



grass/sedge assemblages with moist acidic sandy loams or sandy peat loams in moist pine flatwoods, bog borders, and open oak woods.

3.8.1.3 Canby's dropwort (*Oxypolis canbyi*)

Canby's dropwort, listed as endangered per the ESA, flowers from May to early August and grows in coastal plains habitats with little or no canopy cover such as wet meadows, wet pine savannahs, ditches, sloughs, and edges of cypress ponds. Deep acidic soils poorly-drained soils with a high organic content are preferred.

3.8.1.4 Pondberry (*Lindera melissifolia*)

Pondberry, listed as endangered per the ESA, is a deciduous thicket-forming shrub with an extremely limited distribution in the southeastern United States: the Mississippi Valley and the coastal plain of the Carolinas. In South Carolina, it occurs primarily along the margins of sink holes, ponds, and depressions in pine lands. Within the Carolinas, potential habitat is described as shallow ponds with a sandy substrate and Carolina bays containing a combination of pond cypress (*Taxodium ascendens*) and loblolly pine (*Pinus taeda*).

3.8.1.5 Red-cockaded woodpecker (*Picoides borealis*)

The red-cockaded woodpecker, listed as endangered per the ESA, require open pine woodlands and savannahs with large old pines for nesting (cavity trees) and roosting habitat. Cavity trees must be in open stands with little or no hardwood midstory or overstory. Old pines are preferred as cavity trees because of the higher incidence of heartwood decay that greatly facilitates cavity excavation. Nest cavity trees occur in clusters, which are referred to as colonies. The principal limiting factors are fire suppression and lack of mature pines. The species is endangered because of extensive loss of nesting and foraging habitat throughout its range in the southeastern US from development and short-rotation pine timber management practices.

3.8.1.6 Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle, delisted per the ESA but protected by the Bald and Golden Eagle Protection Act, typically feed on fish taken from large bodies of water, but may also take small birds and mammals. Bald eagles typically nest from December through May in South Carolina in tall, living trees in a conspicuous location near open water. They typically use large trees near their nesting area of roosting. Disturbance within a primary range extending 750 to 1,500 feet from a nest tree are considered to create unacceptable conditions for eagles, therefore the USFWS recommends avoiding disturbance activities within this primary zone. During the nesting season, the USFWS also recommends avoiding construction and land-clearing activities within a mile of a nest tree.



3.8.1.7 Raffinesque Big-Eared Bat (*Plecotus rafinesquii*)

The Raffinesque big-eared bat, listed as endangered by the State of South Carolina, often rest under bridges after foraging, and do not use bridges for breeding or nesting. They primarily forage near water and use bottomland hardwoods for roost trees.

3.8.1.8 Flatwoods Salamander (*Ambystoma cingulatum*)

This species has been divided into two species, the frosted flatwoods salamander (threatened) and the reticulated flatwoods salamander (endangered). They are small mole salamanders with extremely limited ranges within the southeastern US. Both species inhabit seasonally wet pine flatwoods and pine savannahs in northern Florida, and southern Georgia, and is possibly extirpated from South Carolina. They spend most of the year in burrows, breeding in nearby small shallow ephemeral ponds. It is primarily threatened by conversion of longleaf pine to other timber species and development, fire suppression, and succession of ephemeral pond areas to tangles of shrubs. Populations are now highly fragmented and discontinuous.

3.8.2 Potential Impacts of Goodby's Regional Wastewater System on Threatened and Endangered Species

The South Carolina Rare, Threatened, and Endangered Species Inventory Database (January 17, 2007 update) lists no federally threatened or endangered species in the Felderville Quad, Vance Quad, Ellore Quad, or Indian Camp Branch Quad.

A survey of the WWTP site conducted September 2008 (see Appendix D Exhibit D.3) determined that the proposed Goodby's Regional wastewater project would have "no affect" on the following species:

- Shortnose sturgeon (E): closest site is over 10 miles away
- Reticulated flatwoods salamander (E) and frosted flatwoods salamander (T): no suitable habitat
- Red-cockaded woodpecker (E): closest known location over 5 miles away
- Canby's dropwort (E): no suitable habitat

A survey of the Sanders Pointe Farm site conducted in November 2009 (see Appendix D, Exhibit D.4) determined that construction of the proposed drip irrigation effluent disposal site would have "no effect" on the following species: bald eagle, red-cockaded woodpecker, flatwoods salamander, shortnose sturgeon, and Canby's dropwort.

Surveys were conducted along the Goodby's Regional wastewater collection and conveyance line corridors on US 301 and Tee Vee Road in April 2008 (Appendix D Exhibit D.7) and the following determinations were made:

- Shortnose sturgeon (E) No effect: not found in swampy or low-flow backwater creeks such as Goodby's and Providence Swamps.



- Flatwoods salamanders (E) and Canby's dropwort (E): Goodby's and Providence Swamps could have hydric habitat, but no records of either species in these locations; needs further investigations to confirm presence/absence.

In response to a request for informal consultation, for the US 176/I-15 portions of the Goodby's Regional wastewater conveyance line, the USFWS determined that the action is not likely to adversely affect federally-protected species and/or designated or proposed critical habitat (letter dated January 12, 2010; see Appendix C, Exhibit C.13) as long as recommendations listed in Section 4.4 for wetland protection are incorporated into the project design.

3.8.3 Mitigation for the Goodby's Regional Wastewater System for Threatened and Endangered Species

See Section 4.4 for mitigation associated with wetlands protection that would also protect listed species per USFWS determination.

3.8.4 Potential Cumulative Impacts to Listed Species

Previous environmental documents prepared per NEPA and preliminary engineering reports have identified the following potential impacts to species listed per the ESA for the existing and proposed water and wastewater projects in the project area as described in Chapter 2 and summarized in Table 8.

Surveys conducted throughout the area for the various water and wastewater projects indicate determinations of "no effect" or "may affect but not likely to adversely affect" for the following species either because of lack of suitable habitat or with the mitigation of directional drilling under wetlands and re-vegetation of cleared sites in the non-wetland portions of floodplains:

- Bald eagle
- Red-cockaded woodpecker
- Both species of flatwoods salamander
- Rafflesia's big eared bat
- Dwarf siren
- Canby's dropwort, except that potential suitable habitat in Wetland A4 in the Jafza site is committed to greenspace to avoid any potential for adverse impact there
- Pondberry
- American chaffseed
- Shortnose sturgeon, because Four Hole Swamp would not be adversely impacted by any of the actions



Therefore, none of the proposed or existing projects, including the proposed Goodby's Regional WWTP and associated collection and conveyance lines, would adversely affect federally-protected threatened or endangered species. Any actions associated with the Jafza site may require consultation with the USFWS by Jafza South Carolina (see Table 8 for survey results). More common species, such as deer, turkey, and reptiles and amphibians, were determined also to have no long-term adverse effect with re-vegetation of disturbed sites and directional drilling under wetlands, and would return to disturbed sites after construction is completed.

As evaluated in Sections 3.2 and 3.5, no adverse impacts are anticipated to Four Hole Swamp, Goodby's Swamp, or Providence Swamp from either the water or the wastewater projects. Wetlands would be protected by avoidance, buffers, and binding covenants. Therefore, no cumulative impacts to threatened or endangered species are anticipated from the existing and proposed complex of water and wastewater infrastructure or from induced growth.

No further mitigation is required.

Table 8: Potential Impacts to Threatened and Endangered Species due to Proposed Water and Wastewater Projects

Project	Document	Summary of Impacts
Town of Bowman Proposed Wastewater Expansion	Draft PER 5/14/10 USDA Approved 6/24/10 Protected Species Report 12/16/09 Final EA 8/10/10 USDA Approved 08/25/10	No effect: bald eagle, red-cockaded woodpecker, flatwoods salamander, shortnose sturgeon, Canby's dropwort, gopher frog, Raffinesque's big-eared bat - no suitable habitat present (for the bat, no suitable habitat except several bridges which would not be disturbed by project, directional boring required under wetlands, and utility lines will not be placed on bridges). USFWS 1/12/10: proposed project will not adversely affect federally protected species and/or designated critical habitat.
Town of Bowman Proposed Water Expansion	PER 5/14/10 USDA Approved 6/30/10 Draft EA draft 5/10/10 Final EA 06/23/10 USDA Approved 06/29/10	Protected Species Assessment 12/15/09 including a review of public, state, and federal records and intensive site reconnaissance submitted to USFWS 1/12/10: proposed project will not adversely affect federally protected species and/or designated critical habitat. The water system improvements will not affect other nonfederal- protected species such as deer, turkey, etc. No impacts or mitigation needed.
Town of Vance Water	Environmental Report 4/10	All mains buried mostly in existing ROW, hydrants in previously disturbed areas. No adverse effects on preferred habitat of any



Project	Document	Summary of Impacts
System		<p>threatened or endangered species known or suspected to be present in Orangeburg County.</p> <p>USFWS: "it does not appear that suitable habitat for federally protected species is present in the project area. Domestic grasses in ROW, in general utility easement acquired, approximately ¼ acre of pine trees, scrub oaks and underbrush would be cleared, no anticipated long-term impacts to vegetation or general wildlife.</p> <p>Mitigation: should any evidence of threatened or endangered species or critical habitat be brought to the attention of contractors, construction will be halted and information report to USFWS, project engineer, USDA-RD.</p>
Orangeburg County Water Expansion	Final EA 6/16/10 USDA Approved 06/16/10	Protected species assessment 12/15/09 submitted to USFWS, USFWS response 1/12/10: the proposed action will not adversely affect federally protected species and/or designated critical habitat, nor effect any other non-federally-protected species such as deer, turkey, etc.
LMRWA Five-County Water System Phase II	Final USACE/USEPA EA (undated) Final USACE/EPA FONSI 2/12/04 Final Environmental Information Document (EID) USACE 10/03	<p>Minimal impacts on natural vegetative communities - ensure clearing of vegetation only within construction easement.</p> <p>Reptiles, amphibians, and other animals may be displaced during pipeline construction, but most construction would occur in ROW and easements and animals accustomed to highway noise and routine maintenance and should return after construction is complete.</p> <p>USFWS determined potential occurrence for three species of concern and USACE and USFWS conducted surveys in spring 2003:</p> <p>No American chaffseed, Canby's dropwort or pondberry found within or adjacent to proposed pipeline routes.</p> <p>USFWS 1/15/02: There is potential habitat for federally-protected species and/or presence of designated or proposed critical habitat, so conduct field surveys to confirm presence/absence at the WWTP site and transmission line locations.</p> <p>NMFS email 3/18/03: NMFS determined that adequate mitigation has been incorporated into the proposed project to prevent adverse effects on fisheries.</p> <p>FONSI is issued subject to survey and concurrence by FWS.</p>
Southern Calhoun County Phase I Water System Expansion	Draft EA 3/2/10	USFWS: no effect on protected species with protection of wetlands - use BMPs, minimize soil disturbance and use silt fences, cross streams by attaching to an existing structure or directional drilling, don't fill wetlands or alter natural flow regimes, maintain pre-project elevations, re-vegetate construction in wetland or riparian areas with native plant species, and perform construction and maintenance in forested areas outside of breeding season of migratory birds.



Project	Document	Summary of Impacts
Proposed Green Energy Electrical Generating Plant in MIP	Green Energy LLL Draft EA Version 2 [undated] MIP Site Certification 01/10	OCDC had a survey conducted of MIP 10/27/09: it is our opinion that the site does not provide suitable habitat for listed protected species with documented populations in Orangeburg County, with the possible exception of shortnose sturgeon in Four Hole Swamp, which may provide necessary habitat to certain life stages of the shortnose sturgeon; however development is not proposed for the Four Hole Swamp area. USFWS concurred with the report and was concerned about possible effects on shortnose sturgeon. NMFS conveyed that the shortnose sturgeon habitat included the Edisto River, including its tributaries of Four Hole Swamp and Goodby's Swamp; however, NMFS determined that with appropriate erosion and sediment control actions to aid in protecting water quality of Four Hole and Goodby's Swamps, no adverse effects to the shortnose sturgeon would be expected.
Proposed Green Energy Electrical Generating Plant in MIP	Green Energy LLL Draft EA Version 2 [undated] MIP Site Certification 01/10	OCDC had a survey conducted of MIP 10/27/09: it is our opinion that the site does not provide suitable habitat for listed protected species with documented populations in Orangeburg County, with the possible exception of shortnose sturgeon in Four Hole Swamp, which may provide necessary habitat to certain life stages of the shortnose sturgeon; however development is not proposed for the Four Hole Swamp area. USFWS concurred with the report and was concerned about possible effects on shortnose sturgeon. NMFS conveyed that the shortnose sturgeon habitat included the Edisto River, including its tributaries of Four Hole Swamp and Goodby's Swamp; however, NMFS determined that with appropriate erosion and sediment control actions to aid in protecting water quality of Four Hole and Goodby's Swamps, no adverse effects to the shortnose sturgeon would be expected.
Jafza Logistics and Distribution Park	Jafza 404 Permit Application 12/08 Jafza Phase I Environmental Analysis 6/2/08	No federally protected species found during surveys conducted on site. Red-cockaded woodpecker: last observations of colonies in 1993, so may be inactive, suitable trees not found. Bald eagles last sighted in 2003, when nests were active. During the survey, no species of concern identified on the site. USFWS 6/22/09: Service agrees that the project will have no effect on the frosted flatwoods salamander and is not likely to adversely affect the red-cockaded woodpecker or the Canby's dropwort. Suitable habitat for Canby's dropwort exists in one wetland on the southern portion of the property (wetland A4), but no individual plants were found during site visits; wetland A4 will not be developed and will be set aside as green space.

3.9 Potential Impacts to Cultural Resources

3.9.1 Prehistorical and Historical Context

This information is summarized from *Cultural Resources Survey of the Jafza Tract, Orangeburg County, South Carolina S&ME Job No. 1131-08-287, July 18, 2008*; *Goodby's Creek Regional Wastewater Treatment Plant Cultural Resource Survey* September 2008 (See Appendix D, Exhibit D.1), *Cultural Resources Assessment of the Proposed Routes and Bonner Avenue Area for the Goodby's Wastewater Treatment Plant, Calhoun and Orangeburg Counties, South Carolina, August 2008* (See Appendix A, Exhibit A.12, and A.13), *Intensive Archeological Survey of Approximately 47 Acres at The Sanders Pointe Farm Tract in Orangeburg County, South Carolina* (See Appendix D, Exhibit D.2), and *State Historic Preservation Office, Catawba Indian Nation, Eastern Shawnee Tribe Correspondences, and USDA Correspondences* (See Appendix C, Exhibits C.4 thru C.12).



3.9.1.1 Prehistoric Context

The initial human settlement of southeastern North America is generally accepted as having occurred during the last glacial period, sometime between 15,000 and 11,000 years before present. Prior to the glacial melting, sea levels were as much as 27 feet lower than at present time, and it is generally believed that most evidence of Native occupations along the South Carolina coast is now submerged. With the warming climate and associated environmental changes with the retreat of the last glacier, humans adapted to more modern oak-hickory forest conditions. During this period, called the Archaic Period, people are thought to have been seasonally mobile primarily within major river drainages, probably within a regular territory in response to food availability. It is probable that during the early Archaic Period (about 10,000 to 8,000 years before present), the Lower Coastal Plain of present-day South Carolina was limited to spring foraging camps, with winter base camps located near the Fall line. As populations increased in size and environmental conditions continued to change (8,000 to 4,500 years before present), group mobility decreased and people adapted to changing sea level conditions and variable precipitation patterns. By 4,500 -3,500 years before present, people lived mostly in sedentary village settlements with extensive trade networks.

During the Woodland Period (3,500 to 1,500 years before present), the local people used pottery extensively and adapted to even higher sea levels, but continued living in much the same ways as they did during the late Archaic Period. Through the early 1500s, the villages became complex social structures (the Mississippian Period), with widespread regional trade and communication networks. Spanish explorers in the early 1500s brought trade goods and diseases leading to acculturation and depopulation, causing a disintegration of the Mississippian societies. The remaining coastal groups tended to be independent from one another, maintaining different identities. However, the Catawba were a loosely-structured confederacy of unrelated groups in the upper reaches of the Catawba River, maintaining their populations by receiving refugees from the smaller coastal groups being increasingly displaced by European settlement. By the middle of the 18th century, pressure from the northern Iroquois from the north and west and colonists from the east pushed the few remaining Natives together, resulting in the formation of the Catawba nation. The coastal groups seem to have followed a seasonal pattern of movement, aggregating for the summer planting and harvesting season, then dispersing into smaller groups for the rest of the year.

3.9.1.2 Historic Context

The European colonial powers of England, Spain, and France, Native populations, and enslaved Africans were embroiled in disputed claims throughout the southeastern North America. Although the Spanish and Native populations were hostile to each other, the Spanish maintained a settlement on Parris Island until 1587, which served as a base for exploration of the interior. The English were the first permanent settlers in present-day coastal South Carolina, with the first settlement on the Ashley River in 1670. Settlements quickly spread along the South Carolina coast, although the populations grew



slowly. The Colonial economy in the area from Virginia to Florida centered on the production of products needed for building and maintaining wooden sailing ships, livestock, and trade with the remaining Native populations, primarily for furs. Agriculture was mostly potatoes, corn and tobacco until cultivation of rice, indigo, and cotton, which depended on the labor of enslaved Africans, became predominant. Large numbers of Africans were imported throughout the Colonial period, and their numbers far exceeded those of wealthy European-descended planters.

South Carolina was heavily contested during the Revolutionary War, and the British used Charleston for their base of operations until they evacuated in 1783. Following independence from Britain, the region suffered economic depression because much of the enslaved local workforce was confiscated by the British. The shortage of labor and absence of many landowners during the occupation resulted in forest encroachment on agricultural lands. The economy was revived by the introduction of cotton in the 1790s, and large plantations were established along the rivers and creeks of the area where the soils were well-suited for cotton cultivation. During the Civil War, the region had many battles, as both the Union and Confederacy recognized the strategic importance of Charleston and its harbor. The destructiveness of the war and subsequent emancipation of the enslaved workforce ended the plantation system. Tenancy and share-cropping on smaller properties replaced the plantation system dependent upon slavery.

Orangeburg Township was established along the banks of the Edisto River in the 1730s, with initial European settlement by Swiss and German farmers, quickly followed by English settlers. Though the German settlers were centered around Orangeburg, they also occupied and farmed land as far out as Four Hole Swamp. Roads leading from Charleston to Columbia and into the interior were developed across the vicinity by the late-eighteenth century, about the time that Orangeburg County was formally established. Plantations were well-established in the vicinity of the Santee River and its tributaries, but less so on adjacent uplands. Grain mills were located on several tributaries of the Santee River in the early 1800s. In the late nineteenth century, a rail connection between Pregnalls leading west from Charleston was established, connecting to the main line from the City of Orangeburg to the Town of Sumter and running through Harleyville, Holly Hill, Vance and other small towns. Cheaper transport of agricultural products and white landowners selling off or renting small parts of larger landholdings during Reconstruction after the Civil War led to increased small farm and tenancy farming in this portion of Orangeburg County. During this time, 60% of the farmers in South Carolina became landless and 78% of those landless farmers were black. In the years following World War II, the region continued to be characterized by small farms, and timber harvesting returned as a major industry. As cotton prices fell from 1920 through the 1940s, Orangeburg County suffered more than the rest of South Carolina and 2/5th of the farms were mortgaged. The remaining farms moved away from cotton to production of corn, soybeans and other specialty crops. Many of the small farms were consolidated into large landholding/agricultural enterprises. In the 1940s, Lakes Marion and Moultrie were created by the South Carolina Public Service Authority. This diversion of the Santee



River into the Cooper River drainage generates electricity for the region, provides recreational fishing and boating and is the source of potable water for the Lake Marion Regional Water System. With the construction of I-95 connecting much of the eastern seaboard from Maine to Florida, more tourists and small industries came to the area.

3.9.2 Context for Impacts

The state Historic Preservation Officer (SHPO) for the State of South Carolina is the South Carolina Archives and History Center (SCA&HC). The Tribal Historic Preservation Officer (THPO) resides with each Federally-recognized tribe that has ancestral ties to the area. For this area, these Nations are primarily the Catawba Indian Nation, the Eastern Shawnee Tribe of Oklahoma, Eastern Band of Cherokee Indians, and the Choctaw Nation of Oklahoma. Other potentially pertinent tribes include The Chickasaw Nation, Kialegee Tribal Town, Cherokee Nation, Thlopthlocco Tribal Town, Alabama-Quassarte Tribal Town, Poarch Band of Creek Indians, Muscogee (Creek) Nation, Shawnee Tribe, Tuscarora Nation, United Keetoowah Band of Cherokee Indians, Seminole Tribe of Florida, and the Absentee-Shawnee Tribe of Indians of Oklahoma.

Federal funding agencies will not fund, authorize or participate in a project or series of projects that have potential to adversely affect a property listed on or eligible for listing on the National Register of Historic Places (NRHP) per the National Historic Preservation Act (NHPA) or Tribal properties, without completing Section 106 NHPA processes.

3.9.3 Potential Impacts to Cultural and Historic Resources from Goodby's Regional Wastewater System

Letters of correspondence with the South Carolina Archives and History Center (SCA&HC) and each of the Tribal Nations associated with the proposed Goodby's Regional WWTP indicated that there are two possible sites of concern within the WWTP Project Area. Correspondence with SCA&HC, dated October 7, 2008 indicated that, "one potentially eligible site (38OR303) is known to occur within the proposed development tract" (See Appendix C, Exhibit C.4).

