Recent Paleoindian Research in Georgia. 1987. *Current Research in the Pleistocene* 4:47. Co-authored with David G. Anderson, Lisa O'Steen, Daniel T. Elliott, and Dennis Blanton.

Late Mississippian Settlement North of the Oconee Province. *The Profile* 54:9-12. Co-authored with Lisa O'Steen.

Paleoindian Sites of the Inner Piedmont of Georgia: Observations of Settlement in the Oconee Watershed. 1986. *Early Georgia*. Co-authored with Lisa D. O'Steen, Daniel T. Elliott, and William W. Barker.

Chert of Southern Oconee County, Georgia. 1981. *Early Georgia* 9:1-13. Co-authored with Stephen A. Kowalewski and Lisa O'Steen.

Papers Presented

Caught Knapping, A Modern Flintknapping Station in Greene County, Georgia. 2005 Society for Georgia Archaeology, Athens, Georgia. Co-authored with Scott Jones.

Paleoindian Archeology of Georgia. 2000. Southeastern Archaeological Conference, Macon. Co-authored with D.G. Anderson and L.D. O'Steen.

Late Archaic/Early Woodland Structures from the Mill Branch Sites, Warren County, Georgia. 1991 Meeting of Society for Georgia Archeologists, Augusta.

Paleoindian Research in Georgia. 1991. Paleoindian and Early Archaic Research in the Lower Southeast, A South Carolina Perspective. Co-authored with David G. Anderson and Lisa D. O'Steen.

Paleoindian and Early Archaic in the Lower Southeast: A View from Georgia. 1986. Ocmulgee National Monument 50th Anniversary Conference, Macon. Co-authored with David G. Anderson, Dennis Blanton, Daniel T. Elliott, Lisa O'Steen and Glen T. Hanson.

Paleoindian Sites of the Inner Piedmont of Georgia and South Carolina. 1983. Southeastern Archaeological Conference, Columbia, South Carolina. Co-authored with Lisa D. O'Steen and Daniel T. Elliott.

Settlement and Demography: the Wallace Survey. 1978. Southeastern Archaeological Conference, Atlanta. Co-authored with Paul R. Fish and Greg Paulk.

Technical Reports and Manuscripts

Author and coauthor of 80 reports on survey, testing and data recovery projects in Alabama, Florida, Georgia, Kentucky, South Carolina, and Tennessee conducted from 1978-2009.

9.5 Historic Preservation Consulting – Historic Resources Survey

GEORGIA TRANSMISSION CORPORATION

Historic Resources Survey

Keys Ferry 115/25 kV 50MVA Inline Substation



Butts and Henry Counties, Georgia / Project Number 79275

Prepared by Maurie Van Buren / June 8, 2011

HISTORIC PRESERVATION CONSULTING

2651 Midway Road, Decatur, GA 30030 / Phone 404-488-7728 / e-mail maurieb@gmail.com

KEYS FERRY / HISTORIC RESOURCES SURVEY

Scope of Work:

The Keys Ferry Historic Resources Survey documents historic resources within the project boundaries identified on the *Project Boundary and Map of Resources Surveyed*. The general vicinity study area is located on Keys Ferry Road in Butts and Henry counties, west of Fincherville, at the point where the existing Ola-Ingram 115 kV Transmission Line crosses the road.

Project Goals:

The goal of this project is to complete a Historic Resources Survey within the project boundaries in order to determine whether any historic resources present are eligible for the National Register of Historic Places. Resources that appear to be more than 50 years old have been identified on the map and photographed. The consultant has made a preliminary determination as to whether or not the existing historic resources are potentially eligible for the National Register of Historic Places. This report will be used as a planning tool by Georgia Transmission Corporation to select a Substation site with the least adverse effect on historic resources.

Contents of this Report:

This report contains a *Project Location Map*, which identifies the general location of the study area, and a *Project Boundary and Map of Resources Surveyed*, which identifies the project boundaries on a USGS Quadrangle map. Numbers on this second map are keyed to survey forms on each resource. This is followed by five *Keys Ferry Historic Resources Survey* forms. Each form contains a photograph of the resource, a description of its site, the approximate date of construction, an architectural description, and an assessment of its National Register eligibility.

