



**THREATENED & ENDANGERED
SPECIES SURVEY**

WINNSBORO DUE DILIGENCE SERVICES

FAIRFIELD COUNTY, SOUTH CAROLINA

JUNE 2019

Prepared for:

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1.0 INTRODUCTION

This report represents the results of a desktop and pedestrian field survey conducted by Kleinfelder for Vulcan Materials Company at the Winnsboro Parcel (Property) during May 2019. The Property is approximately 909 acres in size and is located approximately 8 miles west of Winnsboro at the intersection of State Road 20-41 South (SR-20-41-S) and State Road 20-424 South (SR-20-424-S) in Fairfield County, South Carolina (**Figure 1**). This report provides the methodology for the threatened and endangered species survey and a discussion of the site characteristics of the Property. Based on the desktop and pedestrian survey results, Kleinfelder has provided a preliminary assessment of state and federally listed threatened and endangered species which may utilize the Property. Formal review and confirmation by the South Carolina Department of Natural Resources (SCDNR) may be required depending on future permitting needs.

2.0 METHODOLOGY

2.1 Desktop Assessment

Kleinfelder conducted a desktop review of the available natural resource data for the Property and vicinity including:

1. Aerial Imagery- True Color (**Figure 2**)
2. U.S. Geological Survey (USGS) 7.5 Minute Topographic Quadrangle for Fairfield County, South Carolina (**Figure 3**)
3. FEMA Floodplain Map (**Figure 4**)
4. Natural Resource Conservation Service (NRCS) – Fairfield County, South Carolina Soil Survey (**Figure 5**)
5. National Wetland Inventory (NWI) Map (**Figure 6**)

2.2 Field Assessment

Kleinfelder conducted the field reconnaissance of the Property during the week of May 13, 2019. The field survey activities consisted of pedestrian and ATV surveys of the Property, with a focus on areas of potential habitat identified during the desktop evaluation.

3.0 SITE CHARACTERISTICS

3.1 Property and Surrounding Lands

Based on a review of aerial imagery (**Figure 2**) and site reconnaissance, the land cover of the Property and vicinity is dominated by planted pine, grassed easements, and bottomland hardwood forests. The Property is currently used for silviculture and hunting purposes. Surrounding areas have limited residential development, mainly to the northeast of the Property.

3.2 Vegetation Communities

The majority of the Property is covered by pine and hardwood trees. There are scattered areas of grassed easements in the eastern and central portions of the Property. The hardwood forested areas of the Property included canopies containing American Elm (*Ulmus americana*), American sycamore (*Platanus occidentalis*), Tulip Poplar (*Liriodendron tulipifera*), Loblolly Pine (*Pinus taeda*),

Chestnut Oak (*Quercus prinus*), Winged Elm (*Ulmus alata*), Hackberry (*Celtis occidentalis*), and Flowering Dogwood (*Cornus florida*).

The shrub and herbaceous understory strata of the hardwood forested areas contained a mixture of species including Leather Fern (*Rumohra adiantiformis*), Giant Cane (*Arundinaria gigantea*), Greenbriar (*Smilax bona-nox*), and Indian Woodoats (*Chasmanthium latifolium*). Additional non-forested upland areas of the Property contained primarily Orchardgrass (*Dactylis glomerate*) and Perennial Ryegrass (*Lolium perenne*).

3.3 Topography

A review of the Property's USGS topographic map (**Figure 3**) indicates that elevations at the Property range from a high of approximately 475 feet in the central section to a low of 306 feet in the southern portion. Two tributaries of a named stream, Horse Branch are present running through the property. One stream runs through the central-southeast portion of the property and a second stream flows along the western boundary property line. Easements are depicted entering the Property from the north, east, and southeast.

3.4 Floodplain

A review of FEMA floodplain data indicates the narrow fringe western portion of the Property is located within the 1-percent-annual-chance flood event, Zone A (**Figure 4**). This floodzone appears to be associated with the Horse Branch stream corridor noted on the USGS topographic map (**Figure 3**).

3.5 Soils

The USDA NRCS Soils Survey of the Property is depicted in **Figure 5**. There were 4 soil types classified by the NRCS within the Property, none of which are classified as hydric soils:

MdC2 – Madison sandy clay loam, 6 to 10 percent slopes eroded

To – Toccoa loam

WkD – Wilkes sandy loam, 6 to 15 percent slopes

WkF– Wilkes sandy loam, 15-40 percent slopes

3.6 National Wetlands Inventory/National Hydrography Dataset

A review of the National Wetlands Inventory (NWI) map (**Figure 6**), indicates areas were identified as freshwater forested/shrub wetland and riverine. In general, these areas correlate with the drainage features noted on the aerial imagery (**Figure 2**) and USGS topographic map (**Figure 3**). NWI-mapped wetlands (and non-mapped areas) are typically based on aerial interpretation, can often be misleading, and are subject to inspection and confirmation by field delineations. The subject assessment did not include a wetland assessment or delineation.

4.0 PROTECTED SPECIES

Prior to the onsite field review, Kleinfelder conducted a desktop literature review of federally and state-listed protected species using the most recent lists of threatened and endangered (T/E) species for Fairfield County, South Carolina. The lists were obtained from the following sources:

- **South Carolina Department of Natural Resources (SCDNR)** - Rare, Threatened and Endangered Species Inventory for Fairfield County. 2019.
- **U.S. Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS)** - Information for Planning and Conservation (IPaC) Wildlife Species Consultation Code. 2019.

Based on the literature review the following listed species have the potential to utilize habitats within the Property.

Common Name	Scientific Name	Taxonomic Classification	State Status	Federal Status
Broad River Spiny Crayfish	<i>Cambarus spicatus</i>	Mollusk	-	ARS
Tricolored Bat	<i>Perimyotis subflavus</i>	Mammal	-	ARS
Carolina Heelsplitter	<i>Lasmigona decorata</i>	Mussel	-	E
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bird	-	-
Georgia Aster	<i>Symphotrichum georgianum</i>	Flower	-	ARS

ARS – At Risk Species, E - Endangered

Onsite assessments of habitats were completed via pedestrian transects to determine if the project area contains suitable habitat for listed species. Specific information is identified below:

Broad River Spiny Crayfish

The Broad River Spiny Crayfish is typically found in streams of the Broad River and tributaries that exhibit signs of flash flooding, including sand deposits and log jams. This species is usually found in or beneath debris and typically prefers primarily large river habitats.

Streams within the Property exhibited suitable habitat with signs of flash flooding that included downed trees, sandy deposits, and debris. However, the Property does not contain tributaries of the Broad River and it is unlikely utilized by the species.