A Phase I survey of the WWTP site conducted in August 2008 (Appendix D Exhibit D.1) found four deeply buried prehistoric sites on the margin of Four Hole Swamp (numbers 4, 6, 11, 12), which have some potential for yielding significant archaeological information, density, clarity, and physical integrity. Swamp areas are often associated with significant archaeological resources and are therefore considered potentially eligible for NRHP. These sites are outside the WWTP site on Goodby's Creek and would not be impacted in any way.

An intensive survey of the Sanders Pointe land disposal site conducted in November 2009 (Appendix D Exhibit D.2) found no sites potentially eligible for or listed on the NRHP.

A reconnaissance survey of collection and conveyance line routes within rights-of-way for US 301 and Tee Vee Road conducted in July and August of 2008 (Appendix



D Exhibit D.6) found no known cultural sites or historic structures immediately adjacent to the roadways.

Letter of correspondence from the SCA&HC dated January 27, 2010 (See Appendix C, Exhibit C.6).stated that construction of the WWTP will cause no adverse effect to adjacent Native American archaeological site (38OR303) provided that the land south of Goodby's Swamp remains undisturbed by construction or related activities.

Further correspondence between the USDA RD, SHPO, the Eastern Band of the Cherokee Indians, the Eastern Shawnee Tribe of Oklahoma, and the Catawba Indian Nation states, based on the Cultural Resources Study (See Appendix D, Exhibit D.1) provided to the USDA RD by Alliance Consulting Engineers, Inc., states that No Adverse Effect would occur to either site 38OR303 or site 38OR305 (See Appendix C, Exhibit C.9 thru Exhibit C.12). However, Site 38OR305 was identified as not eligible and Site 38OR303 was identified as eligible in the text of the survey report dated September 2008. Site 305 was cited as eligible and Site 303 was omitted in the report conclusions. It is probable that the survey conclusions included a typographical error and that only Site 38OR303 is eligible and SCA&HC has found no adverse impact to that site. Therefore, only 38OR303 is potentially eligible and no adverse impact would clearly occur to either site. Regardless, both of the abovementioned sites are not impacted by construction activities located at Goodby's Regional WWTP (See Appendix A, Exhibit A.5) as the referenced sites are at least half (1/2) a mile from the proposed WWTP.

Correspondence with the Eastern Shawnee Tribe of Oklahoma on December 28, 2009 (See Appendix C, Exhibit C.8) stated, "We are not currently aware of existing documentation directly linking Shawnee religious, cultural or historic sites to Orangeburg County".

The Choctaw Nation of Oklahoma responded on May 26, 2010 that the proposed Goodby's Regional WWTP project is out of the area of tribal concern.

Correspondence with the Catawba Indian Nation on February 16, 2010 (See Appendix C, Exhibit C.7) found no immediate concerns with regard to traditional cultural properties, sacred sites of Native American archaeological sites within boundaries of proposed project area. The Nation recommended avoiding sites 38OR303 and 38OR305 (see note above about site 38OR305 actually not eligible) and if avoidance of these sites is not possible then consultation is required. Site 38OR303 is across Goodby's Swamp from the proposed site and would be avoided.

Correspondence with the Eastern Band of Cherokee stated that the Tribal Historic Preservation Officer (THPO) concurs with the archaeological recommendations that 38OR303 (across Goodby's Creek from the Goodby's Regional WWTP site) are potentially eligible for inclusion on the NRHP. The Band agrees that these sites should be either avoided by all ground-disturbing activities or an additional archaeological work be conducted to make an NRHP determination. The Band believes that the project may proceed as planned with the avoidance measures or further testing measures take place.



Therefore, no adverse impacts would occur to any archaeological or historic resources from construction on the Goodby's Regional WWTP site, the conveyance and collection routes for the wastewater system, and the MIP site.

3.9.4 Mitigation Identified During Agency Consultation for the Goodby's Creek Wastewater System

- If any archaeological or historic artifacts are discovered, construction would cease and the SHPO, THPO, USDA-RD, US Army Corps of Engineers, Orangeburg County, any pertinent municipalities and any other interested parties would be notified immediately. The construction contractor is required to await concurrence from each of these individuals/entities prior to the resumption of construction activities in the area where the discovery occurred. This requirement would be included in construction contracts.
- If there is any new horizontal or vertical ground disturbance proposed not already evaluated in any project, a Section 106 review and consultation would be conducted.
- Construction of pipeline placement for the proposed project will not proceed until all SHPO requirements and restrictions are satisfied.
- Contract documents will contain the requirement that if any artifacts of architectural, historical, or archaeological significance, including any objects falling under the Native American Graves Protection and Repatriation Act (NAGPRA) and/or chipped stone, tools, pottery, bone, historic crockery, glass or metal items, are discovered during or before construction, construction will cease and SHPO, THPO of the Catawba Indian Nation, Eastern Shawnee Indian Tribe of Oklahoma, THPO of Eastern Band of Cherokee Indians, Orangeburg Co, USDA-RD, and any other interested parties will be notified immediately. Contractor will await concurrence from each individuals/entities prior to resumption of construction in the area where the discovery occurred, as stated in construction documents.

3.9.5 Potential Cumulative Impacts to Cultural and Historic Resources

Previous environmental documents prepared per NEPA and preliminary engineering reports have identified the following potential impacts to cultural and historic resources per the NHPA for the existing and proposed water and wastewater projects in the project area as described in Chapter 2 and summarized in Table 9.

The following two historic sites are listed on the NRHP and have been determined to be not impacted by construction activities within the highway rights-of-way for any of the water and wastewater project at the two locations:

- Dantzler Plantation located on SC 210 (Vance Rd.), Holly Hill
- Providence Methodist Church located on US 176 (Old State Rd.), Holly Hill.



The following sites associated with the WWTP site may be eligible for inclusion on the NRHP but none would be adversely impacted by any activities:

- Four deeply-buried prehistoric sites found on the margin of Four Hole Swamp near the Goodby's Creek WWTP site (numbers 4, 6, 11, 12) would not be adversely impacted as they would be avoided during siting of the WWTP on the 10-acre portion of the site.
- 38OR303 located on eastern edge of Four Hole Swamp near the site of the Goodby's Creek WWTP would be avoided as it is across Goodby's Creek from the WWTP site (See Appendix A, Exhibit A.6).

The following sites are associated with the Jafza property and would be evaluated by the Jafza Park developers directly with the SCA&HC prior to construction activities:

- Four archaeological and three historic sites in or near the Jafza private property, which is outside the authority of the USDA RD, USACE or Orangeburg County to mitigate and would have to be evaluated directly with the SCA&HC by Jafza:
- 38OR295: Localized artifacts, and more features may be below plow zone; probably a small prehistoric habitation site
- 38OR297: Possibly multicomponent prehistoric habitation site located near a wetland site; site may be intact below plow zone (Area I); area avoided in master plan
- 38OR298: Small possibly multicomponent prehistoric habitation site located near a wetland site; may be intact below plow zone (Area I); area avoided in master plan
- 38OR299: Small prehistoric habitation site located near a wetland site; lack of disturbance means site is relatively well preserved (Area G); area avoided in master plan
- 75-0240: A small white vernacular woodframe cottage that appears to date from the mid- to late-19th century with little alteration over time; outside the Jafza property but potentially within the right-of-way of the proposed extension of US 301 through the Jafza Logistics Park. This would be addressed by SCDOT in their planning design of the US 301 extension through Jafza Park.
- 38OR257: the former site of the Mount Holly School (Area F), would require JAFZA to consult directly with SHPO, as this site is on private land.
- 38OR258: the ruin of a historic residence dating from late-19th to early-twentieth century (Area C) would require JAFZA to consult directly with SHPO, as the site is on private land.



- House site (site #4) at the intersection of US 301 and Cleveland St. outside the construction area of utility pipe in the right-of-way would not be adversely impacted by temporary construction.

Four prehistoric sites in the MIP having the potential to be eligible for listing on the NRHP need further investigation as those sites gain interest for development (Sites 38OR 311-314, Table 9). Several of these are in or near Four Hole Swamp and would not be likely to be adversely impacted by development in the MIP. Letter of correspondence from the SCA&HC dated February 3, 2010 stated that, based on submitted project description of a 55-acre site in the MIP (proposed Green Energy LLC site) and the identification of resources within the Area of Potential Effect, SHPO concurs with the assessment that no properties listed on or eligible for inclusion on the NRHP will be affected by the Green Energy LLC project.

Direct effects on cultural resources are those that would be caused by activities taken in the footprint of the project that overlap with the actual location of the archaeological or historical site or that would change the character of the area that could adversely affect the historic or archaeological values of the resource. All pipelines for transmission of water and wastewater are and will continue to be constructed in existing disturbed rights-of-way for federal, state, county and private highways and roads, powerlines, and railways which have already been disturbed. For all such construction in rights-of-way, the SHPO, THPOs and USDA-RD have concurred that no resources of architectural, archaeological, or historical significance that are included on or eligible for inclusion on the National Register of Historic Places would be adversely impacted (See Appendix C, Exhibits C.4 thru C12).

However, as areas in and adjacent to wetlands, streams and swamps have a higher potential for properties of cultural significance to Indian tribes, any such areas that would be newly disturbed may require further investigation. As evaluated in Section 3.5, all pipeline crossings of Goodby's Swamp, Four Hole Swamp, Providence Swamp, Big and Little Poplar Creek, and White Cane Swamp would be placed via directional drilling, unless it is cost-prohibitive (at which point NWP 12 would be used; Section 3.5.1), causing no potential disturbance of archaeological sites. However, the Matthew's Industrial Park and Goodby's WWTP are located adjacent to Goodby's Creek and Four Hole Swamp, increasing the potential for properties of cultural significance to Indian tribes occurring in and near the wetland areas near the boundaries of both sites. The actual sites of construction for both sites are outside of known wetland areas. Therefore, shovel surveys are not necessary for the WWTP site and may be required for the MIP prior to construction for conclusion of NHPA consultation.

As stated earlier, the areas with the highest potential for having Native American archaeological sites are in or on the edges of wetlands, streams, and swamps. These areas would be protected by CWA Section 404 regulations regarding placing dredged or fill materials in jurisdictional wetlands, with DHEC regulations regarding protection of surface waters from development and buffers along streams and swamps created by federal, state and county regulations and ordinances in areas proposed for commercial,



residential, or industrial development (Section 3.2). Binding covenants by the Towns of Bowman and Vance and Calhoun and Orangeburg Counties regarding limiting residential development by restricting tap sizes in concurrence with Orangeburg County land use development ordinances would restrict any such development to areas along US 176, US 15, and SC 210. For these reasons, the APE is not extended beyond the areas already evaluated for the various projects.

Therefore, based on commitment to avoid the sites located in the Goodby's Creek wetlands across from the WWTP and MIP sites, no adverse impact to archaeological and historic sites eligible for inclusion on or currently listed on the NRHP with proposed wastewater or water treatment systems and transmission lines within the stated APE would occur.

Table 9: Potential Impacts to Cultural and Historical Resources due to Proposed Water and Wastewater Projects

Project	Document	Summary of Impacts
City of Bowman Wastewater System	PER 5/14/10 USDA Approved 6/24/10 Final EA 8/10/10 USDA Approved 08/25/10	<p>No listed properties on the NRHP in project areas.</p> <p>SCA&HC letter 2/26/10: No properties listed in or eligible for listing on NRHP will be affected. If archaeological materials are encountered during construction, proceedings at 36 CFR 800.13(b) apply and the agency will immediately contact the SHPO office.</p> <p>SHPO 1/20/10: No properties listed in or eligible for listing on NRHP will be affected. If archaeological materials are encountered during construction, procedures at 36 CFR 800.13(b) apply and federal agency contact SHPO immediately.</p> <p>Catawba Nation, Eastern Shawnee Tribe of Oklahoma, and Eastern Band of Cherokee Nation contacted; Catawba Nation responded 2/26/10 that they have no immediate concerns but should be notified if any Native American artifacts and/or human remains are disturbed during any phase of the project.</p> <p>USDA-RD letter 2/26/10: Based on information provided and correspondence with SCA&HC and Catawba Indian Nation, RD determined that no adverse effects would occur to cultural resources. Construction will not commence until SHPO and consulting Tribal entities have the opportunity to review and comment on this determination for 30 days. No comments were received.</p>
City of Bowman Water System	Draft EA draft 5/10/10 Final EA 06/23/10 USDA Approved 06/29/10	<p>SCA&HC letter 1/28/10: SCA&H concurred that no known properties of architectural, historical or archaeological significance would be affected by the project.</p> <p>Catawba Indian Nation letter 1/26/10: No immediate concerns with the project but should be notified if any Native American artifacts and/or human remains are disturbed during any phase of the project.</p> <p>USDA SC Environmental Coordinator letter 3/3/10: No environmental consequences are known at this time. If any archaeological or historic artifacts are discovered, construction would cease and the SHPO, THPO, Orangeburg County, Town of Bowman, USDA-RD and any</p>



Project	Document	Summary of Impacts
		<p>other interested parties will be notified immediately. The construction contractor will be required to await concurrence from each of these individuals/entities prior to the resumption of construction activities in the area where the discovery occurred. This requirement will be included in construction contracts.</p>
<p>Town of Vance water system expansion</p> <p>Town of Vance water system expansion</p>	<p>Environmental Report 4/10</p> <p>Environmental Report 4/10</p>	<p>SHPO letter: No properties included in or eligible for inclusion in the NRHP will be affected by the project.</p> <p>Catawba Indian Nation letter: No immediate concerns with regard to traditional cultural properties, sacred sites, or Native American archaeological sites within the boundaries of proposed project areas.</p> <p>Eastern Band of Cherokee Indians. No immediate concerns with regard to traditional cultural properties, sacred sites, or Native American archaeological sites within the boundaries of proposed project areas.</p> <p>Contract documents will contain the requirement that should any archaeological or paleontological remains be encountered during construction, all work will cease, contractor will notify the owner, Orangeburg Co., SHPO, applicable Tribal HPO, USDA-RD and any other interested parties and shall await concurrence from each prior to resumption of construction in the area of recovery.</p>
<p>Proposed Expansion of the Orangeburg County Water System</p>	<p>Final EA 6/16/10</p> <p>USDA Approved 06/16/10</p>	<p>Two sites currently listed on the NRHP were found within the project area:</p> <ul style="list-style-type: none"> • Dantzler Plantation located on SC 210 (Vance Rd.), Holly Hill • Providence Methodist Church located on US 176 (Old State Rd.), Holly Hill. <p>All activities would be conducted within ROWs which have been previously disturbed by SCDOT construction.</p> <p>SHPO 1/20/10: Concurred with assessment of no effect on any known properties of architectural, historical or archaeological significance.</p> <p>Catawba Indian Nation 1/15/10: No immediate concerns but THPO should be notified if any Native American artifacts and/or human remains are disturbed during any phase of the project.</p> <p>Eastern Shawnee Tribe of Oklahoma 12/28/09: No objection to the proposed project and no documentation directly linking the Shawnee religious, cultural or historic sites to Orangeburg Co.</p> <p>USDA-RD SC Environmental Coordinator 2/22/10: Concurred that no impact to cultural resources known at this time. If any artifacts of architectural, historical, or archaeological significance are discovered during or before construction, construction will cease and SHPO, THPO of the Catawba Indian Nation, Eastern Shawnee Indian Tribe of Oklahoma, THPO of Eastern Band of Cherokee Indians, Orangeburg Co, USDA-RD, and any other interested parties will be notified immediately. Contractor will await concurrence from all individuals/entities prior to resumption of construction in the area</p>



Project	Document	Summary of Impacts
<p>LMRWA Five-county Water System Phase II</p> <p>LMRWA Five-county Water System Phase II</p>	<p>Final USACE/USEPA EA (undated)</p> <p>Final USACE/EPA FONSI 2/12/04</p> <p>Final Environmental Information Document (EID) USACE 10/03</p>	<p>where the discovery occurred, as stated in construction documents.</p> <p>SCA&HC 12/02/02: Office knows of no properties included in or eligible for inclusion on the NRHP that will affect the proposed project.</p> <p>Eastern Shawnee Tribe of Oklahoma letter 7/29/03: Currently unaware of any documentation directly linking Indian Religious Sites to the proposed construction and THPO has no objection to the proposed construction. If any skeletal remains and or any objects falling under NAGPRA uncovered during construction, stop immediately and the appropriate persons, including state and tribal NAPGRA representatives must be contacted.</p>
<p>Southern Calhoun County Phase I Water System Expansion</p>	<p>Draft EA 3/20/10</p>	<p>SCA&HC letter: SHPO knows of no historical or archaeological sites that would be affected by the project.</p> <p>Catawba Indian Nation and Eastern Band of Cherokee: THPOs have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the project boundaries.</p>
<p>Matthew's Industrial Park</p>	<p>MIP Site Certification 01/10</p>	<p>Cultural resources reconnaissance survey conducted 10/27-30/09 (11/09): Four sites potentially eligible for NRHP. The only way that these sites can be determined to be eligible or ineligible is to perform Phase I/II investigations.</p> <ul style="list-style-type: none"> • 30OR311: prehistoric and historic (18th century) scatter with subsurface integrity. In a pasture. • 38OR312: prehistoric woodland/Mississippian scatter on the east bank of Four Hole Swamp • 38OR313: Prehistoric scatter on a terrace east of Four Hole Swamp, deeply buried deposits • 38OR314: Prehistoric Woodland scatter in a former pasture east of Four Hole Swamp <p>A historic site eligible for the NRHP would not be adversely impacted by the MIP (S-1 complex and no further action is warranted.</p> <p>SHPO letter (12/3/09): 38OR311-314 are potentially eligible and should be preserved in place with a conservation easement. Or subject to further investigation if preservation is not possible. Other high possibility sites, including isolated find #4 an, Carolina bays, and areas within 150 meters of low lying wetlands, not inspected during the reconnaissance study should have a systematic survey performed. SHPO requests more information on the historic structure.</p>
<p>Jafza Logistics Site</p>	<p>Cultural Resources Survey of Jafza</p>	<p>Survey of Jafza site conducted in July 2008: 4 archaeological sites and one historic structure potentially eligible for NRHP, all requiring additional investigation:</p>



Project	Document	Summary of Impacts
	Logistics Site 7/18/08	<ul style="list-style-type: none"> • 38OR295: Woodland, possibly Archaic Periods; many of the prehistoric sherds are decorated Depford series pottery, 800 BC to AD 500, while other artifacts may be earlier (1800-900 BC); probably a small prehistoric habitation site; artifacts are localized and more features may be below plow zone and therefore potentially eligible • 38OR297: Located in a planted pine stand; Woodland, possibly Archaic Periods; two small rhyolite thinning flakes; small possibly multicomponent prehistoric habitation site; site may be intact below plow zone and therefore potentially eligible • 38OR298: Located on edge of planted pine stand; Woodland, possibly Archaic Periods; small possibly multicomponent prehistoric habitation site may be intact below plow zone and therefore potentially eligible: • 38OR299: Located in a powerline corridor; Woodland, possibly Archaic Periods; small prehistoric habitation site, lack of disturbance means site is relatively well preserved and therefore potentially eligible. • Historic resource 75-0240: A small white vernacular woodframe cottage that appears to date from the mid- to late-19th century that appears to have been little altered over time; outside but directly adjacent to Jafza site boundaries; potentially eligible for NRHP depending on its history, socio-cultural, and interior condition

3.10 Potential Impacts to Environmental Justice Populations

As discussed in Section 1.3, as much of Orangeburg County and other counties in the five-county area have a large proportion of both minority and low-income populations, the existing and proposed projects, including the Goodby's Regional WWTP and associated collection and conveyance system, would be beneficial by facilitating better job opportunities and a more healthy and higher quality of life. South Carolina USDA RD formally found no disproportionate adverse effects to minority and low-income populations (Environmental Justice and Civil Rights Impact Analysis (CRIA) Certification Form 2006-38) for the proposed Goodby's Regional WWTP (3/2/10), Town of Bowman wastewater project (3/2/10), Town of Bowman water project (6/10/10), Town of Vance water project, Orangeburg County water system expansion project (3/2/10), and Southern Calhoun County water system (See Appendix G, Exhibit G.1). For the public water systems, the projects could eliminate financial burden associated with expense of maintaining privately owned wells and pumps, drinking water quality would be regulated by SCDHEC, and all the elevated storage tanks and pumping stations would be constructed in an aesthetically pleasing manner in accordance with the Orangeburg County zoning ordinance. All pipelines would be buried underground and construction areas re-vegetated where disturbed. The proposed wastewater systems,



including the Goodby's Regional WWTP in support of the MIP and Jafza Park, would bring in additional jobs for local residents. See Appendix G Exhibit G.2 (Orangeburg County Wastewater Expansion) for completed Form 2006-38 Rural Development Environmental Justice (EJ) and Civil Rights Impact Analysis (CRIA) certification and all associated mapping.

For these reasons, no mitigation is needed.

