



MACTEC

engineering and constructing a better tomorrow

February 19, 2010

Ms. Diane Lynch
U.S. Fish and Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

Subject: **Request for Evaluation
Protected Species Assessment
Airport Industrial Park
Sumter County, South Carolina
MACTEC Project Number 6672-10-0703**

Dear Mr. Hall:

On behalf of Alliance Consulting Engineers, MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit this report regarding the protected species assessment for the Airport Industrial Park site. MACTEC scientists conducted a field reconnaissance of the Airport Industrial Park site on February 17, 2010 to determine the potential for occurrence of protected animal and plant species.

SITE DESCRIPTION

The approximate 221-acre Airport Industrial Park site generally located northwest of the intersection of S.C. Route 81 and Queen Chapel Road in Sumter County, South Carolina. (Figure 1). The site lies in the Southeastern Plains ecoregion (U.S. Environmental Protection Agency [USEPA], 2008). Forest cover in the region is predominantly temperate coniferous with oak, gum, and cypress near major streams. The Atlantic Southern Loam Plains portion of the ecoregion has poorly drained soils and with approximately 15 percent of the land in agricultural production (Purdue 2008).

The project area is comprised of forested wetlands, pine plantation and agricultural fields (Appendix A). A Natural Resource Education Center is located in the southeast portion of the site. This center supports Central Carolina Community College natural resource programs. Several buildings, including classrooms, barns, sheds and a greenhouse are located on site. A discussion of the habitats within the project area is provided below.

METHODS

A habitat characterization was conducted to assess the potential for federally endangered, threatened, and candidate species and state endangered and threatened animal species occurrences within the project area. A current list of federally protected species for Sumter County was obtained from the USFWS Internet site (USFWS 2010) and is presented in Table 1. The South Carolina Department of Natural Resources (SCDNR) Heritage Trust Program's Rare, Threatened and Endangered Species Inventory (SC DNR 2010) was accessed to determine known occurrences of protected species within a three-mile radius of the project area.

In addition to the federal and state databases reviewed above, MACTEC used the U.S. Geological Survey (USGS) digital 7.5' topographic maps (Figure 2), the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) Digital Soil Survey of Florence County, South Carolina (USDA-NRCS) (Figure 3), and true-color and infrared color aerial photography to assess potential habitat types found within the project area. Habitat descriptions follow Nelson (1986). Nomenclature for vascular plants observed follows Kartesz (1994).

The field reconnaissance included pedestrian and vehicular surveys of land use and vegetative cover types within the project area. Presence or absence of listed species was established through direct observation or physical evidence (tracks, scat, nests, dens, or calls). Potential for occurrence of listed species was also established through determination of presence or absence of preferred habitat within or near the project area.

HABITAT DESCRIPTION

Wetland Communities

The site supports one linear drainage feature, Whites Mill Branch and associated bottomland hardwoods. Whites Mill Branch is a tributary of Rocky Bluff Swamp, a tributary of the Black River.

Vegetation consists of sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), water oak (*Quercus nigra*) and wax myrtle (*Myrica cerifera*) in the canopy and scrub-shrub layers. River cane (*Arundinaria gigantea*) and bushy bluestem (*Andropogon glomeratus*) form a sparse herbaceous layer, while, greenbrier (*Smilax sp.*) and muscadine grape (*Vitis rotundifolia*) are present in the vine layer.

The attached soil map and topographic map (Figures 2 and 3) indicate that there are several areas potentially supporting depressional wetlands. These areas would naturally have supported wetland plant communities dominated by bay species and maintained by frequent fire. Alterations to the landscape including, ditching, draining, filling and fire exclusion, have resulted in a loss of the natural vegetation composition. These areas are now dominated by cultivated soybean (*Glycine max*) fields and planted loblolly pine (*Pinus taeda*). Vegetation in the remaining wetland areas consists of sweetgum, red maple and water oak in the canopy and scrub-shrub layer. Redbay (*Persea borbonia*), sweetbay (*Magnolia virginiana*), fetterbush (*Lyonia lucida*) and wax myrtle are present in the understory. River cane and sedges (*Carex sp.*) are present in the herbaceous layer and greenbrier and muscadine grape are present in the vine layer.