Tricolored Bat

During the summer months, the tricolored bat utilizes forested landscapes in open woods and those adjacent to streams and open waters. Their preferred habitat includes sparse vegetation and early successional forest stands. The bat typically roosts in caves, rock crevices, tree foliage, Spanish moss, buildings, road culverts and in cavities of bottomland trees including swamp chestnut oak,

sweetgum, and laurel oak. Hibernation occurs from October to April in abandoned mines, railroad tunnels and caves.

Although no Tricolored bats were observed during Kleinfelder's field assessment, there were hardwood tree cavities adjacent to stream banks that may provide suitable habitat (**Figure 7, Appendix A**). Should any bottomland hardwood trees or streams be proposed for future impact, further surveying and/or permitting with USFWS may be required to assess if tricolored bats occupy these portions of the Property.

Carolina Heelsplitter

The Carolina Heelsplitter has been recorded in a variety of stream substrates, including mud, clay, sand, gravel, and cobble/boulder/bedrock. These stream areas typically lack significant silt accumulations and are located along stable, well-shaded stream banks. Stability of stream banks and stream bottom appear to be the habitat elements essential to the species. The Carolina Heelsplitter requires cool, clean, well-oxygenated water and stable, silt-free stream bottoms appear to be critical to the species. Typically, stable areas occur where the stream banks are well-vegetated with trees and shrubs.

Although Carolina Heelsplitters were not observed during Kleinfelder's field assessment, there were a variety of substrates including sand, gravel, and bedrock identified within the Property's streams that may provide suitable habitat. However, most of the streams lacked a shrub component along the banks, along with the stable stream banks and clean, well-oxygenated water that are essential to the Carolina Heelsplitters habitat. There is no designated critical habitat for this species of mussel within the Property, with the nearest critical habitat located 31.2 miles to the northeast (**Figure 8**). Additionally, as shown on **Appendix B** there is no prior documentation of the Carolina Heelsplitter within the Property's watershed (HUC 03050104, Lake Wateree-Catawba River, Little Wateree Creek basin). Should any streams be proposed for future impact, further surveying and/or permitting with USFWS may be required.

Bald Eagle

Bald eagles are large raptors that utilize lakes, ponds, rivers, estuaries, and coastal areas as foraging habitat. Bald eagles typically nest in large, tall trees that provide clear views of surrounding areas. The bald eagle was de-listed from the Endangered Species Act in 2007, however is still afforded protection under the Bald and Golden Eagle Protection Act of 1940, as amended in 1962 (Federal Register Vol. 72, Number 130; 2007), and Migratory Bird Treaty Act (1918).

No bald eagles were observed during Kleinfelder's field assessment. The SCDNR Bald Eagle Monitoring Program identified the nearest active bald eagle nests to be greater than 8 miles east of the Property along the shore of Wateree Lake (**Figure 9**). Should any bald eagle nests be identified within the Property and the removal or relocation of the nest be proposed, future surveying and permitting with USFWS would be required.

Georgia Aster

Georgia aster has large flower heads, 5 cm across, marked by dark purple rays encircling white to lavender disk flowers. Flowering occurs from early October to mid-November. The tiny disk flowers are white, fading to a light or dull lavender, tan, or white as they mature. Georgia aster lives in woodlands or piedmont prairies dominated by native plants, with acidic soils that vary from sand to heavy clay. However, the Georgia aster has also been found to occur in disturbed areas such as

easements. The primary controlling factor appears to be the availability of light, as the plant tends to compete well for resources until it begins to get shaded out by woody plants. Populations can persist in the shade, but these rarely flower, instead reproducing by sending out underground stems which send out new shoots.

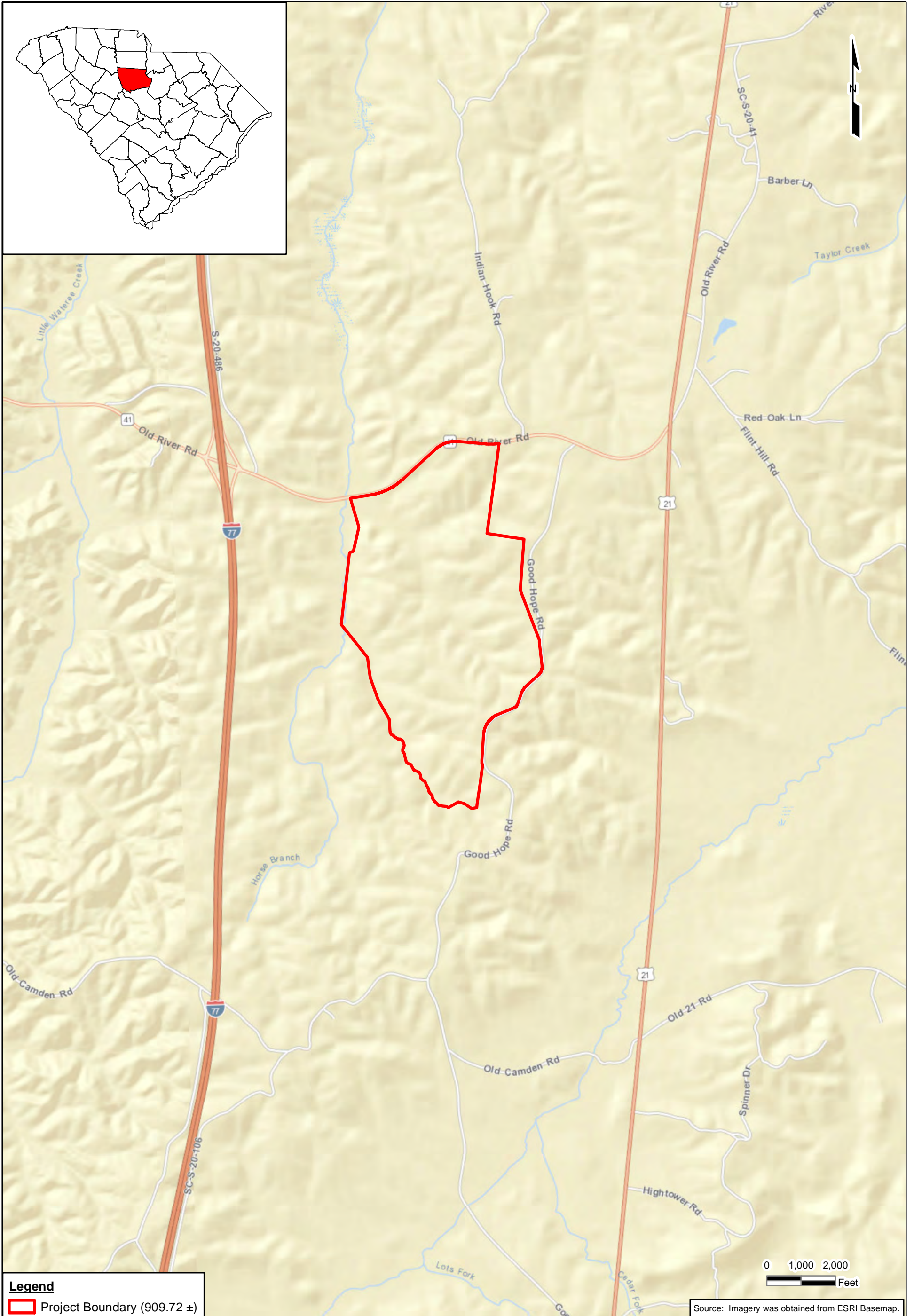
Although no Georgia Asters were observed during Kleinfelder's field assessment, there were cleared grassy rights-of-way with no woody plants that may provide suitable habitat (**Appendix A**). Also, flowering only occurs during the months of October-November and the subject survey was done during the month of May. Should these rights-of-way be impacted, future surveying would need to occur during the months of October and November to confirm presence or absence. There are no known regulatory constraints associated with the Georgia aster.