3.11 Potential Impacts from Noise

None of the projects, including the Goodby's Regional WWTP, would cause a long-term increase in noise that would be annoying to residents off-site. Noise would primarily be caused during construction activities, especially during laying of water and wastewater transmission lines along roads, which already produce traffic and equipment noise. Traffic noise would be throughout the road system, while construction noise would be localized to the construction site and would be temporary and short term. This noise would be mitigated by restricting construction to weekdays from 8 AM to 6 PM in areas having sensitive receptors, and requiring approval for weekend work from the managing entity, whether Orangeburg County or a municipal government.

As the MIP and Jafza Park initiate development and continue to develop, the number of trucks on the major highways, especially I-95 and I-26 outside of the GLT would most likely increase, with an associated increase in noise. Truck and non-truck traffic is already prevalent on I-95 and I-26, with associated noise. Noise could increase on US 301 from both truck traffic generated by Jafza Park and MIP tenants (which is highly speculative at this point) and background non-truck traffic, but with the completion of the proposed extension of US 301 through the Jafza Park to SC 6, Jafza-generated truck traffic should decrease substantially (Sections 3.2.6.3 and 3.2.6.4; Table 2). However these areas have high levels of background ambient traffic noise in an area of and construction noise would be temporary.

Therefore, with the proposed extension of US 301 through the Jafza Park to SC 6, no mitigation is needed.

3.12 Potential Impacts to Air Quality

3.12.1 Potential Impacts to Air Quality from the Goodby's Regional Wastewater System

Orangeburg County is in attainment area with all National Ambient Air Quality Standards (NAAQS). No manufacturing facilities having significant air emissions are expected to be tenants at the MIP.

Neither WWTP nor buried collection and conveyance lines generate highly localized emissions. Temporary emissions from equipment and dust are typically generated during construction. When construction is completed, emissions would cease and localized air quality would return to normal. Any odors are confined to the immediate area of WWTP and pump stations, and are not expected to be detectable beyond site boundaries.



Correspondence from the SCDHEC Bureau of Air Quality in a letter dated April 21, 2009 stated that Orangeburg County is designated as in attainment for the six pollutants outlined in NAAQS and no further air quality analysis is required. The NAAQS for 8-hour ozone has been tightened and SCDHEC recommends that work practices that will minimize the generation of ozone-forming emissions and particulate matter, including the use of clean diesel or alternatively-fueled equipment, be considered. Equipment idling time should be reduced whenever possible to minimize emissions.

3.12.2 Cumulative Impact Analysis

Previous environmental documents prepared per NEPA and preliminary engineering reports have identified the following potential impacts to air quality per the Clean Air Act for the existing and proposed water and wastewater projects in the project area as described in Chapter 2 and summarized in Table 10.

As the five-county area is in attainment for all precursor pollutants regulated under the Clean Air Act, no further analysis is required. However, Orangeburg County is subject to SCDHEC Regulation 62.5 Standard 7 for Prevention of Significant Deterioration (PSD) increments since baseline data have been established for Orangeburg County. Permitting requirements in South Carolina and Orangeburg County generally follow federal requirements. Exceptions exist when SCDHEC regulations require Lowest Achievable Emission Rate (LAER) technology for all facilities where emissions of volatile organic compounds (VOCs) exceeds 100 tons per year, regardless of whether the facility is located in an attainment area. SCDHEC also required air dispersion modeling for any facility emitting air pollutants above a rate of 1 pound per hour (particulates, sulfur dioxide, nitrous oxides, and carbon monoxide). Air pollution modeling exceptions are found at SC Regulation 61-62.5, Standard No. 8.

Currently, SCDHEC has no air quality monitoring station in Orangeburg County; the closest station is located in Richland County. SCDHEC anticipates that air dispersion modeling for PM_{2.5} will be required within approximately 3 years. However, construction emissions from equipment and dust associated with the Goodby's Regional WWTP and collection pipelines and within the MIP would be localized and temporary and would be managed by the construction contractor per contracting requirements. Jafza Park would be regulated independently by the SCDHEC Bureau of Air Quality.

Air dispersion modeling for the Green Energy biomass electricity generating plant that is in the early planning stages for siting at the MIP has indicated that this facility's operation would not interfere with the attainment and maintenance of any state or federal ambient air quality standards. Typically, for industrial users that would have air emissions that could impact air quality, SCDHEC Bureau of Air Quality requires pollutant measurements from emissions to demonstrate that the emitter meets the PSD requirements and to secure an operating permit for the industrial facility within 15 days of initial startup. SCDHEC Bureau of Air Quality has approved a Synthetic Minor Construction permit for the construction emissions associated with the Green Energy biomass plant.



As the MIP has no other potential users at this time, any consideration of emissions would be highly speculative and therefore are not included in this cumulative impacts analysis.

Jafza officials calculated car/truck emissions (Section 404 Permit Application, December 2008) based on calculations of maximum annual average daily traffic levels (AADTs) for 2007 for SC 6 (13,300 vehicles/day), I-95 (41,200 vehicles per day), US 176 (6,800 vehicles per day), SC 210 (1,850 vehicles per day), and US 301 (26,300 vehicles per day). The model assumes that 38% of the traffic would be passenger cars, 48% light duty gas-powered trucks, 4% heavy duty gas-powered trucks, 0.2% light duty diesel vehicles, 9% heavy duty diesel vehicles, and 0.5% motorcycles. The analysis concluded that overall air quality liability associated with the Jafza Park would be minimal and future environmental investigations such as sampling and analyses of environmental media are not warranted.

The SCDHEC Bureau of Air Quality found that all monitoring for CO, SO₂, NO₂, and PM₁₀ were well below levels of NAAQS statewide (State of South Carolina: 5-Year Ambient Air Quality Monitoring Assessment. July 1, 2010). Of all the criteria pollutants, only NO_x has a substantial contribution from mobile sources (cars and trucks; approximately 50%). PM₁₀, PM_{2.5}, lead, and CO are primarily caused by fires, with additional CO and lead contributors caused by non-road sources; SO₂ is mostly from point sources. The closest ozone monitoring station to the GLT is at Congaree Bluff in Richland County, and monitoring at this site indicates that that there is not a 90% probability of exceeding 80% of the ozone NAAQS in the next three years. Therefore, it is highly unlikely that projected increases in truck and non-truck traffic from both background traffic and from Jafza Park and other proposed sources would result in exceedances of NAAQSs in Orangeburg County.

No additional mitigation is required.

Table 10: Potential Air Quality Impacts due to Proposed Water and Wastewater Projects

Project	Document	Summary of Impacts
Town of Bowman Proposed Wastewater Expansion	PER 5/14/10 USDA Approved 6/24/10 Final EA 8/10/10 USDA Approved 08/25/10	Air emissions will not be produced by proposed improvements other than exhaust fumes and some dust during construction, and will not produce harmful emissions or annoying odors. During dry periods, dust problems will be mitigated by requiring the construction contractor to wet down construction areas when dust may pose hazards.
Town of Bowman Proposed	PER 5/10 Draft EA draft	Temporary emissions during construction from equipment and dust; no harmful or nuisance odors are anticipated.



Project	Document	Summary of Impacts
Water Expansion	5/10/10 Final EA 06/23/10 USDA Approved 06/29/10	
Town of Vance Water System	Environmental Report 4/10	Orangeburg County is in attainment area with all National Ambient Air Quality Standards (NAAQS)
Orangeburg County Water Expansion	Final EA 6/16/10 USDA Approved 06/16/10	Temporary emissions during construction from equipment and dust; no harmful or nuisance odors are anticipated.
LMRWA Five-County Water System Phase II	Final USACE/USEPA EA (undated) Final USACE/EPA FONSI 2/12/04 Final Environmental Information Document (EID) USACE 10/03	Ambient air quality for Dorchester, Calhoun, Clarendon, Orangeburg, and Berkeley Counties is in compliance with National Ambient air quality standards for all precursor air pollutants and the area is designated as in attainment. Temporary localized emissions from construction and equipment.
Southern Calhoun County Phase I Water System Expansion	Draft EA 3/2/10	Calhoun County is in an attainment area. Emissions from construction equipment would be temporary, and the contractor would be required to use dust control measures
Proposed Green Energy Electrical Generating Plant in Matthew's Industrial Park	Draft EA Version 2 [undated]	Air emissions from the boiler would be designed to meet emission requirements of the permit. Exhaust from construction vehicles and activities would have short-term localized emissions and the area affected would be very small, with negligible impacts. As stipulated in the construction permit, the EGP will operate under federally-enforced conditions to restrict annual emissions from all sources at the site to below major source thresholds and will demonstrate compliance with PM, NOx, CO potential emissions to less the 250 tons/ year. Air dispersion modeling has indicated that this facility's operation would not interfere with the attainment and maintenance of any state or federal ambient air quality standards. Green Energy will run the plant, and pollutant measurements from stack emissions will be sent to



Project	Document	Summary of Impacts
		<p>SCDHEC Bureau of Air Quality to demonstrate that the plant meets the PSD requirements and to secure an operating permit for the plant within 15 days of initial startup. According to Orangeburg County Development Commission, there are no other commercial or industrial projects that have recently taken place or are proposed for the MIP and no concentrated residential developments in the vicinity, with none proposed.</p> <p>Dust and exhaust from equipment during construction, would be temporary.</p> <p>With the licensing process and relatively small amount of airborne pollutants that would be emitted during construction and operation, the plant would only be expected to minimally contribute to any incremental air effects of the project area. It is unlikely that the incremental air quality effects would interact with the minimal effects of the other past, present, reasonably foreseeable future actions in the area for cumulative effects.</p>
<p>Jafza Logistics and Distribution Park</p>	<p>Jafza 404 Permit Application 12/08 Jafza Phase I Environmental Analysis 6/2/08</p>	<p>See analysis in Section 3.12.2</p>



4.0 SUMMARY OF MITIGATION FOR GOODBY'S REGIONAL WTP AND COLLECTION AND CONVEYANCE SYSTEM

4.1 Induced Growth

Orangeburg County proposes the following language for application to wastewater taps related to the proposed Goodby's Regional wastewater system along US 176, US 15, and SC 210 to mitigate indirect impacts with induced growth as a binding covenant in either the USDA RD loan agreement or the PPA:

In an effort to mitigate the indirect impacts on Important Farmlands in accordance with Farmland Protection Policy Act Final Rule, Orangeburg County will enter into a binding covenant that will limit potential customers service connection to a maximum of 6-inch gravity service line per lot or equivalent service of no more than 1,500 gallons per day per lot via a grinder pump and force main service connection in areas with a designated land use of Forest and Agriculture, per the Orangeburg County Comprehensive Land Use Plan. This mitigation will be enforced through a binding covenant at the time of execution of the loan agreement or the USACE PPA, not including future lot splits under the "Small Subdivision" provision in Section 36-83(j) of the Subdivision and Land Development Regulations. As five (5) residential uses are permitted per lot by the current Orangeburg County Zoning Ordinance, the proposed service connection limit size was derived to support continued agricultural uses that would support up to five (5) residential services per lot, and would not allow connections of multiple lots to one service later according to current South Carolina Department of Health and Environmental Control regulations for wastewater distribution lines. Furthermore, subdivisions within areas shown as Agricultural in the Comprehensive Land Use Plan that do not qualify as a "Small Subdivision" in accordance with Section 36-83(j) of the Orangeburg County Subdivision and Land Development Regulations shall still be considered one lot with regards to this restrictions and be limited to 6-inch gravity service line or equivalent grinder pump and force main connection for the entire proposed subdivision. Additionally, Orangeburg County will affirm and adhere to the Orangeburg County's Comprehensive Land Use Plan as it pertains to the proposed wastewater improvements project and their respective corridors. It should be noted that Orangeburg County's Comprehensive Land Use Plan includes protection and preservation of farmlands as one of its goals in order to preserve the rural agriculture nature of Orangeburg County. Additionally, the customer tap restriction will be waived for all businesses that support agricultural practices and for all existing industrial sites considered as "prior converted farmlands" per the Farmland Protection Policy Act. The above wastewater service connection restriction shall not apply to Planned Development Uses (PUDs) identified in Orangeburg County's Comprehensive Plan Future Land Use Map. Additionally, the customer wastewater service restriction will be waived for all businesses that support agriculture practices, for existing subdivisions and structures that have obtained a building permit prior to execution of the restrictive covenant, and for all existing industrial sites considered as prior converted farmlands due to their planned land use. The customer wastewater service restriction and compliance to the



Orangeburg County's Comprehensive Land Use Plan will be executed by the Orangeburg County as a binding agreement and/or covenant which will be attached to either the USDA-RD Loan Resolution or the USACE Project Partnership Agreement. The customer service restriction will apply to Agriculture/Forest-designated lands shown on the Orangeburg County's Comprehensive Plan Future Land Use Map along the project corridors along US 176, US 15, and SC 210.

4.2 Important Farmlands

See Section 4.1 for wording for the binding covenant for the Goodby's Regional wastewater system to supplement the Orangeburg County Zoning and Development ordinances to control residential and commercial development outside of designated areas, especially along US 176. Orangeburg County has the authority to control the location and type of commercial/industrial growth through its land use ordinances, policies, and decisions.

Any new development in the area outside of the Matthews Industrial Park, the County/City Industrial Park and the Jafza Logistics Park is expected to consist of residential or small commercial development. Outside of these development zones, the County would restrict the amount and type of development that is served by the proposed Goodby's Regional wastewater system through ordinances supplemented by the binding covenant, which would be instituted as part of either the USDA RD loan agreement or the USACE Project Partnership Agreement.

No additional mitigation is required.

4.3 Formally Classified Lands

See Section 4.1 for wording for the binding covenant for the Goodby's Regional wastewater system to supplement the Orangeburg County Zoning and Development ordinances to control residential and commercial development outside of designated areas, especially along US 176. Orangeburg County has the authority to control the location and type of commercial/industrial growth through its land use ordinances, policies, and decisions.

Any new development in the area outside of the Matthews Industrial Park, the County/City Industrial Park and the Jafza Logistics Park is expected to consist of residential or small commercial development. Outside of these development zones, the County would restrict the amount and type of development that is served by the proposed Goodby's Regional wastewater system through ordinances supplemented by the binding covenant, which would be instituted as part of either the USDA RD loan agreement or the USACE Project Partnership Agreement.

No additional mitigation is required.



4.4 Floodplains, Wetlands, and Water Quality

As all drilling for pipeline installation through floodplains will be conducted when the portions of the floodplains outside of wetlands are dry within existing disturbed road rights-of-way, no additional mitigation is required for protection of floodplains other than using Best Management Practices and replacing the soil to original grade. All requirements will be included in the project contract documents.

Overall, the USFWS, USEPA, USACE, and SCDHEC have clearly identified mitigation for impacts to wetlands, with a focus on avoidance, directional boring under wetlands, and use of BMPs during construction. NWP 12 has general conditions that are similar to those mitigation measures, with an additional option of compensation for mitigating for minimal wetland losses. All agencies have agreed that, with the use of such mitigation, no adverse impacts would occur to floodplains, wetlands or water quality.

The following mitigation will be included in construction contracts for the Goodby's Regional WWTP and collection and conveyance systems:

- No herbicides would be applied for the Goodby's Regional wastewater systems and water system expansions within or adjacent to wetland areas;
- No fill would be placed in wetlands;
- Adjacent access roads and drainage ditches will not alter natural flow regimes through wetland areas;
- Prior to initiation of construction activities, appropriate erosion control measures, such as silt fences, silt barriers, or other suitable devices, will be placed between the construction site and affected waterways and maintained in a functioning capacity until the area is permanently stabilized upon project completion;
- All necessary steps would be taken to prevent, oil, tar, trash, debris, and other pollutants from entering adjacent waterways and/or wetlands;
- Construction activities would avoid, to the greatest extent practical, encroachment into any wetland areas. Where practicable, sidecast soil material from trench excavation would be placed on the side of the trench opposite streams and wetlands.
- Cut and cover operations use backhoes and track hoes for digging trench, and bulldozers for necessary backfill and for hauling debris. In areas that cannot support the equipment, trucks would be used to place fill on the ground to stabilize the work area. Fill material would be placed in unstable areas to allow construction, but the material would be removed and the area restored to natural elevations following construction.

The USFWS requested that any construction and maintenance activities in forested wetlands should take place outside of the breeding season for migratory birds



(March through August). However, all construction involved in placing collection pipelines would occur in existing disturbed rights-of-way and therefore this condition would not apply. Construction of the WWTP would occur on an approximately 10-acre forested site and outside of the existing rights-of-way. The construction would possibly occur during the period of the migratory bird breeding season (March through August). This would be mitigated through a provision included in the contract documents requiring clearance from the USFWS prior to starting clearing operations. The Jafza Park is private property and any mitigations regarding protection of wetlands would occur through future on-site wetlands permits per Section 404 of the Clean Water Act and land disturbance permits through SCDHEC.

A local land use disturbance/construction permit and an NPDES stormwater permit will also be required, and these should be referenced in the plans and in the specifications.

USFWS stated in three letters (dated August 2, 2006 (See Appendix C, Exhibit C.23, July 29, 2008 (See Appendix C, Exhibit C.19), and April 23, 2009 (See Appendix C, Exhibit C.20)) that the Service applauds the use of directional drilling under wetlands and placement of pipelines in previously disturbed ROW.

For the proposed Goodby's Regional WWTP system and associated collection system, Orangeburg County has agreed to a binding covenant consistent with Orangeburg County land use ordinances to control the number and size of wastewater connections along US 176, US 15, and SC 210 to control development (Section 3.2.4).

4.5 Threatened and Endangered Species

See Section 4.4 for mitigation associated with wetlands protection that would also protect listed species per USFWS determination.

4.6 Cultural Resources

- If any archaeological or historic artifacts are discovered, construction would cease and the SHPO, THPO, USDA-RD, US Army Corps of Engineers, Orangeburg County, any pertinent municipalities and any other interested parties would be notified immediately. The construction contractor is required to await concurrence from each of these individuals/entities prior to the resumption of construction activities in the area where the discovery occurred. This requirement would be included in construction contracts.
- If there is any new horizontal or vertical ground disturbance proposed not already evaluated in any project, a Section 106 review and consultation would be conducted.
- Construction of pipeline placement for the proposed project will not proceed until all SHPO requirements and restrictions are satisfied.
- Contract documents will contain the requirement that if any artifacts of architectural, historical, or archaeological significance, including any objects



falling under NAGPRA and/or chipped stone, tools, pottery, bone, historic crockery, glass or metal items, are discovered during or before construction, construction will cease and SHPO, THPO of the Catawba Indian Nation, Eastern Shawnee Indian Tribe of Oklahoma, THPO of Eastern Band of Cherokee Indians, Orangeburg Co, USDA-RD, and/or any other interested parties will be notified immediately. Contractor will await concurrence from each individuals/entities prior to resumption of construction in the area where the discovery occurred, as stated in construction documents.

4.7 Environmental Justice

No additional mitigation is required.

4.8 Noise

No additional mitigation is required.

4.9 Air Quality

No additional mitigation is required.



5.0 LIST OF PREPARERS

A. Environmental Planning Strategies, Inc.

1. Ms. Judith Lee (Major Author and Environmental Consultant)

Environmental Planning Strategies, Inc.
4621 Kelling Street
Davenport, IA 52806
Phone: (563) 332-6870

Ms. Judith Lee, as President and Senior Analyst for Environmental Planning Strategies, Inc. coordinated with Orangeburg County, USDA-RD, and US Army Corps of Engineers and engineering consultant to compile information, conduct analysis of potential of induced growth, evaluate impacts, including cumulative impacts, and prepare NEPA document. Environmental Planning Strategies, Inc. has over 30 years experience in conducting NEPA analysis, performing environmental planning, preparing NEPA and other environmental planning documents, and conducting nationally recognized workshops for most federal agencies nationwide. Environmental Planning Strategies, Inc. is known for conducting quality cumulative impact analyses for a variety of project types, including water and sewer projects and highway projects, and has worked extensively in South Carolina for USDA RD, US Army Corps of Engineers, Charleston District, and several counties.

B. Alliance Consulting Engineers, Inc. Team

1. Deepal S. Eliatamby, P.E., President (Engineer of Record)
2. Ryan D. Slattery, P.E., LEED AP (Senior Project Manager)
3. Robert "Bob" M. Freeman, E.I.T., Engineers Associate (Project Engineer and Environmental Engineer)

C. Orangeburg County Team

1. J. William "Bill" Clark (County Administrator)
2. John E. McLauchlin, Jr. (County Engineer)

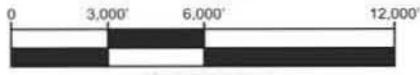
D. Supplement Information obtained prepared by others as detailed with this EA.

