

November 10, 2008

Ms. Tristan Rackow
Alliance Consulting Engineers, Inc.
Post Office Box 8147
Columbia, South Carolina 29202-8147

Reference: **Protected Species Assessment**
Pocotaligo Industrial Park – 320 Acres
Sumter, Sumter County, South Carolina
S&ME Project No. 1614-08-425

Dear Ms. Rackow:

S&ME, Inc. (S&ME) is pleased to submit our Protected Species Assessment for the above-referenced site located in Sumter County, South Carolina. This work was performed in general accordance with S&ME Proposal No. 1614-6387-08, dated September 4, 2008 and Master Services Agreement between Alliance Consulting Engineers and S&ME dated January 15, 2007.

1.0 PROJECT BACKGROUND

The site is approximately 320 acres and is located west of U.S. Highway 521 approximately four miles south of downtown Sumter in Sumter County, South Carolina (Figure 1 in Appendix A). The site is identified on a portion of the Brogdon USGS 7.5-minute topographic quadrangle map dated 1972, revised 1983 (Figure 2 in Appendix A). This Protected Species Assessment has been conducted to assess the potential for the presence of protected species within the project area in preparation for proposed industrial developments.

2.0 SITE/HABITAT DESCRIPTIONS

The site is located in southern Sumter County within the Atlantic Southern Loam Plains ecoregion of South Carolina. The properties adjacent to the site consist of forestland, swamp, farmland, commercial businesses, residential parcels, and the Sumter wastewater treatment plant.

The site primarily consists of four habitat types: farmland, bottomland hardwoods, mixed hardwood upland, and a powerline easement. Refer to the Aerial Map (Figure 3) and site photographs in Appendix A for the locations and depictions of the various habitats.

Farmland (Photographs 1-4)

A majority of the site consists of farmland. Soybeans (*Glycine max*) and fallow corn (*Zea mays*) fields were observed throughout the site. A small area of farmland on the west-central portion of the site was covered with kudzu (*Pueraria lobata*).

Bottomland Hardwoods/Forested Wetlands (Photographs 4-8)

The western portion of the site contains bottomland hardwoods associated with the Pocotaligo Swamp. Dominant species observed in the swamp include water tupelo (*Nyssa aquatica*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), ash (*Fraxinus* spp.), trumpet creeper (*Campsis radicans*), lizard's tail (*Saururus cernuus*), and false nettle (*Boehmeria cylindrica*).

Forested wetlands were observed on the northern and southeastern portions of the site. Dominant species observed were sweetgum, water oak (*Quercus nigra*), red maple, tulip-tree (*Liriodendron tulipifera*), red bay (*Persea borbonia*), Chinese privet (*Ligustrum sinense*), switch-cane (*Arundinaria gigantea*), laurel-leaf greenbrier (*Smilax laurifolia*), trumpet creeper, netted chainfern (*Woodwardia areolata*), cinnamon fern (*Osmunda cinnamomea*), doghobble (*Leucothoe axillaris*), lizard's tail, and false nettle.

Mixed Hardwood Uplands (Photographs 9-11)

Mixed hardwood upland areas were observed between the bottomland/wetland areas and the farmland. Dominant species observed were sweetgum, water oak, chinaberry (*Melia azedarach*), black cherry (*Prunus serotina*), hickory (*Carya* spp.), white oak (*Q. alba*), black walnut (*Juglans nigra*), Carolina laurel-cherry (*P. caroliniana*), Chinese privet, and Japanese privet (*L. japonica*). Vine and herbaceous species observed included common greenbrier (*S. rotundifolia*), muscadine (*Vitis rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), and ebony spleenwort (*Asplenium platyneuron*).

Powerline Easement (Photograph 12)

A large powerline easement was observed running north to southwest across the site. The vegetation within the easements was knee to waist high and consisted common goldenrod (*Solidago altissima*), Brazilian vervain (*Verbena braziliensis*), blackberry (*Rubus* spp.), pokeweed (*Phytolacca americana*), dogfennel, (*Eupatorium capillifolium*), and Japanese honeysuckle (*Lonicera japonica*).