5.0 LIMITATIONS

We performed our services in a manner consistent with the level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. We have based our conclusions on our understanding of this Property and our experience with similar Properties. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two years from the date of the report.

FIGURES



Legend
 Project Boundary (909.72 ±)

Source: Imagery was obtained from ESRI Basemap.

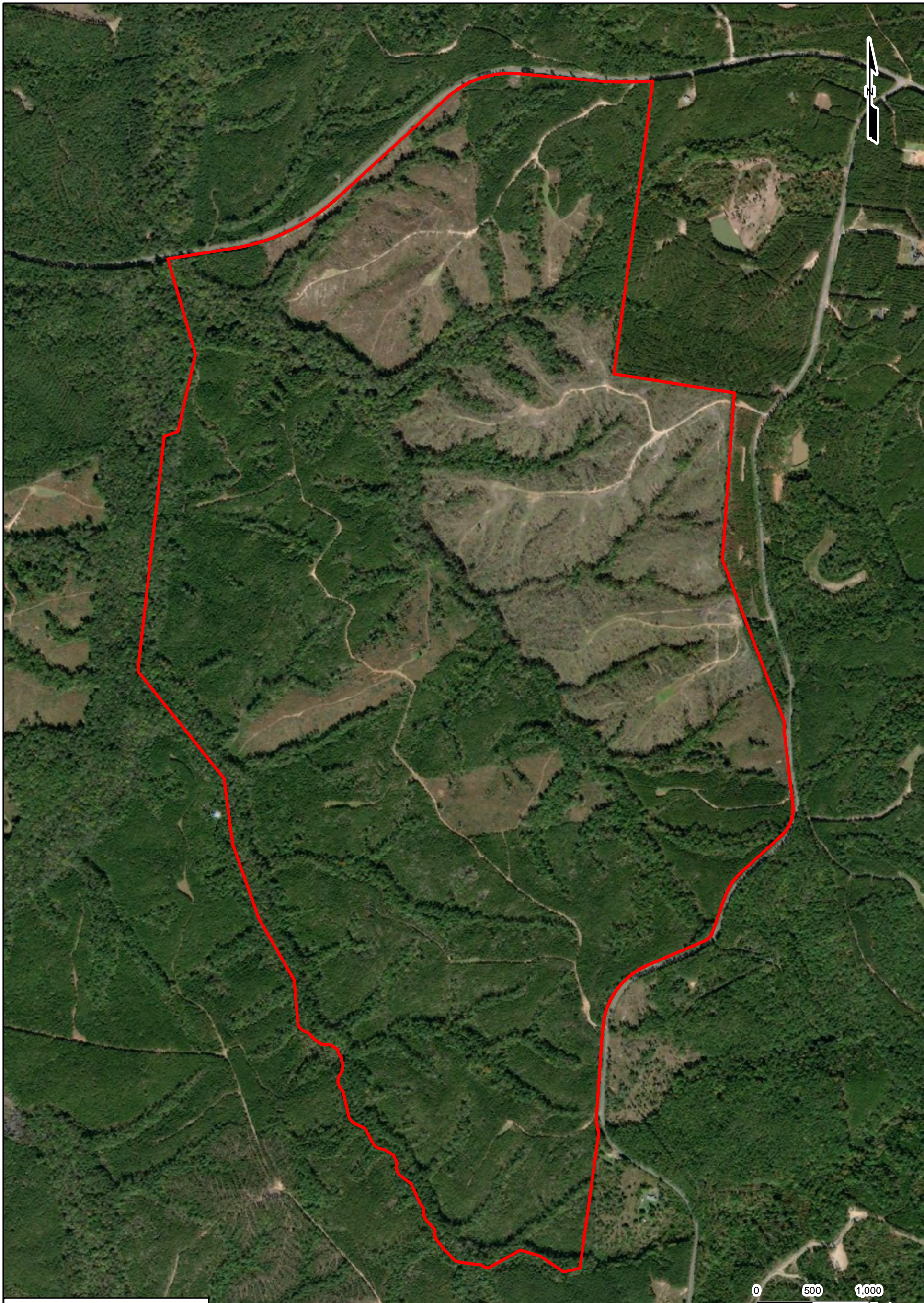
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Location and Vicinity
 Vulcan Materials Company
 Winnsboro T and E Species Survey
 Fairfield County, South Carolina

FIGURE
 1



Legend
 Project Boundary (909.72 ±)

Source: Imagery was obtained from ESRI Basemap.