Upland Communities

The majority of the uplands are dominated by cultivated soybean (*Glycine max*) fields and fallow fields with volunteer loblolly pine. The remaining forested upland areas generally occur as linear features, bordering the existing fields and wetland areas. Vegetation consists of white oak (*Quercus alba*), post oak (*Quercus stellata*), willow oak (*Quercus phellos*), live oak (*Quercus virginiana*) and water oak. When present, the herbaceous layer is dominated by broomsedge (*Andropogon virginicus*) with greenbrier, blackberry (*Rubus sp.*), muscadine grape, yellow jessamine (*Gelsemium sempervirens*) and Japanese honeysuckle (*Lonicera japonica*) present in the vine layer. One highly disturbed area forms a thicket of Chinese privet (*Ligustrum sinense*), kudzu (*Pueraria lobata*) and golden bamboo (*Phyllostachys aurea*), with a canopy of Chinaberry (*Melia azedarach*).

PROTECTED SPECIES

Table 1 presents information on the availability of preferred habitat of federally-protected species of animals and plants listed in Sumter County. The likelihood of occurrence of these species is based on a comparison of the likely habitat use by these species and the habitats within the project area; the quantity, quality, and adjacency of these habitats; and any observations of these species during field reconnaissance. Based on the likelihood of occurrence for listed species, the following determinations were made (1) the proposed project will have “no effect”, (2) the proposed project “may affect, is not likely to adversely affect”, and (3) the proposed project “may effect, likely to adversely affect” the listed species.

The USFWS Critical Habitat Portal indicates that no critical habitat for federally threatened and endangered species occurs within the project area (USFWS, 2010). Based on the results of the on-site reconnaissance efforts and a review of maps and available databases, the project area provides suitable habitat for generalist wildlife species. The quality of the existing habitat is considered to be significantly less than optimal for most protected species. The primary contributing factor for this determination is historic/current land use practices. Pine plantations and cultivated fields and hydrologically-altered wetlands account for the majority of the habitats within the project area. No protected animal species were observed during the site visits.

The likelihood of occurrence of protected species of plants within the project area is considered low due to the same contributing factors as previously described. No protected plant species were observed during the site visits.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) have been delisted as a protected species by USFWS as of July 9, 2007 (USFWS 2007a). Although no longer afforded protection by the ESA, the bald eagle is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, both of which protect bald eagles by prohibiting killing, selling or otherwise harming eagles, their nests, or eggs. Habitats include riparian areas along the coast and near major rivers, wetlands, and reservoirs. Bald eagles typically nest in large, tall, open-topped pines near open waters. They feed primarily on fish, but will also take a variety of birds, mammals, and turtles. In the southeast, breeding season begins in late September and egg-laying peaks in late December (USFWS, 2007b).

There are no large ponds, rivers, or other suitable bodies of open water within the project area. No eagle nests are known to occur within the project area and no bald eagles were observed during field investigations. Based on this information, a determination of “no effect” has been made for the bald eagle.

Red-Cockaded Woodpecker

RCWs (*Picoides borealis*) are endemic to pine forests of the southeastern U.S. RCWs are unique in that they excavate cavities for roosting and nesting in living pines and use living pines almost exclusively for foraging substrate, preferring longleaf pine (*Pinus palustris*) when available.

RCWs require open pine woodlands and savannahs with large old pines for nesting and roosting habitat (i.e., cavity trees). Cavity trees must be in open pine stands with little or no hardwood midstory and few or no overstory hardwoods. Hardwood encroachment resulting from fire suppression is a well-known cause of cluster abandonment. (USFWS, 2003)

RCWs also require extensive forested foraging habitat. Suitable foraging habitat generally consists of mature pines with an open canopy, low densities of small pines, little or no hardwood or pine midstory, few or no overstory hardwoods, and abundant native bunchgrass and forb groundcovers. For purposes of surveying, suitable nesting habitat consists of pine, pine/hardwood, and hardwood/pine stands that contain pines 60 years in age or older and that are within 0.5 mile of suitable foraging habitat. Suitable foraging habitat consists of a pine or pine/hardwood stands in which 50 percent or more of the dominant trees are pines and the dominant pine trees are generally 30 years in age or older (USFWS, 2003). Intensively managed pine stands occur throughout the project area. However no suitable foraging habitat (pine trees greater than 30 years-old) or nesting habitat was observed within the project area and no RCWs were observed during field investigations.