3.0 METHODOLOGY

The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened, and Endangered Species Inventory and the U.S. Fish and Wildlife Service (USFWS) websites were reviewed regarding current federal and state listed species known to occur in Sumter County. The purpose of the search was to identify current and historic documented occurrences of protected species located within this county. Additionally, S&ME personnel reviewed available supporting information including the USGS Brogdon Topographic Quadrangle and applicable soil survey sheets. The purpose of reviewing this supporting information was to identify drainage features and soil types in the study area. During the field reconnaissance, S&ME personnel integrated the information obtained from this supporting documentation with the field evaluation for the presence of protected species or potential protected species habitat. Portions

of the site that matched descriptions of preferred habitat for protected species listed in Table 1 were considered to be potential habitat for the respective protected species. These areas were subsequently field reviewed to confirm the presence/absence of the respective species.

The SCDNR database records did not identify the presence of known occurrences on or immediately adjacent to the site. A field survey was performed for the protected species in suitable habitats within the site on various dates in October 2008. Chris Daves of S&ME performed the field survey.

4.0 PROTECTED SPECIES

Descriptions of the species and their respective federal and state status are identified in Table 1 and in Appendix B. The SCDNR and USFWS websites identified the following federal and state listed species for Sumter County:

| TABLE 1: PROTECTED FLORA & FAUNA SUMMARY POCOTALIGO INDUSTRIAL PARK - SUMTER COUNTY | | | |
|--|--------------|----------------|---|
| Species | State Status | Federal Status | Habitat Description |
| Bald Eagle <i>Haliaeetus leucocephalus</i> | BGEPA | BGEPA | Coastlines, rivers, large lakes or streams which provide adequate feeding grounds; typically nest in SC between late October and late May |
| Red-Cockaded Woodpecker <i>Picoides borealis</i> | E | E | Nest in mature pine with low understory vegetation (<5 ft.); forage in pine & pine hardwood stands > 30 years of age, preferably > 10" dbh |
| Shortnose Sturgeon <i>Acipenser brevirostrum</i> | E | E | Occur in most major river systems along the eastern seaboard |
| American Chaffseed <i>Schwalbea americana</i> | E | E | Various sandy soil areas on the coastal plain; Usually found on margins of savannas and cypress ponds that are seasonally wet; longleaf pine flatwoods |
| Canby's Dropwort <i>Oxypolis canbyii</i> | E | E | Pond-cypress savannahs in Carolina Bay formations dominated by grasses/sedges or ditches next to bays; prefer borders & shallows of cypress-pond pine ponds & sloughs |

E – Endangered

T – Threatened

BGEPA – Bald & Golden Eagle Protection Act

Bald Eagle – Protected Under the Bald & Golden Eagle Protection Act

BIOLOGICAL OPINION: NO EFFECT

This large raptor has characteristic adult plumage consisting of a white head and tail with a dark brown body. Juvenile eagles are completely dark brown and do not fully develop the majestic white head and tail until the fifth or sixth year. Adults average about three feet from head to tail, weigh approximately 10 to 12 pounds and have a wingspread that can reach seven feet.

Generally, female bald eagles are somewhat larger than the males. The typical nest is constructed of large sticks and is lined with soft materials such as pine needles and grasses. The nests are very large, measuring up to six feet across and weighing hundreds of pounds. Nesting and feeding sites are generally in the vicinity of large bodies of open water.

Being adjacent to the Pocotaligo River swamp, the site has the potential for a bald eagle nesting site. Via binoculars, S&ME examined the tallest hardwoods within the site. The site does not contain a portion of the river itself and a majority of the wetland areas have a closed canopy. No active or abandoned bald eagle nest sites were observed on the site. Accordingly, future development of the site is not expected to impact this species. Please note that the bald eagle was removed from the federally threatened list in 2007. The bald eagle still has some protection under Bald and Golden Eagle Protection Act.

Red-Cockaded Woodpecker – Federally Listed Endangered, State Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

This black and white bird measures approximately seven inches long and has black and white horizontal stripes on its back. The cheeks and underparts are white and the sides are streaked in black. The cap and stripe on the throat and neck of the bird are black. Male individuals of the species have a small red spot on each side of the black cap and display a red crown patch after the first post-fledgling molt.