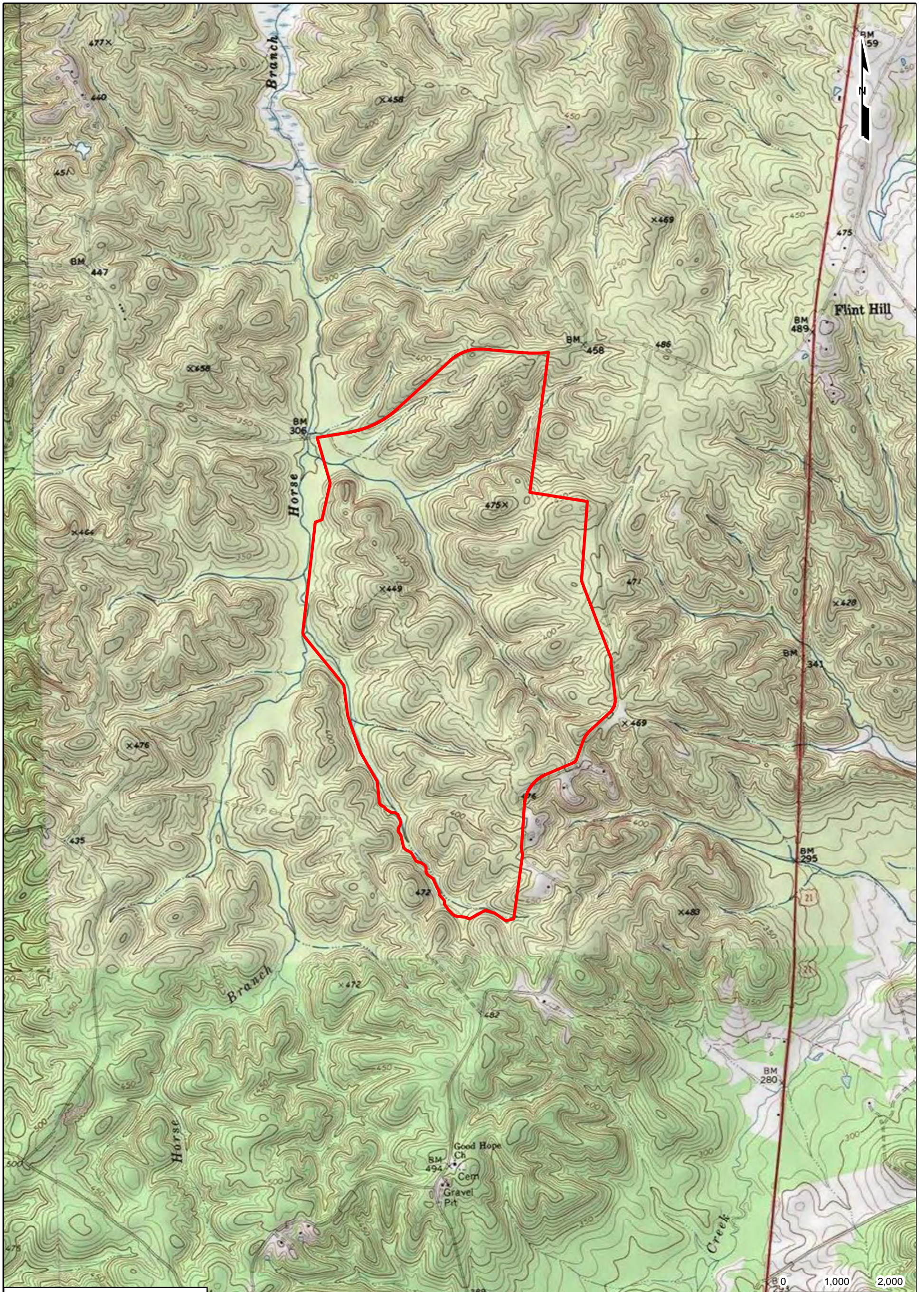
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Aerial
Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina

FIGURE
2



Legend
 Project Boundary (909.72 ±)

Source: Imagery was obtained from USGS Topographic Map. Flint Hill Quadrangle.

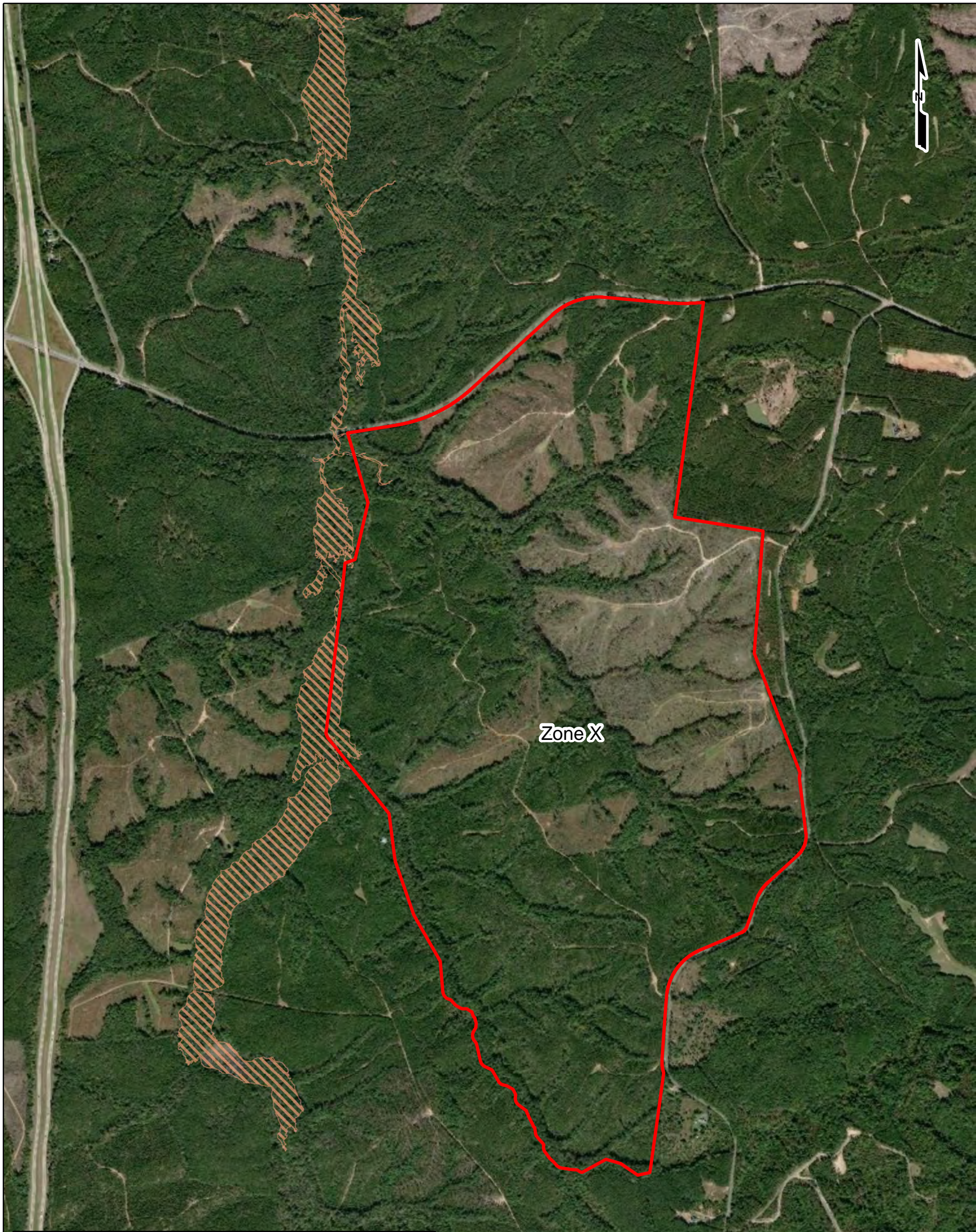
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USGS Topographic Map
 Vulcan Materials Company
 Winnsboro T and E Species Survey
 Fairfield County, South Carolina

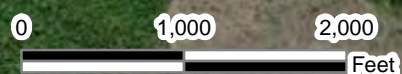
FIGURE
3



Source: Imagery was obtained from ESRI Basemap. Image origin: DigitalGlobe. Date: 3/16/2017.
 Data source: FEMA FIRM Panel 45039C0240C Effective Date: 5/3/2011

Legend

- Project Boundary (909.72 ±)
- Zone A- Areas subject to inundation by the 1-percent-annual-chance flood event. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown.
- Zone X (unshaded)- Minimal risk area outside the 1-percent and 0.2-percent-annual-chance floodplains. No Base Flood Elevations (BFEs) or base flood depths are shown within these zones.