According to USFWS survey protocol, RCWs are considered absent if foraging habitat will not be impacted (USFWS 2003). Therefore, no additional surveys were required. Based on this information, a determination of “no effect” has been made for RCWs.

Shortnose Sturgeon

The shortnose sturgeon (*Acipenser brevirostrum*) was listed as endangered on March 11, 1967 (USFWS 1967). Adult males and females range from 45 to 55 centimeters in length. The coloration of the body is usually yellowish-brown to almost black on the head, back and to the middle region on the sides and whitish to yellowish below.

It is a primitive anadromous fish that spawns in the coastal rivers along the South Carolina coast. The shortnose sturgeon prefers the nearshore marine, estuarine and riverine habitat of large river systems (NMFS/NOAA 2005). No suitable habitat occurs within the project area. Based on this information, a determination of “no effect” has been made for the shortnose sturgeon.

American Chaffseed

American chaffseed (*Schwalbea americana*) is a perennial herb generally found in the coastal plain on wet savannahs with a periodic burning regime. The plants are generally less than two feet tall, have a purplish tinge to the leaves and stems, are covered with fine hairs, and have velvety leaves (Radford et. Al 1968).

No wet savannahs or similar habitats were observed within the project area and the species was not observed during the field investigations. Based on this information, a determination of “no effect” has been made for American chaffseed.

Canby's dropwort

Canby's dropwort (*Oxypolis canbyi*) was listed as endangered on February 25, 1991 (USFWS 1991). It is a perennial herb with erect, hollow stems, aromatic foliage and elongate, stoloniferous rhizomes. It has minute white flowers produced in terminal or axillary umbels; sepals may be tinged red. The fruit is a strongly-winged schizocarp. The species flowers from late May through early August and fruits in early fall.

This species occurs in pond cypress savannas, shallows and edges of cypress/pond pine sloughs, and wet pine savannas. The groundwater table must not be altered to maintain this species (USFWS 1990). No suitable habitat for this species occurs at the site. Based on this information, a determination of “no effect” has been made for Canby's dropwort.

CONCLUSIONS

MACTEC evaluated the habitats within the proposed project area and conducted a field search for protected species. No protected species or their preferred habitats were observed within the project area. Based on this information, a determination of “no effect” has been made for protected species listed in Sumter for the Airport Industrial Park site.

On behalf of Alliance Consulting Engineers, we request that you respond in writing to the address listed below concerning adverse impacts this project may have relative to the interests of your agency.

February 19, 2010

If you have any questions, please call Pam Ferral at (803) 798-1200. We appreciate your assistance with this matter.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.



Pamela R. Ferral
Project Scientist



Allen W. Conger
Senior Principal Scientist

ATTACHMENTS:

References

Table 1	Federally and State Protected Animal and Plant Species
Figure 1	Location Map
Figure 2	USGS Digital 7.5' Topographic Maps
Figure 3	USDA-NRCS Digital Soil Survey of Florence County, South Carolina
Appendix A	Photolog