The red-cockaded woodpecker's range is closely linked to the distribution of southern pines. Loblolly and longleaf pines that are 60-plus years old are generally selected for nesting sites. However, other species of southern pines are occasionally used for nesting. The woodpecker usually excavates nest cavities in trees infected with a fungus that produces red-heart disease. Preferred nesting sites generally include relatively open, mature pine stands with an undeveloped or low understory layer. Foraging habitat is frequently limited to pine or pine-hardwood stands that are 30 years or older, with a preference for pine trees with a diameter of 10 inches or larger. The USFWS indicates that the maximum foraging range for the red-cockaded woodpecker is approximately one-half mile.

The site does not contain suitable habitat for red-cockaded woodpecker. There are no pine stands of sufficient age on or immediately adjacent to the site. Accordingly, future development of the site is not expected to impact this species.

Shortnose Sturgeon – Federally Listed Endangered, State Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

The shortnose sturgeon is a bony, anadromous fish growing to a length of up to four feet. Shortnose sturgeon exhibit five rows of plates along the body, with olive to black coloring along the back, and yellow to white coloring on the belly. Four barbels are located in front of the mouth are used to locate food along the river bottom. The shortnose sturgeon migrates from salt water to freshwater to spawn from April to May. The shortnose sturgeon's habitat consists of tidal river systems along the Atlantic coast of North America. This species typically occupies the channels and deeper holes within the river, while feeding in shallow areas at night.

The site does not contain suitable habitat for shortnose sturgeon. There are no rivers or large streams within the site. Development will be concentrated to the upland portions of the site and will not affect the Pocotaligo River located west of the site. Accordingly, future development of the site is not expected to impact this species.

American Chaffseed – Federally Listed Endangered, State Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

American chaffseed is perennial herb that is a root parasite. It grows to height of 1-2 feet. Leaves are simple, alternate, long, and narrow with no leaf stalks. The leaves are covered in hairs and with three prominent veins. Its purplish flowers are found on terminal clusters and are tubular in shape. The plant flowers from May to June or one to two months after a fire. Its habitat includes various sandy soil areas on the coastal plain. Plants are usually found within longleaf pine flatwoods or on the margins or savannas and cypress ponds that are seasonally wet. The species fares well where periodic fires are prevalent.

The site does not contain suitable habitat for American Chaffseed. There are no seasonally wet savannas and cypress ponds or longleaf pine flatwoods within the site. Accordingly, future development of the site is not expected to impact this species.

Canby's Dropwort - Federally Listed Endangered, State Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

Canby's dropwort is a perennial herb growing to a height of 2.5-4 feet. The stems are hollow and erect with slender leaves. The species is aromatic, smelling like dill. The flowers of Canby's dropwort have white petals and pale green sepals and are five-parted. The leaves are round in cross-section, thin, and divided by partitions. The flowering period is from August through October. The primary habitats of Canby's dropwort are wet pineland ponds and savannas, wet meadows, and around the edges of open cypress ponds. The species prefers habitat with little or no canopy closure. Canby's dropwort prefers soils with a high water table.

The site does not contain suitable habitat for Canby's dropwort. There are no wet pineland ponds, savannas, wet meadows or open cypress ponds on the site. The canopies of the on-site wetlands are primarily closed. The Carolina bays on the site have been ditched and converted to farmland. Accordingly, the future development of the site is not expected to impact this species.

5.0 QUALIFICATIONS

The field survey was performed by Chris Daves of S&ME. Mr. Daves is a biologist and natural resources project manager with over seven years experience in environmental consulting. Mr. Daves is proficient in conducting wetland delineations, environmental permitting activities, and habitat assessments, including protected species surveys. He is a Professional Wetland Scientist (PWS) and holds a B.S. degree in Biology from Wofford College and a Master's degree in Earth & Environmental Resources Management from the University of South Carolina.

6.0 REFERENCES CITED

South Carolina Department of Natural Resources. 2006. Rare, Threatened, and Endangered Species Inventory, Species Found in Sumter County. Current On-Line Edition - https://www.dnr.sc.gov/pls/heritage/county_species.list?pcounty=Sumter

South Carolina Heritage Trust. 2006. Geographic Database of Rare and Endangered Species. Current On-Line Edition - <https://www.dnr.sc.gov:4443/pls/heritage/species.login>

U.S. Fish and Wildlife Service. 1993. Endangered Species and Threatened Species of the Southeastern United States (The Red Book). Smooth Coneflower (*Echinacea laevigata*).