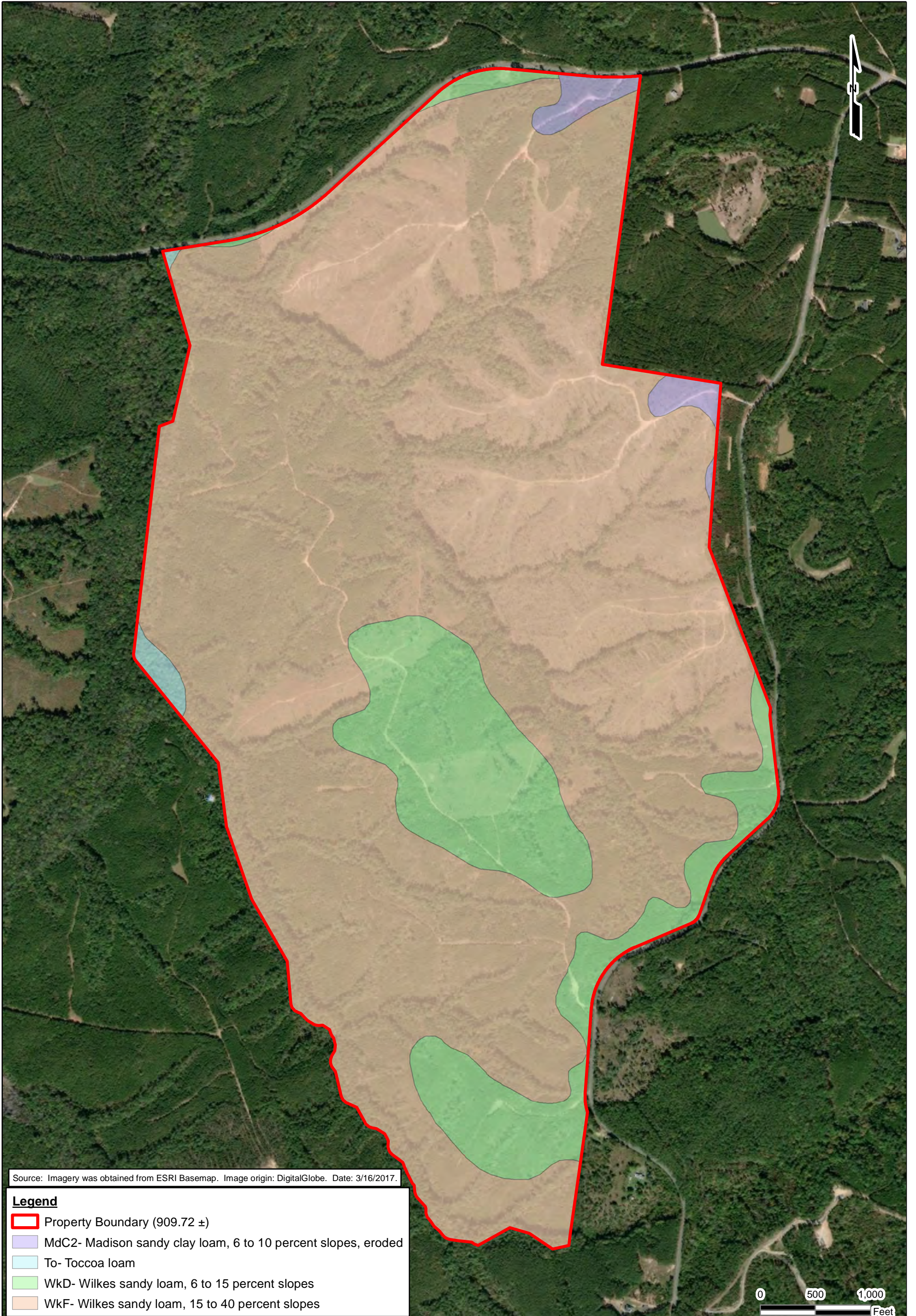
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FEMA Floodplain Map
Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina

FIGURE
4



Source: Imagery was obtained from ESRI Basemap. Image origin: DigitalGlobe. Date: 3/16/2017.

Legend

- Property Boundary (909.72 ±)
- MdC2- Madison sandy clay loam, 6 to 10 percent slopes, eroded
- To- Toccoa loam
- WkD- Wilkes sandy loam, 6 to 15 percent slopes
- WkF- Wilkes sandy loam, 15 to 40 percent slopes

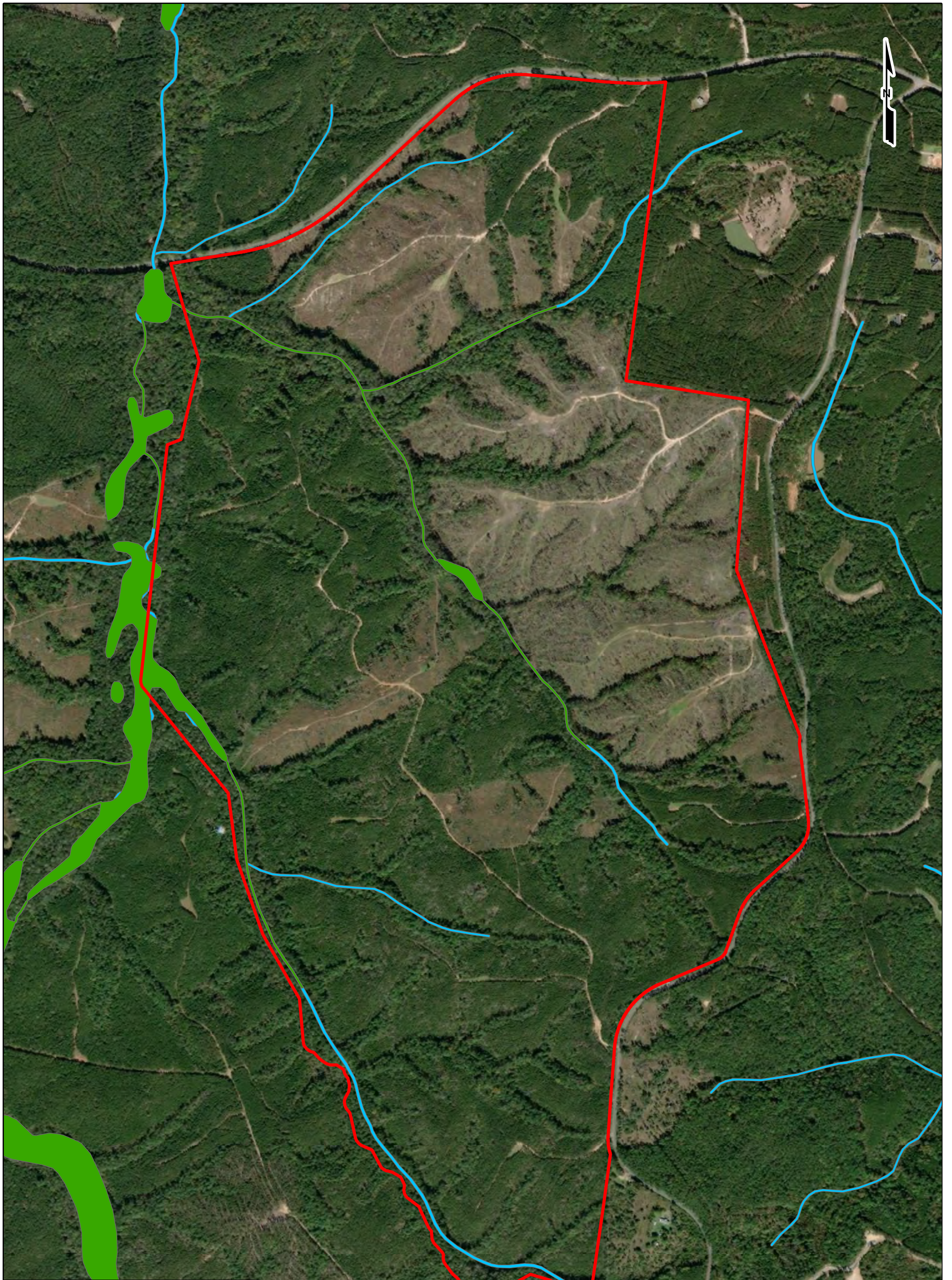
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Soils
Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina

FIGURE
5



Legend

- Project Boundary (909.72 ±)
- Freshwater Forested/Shrub Wetland
- Riverine



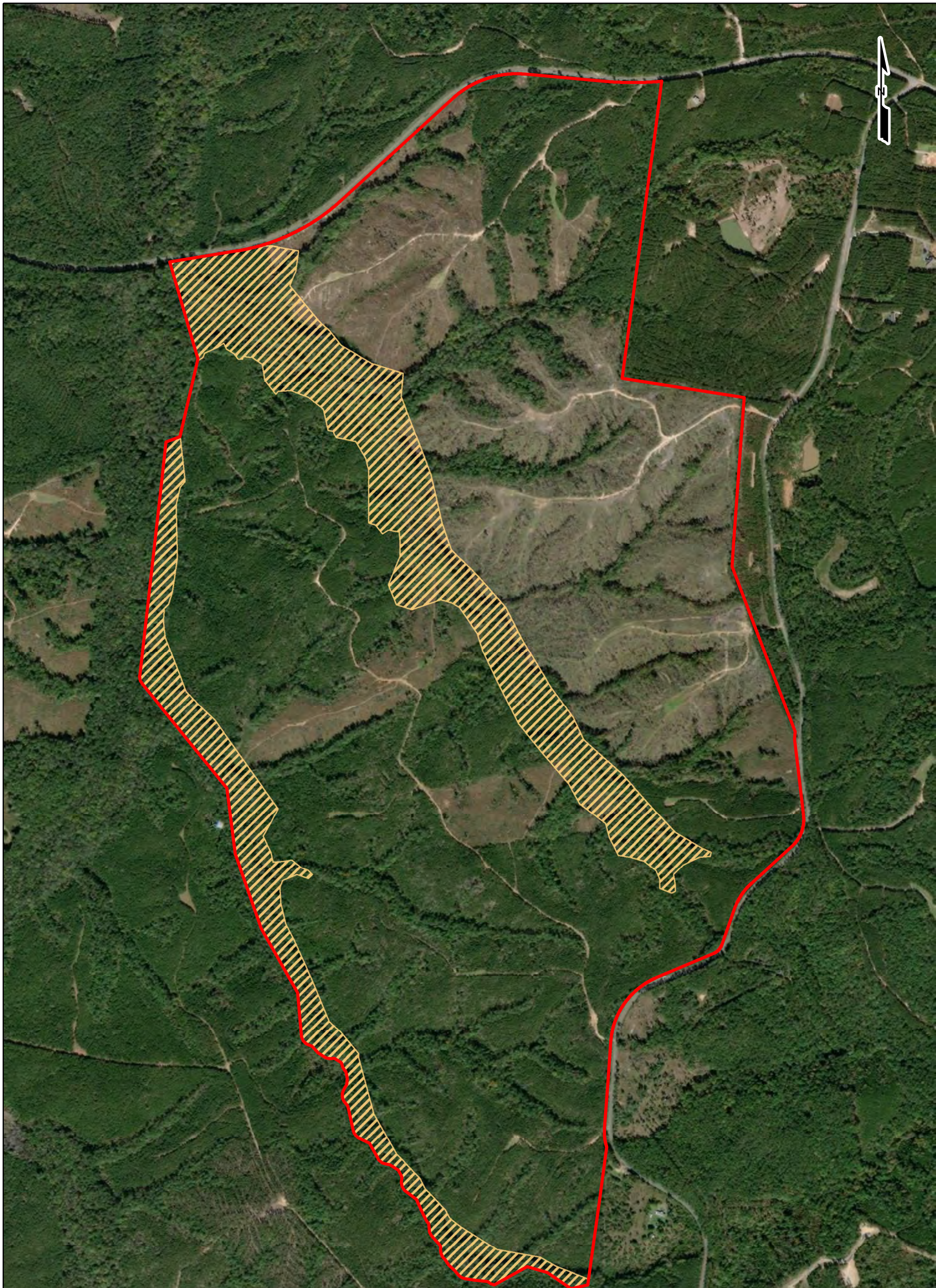
Source: Imagery was obtained from ESRI Basemap. Image origin: DigitalGlobe. Date: 3/16/2017.