Appendix A

WASTEWATER SYSTEMS IN ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (1 of 2)



PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
NORTH CAROLINA MAP
BOWMAN, SC 1992
BRANSCVILLE NORTH, SC 1982
COLUMBIA, SC 1987
ELLY CREEK, SC 1998
FLEMINGVILLE, SC 1987
HOLLY HILL, SC 1979
INDIAN CAMP BRANCH, SC 1983
ORANGEBURG NORTH, SC 1987
ORANGEBURG SOUTH, SC 1983
SAINT PAUL, SC 1983
WADSWOOD, SC 1970
WADSWOOD SHIMM, SC 1982



GRAPHIC SCALE
JUNE 15, 2010

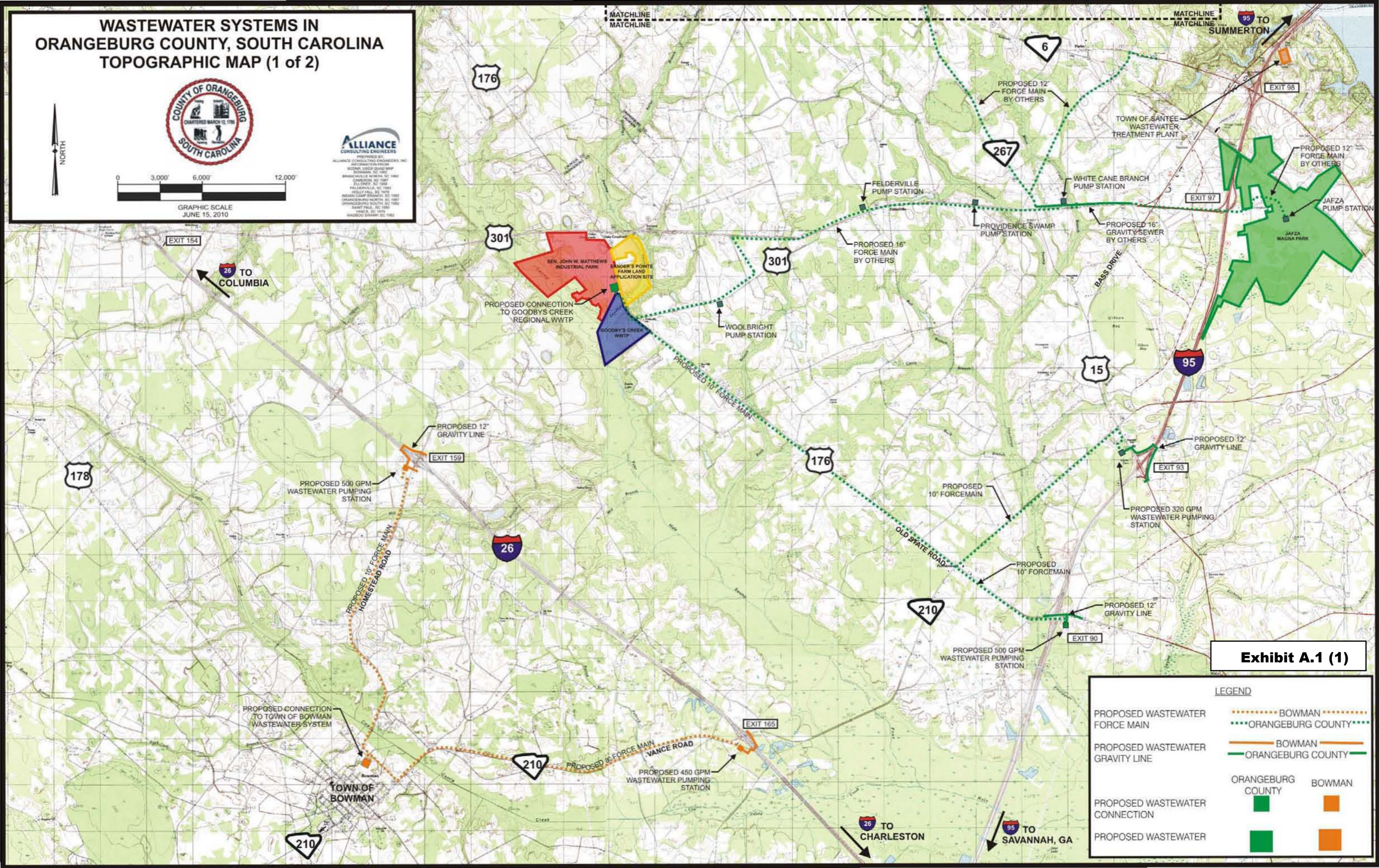
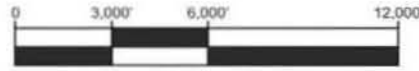


Exhibit A.1 (1)

LEGEND

PROPOSED WASTEWATER FORCE MAIN		BOWMAN		ORANGEBURG COUNTY
PROPOSED WASTEWATER GRAVITY LINE		BOWMAN		ORANGEBURG COUNTY
PROPOSED WASTEWATER CONNECTION		BOWMAN		
PROPOSED WASTEWATER		BOWMAN		

WASTEWATER SYSTEM IN ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (2 of 2)



GRAPHIC SCALE
JUNE 15, 2010

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCDWR, LOCAL ROAD MAP
ELLOREE, SC 1989
YELLOWVILLE, SC 1989
SAINT PAUL, SC 1989
SANCE, SC 1978
LONG STAR, SC 1989
PINEWOOD, SC 1987

LEGEND





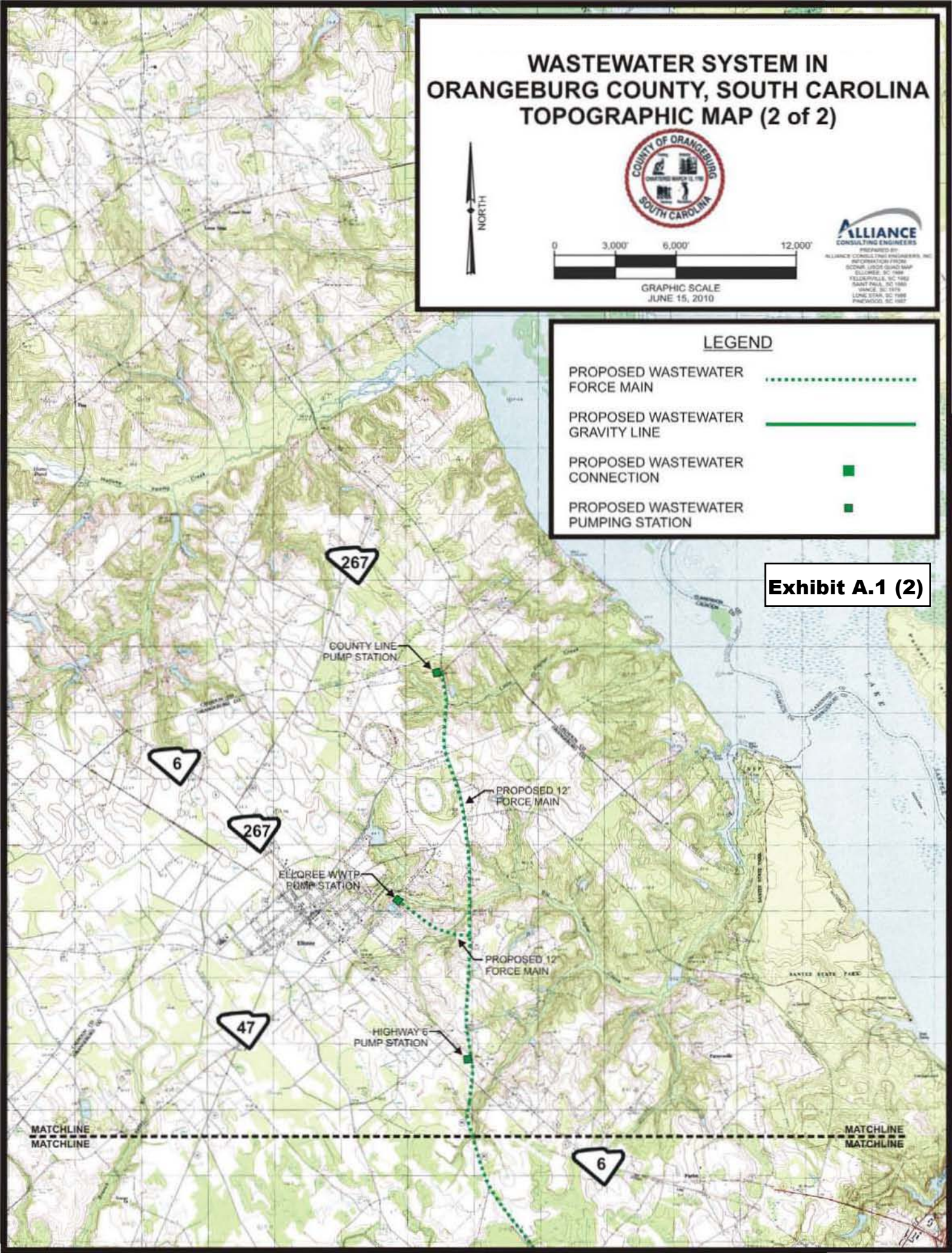
- PROPOSED WASTEWATER FORCE MAIN 
- PROPOSED WASTEWATER GRAVITY LINE 
- PROPOSED WASTEWATER CONNECTION 
- PROPOSED WASTEWATER PUMPING STATION 

Exhibit A.1 (2)



WATER SYSTEMS IN ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (1 of 2)

GRAPHIC SCALE
JUNE 15, 2010

0 3,000' 6,000' 12,000'

ALLIANCE CONSULTING ENGINEERS
ENGINEERED BY:
SUSANNE CONNOR, P.E.
INFORMATION FROM:
SUSANNE CONNOR, P.E.
BOBBIANNA, SC 1987
BRANDONNIE NEWMAN, SC 1988
CAMERON, SC 1987
ELLENOR, SC 1989
HOLLY WALKER, SC 1987
INDIANA CAMPBELL, SC 1987
ORANGEBURG NORTH, SC 1987
ORANGEBURG SOUTH, SC 1987
SHERYLL PAUL, SC 1988
SUSAN, SC 1987
WADDICO SHAWM, SC 1987

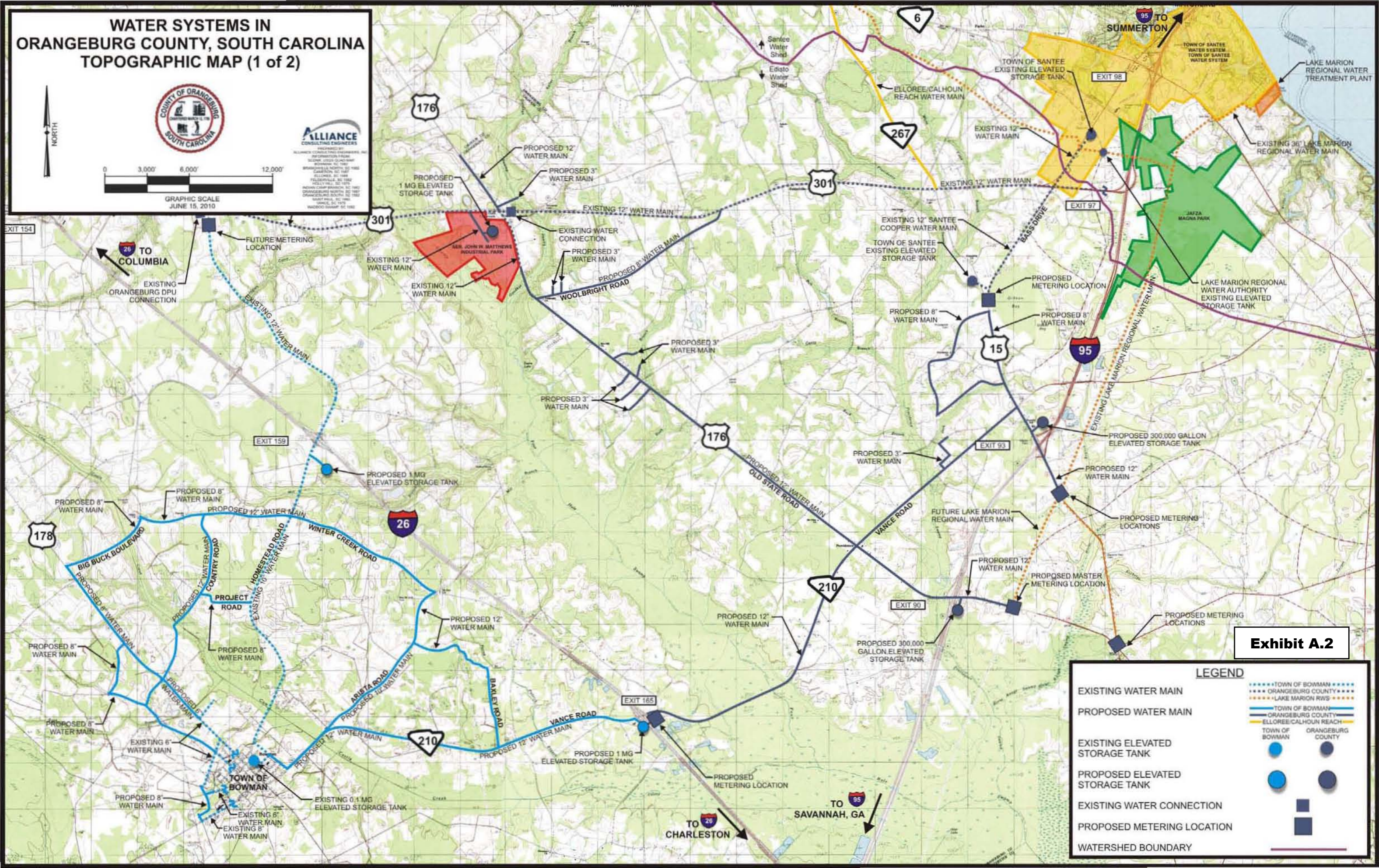


Exhibit A.2

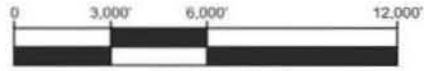
LEGEND

- EXISTING WATER MAIN (dashed blue line)
- PROPOSED WATER MAIN (solid blue line)
- EXISTING ELEVATED STORAGE TANK (small blue circle)
- PROPOSED ELEVATED STORAGE TANK (large blue circle)
- EXISTING WATER CONNECTION (dashed black line)
- PROPOSED METERING LOCATION (small blue square)
- WATERSHED BOUNDARY (dotted red line)

TOWN OF BOWMAN (dotted blue line)
 ORANGEBURG COUNTY (dotted black line)
 LAKE MARION RWS (dotted orange line)

TOWN OF BOWMAN (solid blue line)
 ORANGEBURG COUNTY (solid black line)
 ELLOREE/CALHOUN REACH (solid yellow line)

WATER SYSTEMS IN ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (2 of 2)



GRAPHIC SCALE
JUNE 15, 2010

ALLIANCE
CONSULTING ENGINEERS, INC.
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCORP, LOCAL ROAD MAP
COLUMBIA, SC 1989
WELLSVILLE, SC 1989
SAINT PAUL, SC 1989
LONG STAR, SC 1989
PINEWOOD, SC 1987