cc: Rebecca Murrell, Alliance Consulting Engineer

ATTACHMENTS

REFERENCES

- Kartesz J.T. 1994. A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland. 2nd ed. 2 vols. Portland, (OR): Timber Press.
- Lennartz, M.R., R.G. Hooper, and R.F. Harlow. 1987. Sociality and cooperative breeding in red-cockaded woodpeckers (*Picoides borealis*). Behav. Ecol. Sociobiol. 20:77-78.
- Ligon, J.D. 1970. Behavior and breeding biology of the Red-cockaded Woodpecker. Auk 87:255-278.
- NMFS/NOAA. 2005. Shortnose Sturgeon (*Acipenser brevirostrum*). www.nmfs.noaa.gov/pr/species/fish/Shortnose_sturgeon.html. (Accessed May 2010)
- NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: December 2010).
- Nelson, J.B. 1986. The Natural Communities of South Carolina. South Carolina Department of Natural Resources publication. Columbia, South Carolina. 55 pp.
- Purdue, 2008. Primary Distinguishing Characteristics of Level III Ecoregions of the Continental United States. <http://www.hort.purdue.edu/newcrop/cropmap/ecoreg/descript.html>
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the vascular flora of the Carolinas. University of North Carolina Press, Chapel Hill, NC. 1183 pp.
- South Carolina Department of Natural Resources. 2006. South Carolina Rare, Threatened and Endangered Species Inventory. www.dnr.sc.gov/pls/heritage/ (Accessed: December 2010)
- Schafale, M.P. and A. S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. North Carolina Department of Environment, Health and Natural Resources, Raleigh. North Carolina. 325 pp.
- USDA, 1974. Soil Survey of Sumter County, South Carolina. Soil Conservation Service.
- USDA-NRCS, 2010. Digital Soil Survey of Florence County, South Carolina
- USDA-NRCS, 2010. Plants Database. <http://plants.udsa.gov> Accessed December 2010)
- USDI. 1968. List of endangered and extinct wildlife in America. Bureau of Sport Fisheries and Wildlife, Washington, DC

- USEPA. 2008. Western ecology division. Level III ecoregions.
http://www.epa.gov/wed/pages/ecoregions/level_iii.htm
- USFWS. 1967. Endangered Species List - 1967. 32 FR 4001.
- USFWS. 1991. Endangered and Threatened Wildlife and Plants; Determination of *Oxypolis canbyi* (Canby's Dropwort) to be an Endangered Species. Federal Register 51 (37):6690-6693.
- USFWS. 1995a. Endangered and Threatened Wildlife and Plants; Final Rule to Reclassify the Bald Eagle from Endangered to Threatened in all of the Lower 48 States. 50 FR 35999-36010.
- USFWS. 2007a. Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States from the List of Endangered and Threatened Wildlife. 72 FR 37345-37372.
- USFWS. 2007b. National bald eagle management guidelines. U.S. Fish and Wildlife Service. 23pp.
- USFWS, 2003. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. U.S. Fish and Wildlife Service, Atlanta, GA. 296 pp.
- USFWS, 2008. Charleston Ecological Services Office
http://www.fws.gov/charleston/docs/listed_endangered_species_in_sc.htm
Accessed December, 2008.
- USFWS, 2008. United States Fish and Wildlife Server Critical Habitat Portal.
<http://criticalhabitat.fws.gov/>. Accessed: December, 2008.
- Walters, J.R. 1991. Application of ecological principles to the management of endangered species: the case of the red-cockaded woodpecker. Ann. Rev. Ecol. Syst. 22:505-523.

Table 1. Federally Protected Species Listed for Sumter County, South Carolina

Species Name (Scientific Name)	Federal Status ¹	State Status ²	Preferred Habitat	Habitat Available in Project Area
BIRDS				
Bald eagle (<i>Haliaeetus leucocephalus</i>)	BGEPA	BGEPA	Associated with coasts, rivers and lakes, usually nesting near bodies of water.	No
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.	No
FISHES				
Shortnose Sturgeon (<i>Acipenser brevirostrum</i>)	E	E	Found in most major river systems along the eastern seaboard.	No
PLANTS				
Canby's Dropwort (<i>Oxypolis canbyi</i>)	E	E	Found in pond-cypress savannas and Carolina Bays in the Coastal plain	No
Chaffseed (<i>Schwalbea Americana</i>)	E	E	Open, moist pine flatwoods and fire-maintained savannas.	No

Source: http://www.fws.gov/sumter/docs/listed_endangered_species_in_sc.htm (February 2010)

Listed by the U.S. Fish and Wildlife Service, Region 4, and the S.C. Department of Natural Resources.