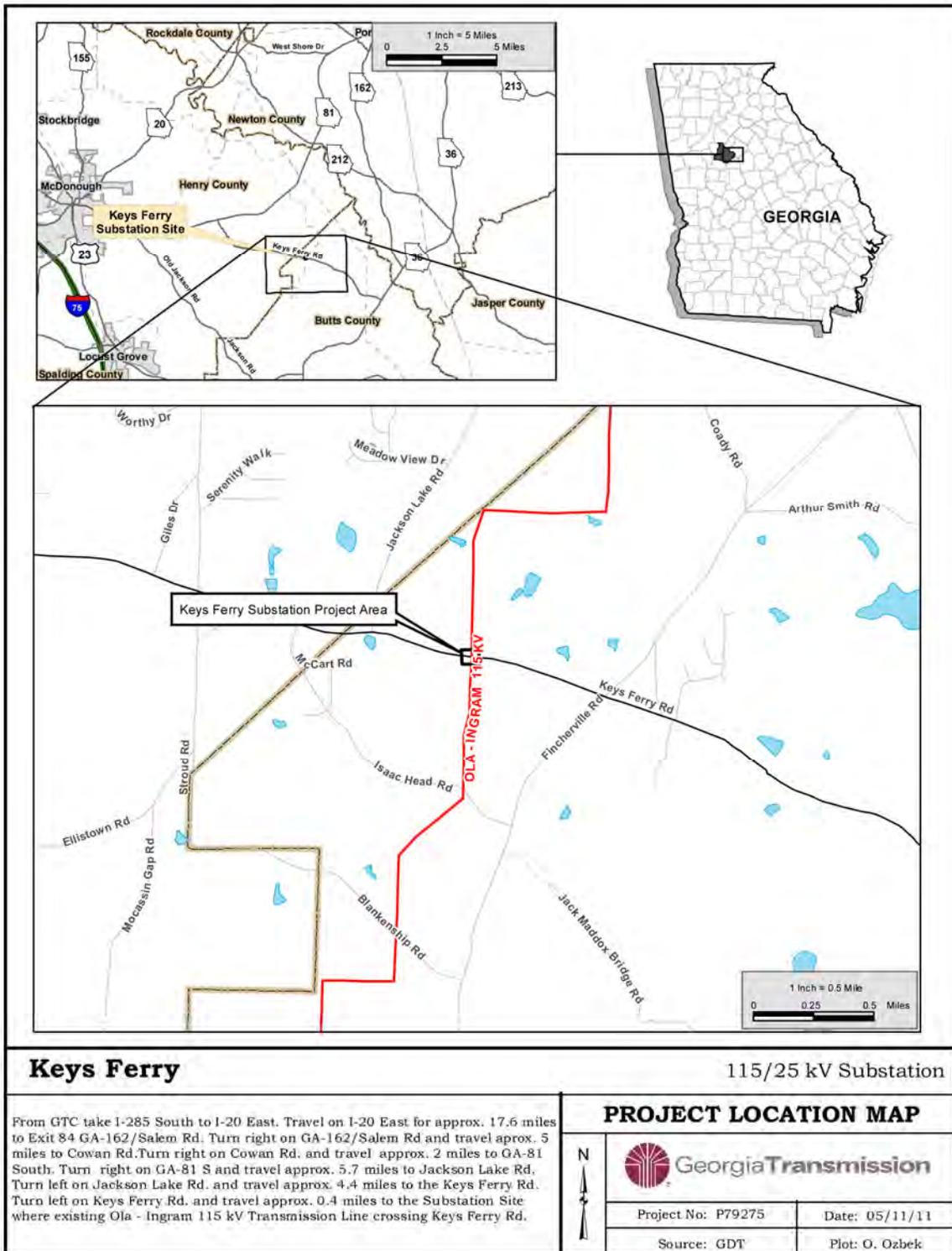
Survey Methodology:

A windshield survey identifying all architectural resources 50 years old or older within the project boundaries was conducted by principal investigator Maurie Van Buren. Visual inspection determined the approximate age of the resources. It should be noted that the consultant was able to view the houses and their dependencies only from the public right-of-way and did not have access to interiors. Color photographs were taken of each resource that appeared to be 50 years old or older, and those photographs were keyed to the *Project Boundary and Map of Resources Surveyed*. The National Register eligibility of each resource was then evaluated based on the level of architectural integrity and visually evident significance. (See *Historic Resources Survey* forms.)

Summary Table of Findings:

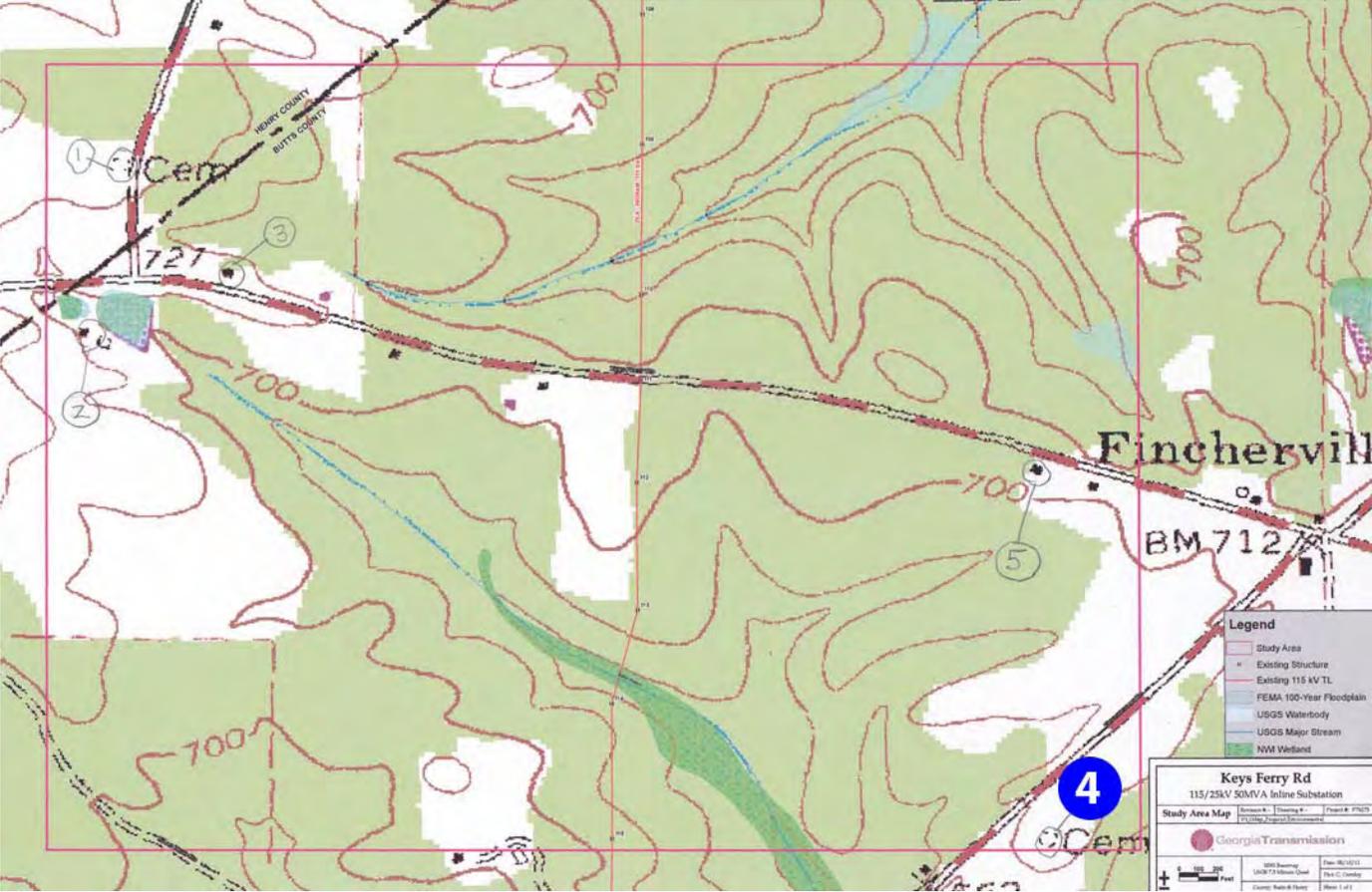
Resource Number	NR Eligible	NR Possibly Eligible	NR Not Eligible
1			X
2			X
3			X
4		X	
5			X