U.S. Fish and Wildlife Service. 2008. Listed Endangered Species in South Carolina http://www.fws.gov/charleston/docs/county_lists.htm

U.S. Department of Agriculture. Soils Survey of Florence and Sumter Counties. 1977.

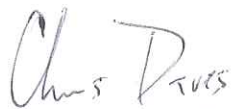
7.0 SUMMARY AND CONCLUSIONS

Based on the literature review, habitat assessment, and pedestrian field review of the site, it is our opinion that the site does not provide suitable habitat for listed protected species with documented populations in Sumter County. No further action is recommended at this time. This assessment will be forwarded to the USFWS for review and comment. S&ME will provide you the USFWS comments when we receive them.

S&ME appreciates the opportunity to be of service to you by performing this Protected Species Assessment for the site. Please contact us at (803) 561-9024 with questions regarding this report or if you require any additional information.

Sincerely,

S&ME, Inc.



Chris Daves, P.W.S.
Biologist



Tom Behnke, P.G.
Senior Reviewer

Appendix A

Figures

Site Photographs

Appendix B

County Species Lists from USFWS and SCDNR

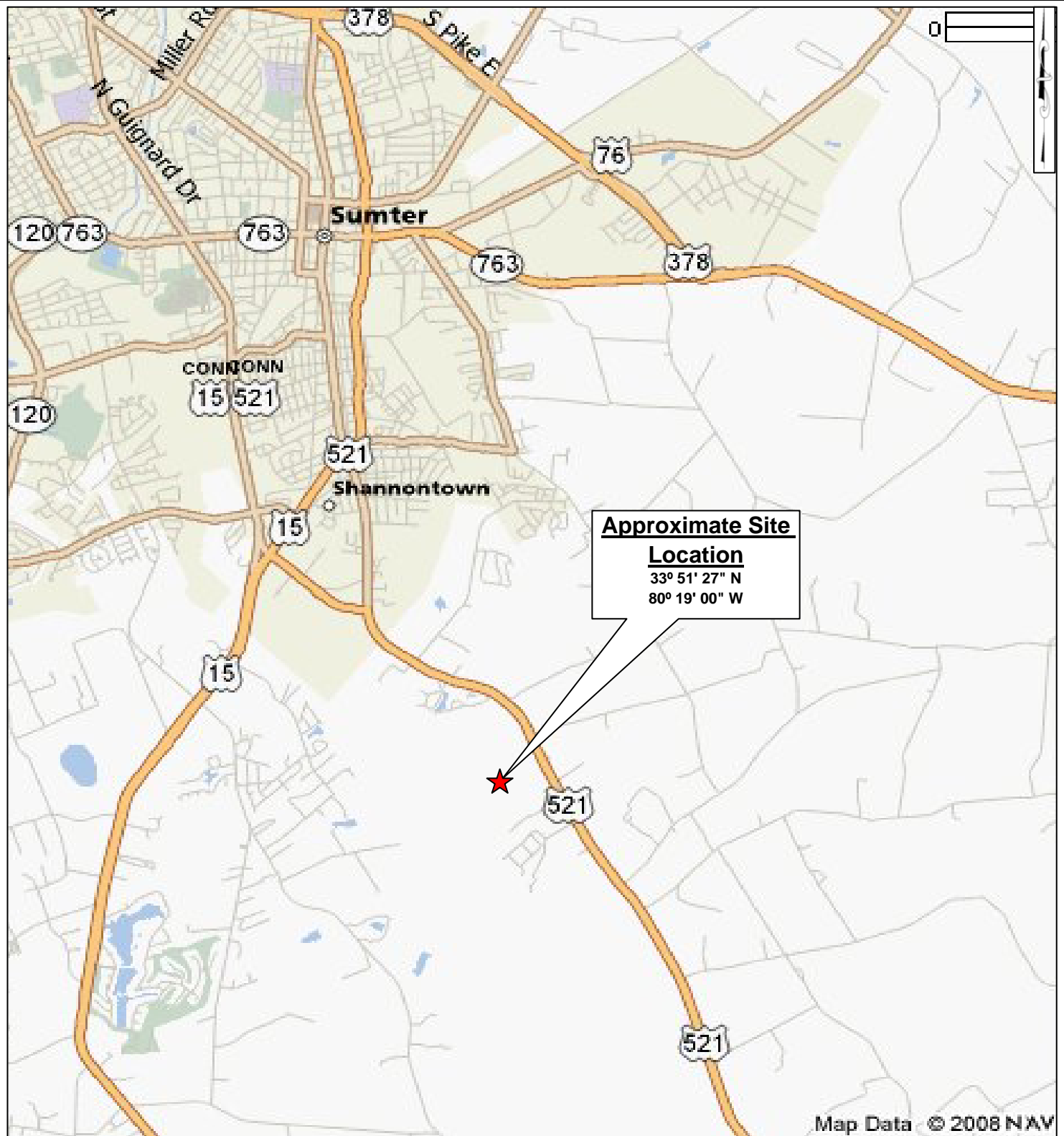
APPENDIX A

Figure 1 – Vicinity Map

Figure 2 – Topographic Map – USGS Brogdon Quad

Figure 3 – Aerial Map

Site Photographs



SOURCE: Mapquest.com

| | |
|-------------|------------|
| SCALE: | NTS |
| CHECKED BY: | TB |
| DRAWN BY: | WCD |
| DATE: | 11/12/2008 |



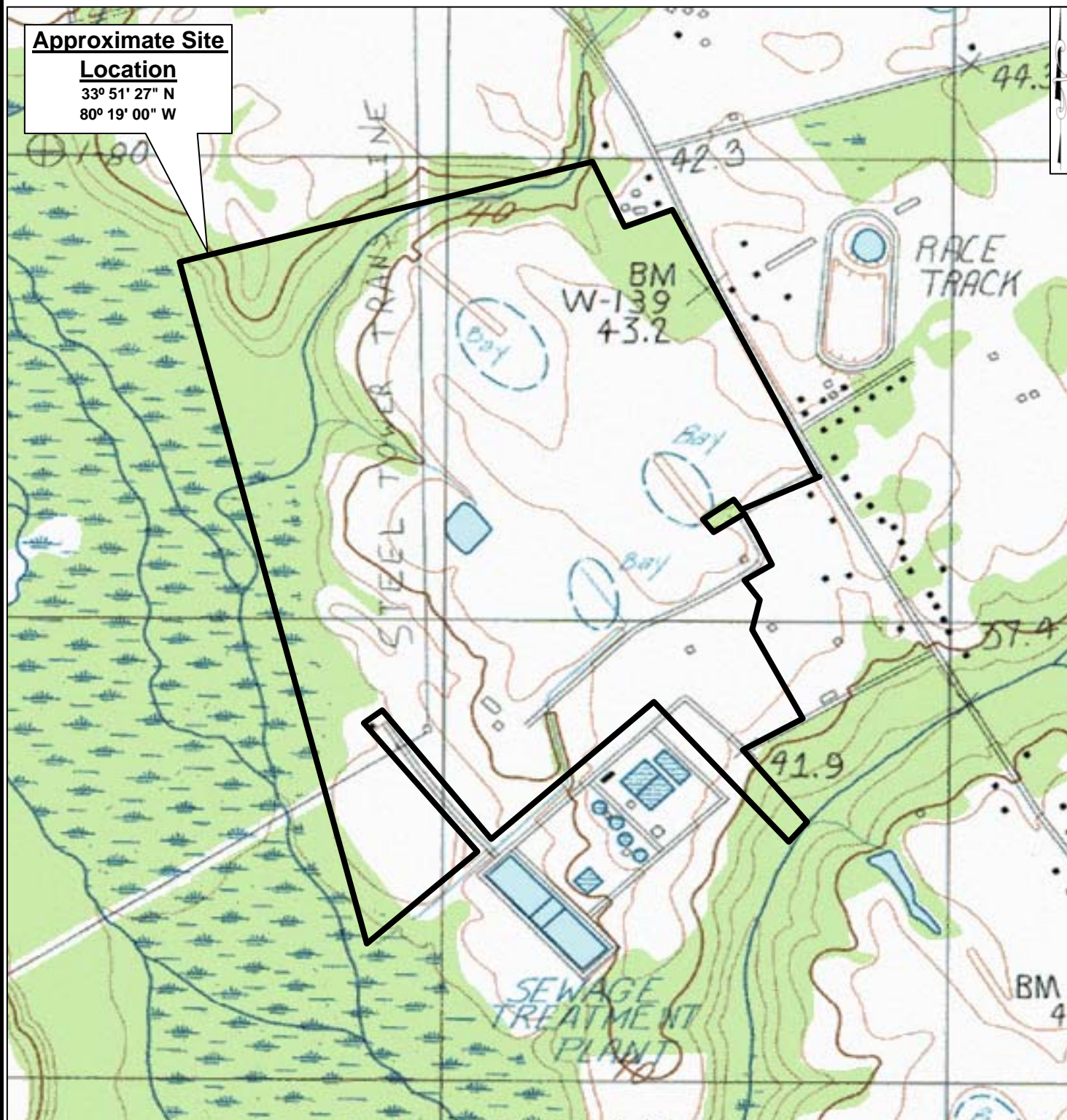
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|---|-------------|
| VICINITY MAP POCOTALIGO INDUSTRIAL PARK - 320 ACRES SUMTER, SUMTER COUNTY, SOUTH CAROLINA | |
| S&ME PROJECT NO. | 1614-08-425 |