LEGEND

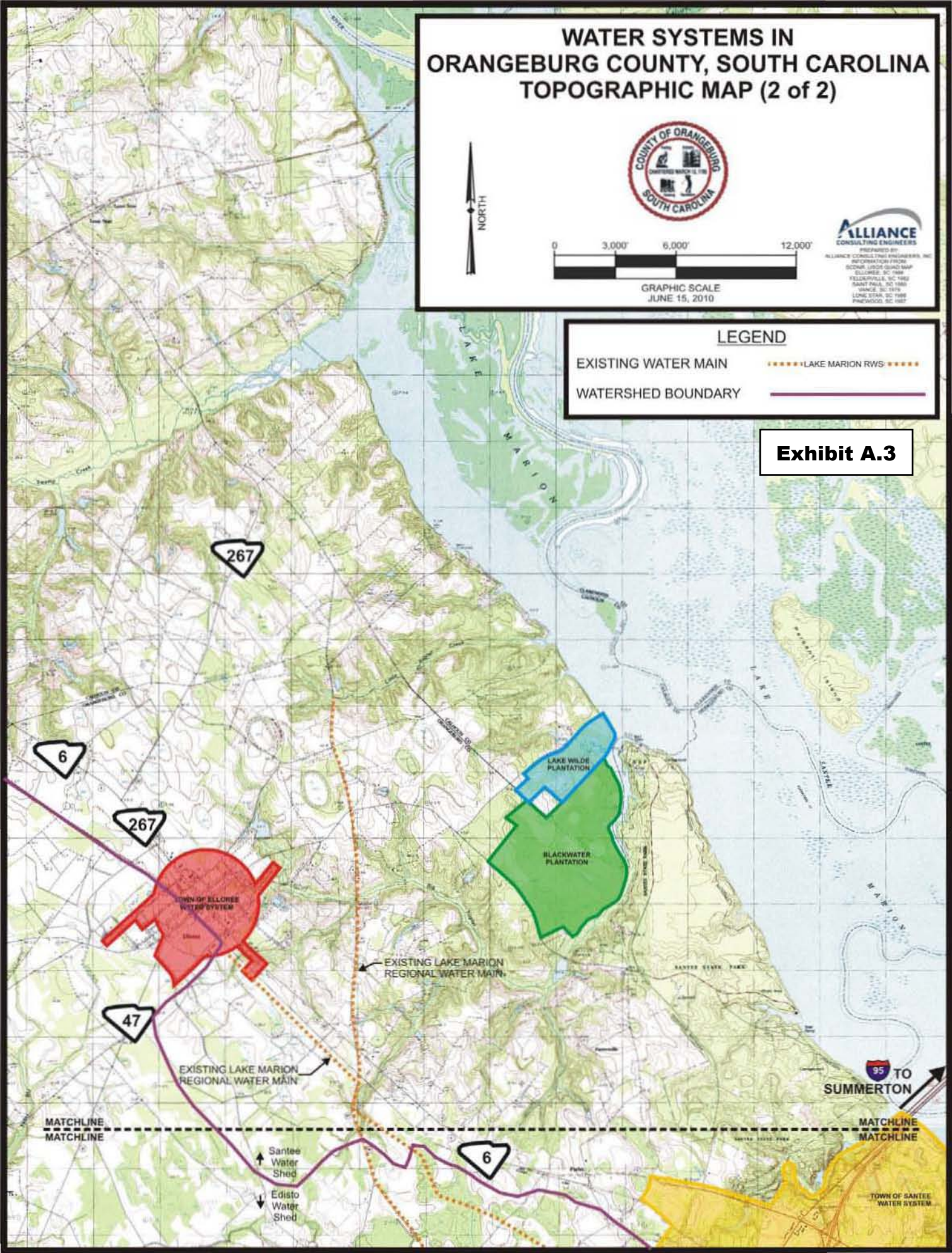
EXISTING WATER MAIN



WATERSHED BOUNDARY

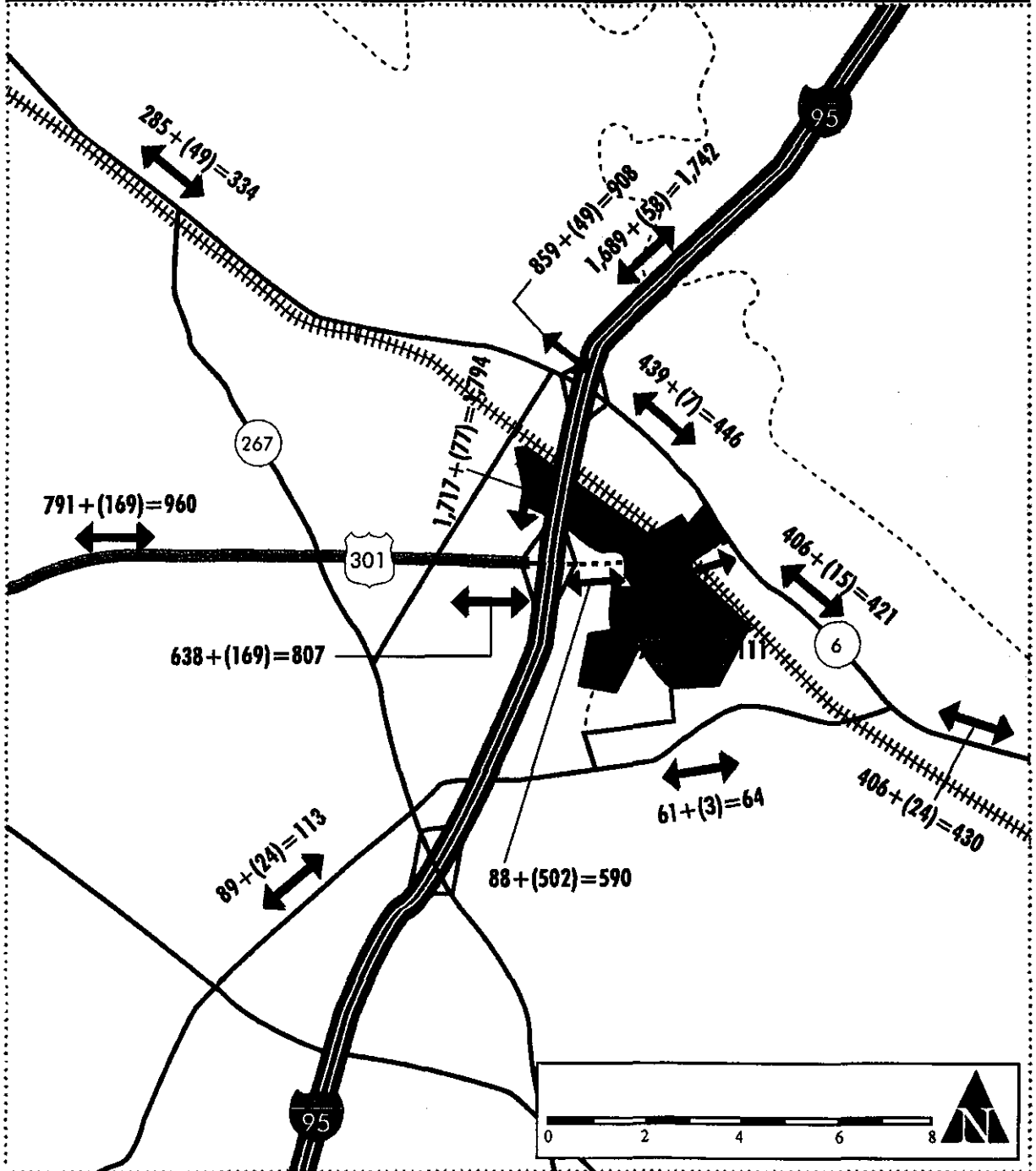


Exhibit A.3

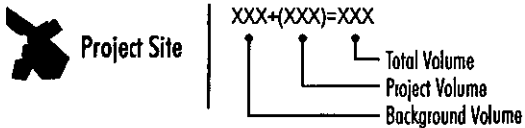


Jafza Logistics and Distribution Park

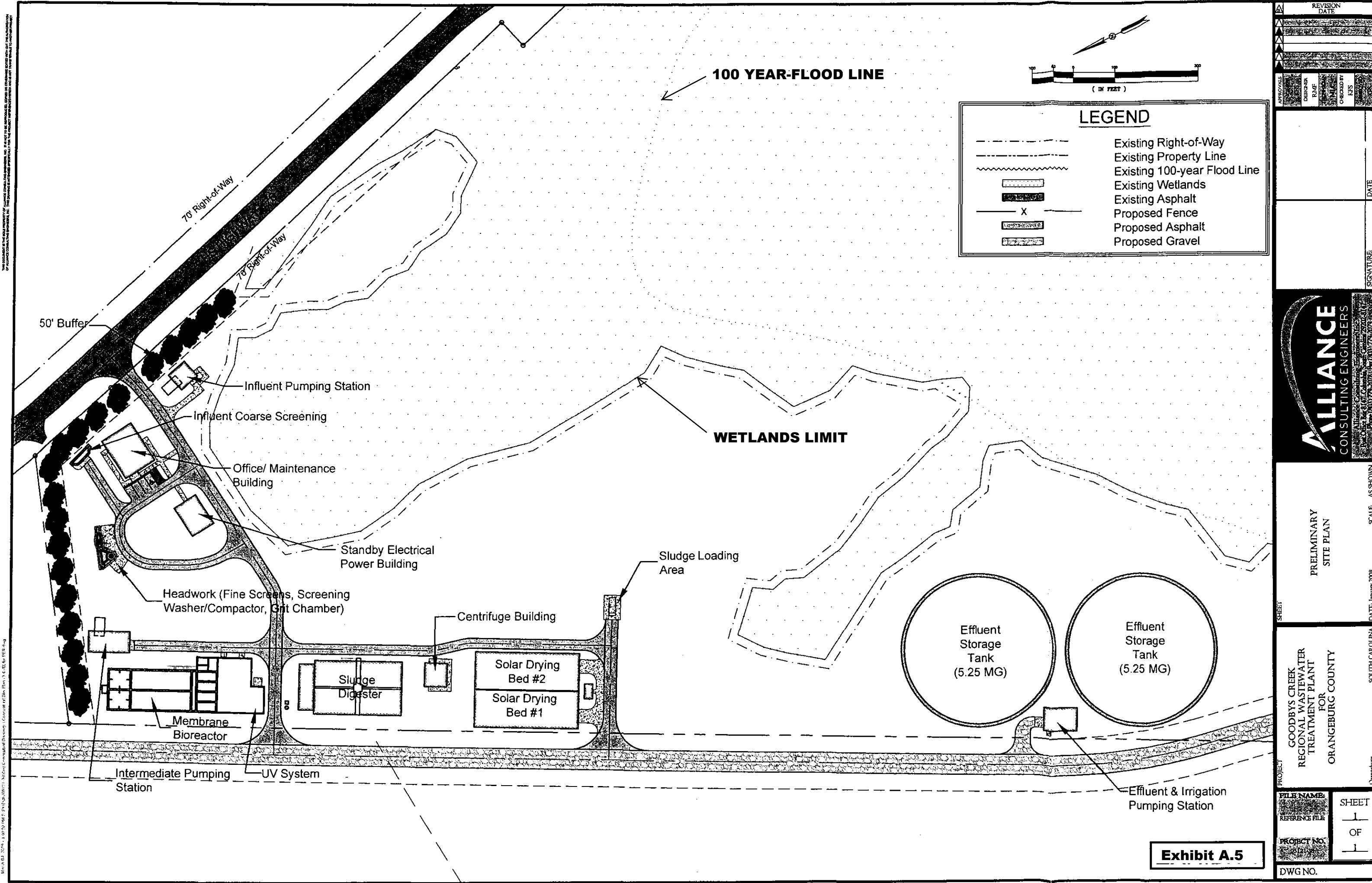
Fig 19 - Projected Peak Hour Peak Direction Volumes Near Site - Phase 3 (2030)



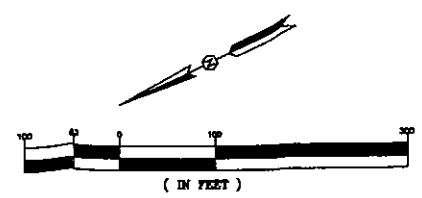
LEGEND:



HDR
JUNE 2009



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LEGEND	
	Existing Right-of-Way
	Existing Property Line
	Existing 100-year Flood Line
	Existing Wetlands
	Existing Asphalt
	Proposed Fence
	Proposed Asphalt
	Proposed Gravel

REVISION	DATE
APPROVALS	
DESIGNER	
DATE	
CHECKED BY	
DATE	
DATE	
SIGNATURE	
PRELIMINARY SITE PLAN	
SCALE: AS SHOWN	
DATE: January 2008	
SOUTH CAROLINA	
PROJECT: GOODBYS CREEK REGIONAL WASTEWATER TREATMENT PLANT FOR ORANGEBURG COUNTY	
FILE NAME	SHEET
REFERENCE FILE	OF
PROJECT NO.	
DWG NO.	

Exhibit A.5

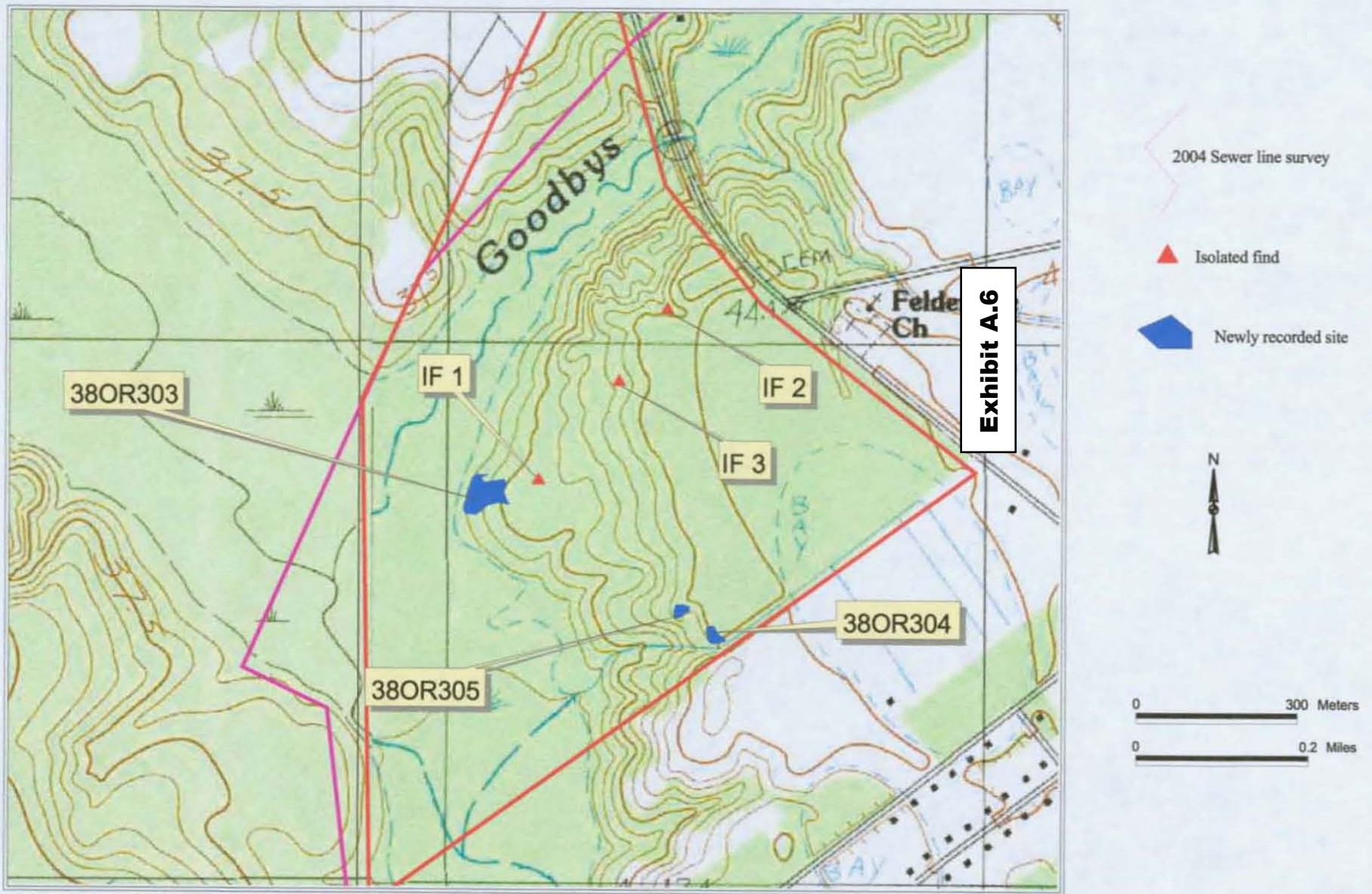
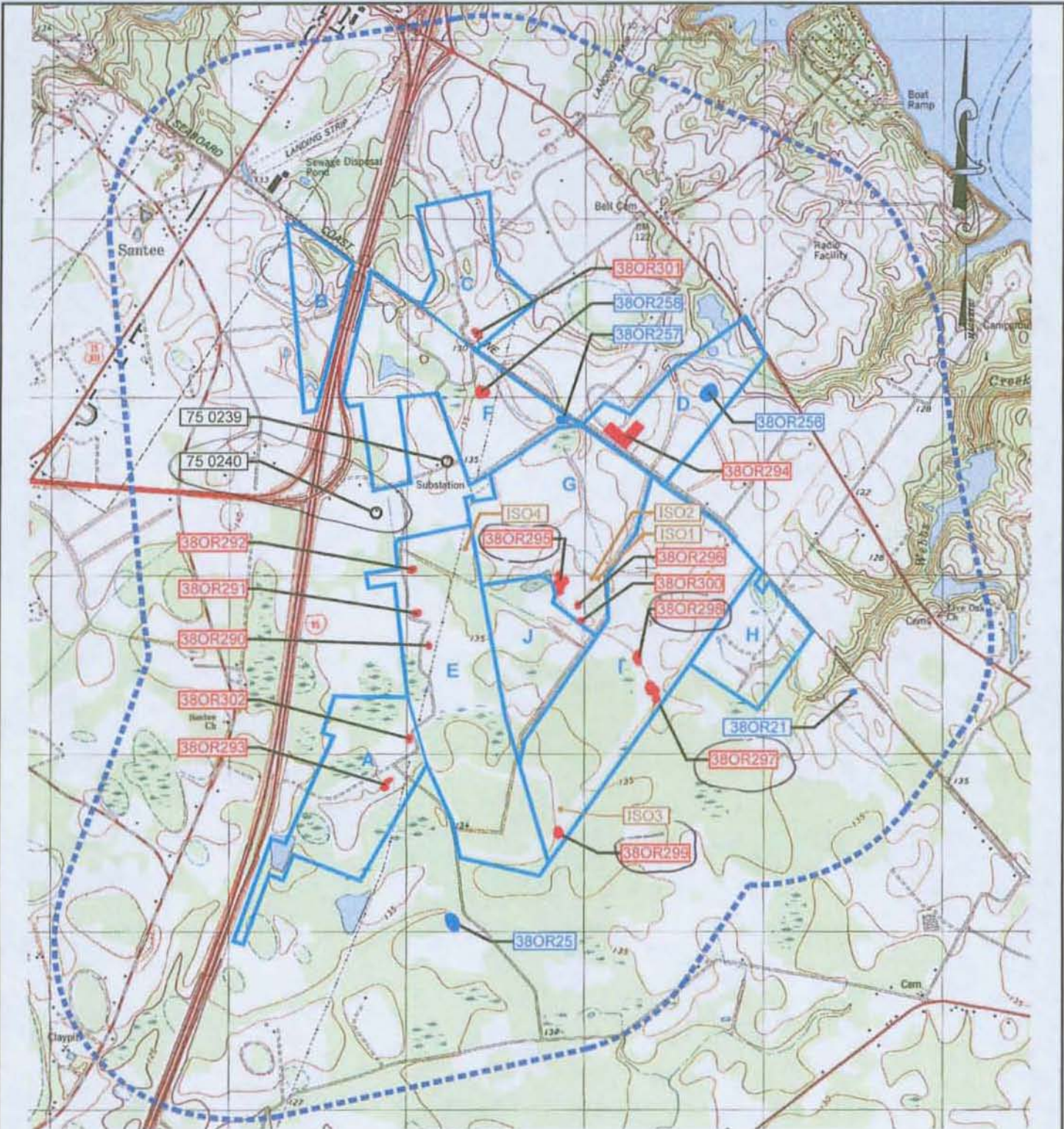


Figure 2. Newly recorded sites and isolated finds in the project area.



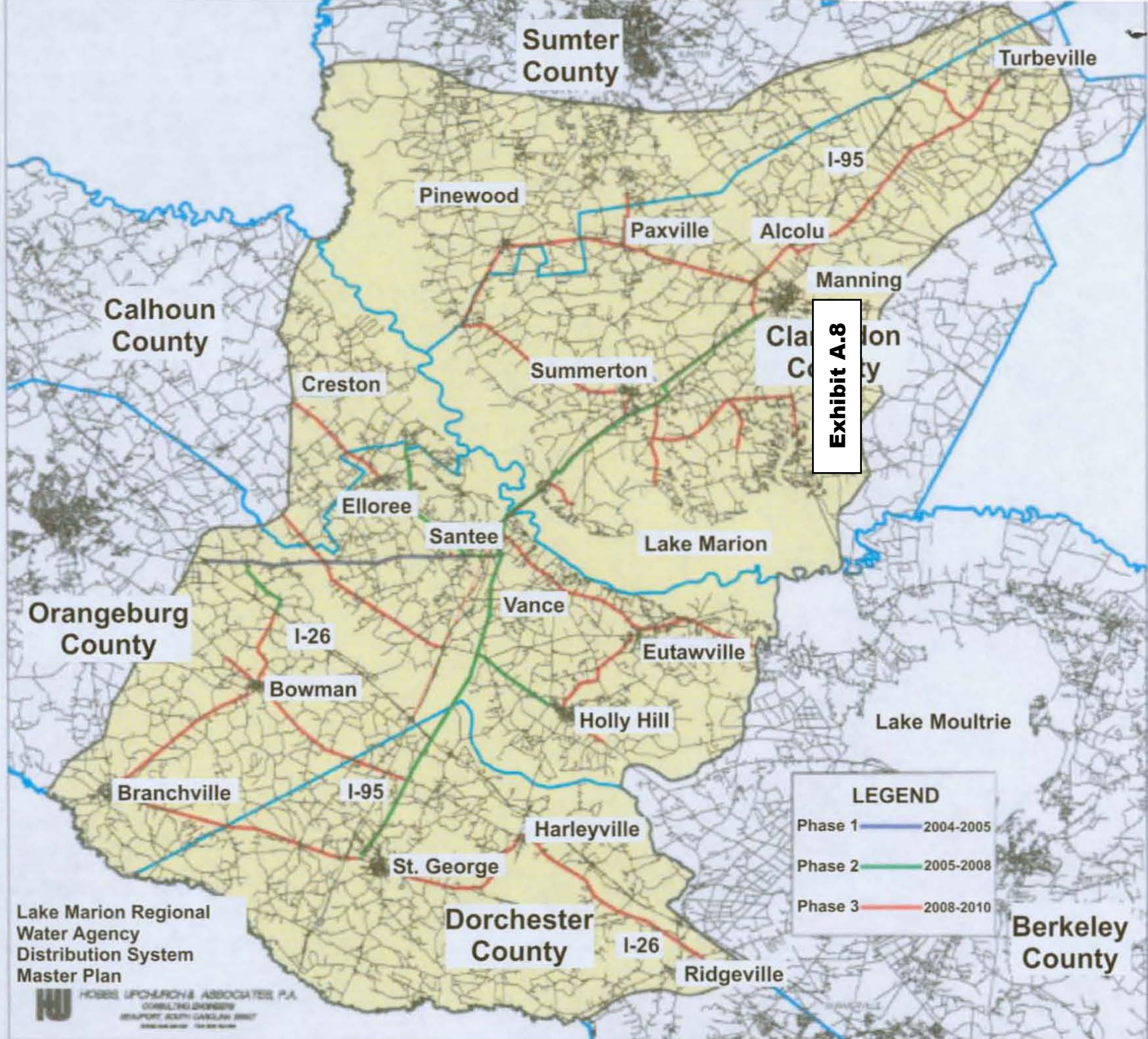
LEGEND

- PROJECT AREA - LETTERS INDICATE SURVEY AREAS
- - - 0.5-MILE RADIUS
- ARCHAEOLOGICAL SITES
- PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES
- HISTORIC STRUCTURES
- ISOLATED FINDS

SCALE:	NTS
APPROVED BY:	
DRAWN BY:	LAJ
DATE:	7-18-08



<p>PROJECT AREA AND CULTURAL RESOURCES JAFZA SOUTH CAROLINA, LLC ORANGEBURG COUNTY, SOUTH CAROLINA</p>	FIGURE NO.
	1
JOB NO:	1131-08-287



Sumter County

Turbeville

I-95

Pinewood

Paxville

Alcolu

Manning

Calhoun County

Clayton County

Exhibit A.8

Creston

Summerton

Elloree

Santee

Lake Marion

Orangeburg County

I-26

Vance

Eutawville

Lake Moultrie

Bowman

Holly Hill

Branchville

I-95

Harleyville

St. George

Dorchester County

I-26

Ridgeville

Berkeley County

LEGEND

Phase 1 — 2004-2005

Phase 2 — 2005-2008

Phase 3 — 2008-2010

Lake Marion Regional Water Agency
Distribution System
Master Plan

HOBBS UPTON & ASSOCIATES P.A.
CONSULTING ENGINEERS
2540 FORT SOUTH GARDEN BLVD
SOUTH GARDEN, SOUTH CAROLINA 29685
803.782.1000

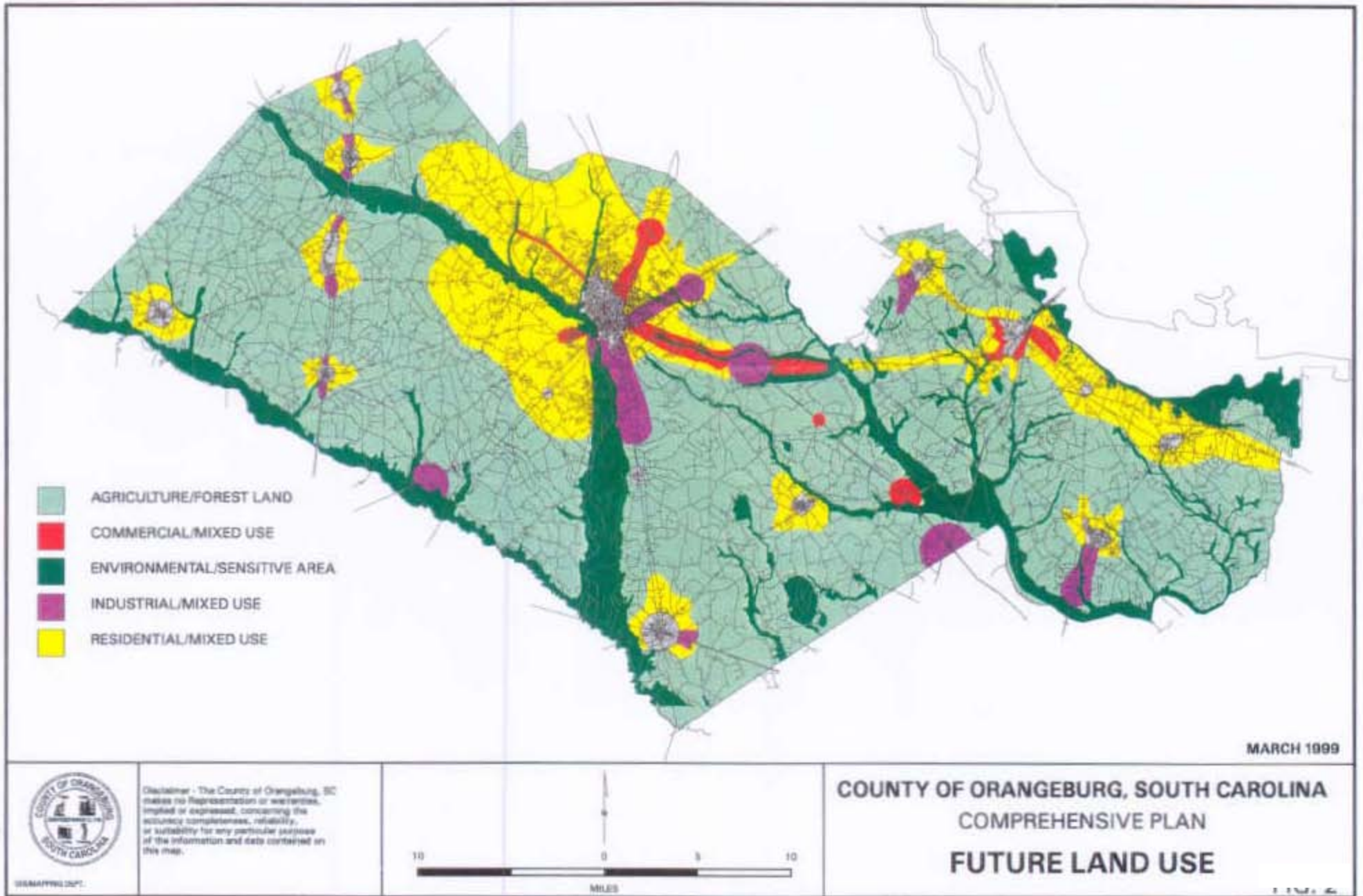
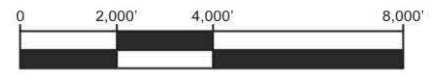