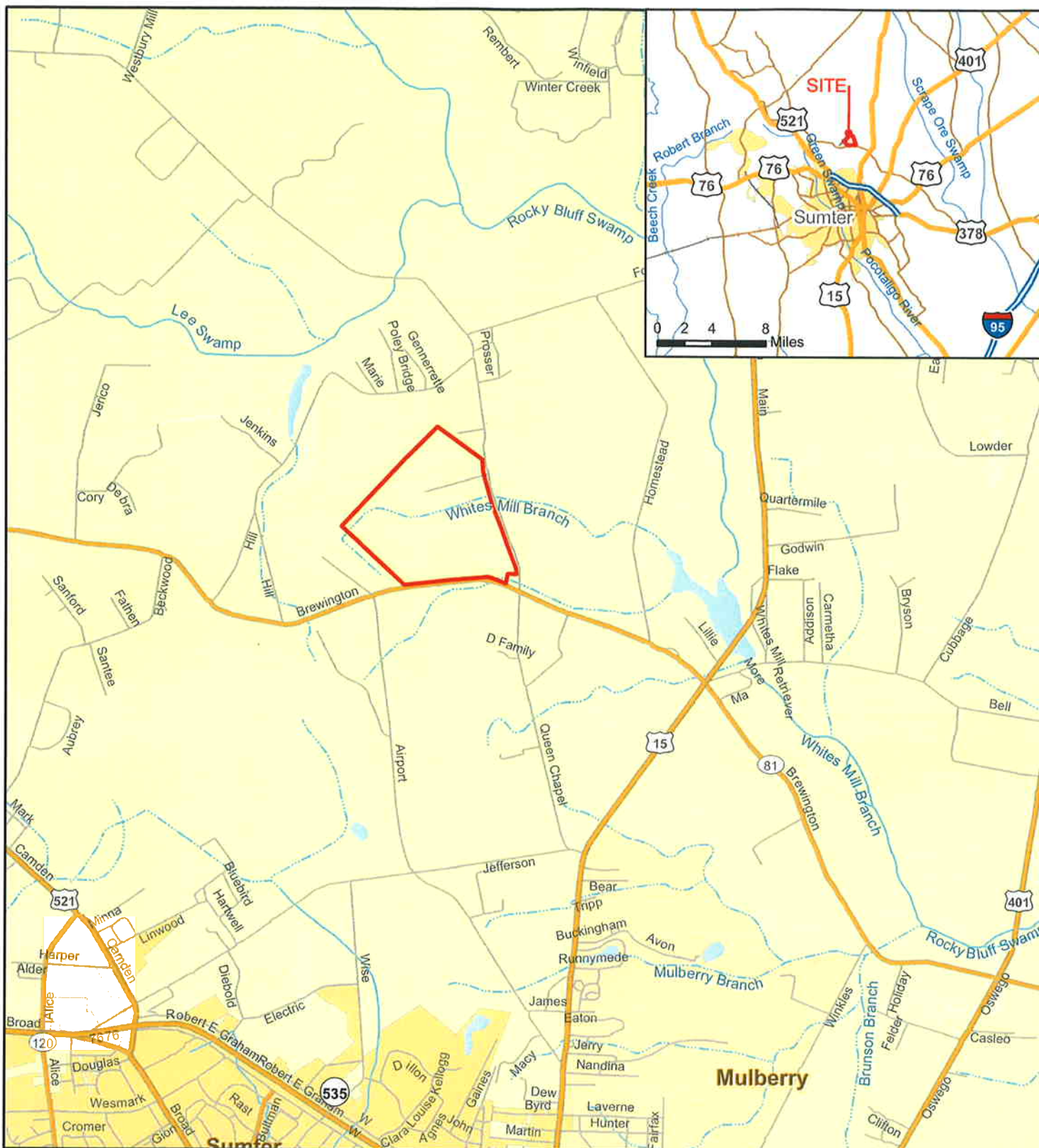
Prepared/Date: PRF 2/19/10

¹Federal Status

E = Endangered
T = Threatened
CS = Candidate Species
NFS = No Federal Status
BGEPA= Bald and Golden Eagle
Protection Act