FIGURE NO.

Approximate Site

Location

33° 51' 27" N
80° 19' 00" W



SOURCE: USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE MAP
BROGDON, SC - 1983

SCALE: NTS
CHECKED BY: TB
DRAWN BY: WCD
DATE: 11/12/2008

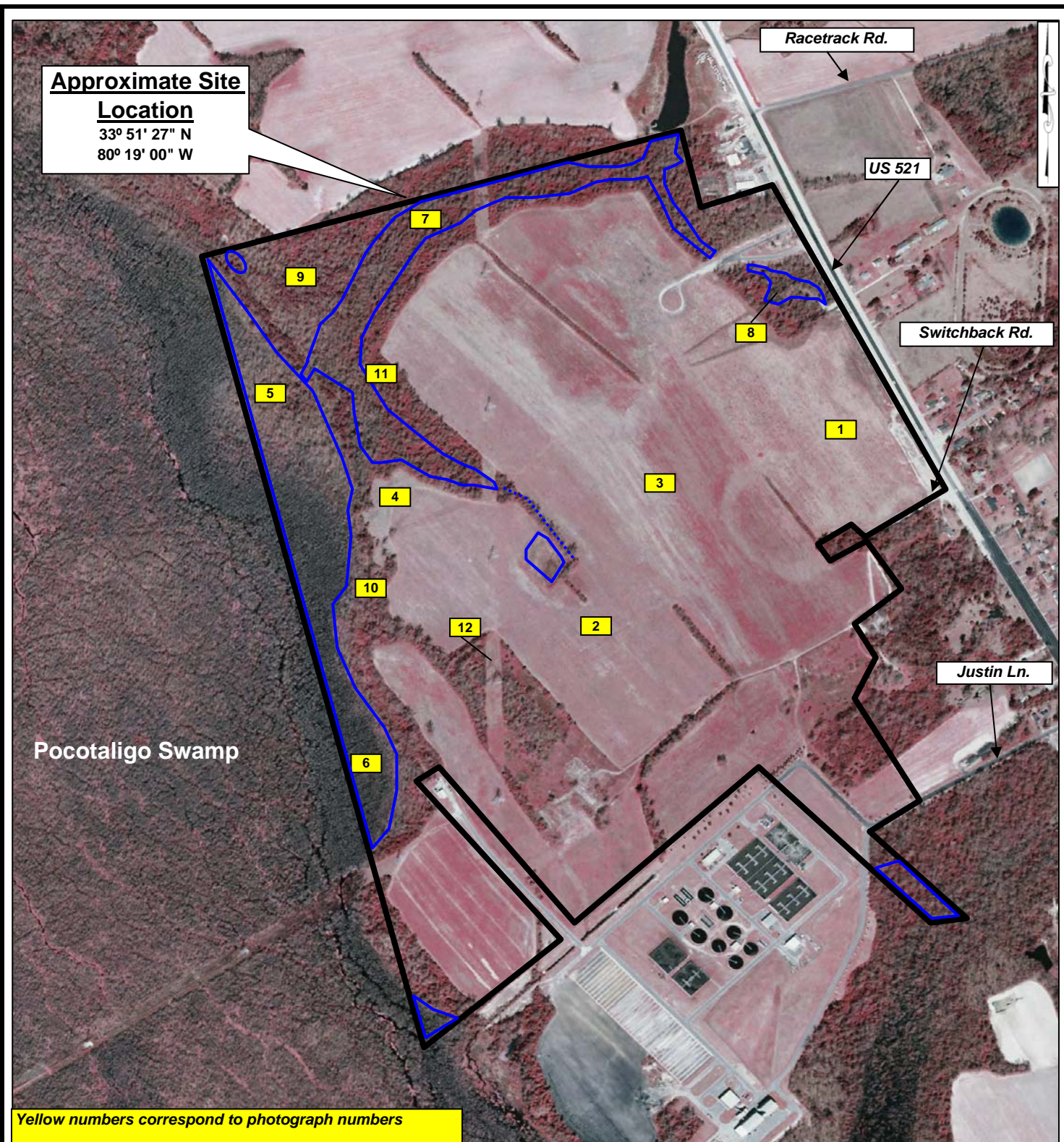


TOPOGRAPHIC MAP
POCOTALIGO INDUSTRIAL PARK - 320 ACRES
SUMTER, SUMTER COUNTY, SOUTH CAROLINA

S&ME PROJECT NO. 1614-08-425

FIGURE NO.

2



SOURCE: 2006 NAPP Aerial Photograph

| | |
|-------------|------------|
| SCALE: | NTS |
| CHECKED BY: | TB |
| DRAWN BY: | WCD |
| DATE: | 11/12/2008 |



AERIAL MAP
POCOTALIGO INDUSTRIAL PARK - 320 ACRES
 SUMTER, SUMTER COUNTY, SOUTH CAROLINA

S&ME PROJECT NO. 1614-08-425

FIGURE NO.

3



Photo #1 Soybeans on eastern portion of site.



Photo #2 Soybeans on central portion of site.



Photo #3 Corn rows on central portion of site.



Photo #4 Kudzu area on the west-central portion of the site.



Photo #5 Bottomland hardwoods on the western portion of the site.



Photo #6 Bottomland hardwoods on the western portion of the site.



Photo #7 Stream flowing through wetland area on the northern portion of the site.



Photo #8 Wetland area on the eastern portion of the site.



Photo #9 Mixed hardwood uplands on the northwestern portion of site.



Photo #10 Mixed hardwood uplands on the western portion of the site.



Photo #11 Privet-dominated area within mixed hardwood uplands.



Photo #12 Powerline easement on west-central portion of the site.

APPENDIX B

County Species Lists from USFWS and SCDNR

| Listed Species in Sumter County | | | | |
|---|----------------|--------------|---|--|
| Species | Federal Status | State Status | Habitat | Threats |
| Birds | | | | |