Exhibit A.9

**BOWMAN - BRANCHVILLE
WATER SYSTEM CONNECTOR
ORANGEBURG COUNTY, SOUTH CAROLINA
FEMA MAP**



GRAPHIC SCALE
NOVEMBER 23, 2009



LEGEND

- ZONE A - Areas of 100-year flood; base flood elevations and flood hazard factors not determined
- ZONE B - Areas between limits of the 100-year flood and 500-year flood

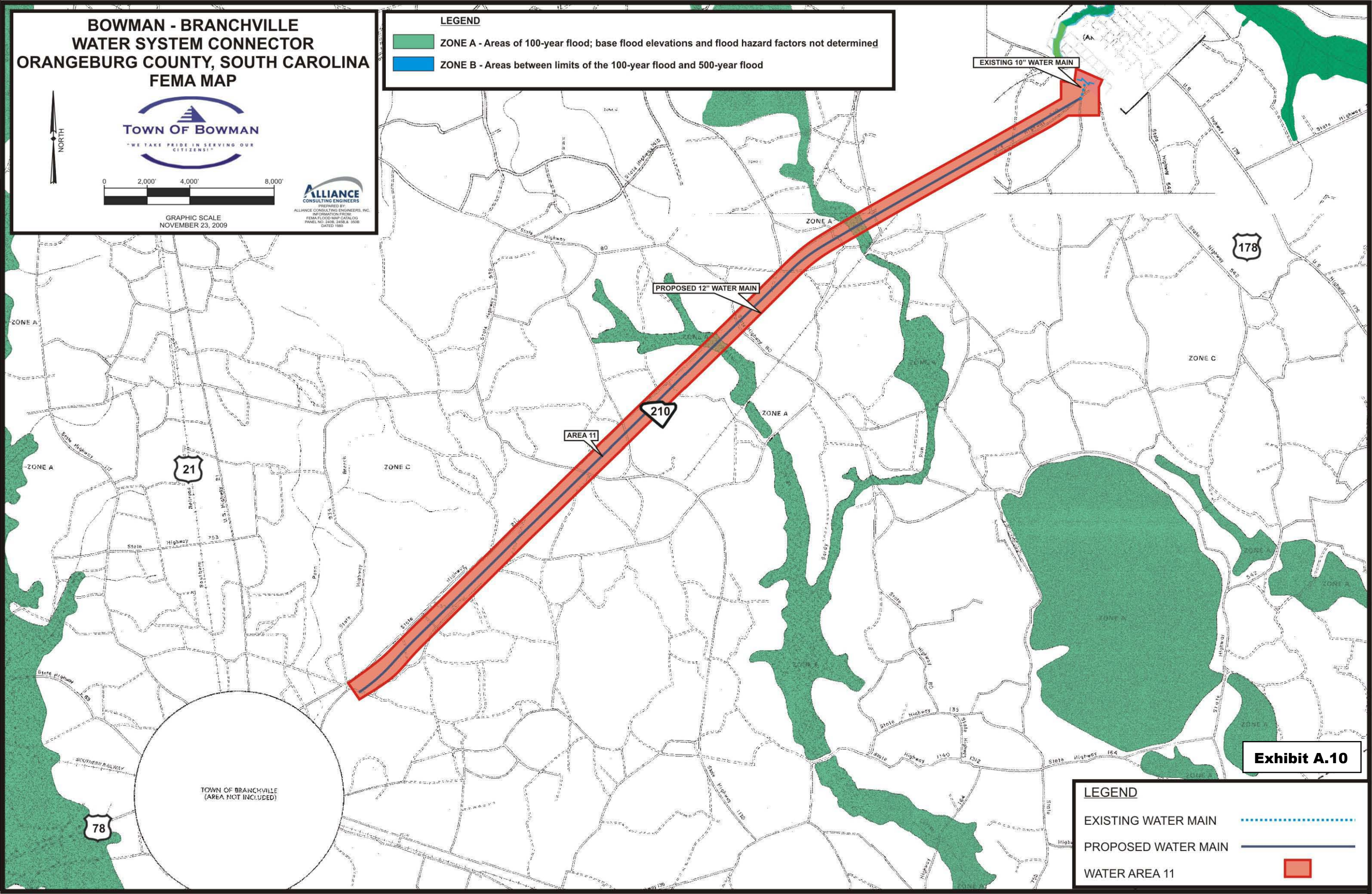
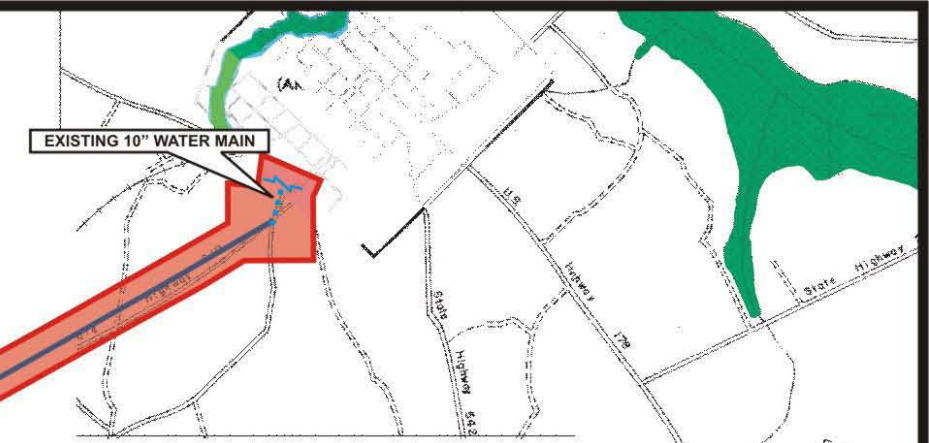
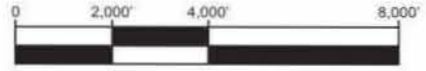


Exhibit A.10

LEGEND




- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- WATER AREA 11

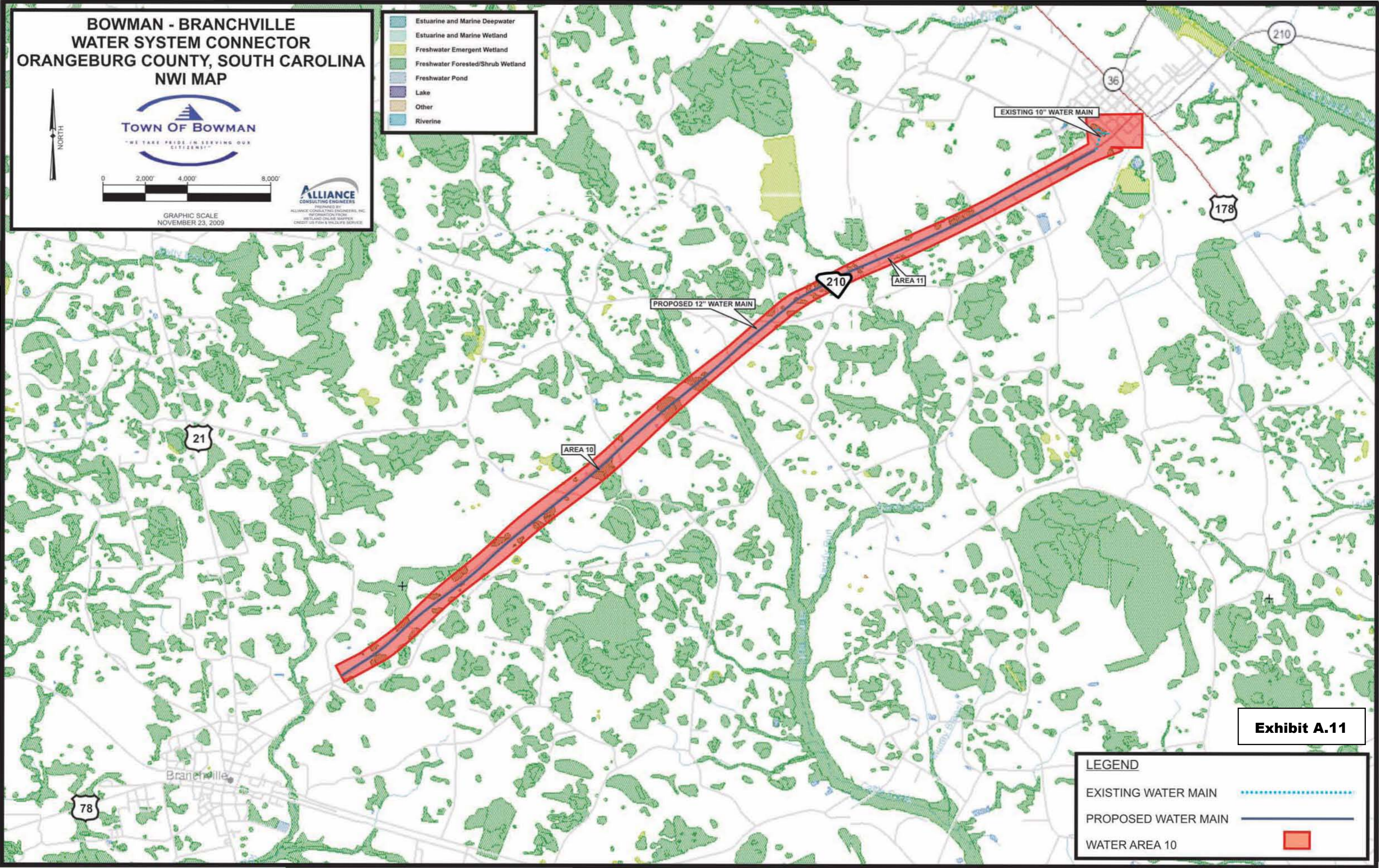
**BOWMAN - BRANCHVILLE
WATER SYSTEM CONNECTOR
ORANGEBURG COUNTY, SOUTH CAROLINA
NWI MAP**



GRAPHIC SCALE
NOVEMBER 23, 2009

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
WETLAND ONLINE MAPPER
CREDIT US FOR A WILDLIFE SERVICE

-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Other
-  Riverine






EXISTING 10" WATER MAIN

PROPOSED 12" WATER MAIN

AREA 10

AREA 11

Exhibit A.11

- LEGEND**
- EXISTING WATER MAIN 
 - PROPOSED WATER MAIN 
 - WATER AREA 10 

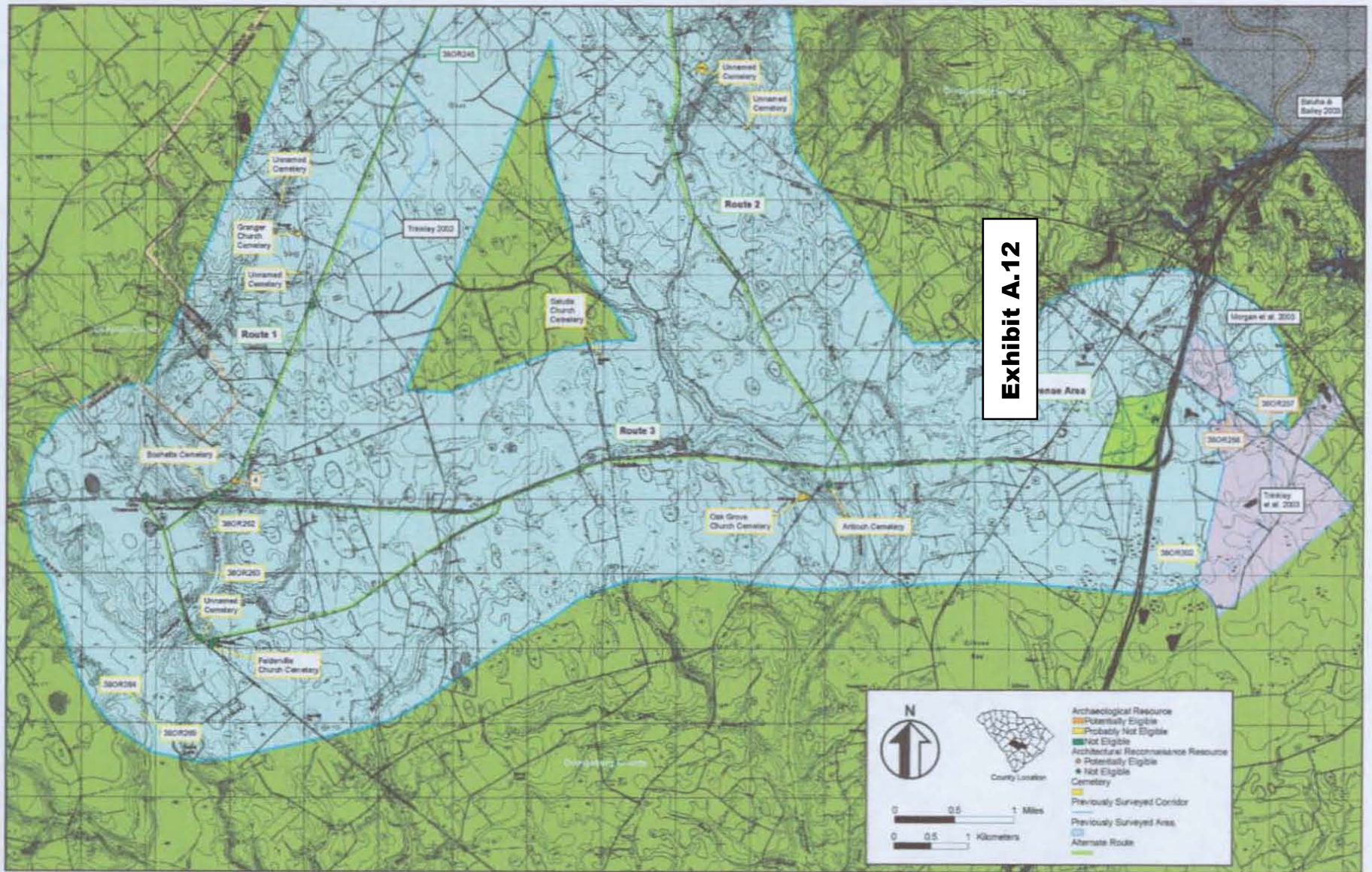


Figure 3.2 Cultural resources along the central portions of Routes 1, 2, 3, and 4.

Exhibit A.13

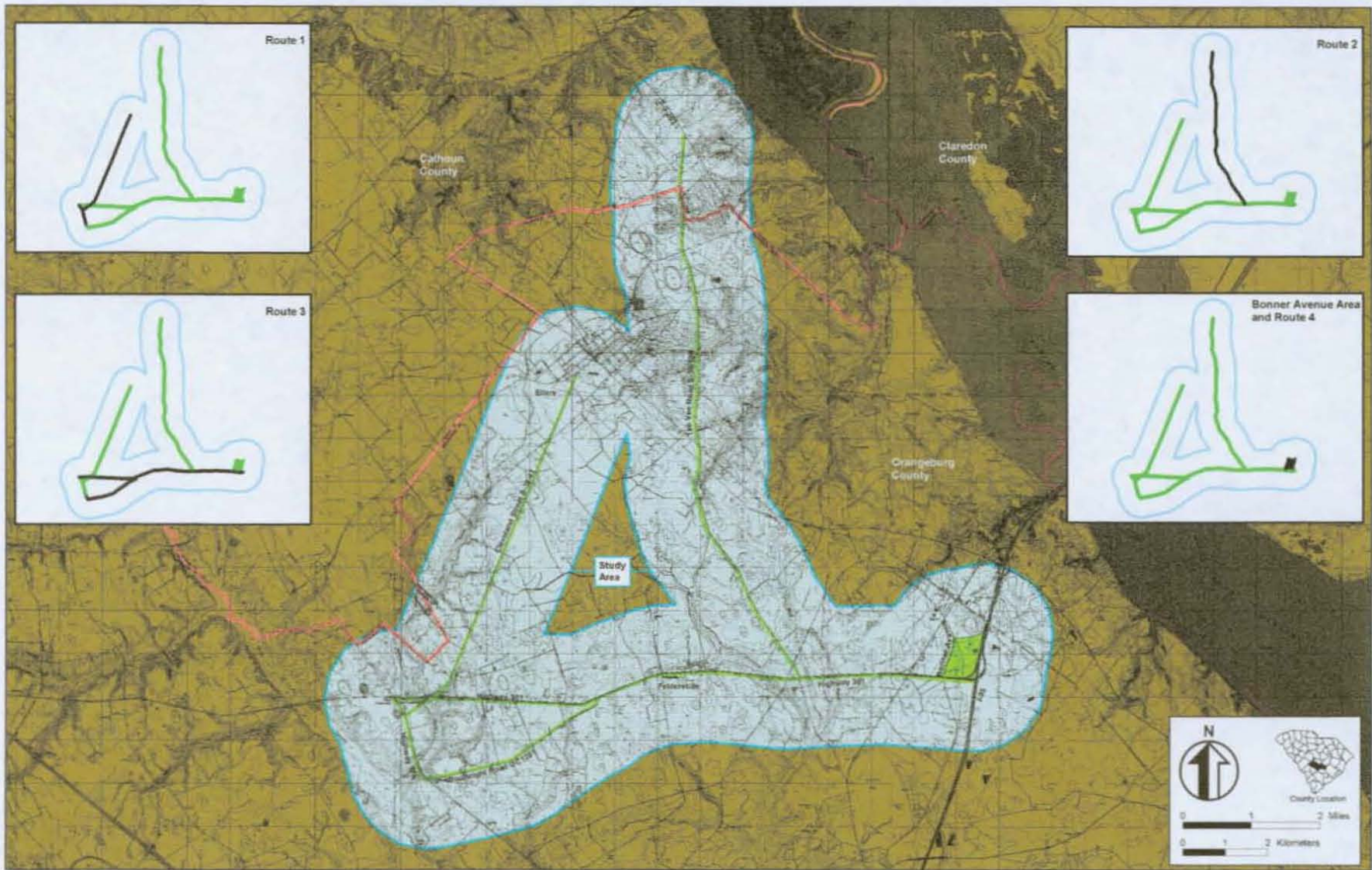
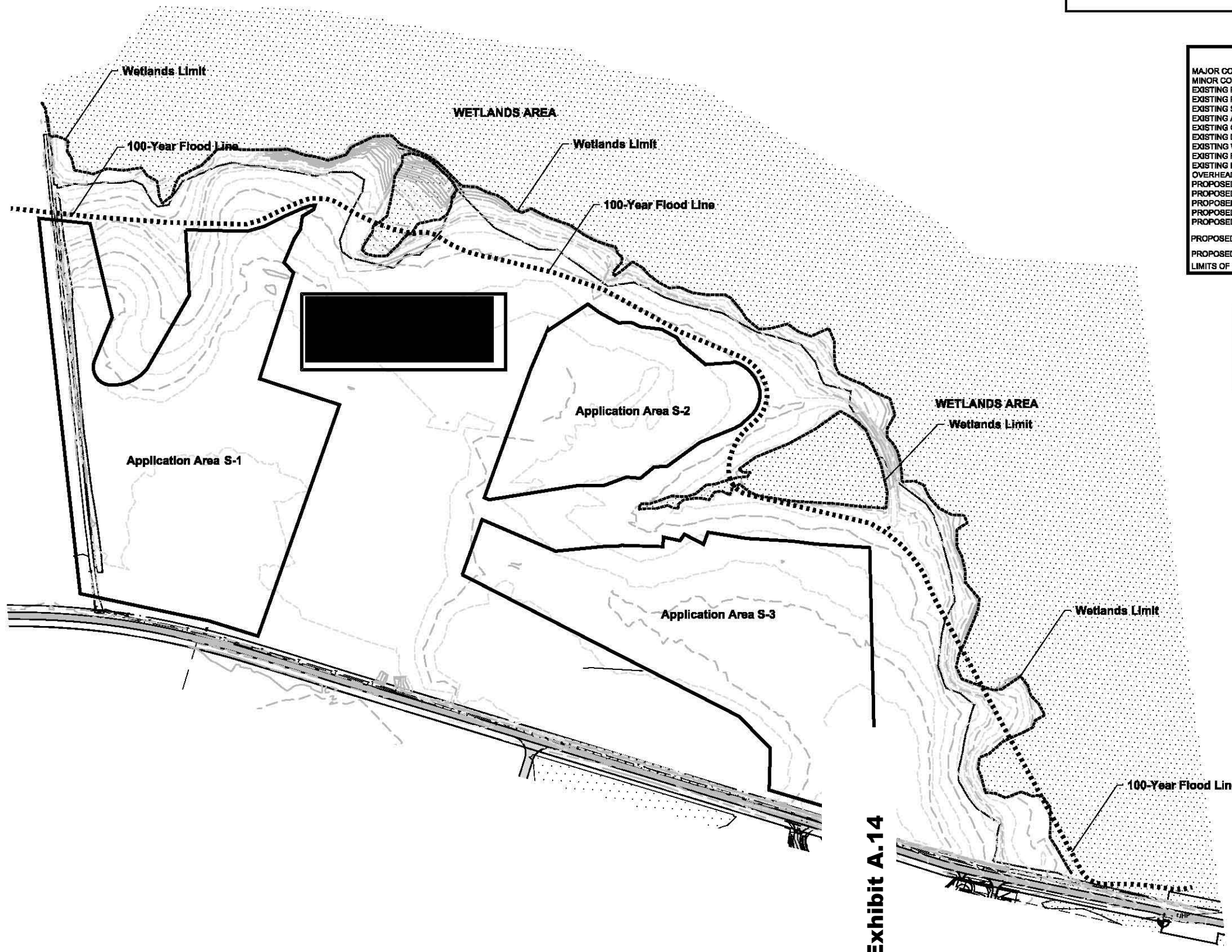


Figure 1.1 The location of proposed routes and Bonner Avenue Area for the Goodby's Wastewater Treatment Plant.