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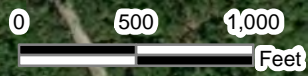
National Wetland Inventory
Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina

FIGURE 6



Legend

- Project Boundary (909.72 ±)
- Potential Tricolored Bat Habitat



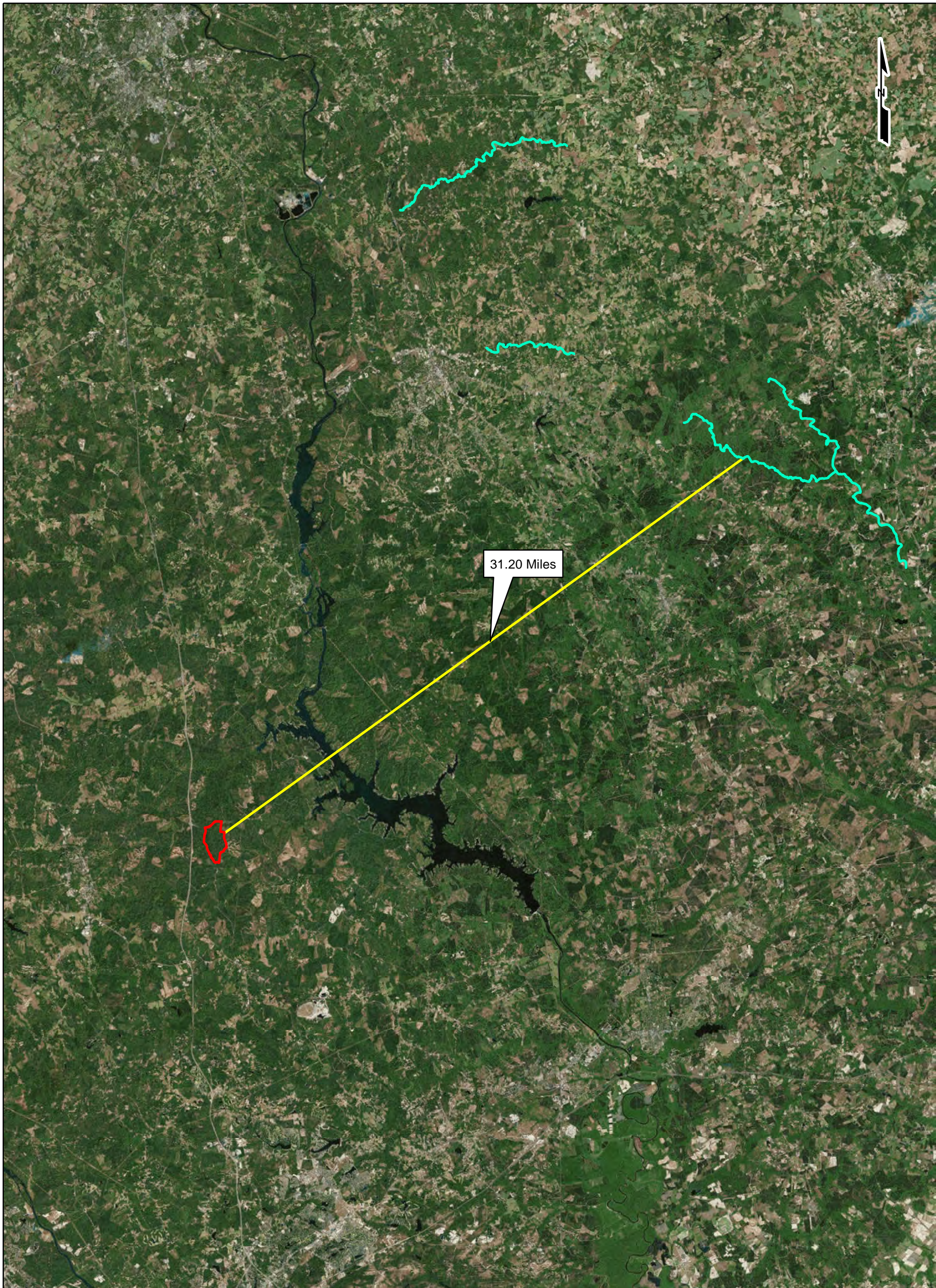
Source: Imagery was obtained from ESRI Basemap. Image origin: DigitalGlobe. Date: 3/16/2017.

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FIGURE	Potential Tricolored Bat Habitat
7	Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina



Legend

- Project Boundary (909.72 ±)
- Carolina Heelsplitter



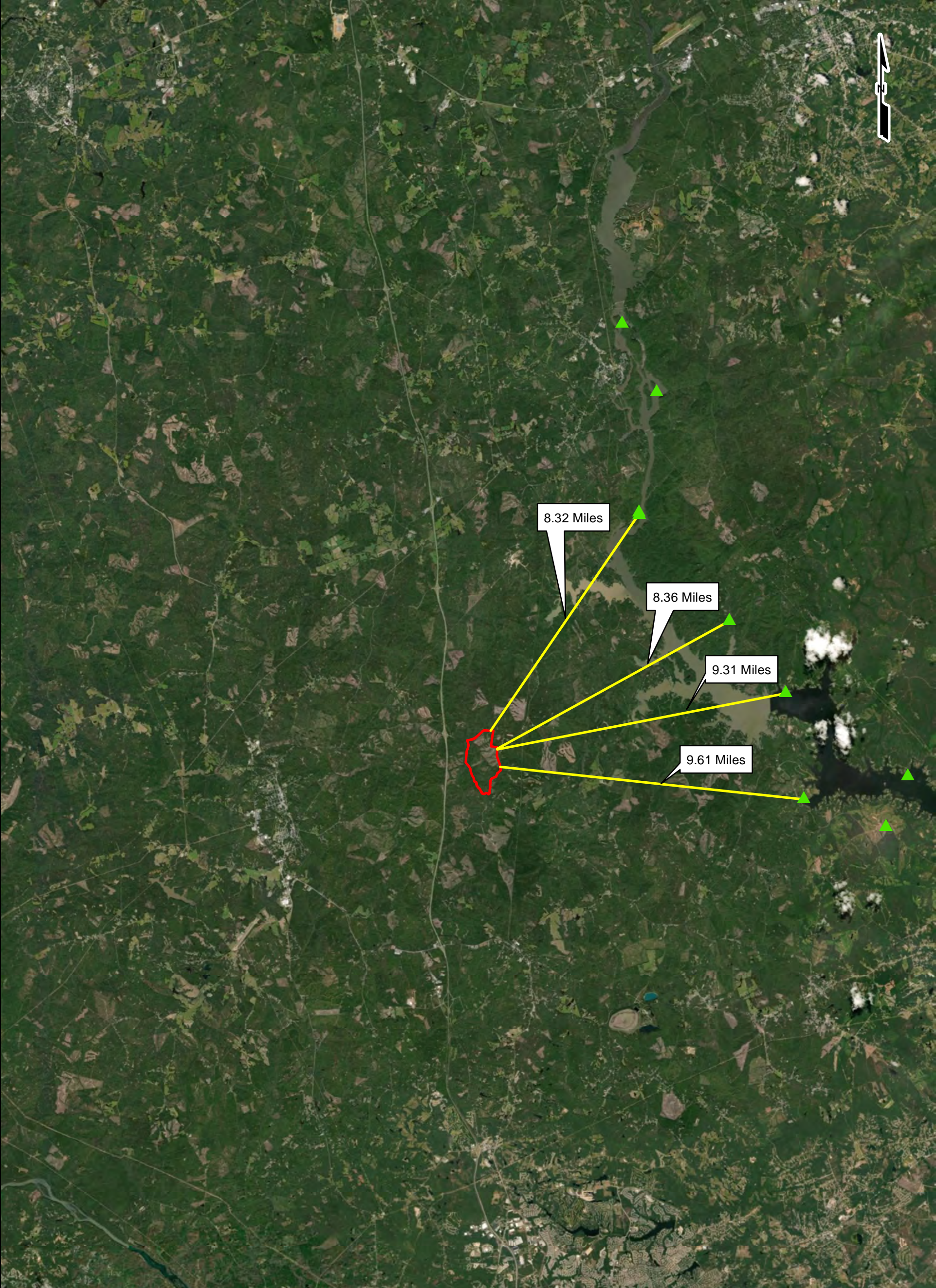
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Carolina Heelsplitter
Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina

FIGURE 8



Legend

- ▲ Bald Eagle Nests
- Project Boundary (909.72 ±)

0 2.5 5
Miles

Source: Imagery was obtained from ESRI Basemap.