| Bald eagle <i>Haliaeetus leucocephalus</i> | BGEPA | BGEPA | coastlines, rivers, large lakes or streams which provide adequate feeding grounds; typically nest in SC between late October and late May; tend to return year after year to the same nest tree, once they have successfully established a nest | human activities that can cause them to abandon nest, or to not properly incubate eggs, or care for young |
| Red-cockaded woodpecker <i>Picoides borealis</i> | E | E | nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands > 30 years of age, preferably > 10" dbh | reduction of older age pine stands and to encroachment of hardwood midstory in older age pine stands due to fire suppression |
| Fishes | | | | |
| Shortnose sturgeon <i>Acipenser brevirostrum</i> | E | E | occur in most major river systems along the eastern seaboard | habitat alterations from discharges, dredging or disposal of material into rivers, or related development activities involving estuarine/riverine mudflats and marshes; commercial exploitation up until the 1950s |
| Plants | | | | |
| Canby's dropwort <i>Oxypolis canbyi</i> | E | E | found in pond-cypress savannahs in Carolina Bay formations dominated by grasses and sedges or ditches next to bays; prefer borders and shallows of cypress-pond pine ponds and sloughs | loss or alteration of wetland habitats |
| American chaffseed <i>Schwalbea americana</i> | E | E | found in various sandy soil areas on the coastal plain; plants are usually found on margins of savannas and cypress ponds that are seasonally wet; best managed by prescribed fire | fire suppression, habitat conversion, and incompatible agriculture and forestry practices |