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August 16, 2010 - 11:34 AM and 2:30 PM (EST)

- References:**
- Reference is made to a Topographic and Wetlands Survey conducted by Nesbitt Surveying Co., Inc. dated March 13, 2006 for Alliance Consulting Engineers, Inc.
 - Reference is made to a Topographic and Wetlands Survey conducted by B. P. Barber and Associates, Inc. dated July 30, 2002.
 - Reference is made to a Topographic Survey conducted by Construction Support Services and received by Alliance Consulting Engineers, Inc. on November 20, 2009.



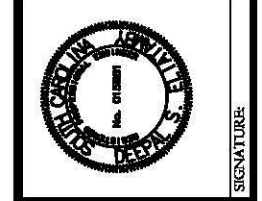
LEGEND

- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING RIGHT OF WAY
- EXISTING POWER POLE
- EXISTING STORM DRAIN PIPE
- EXISTING ASPHALT
- EXISTING GRAVEL
- EXISTING DIRT
- EXISTING WETLANDS BOUNDARY
- EXISTING ROAD SIGN
- EXISTING FENCE
- OVERHEAD POWER
- PROPOSED WATER MAIN
- PROPOSED WATER VALVE
- PROPOSED REDUCER
- PROPOSED BLOW OFF VALVE
- PROPOSED FIBER ROLL
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED SILT FENCE
- LIMITS OF DISTURBANCE

Developer Information
 Orangeburg County Development Commission
 Contact: Mr. John McLaughlin, Jr.
 P. O. Drawer 9000
 Orangeburg, SC 29116
 Telephone: (803) 536-3333
 E-mail: john@ocdc.com

REVISION	
DATE	DESCRIPTION
August 6, 2010	MEM

APPROVALS	ENGINEER	RFM	DRAWER	PJT	TECHNICIAN	NLC	DMW	APPROVED	DSE
-----------	----------	-----	--------	-----	------------	-----	-----	----------	-----



ALLIANCE CONSULTING ENGINEERS
 Alliance Consulting Engineers, Inc.
 Post Office Box 147
 Orangeburg, SC 29116
 Phone: (803) 775-2078 • Fax: (803) 775-2079

SHEET
 SANDERS POINTE FARM PRELIMINARY SITE PLAN
 SCALE: 1"=200'

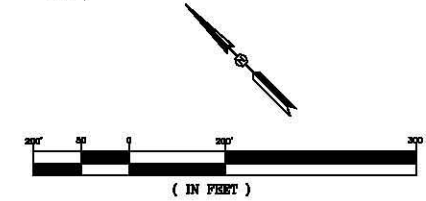
PROJECT
 SANDERS POINTE FARM LAND APPLICATION SITE FOR ORANGEBURG COUNTY
 ORANGEBURG COUNTY SOUTH CAROLINA
 DATE: MARCH 2010

FILE NAME:	C4.DWG	SHEET	C4
REFERENCE FILE:	BASE05.19.08	OF	17
PROJECT NO.:	05121-38		

DWG NO. 01,564-D10

EXHIBIT A.15

Exhibit A.14



Appendix B

GOODBYS REGIONAL WASTEWATER SYSTEM ORANGEBURG COUNTY, SOUTH CAROLINA VICINITY MAP



ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
DECEMBER 18, 2009

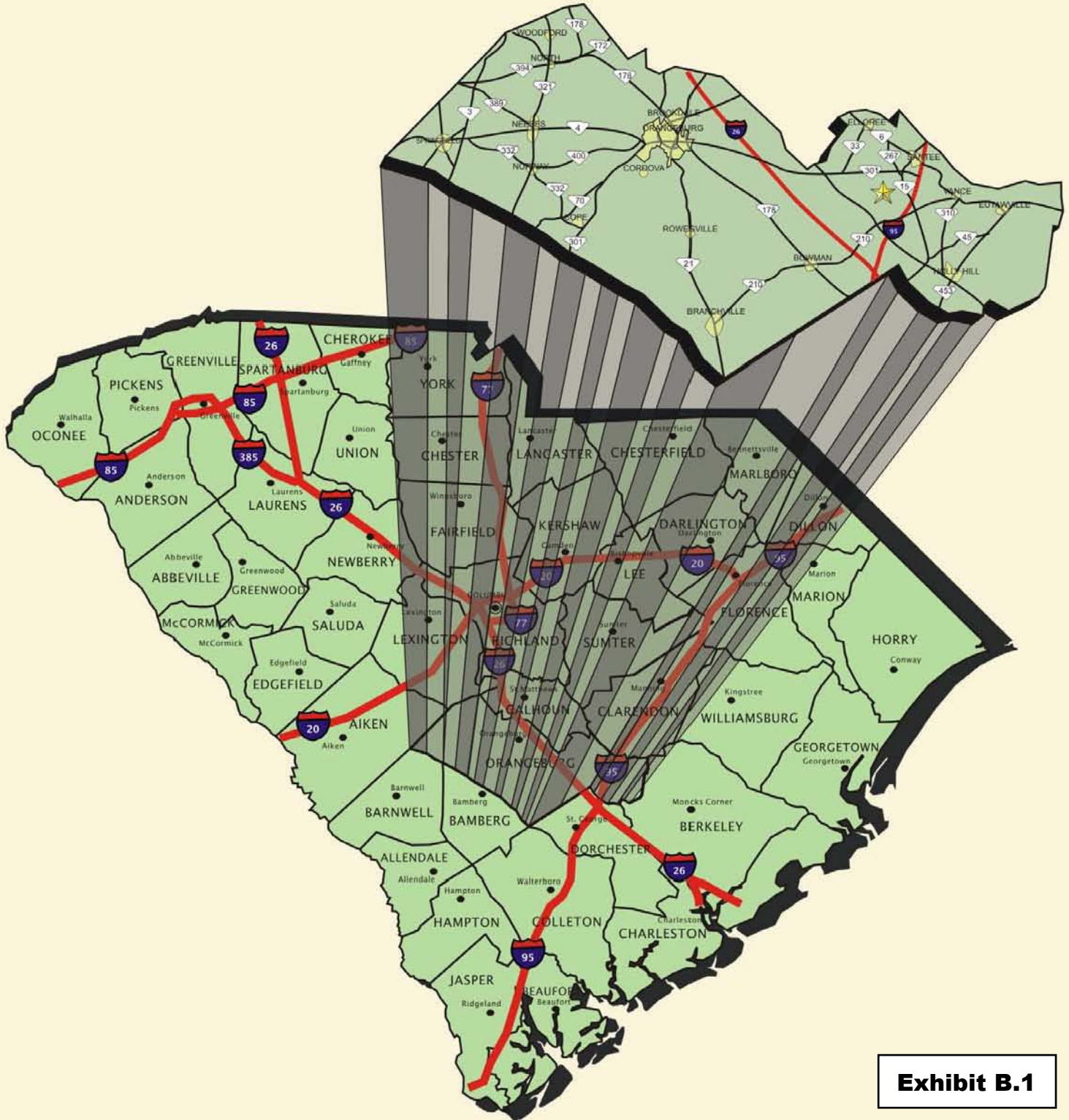
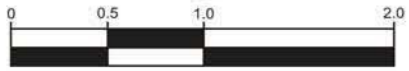


Exhibit B.1

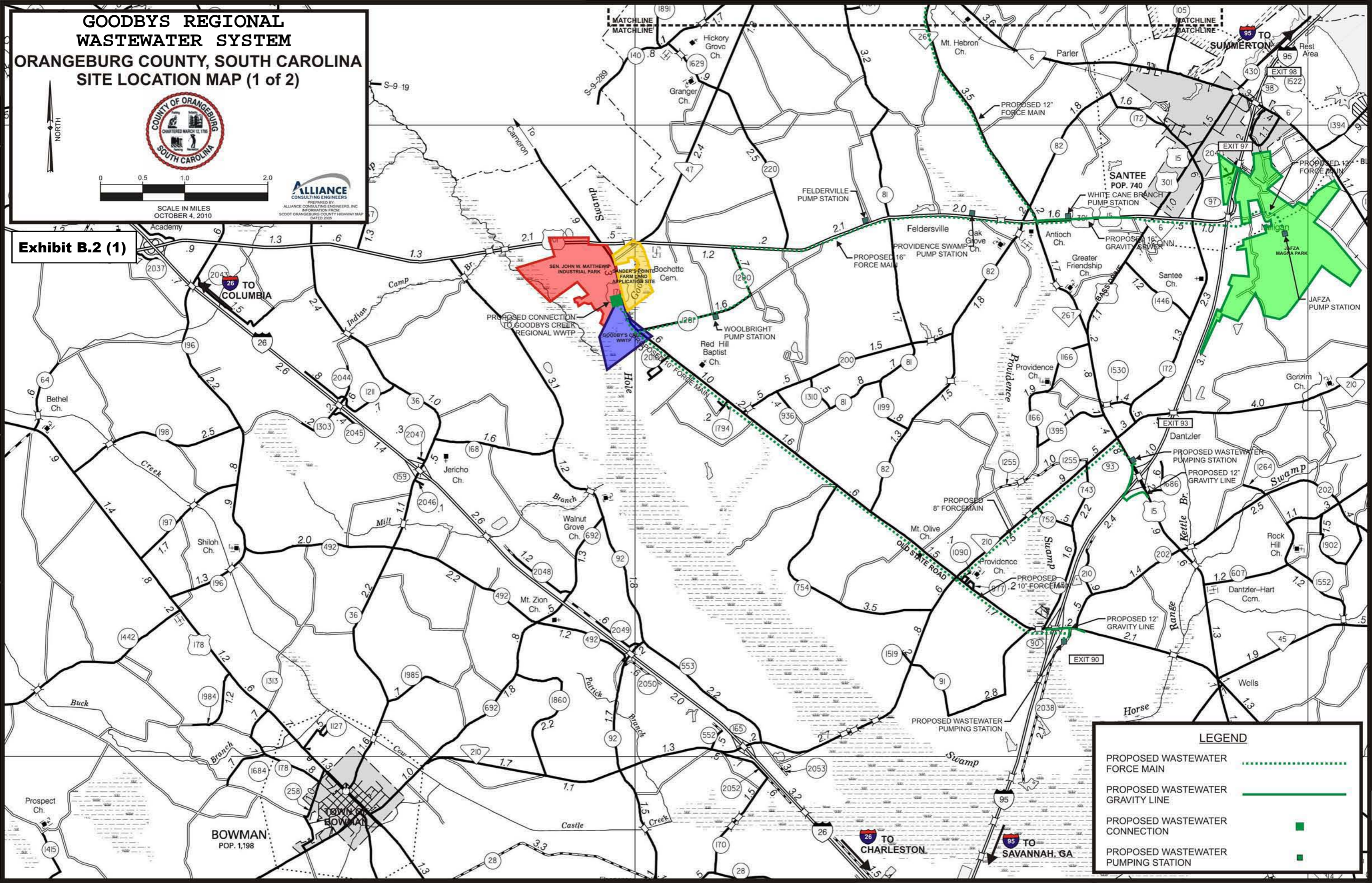
**GOODBYS REGIONAL
WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
SITE LOCATION MAP (1 of 2)**



SCALE IN MILES
OCTOBER 4, 2010

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
SCOTT ORANGEBURG COUNTY HIGHWAY MAP
DATED 2009

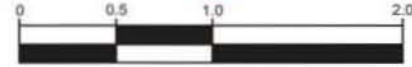
Exhibit B.2 (1)



LEGEND

- PROPOSED WASTEWATER FORCE MAIN
- PROPOSED WASTEWATER GRAVITY LINE
- PROPOSED WASTEWATER CONNECTION
- PROPOSED WASTEWATER PUMPING STATION

GOODBYS REGIONAL WASTEWATER SYSTEM ORANGEBURG COUNTY, SOUTH CAROLINA SITE LOCATION MAP (2 of 2)



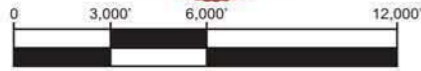
SCALE IN MILES
OCTOBER 4, 2010

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
SCDOT ORANGEBURG COUNTY HIGHWAY MAP
DATED 2010

Exhibit B.2 (2)



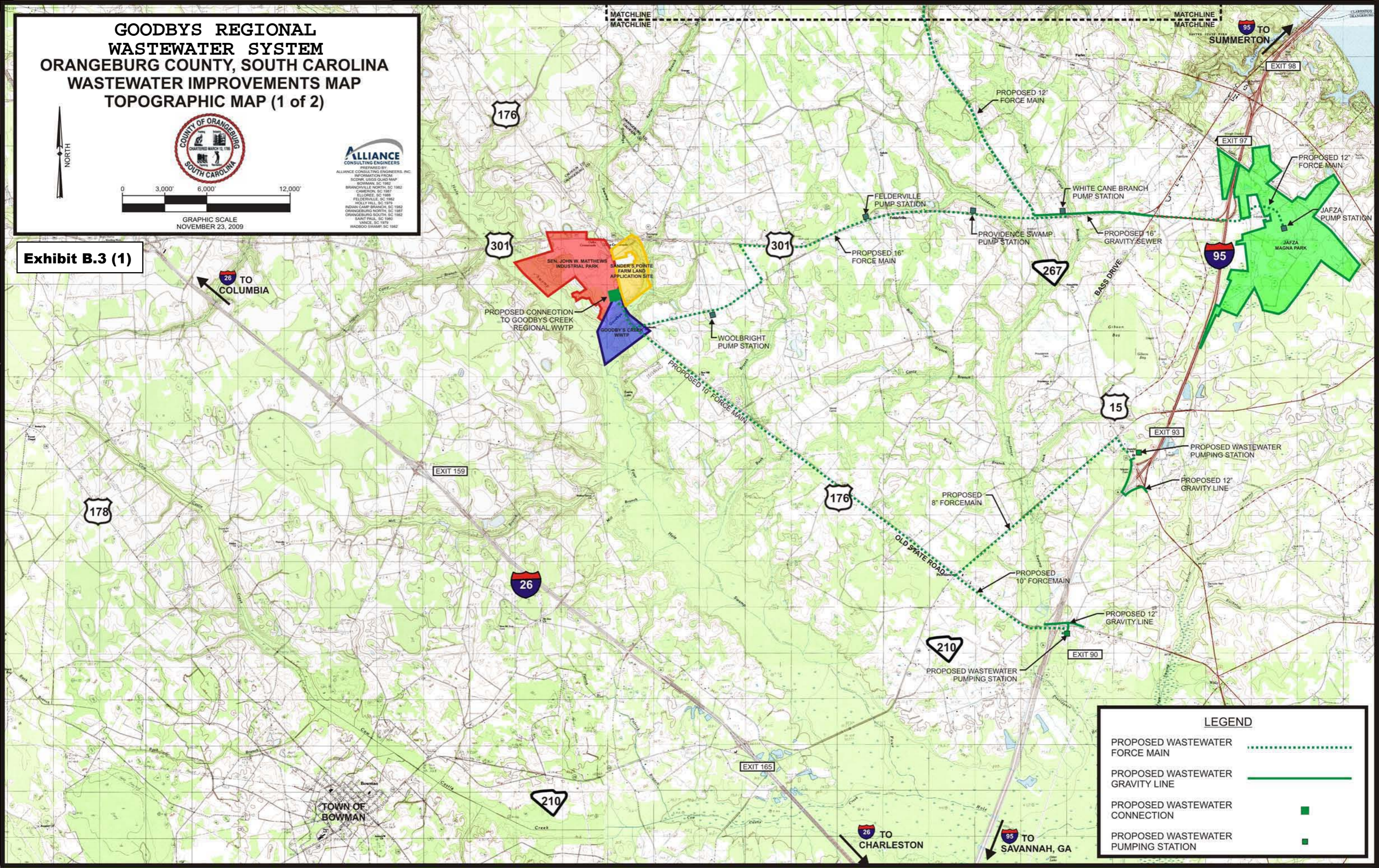
**GOODBYS REGIONAL
WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
WASTEWATER IMPROVEMENTS MAP
TOPOGRAPHIC MAP (1 of 2)**



GRAPHIC SCALE
NOVEMBER 23, 2009

**ALLIANCE
CONSULTING ENGINEERS**
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCDNR USGS QUAD MAP
BOWMAN, SC 1982
BRANCHVILLE NORTH, SC 1982
CAMERON, SC 1987
FLORENCE, SC 1989
FELDERVILLE, SC 1982
HOLLY HILL, SC 1979
INDIAN CAMP BRANCH, SC 1982
ORANGEBURG NORTH, SC 1987
ORANGEBURG SOUTH, SC 1982
SAINT PAUL, SC 1980
VANCE, SC 1979
WADSWOOD SWAMP, SC 1982

Exhibit B.3 (1)



LEGEND

- PROPOSED WASTEWATER FORCE MAIN
- PROPOSED WASTEWATER GRAVITY LINE
- PROPOSED WASTEWATER CONNECTION
- PROPOSED WASTEWATER PUMPING STATION

WASTEWATER SYSTEMS IN ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (2 of 2)



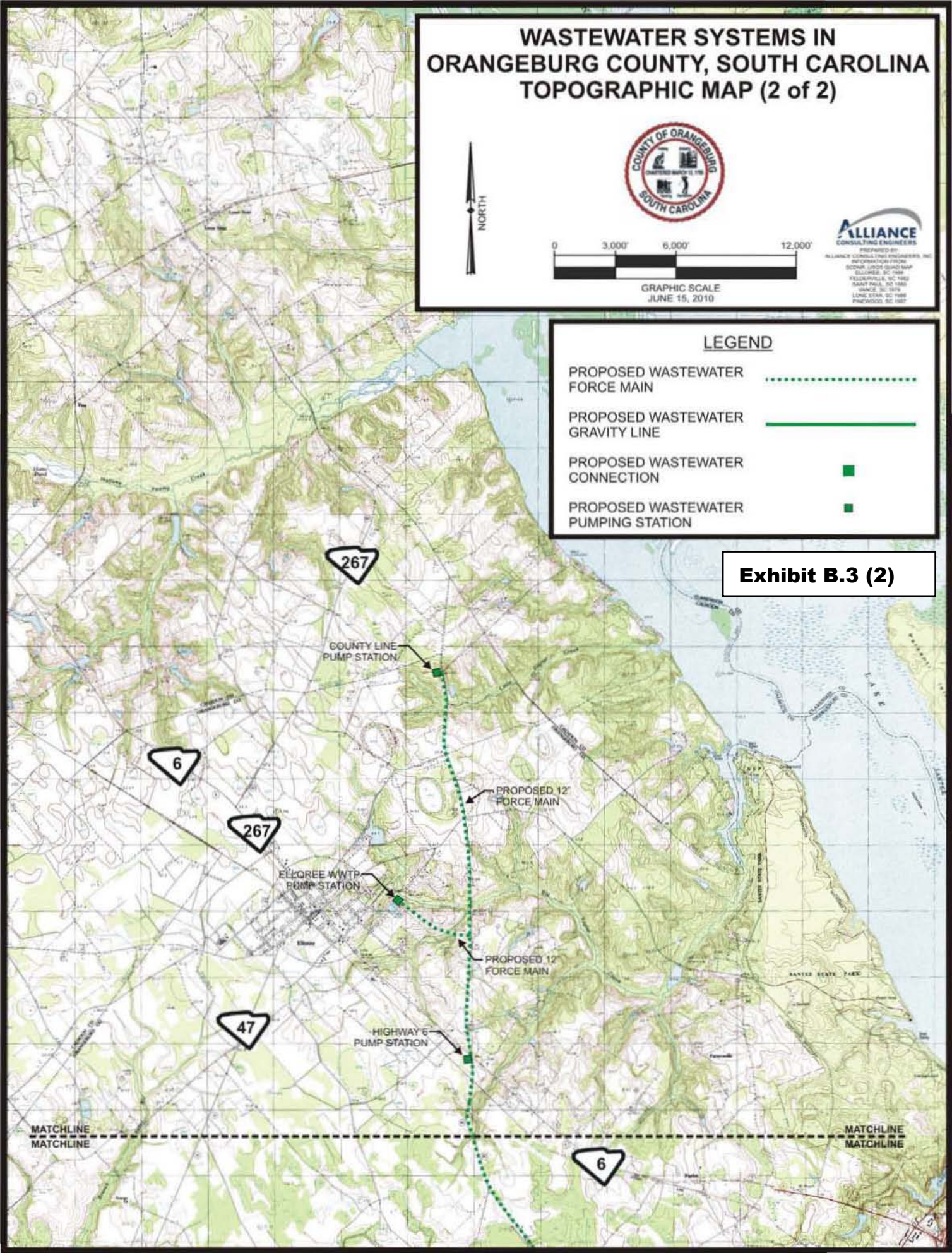
GRAPHIC SCALE
JUNE 15, 2010

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCORP, LOCAL ROAD MAP
ELLOREE, SC 1989
WELLSVILLE, SC 1989
SAINT PAUL, SC 1989
ORANGE, SC 1978
LONG STAR, SC 1989
PINEWOOD, SC 1987