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<p>Bald Eagle Nests</p> <p>Vulcan Materials Company Winnsboro T and E Species Survey Fairfield County, South Carolina</p>

<p>FIGURE</p> <p style="font-size: 2em;">9</p>
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APPENDIX A: SITE PHOTOGRAPHS



North View - Stream



North View - Stream


	PROJECT NO. 20200586	SITE PHOTOGRAPHS Winnsboro Threatened & Endangered Species Survey Vulcan Materials Company Fairfield County, South Carolina	PLATE 1
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North View - Stream



North View - Stream


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West View - Tree Cavity



West View - Tree Cavity


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	DRAWN BY: LP CHECKED BY: CK DATE: 5/16/2019 REVISED:		



North View - Tree Cavity



South View - Tree Cavity


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North View - Right-of-Way



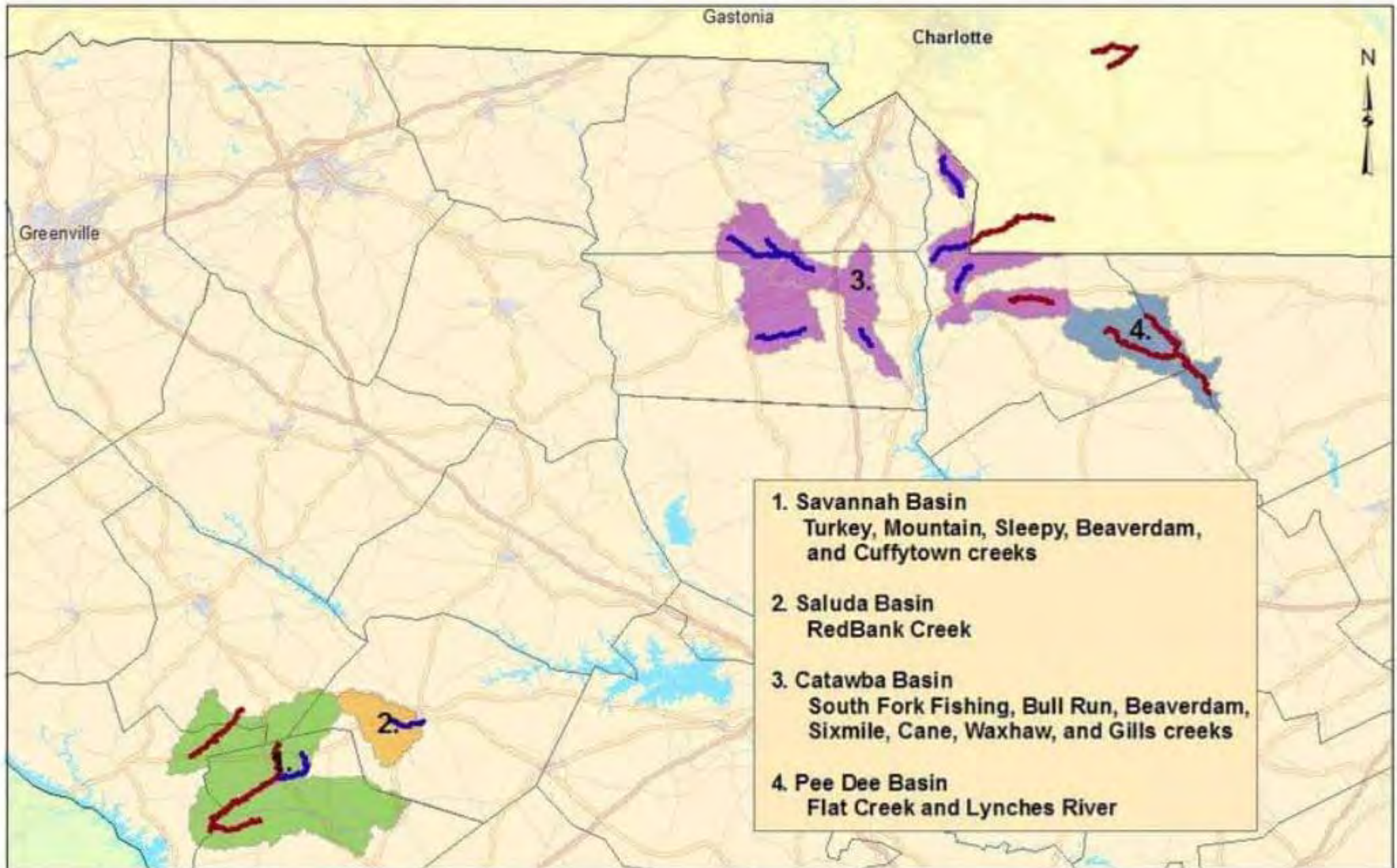
West View - Right-of-Way

	PROJECT NO. 20200586	SITE PHOTOGRAPHS Winnsboro Threatened & Endangered Species Survey Vulcan Materials Company Fairfield County, South Carolina	PLATE 5
	DRAWN BY: LP CHECKED BY: CK DATE: 5/16/2019 REVISED:		

APPENDIX B: SC WATERSHEDS CONTAINING CAROLINA HEELSPLITTER

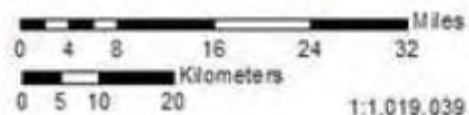


SOUTH CAROLINA WATERSHEDS CONTAINING CAROLINA HEELSPLITTER



- 1. Savannah Basin**
Turkey, Mountain, Sleepy, Beaverdam, and Cuffytown creeks
- 2. Saluda Basin**
RedBank Creek
- 3. Catawba Basin**
South Fork Fishing, Bull Run, Beaverdam, Sixmile, Cane, Waxhaw, and Gills creeks
- 4. Pee Dee Basin**
Flat Creek and Lynches River

Produced by:
Charleston Ecological Services Field Office
176 Croghan Spur Road, Suite 200
Charleston, SC 29412
January, 2007



Red = populations with designated Critical Habitat
Blue = populations without Critical Habitat designation