SCDNR - South Carolina Rare, Threatened, & Endangered Species Inventory
Species Found In Sumter County
Data Last Updated January 17th, 2006

| SCIENTIFIC NAME | COMMON NAME | GLOBAL RANK | STATE RANK | LEGAL STATUS |
|-----------------------------------|--------------------------------|-----------------------------|----------------------------|------------------------------|
| ACRIS CREPITANS CREPITANS | NORTHERN CRICKET FROG | G5T5 | S5 | SC |
| ARISTIDA CONDENSATA | PIEDMONT THREE-AWNED GRASS | G4? | S? | SC |
| CAREX DECOMPOSITA | CYPRESS-KNEE SEDGE | G3 | S? | SC |
| CAROLINA BAY | | G? | S? | SC |
| CARYA MYRISTICIFORMIS | NUTMEG HICKORY | G4 | S1 | RC |
| CHAMAEDAPHNE CALYCVLATA | LEATHERLEAF | G5 | S? | SC |
| COLONIAL WATERBIRD | | G? | S? | SC |
| CORYNORHINUS RAFINESQUII | RAFINESQUE'S BIG-EARED BAT | G3G4 | S2? | SE |
| CYPERUS LECONTEI | LECONTE FLATSEDEGE | G4? | S? | SC |
| ECHINODORUS PARVULUS | DWARF BURHEAD | G3Q | S2 | SC |
| ECHINODORUS TENELLUS | DWARF BURHEAD | G5? | S? | SC |
| ELEOCHARIS ROBBINSII | ROBBINS SPIKERUSH | G4G5 | S? | SC |
| EUPATORIUM RECURVANS | COASTAL-PLAIN THOROUGH-WORT | G3G4Q | SR | SC |
| HALIAEETUS LEUCOCEPHALUS | BALD EAGLE | G4 | S2 | FT/SE |
| ICTINIA MISSISSIPPIENSIS | MISSISSIPPI KITE | G5 | S4 | SC |
| LOBELIA BOYKINII | BOYKIN'S LOBELIA | G2G3 | S? | SC |
| MICRURUS FULVIUS | EASTERN CORAL SNAKE | G5 | S2 | SC |
| NESTRONIA UMBELLULA | NESTRONIA | G4 | S2 | SC |
| OXYPOLIS CANBYI | CANBY'S DROPWORT | G2 | S1 | FE/SE |
| PICOIDES BOREALIS | RED-COCKADED WOODPECKER | G3 | S2 | FE/SE |
| RHEXIA ARISTOSA | AWNED MEADOWBEAUTY | G3 | S2 | SC |
| RHEXIA CUBENSIS | WEST INDIAN MEADOW-BEAUTY | G4G5 | SR | SC |
| RHYNCHOSPORA SCIRPOIDES | LONG-BEAKED BALDRUSH | G4 | SR | SC |
| RUELLIA CAROLINIENSIS SSP CILIOSA | A PETUNIA | G5T3T4 | S? | SC |
| SAGITTARIA ISOETIFORMIS | SLENDER ARROW-HEAD | G4? | S2 | SC |
| SCHWALBEA AMERICANA | CHAFFSEED | G2 | S2 | FE/SE |
| SCLERIA BALDWINII | BALDWIN NUTRUSH | G4 | S1S2 | SC |
| STERNA ANTILLARUM | LEAST TERN | G4 | S3 | ST |
| URSUS AMERICANUS | BLACK BEAR | G5 | S3? | SC |