²State Status

E = Endangered
T = Threatened
U= Unusual
R = Rare
NSS= No State Status



Legend



Approximate Site Boundary

Base Map: StreetMap USA, 2005



0 0.25 0.5 1 Miles

FIGURE 1. LOCATION STREET MAP
Airport Industrial Park
Sumter County, SC

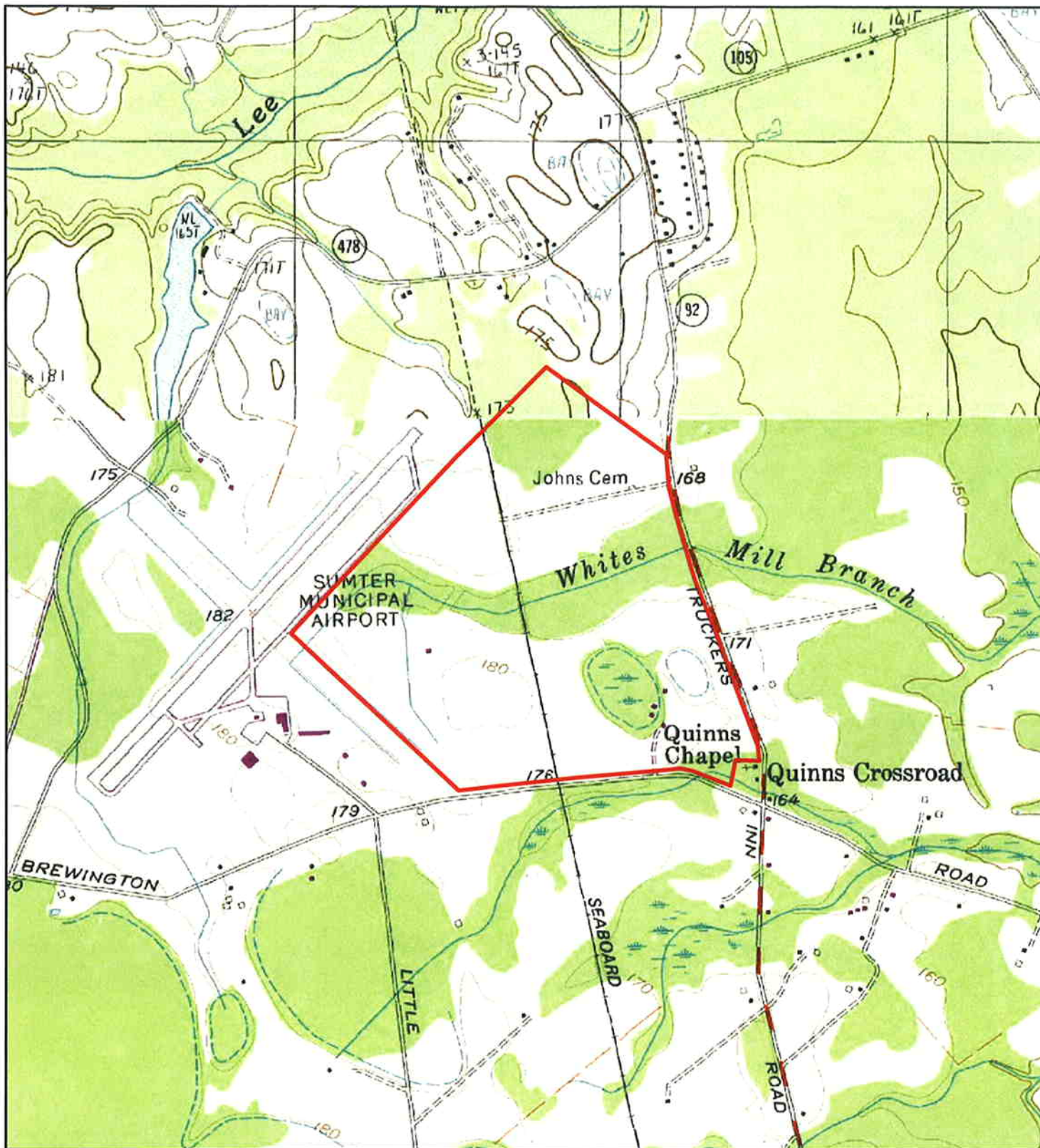


MACTEC
720 Gracern Road, Suite 132
Columbia, SC 29210

Prepared By/Date: *prf 2/19/10*

Checked By/Date: *AWC 2-19-10*

MACTEC Project # 6671-10-0703



Legend



Approximate Site Boundary

Base Map: USGS Topographic Map (1982), SCDNR GIS Clearinghouse Sumter East 7.5' Quadrangle



0 400 800 1,600
Feet



MACTEC
720 Gracern Road, Suite 132
Columbia, SC 29210

FIGURE 2. USGS TOPOGRAPHIC MAP
Airport Industrial Park
Sumter County, SC



Legend

- Approximate Site Boundary
- Soil Unit

Base Map: USDA/NRCS Soil Survey of Florence and Sumter Counties (1968); SCDNR 2006 Infrared Aerial Orthophoto; SCDNR GIS Clearinghouse Sumter East 7.5' Quadrangle



0 400 800 1,600
Feet



MACTEC
720 Gracern Road, Suite 132
Columbia, SC 29210

FIGURE 3. USDA/NRCS SOIL SURVEY MAP
Airport Industrial Park
Sumter County, SC

Prepared By/Date: *prf 2/19/10*

Checked By/Date: *AWC 2-19-10*

MACTEC Project # 6672-10-0703

APPENDIX A

**AIRPORT INDUSTRIAL PARK
SUMTER COUNTY, SOUTH CAROLINA**
Photographic Log



PHOTOLOG SHEET

Client: Alliance Consulting
Engineers

Site name: Airport Industrial
Park

Project: 6672-10-0703

Date: February 17, 2010

Photo #: DSC-1739

Photographer: Pam Ferral

Description: Cultivated and
adjacent fallow fields near
southwestern extent of project
boundary. Photo taken facing
north.