PROJECT LOCATION MAP



PROJECT BOUNDARY AND MAP OF RESOURCES SURVEYED

Numbers on map are keyed to survey forms



Blue = Possibly NR-eligible



Site: The Maddox family cemetery is located on Jackson Lake Road (no visible street address). It sits close to the road in a pasture bordered by shade trees.

Date of Construction and Description: Circa 1910s. This small family cemetery consists of a few simple gravestones and plots. The earliest gravestone is dated 1913, but many of the stones are new.

National Register Eligibility: This resource does not retain the physical integrity to be eligible for the National Register of Historic Places because it has lost its intact setting and because none of the gravestones are of architectural significance.



Site: This house is located at 2222 Keys Ferry Road. It sits back from the road with a grassy yard and mature shade trees. In front of the house is a small manmade lake.

Date of Construction and Description: Circa 1920s. This one-story, frame Front Gable Bungalow has a clipped gable, 2/2 windows and two stuccoed interior brick chimneys. The front porch has Craftsman columns that sit on stuccoed brick pedestals. The house has two front doors, one of which is a later addition that alters the original fenestration pattern. There are side additions that alter the shape of the original structure.

National Register Eligibility: This resource does not retain the physical integrity to be eligible for the National Register of Historic Places because of the stuccoed brick, the altered fenestration pattern, the side additions that alter the shape of the original structure, and the new lake that alters the historic landscape.



Site: The Harper Maddox Folds House is located at 2285 Keys Ferry Road. It sits close to the road, behind a wire fence, with a small grassy yard, mature shade trees and foundation shrubs.

Date of Construction and Description: Circa 1840s. This one-story, Side Gable house has been extensively remodeled. The house has new wood siding, new windows, new chimneys and a new front-gable porch.

National Register Eligibility: This resource does not retain the physical integrity to be eligible for the National Register of Historic Places because of the new siding, the new windows, the new chimneys and the new porch.



Site: The Fincher cemetery is located at 1120 Fincherville Road. It sits back from the road, near a mobile home, in a grassy area surrounded by shade trees and a privet hedge. It appears to have been a family cemetery associated with a homeplace that is no longer standing.

Date of Construction and Description: Circa 1800s-1860s. This small cemetery consists of eight historic gravestones, some of which are no longer readable. The earliest readable stone is dated 1806, and the latest readable stone is a large obelisk dating from the 1860s.

National Register Eligibility: This cemetery appears to have retained its character-defining features and its intact setting and is possibly eligible for the National Register of Historic Places under Criterion C (properties that illustrate a particular architectural style).



Privet hedge surrounding Resource 4, with adjacent mobile home in background



Site: This house is located on Keys Ferry Road (no visible street address). It sits close to the road with a small grassy yard, a side driveway, mature shade trees and foundation shrubs.

Date of Construction and Description: Circa 1910s. This one-story, frame Gabled Ell house has an interior brick chimney, new windows and asbestos siding. The screened front shed porch is a later addition and has no support columns. There are several rear additions that alter the shape of the original structure.

National Register Eligibility: This resource does not retain the physical integrity to be eligible for the National Register of Historic Places because of the new windows, the alterations to the porch, and the rear additions that alter the shape of the original structure.