Client: Alliance Consulting
Engineers

Site name: Airport Industrial
Park

Project: 6672-10-0703

Date: February 17, 2010

Photo #: DSC-1741

Photographer: Pam Ferral

Description: White Mill Branch
with beaver dam. Photo taken
facing west.

**AIRPORT INDUSTRIAL PARK
SUMTER COUNTY, SOUTH CAROLINA**
Photographic Log



PHOTOLOG SHEET

Client: Alliance Consulting Engineers

Site name: Airport Industrial Park

Project: 6672-10-0703

Date: February 17, 2010

Photo #: DSC-1817

Photographer: Pam Ferral

Description: Forested wetland near northern extent of project boundary. Photo taken facing west.



Client: Alliance Consulting Engineers

Site name: Airport Industrial Park

Project: 6672-10-0703

Date: February 17, 2010

Photo #: DSC-1378

Photographer: Pam Ferral

Description: Upland hardwoods on abandoned railroad bed. Railroad shown on topographic map bisecting the project site. Photo taken facing south.

**AIRPORT INDUSTRIAL PARK
SUMTER COUNTY, SOUTH CAROLINA**
Photographic Log



PHOTOLOG SHEET

Client: Alliance Consulting Engineers

Site name: Airport Industrial Park

Project: 6672-10-0703

Date: February 17, 2010

Photo #: DSC-1817

Photographer: Pam Ferral

Description: Planted loblolly pine near Natural Resources Center near southeastern extent of project boundary. Photo taken facing north.



Client: Alliance Consulting Engineers

Site name: Airport Industrial Park

Project: 6672-10-0703

Date: February 17, 2010

Photo #: DSC-1805

Photographer: Pam Ferral

Description: Planted loblolly pine and fallow field near the northeastern extent of project boundary. Photo taken facing northeast.