LEGEND

- PROPOSED WASTEWATER FORCE MAIN 
- PROPOSED WASTEWATER GRAVITY LINE 
- PROPOSED WASTEWATER CONNECTION 
- PROPOSED WASTEWATER PUMPING STATION 

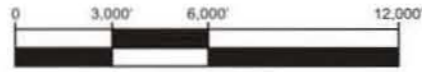
Exhibit B.3 (2)



**GOODBYS REGIONAL
WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
WASTEWATER IMPROVEMENTS MAP
AERIAL MAP (1 of 2)**

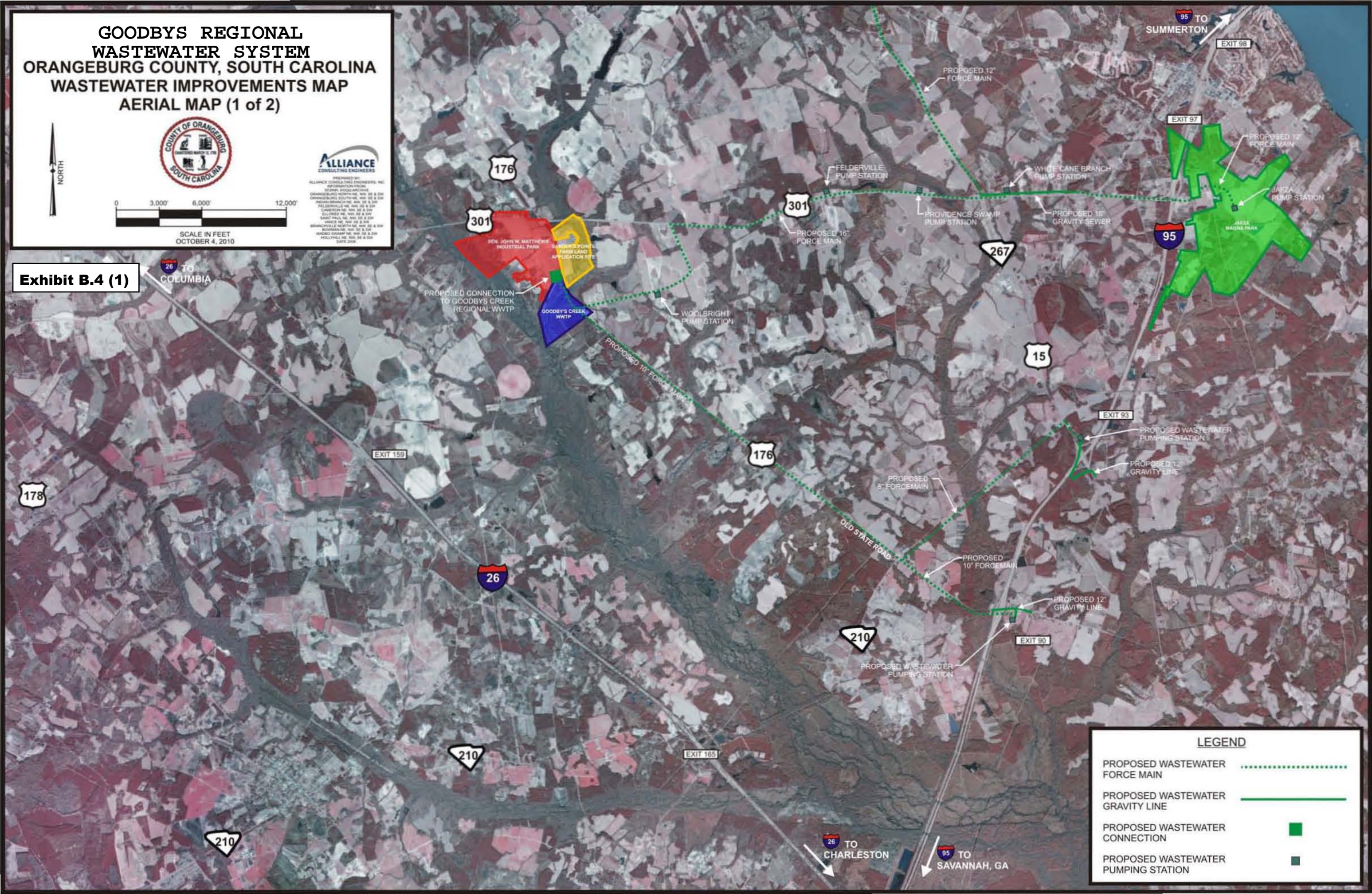


PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
REGISTRATION NUMBER:
SCEIN 000490000
ORANGEBURG NORTH, N.W. 30' & 30"
ORANGEBURG SOUTH, N.W. 30' & 30"
INDIAN BRANCH, N.W. 30' & 30"
FELDERVILLE, N.W. 30' & 30"
CAMERON, N.W. 30' & 30"
ELLORREE, N.W. 30' & 30"
TAMM, N.W. 30' & 30"
WANCE, N.W. 30' & 30"
BRANCHVILLE NORTH, N.W. 30' & 30"
BOHANNAN, N.W. 30' & 30"
JACKSON SWAMP, N.W. 30' & 30"
HOLLYHILL, N.W. 30' & 30"
DATE: 2009



SCALE IN FEET
OCTOBER 4, 2010

Exhibit B.4 (1)



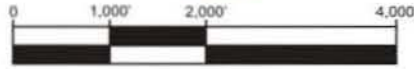
LEGEND

- PROPOSED WASTEWATER FORCE MAIN
- PROPOSED WASTEWATER GRAVITY LINE
- PROPOSED WASTEWATER CONNECTION
- PROPOSED WASTEWATER PUMPING STATION

LEGEND

- PROPOSED WASTEWATER FORCE MAIN 
- PROPOSED WASTEWATER GRAVITY LINE 
- PROPOSED WASTEWATER CONNECTION 
- PROPOSED WASTEWATER PUMPING STATION 

GOODBYS REGIONAL WASTEWATER SYSTEM ORANGEBURG COUNTY, SOUTH CAROLINA AERIAL MAP (2 of 2)

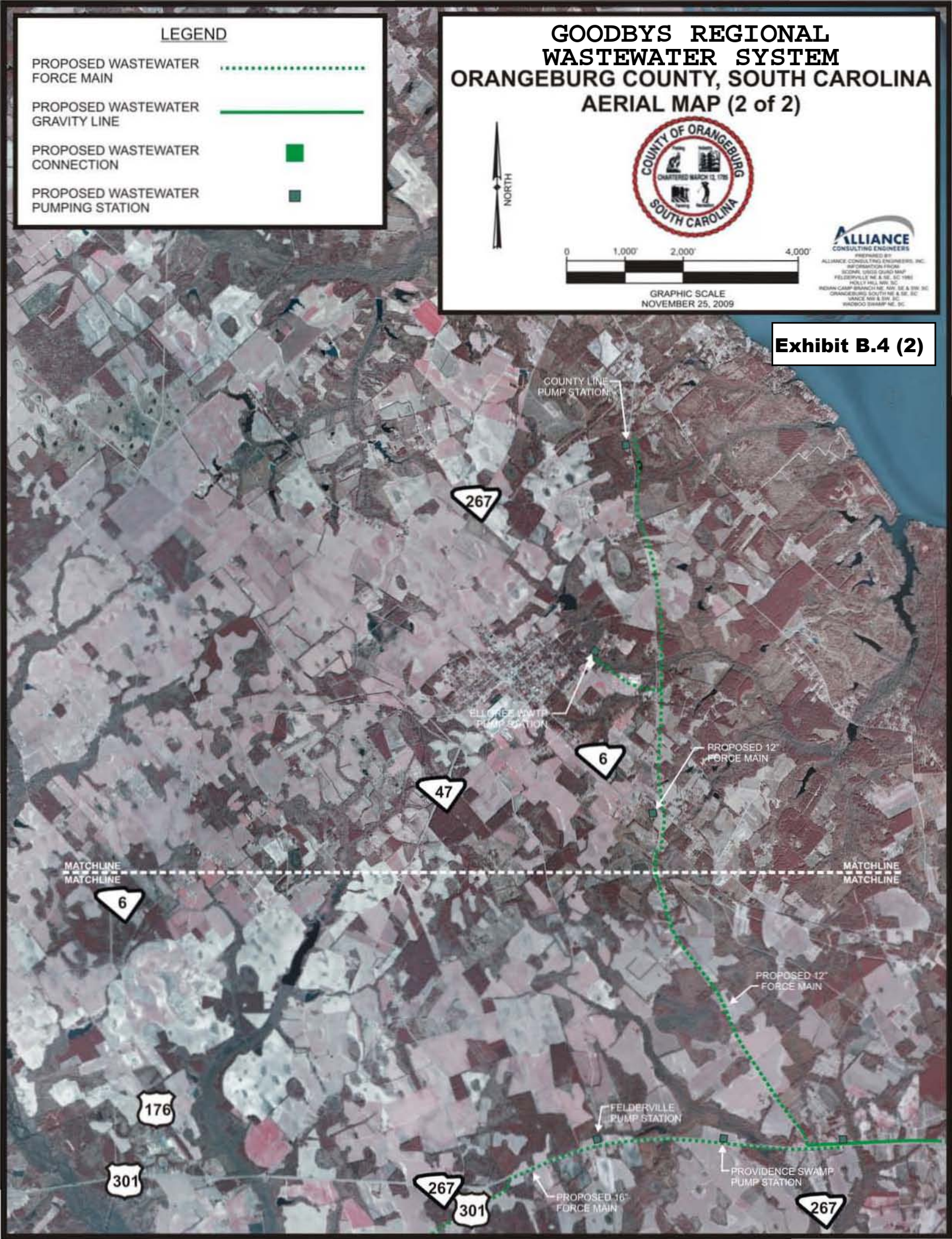


GRAPHIC SCALE
NOVEMBER 25, 2009

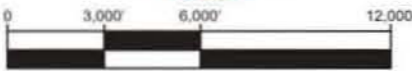


PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCORP, 1992-2000 MAP
FELDERVILLE NE & SE, SC 1981
HOLLY HILL NW, SC
NEGAN CAMP BRANCH NE, NW, SE & SW, SC
ORANGEBURG SOUTH NE & SE, SC
VINCE NW & SW, SC
WADSWOOD BRANCH NE, SC

Exhibit B.4 (2)



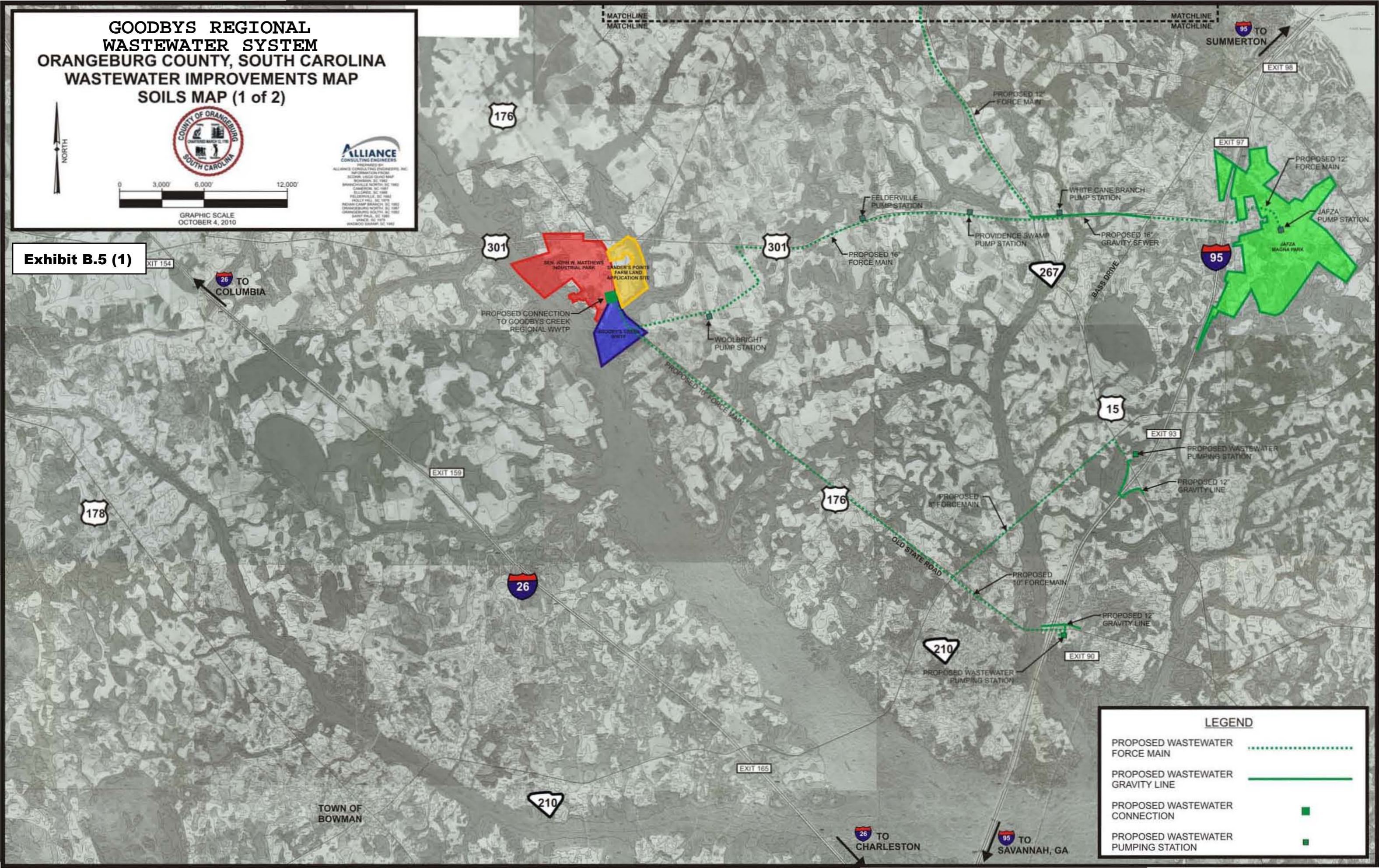
**GOODBYS REGIONAL
WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
WASTEWATER IMPROVEMENTS MAP
SOILS MAP (1 of 2)**



GRAPHIC SCALE
OCTOBER 4, 2010

ALLIANCE
CONSULTING ENGINEERS
REGISTERED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SECTION LEGISLATIVE MAP
SOUTH CAROLINA, SC 1980
BRANCHVILLE NORTH, SC 1981
COLUMBIA, SC 1982
FELDERVILLE, SC 1983
HOLLY HILL, SC 1984
INDIAN CAMP BRANCH, SC 1985
ORANGEBURG NORTH, SC 1986
ORANGEBURG SOUTH, SC 1987
SAINT PAUL, SC 1988
WRENCH, SC 1989
WADSWORTH, SC 1990





Exhibit B.5 (1)



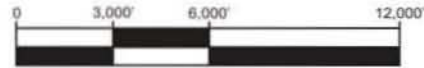
LEGEND

- PROPOSED WASTEWATER FORCE MAIN
- PROPOSED WASTEWATER GRAVITY LINE
- PROPOSED WASTEWATER CONNECTION
- PROPOSED WASTEWATER PUMPING STATION

LEGEND

- PROPOSED WASTEWATER FORCE MAIN 
- PROPOSED WASTEWATER GRAVITY LINE 
- PROPOSED WASTEWATER CONNECTION 
- PROPOSED WASTEWATER PUMPING STATION 

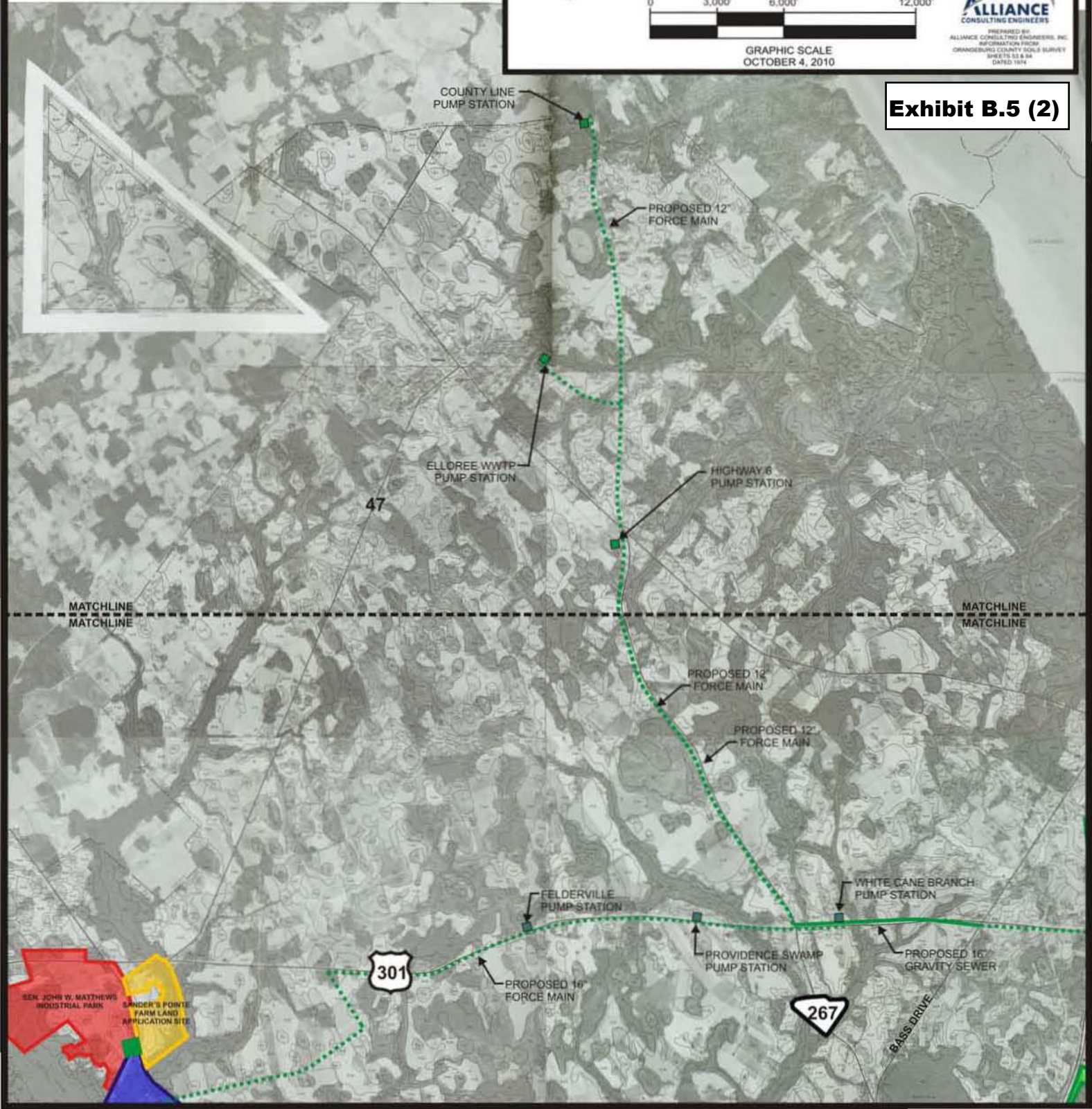
GOODBYS REGIONAL WASTEWATER SYSTEM ORANGEBURG COUNTY, SOUTH CAROLINA SOILS MAP (2 of 2)



GRAPHIC SCALE
OCTOBER 4, 2010

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
ORANGEBURG COUNTY SOILS SURVEY
SHEETS 33 & 34
DATED 1985

Exhibit B.5 (2)



**GOODBYS REGIONAL
WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
NWI MAP (1 of 2)**

SCALE IN MILES
OCTOBER 4, 2010

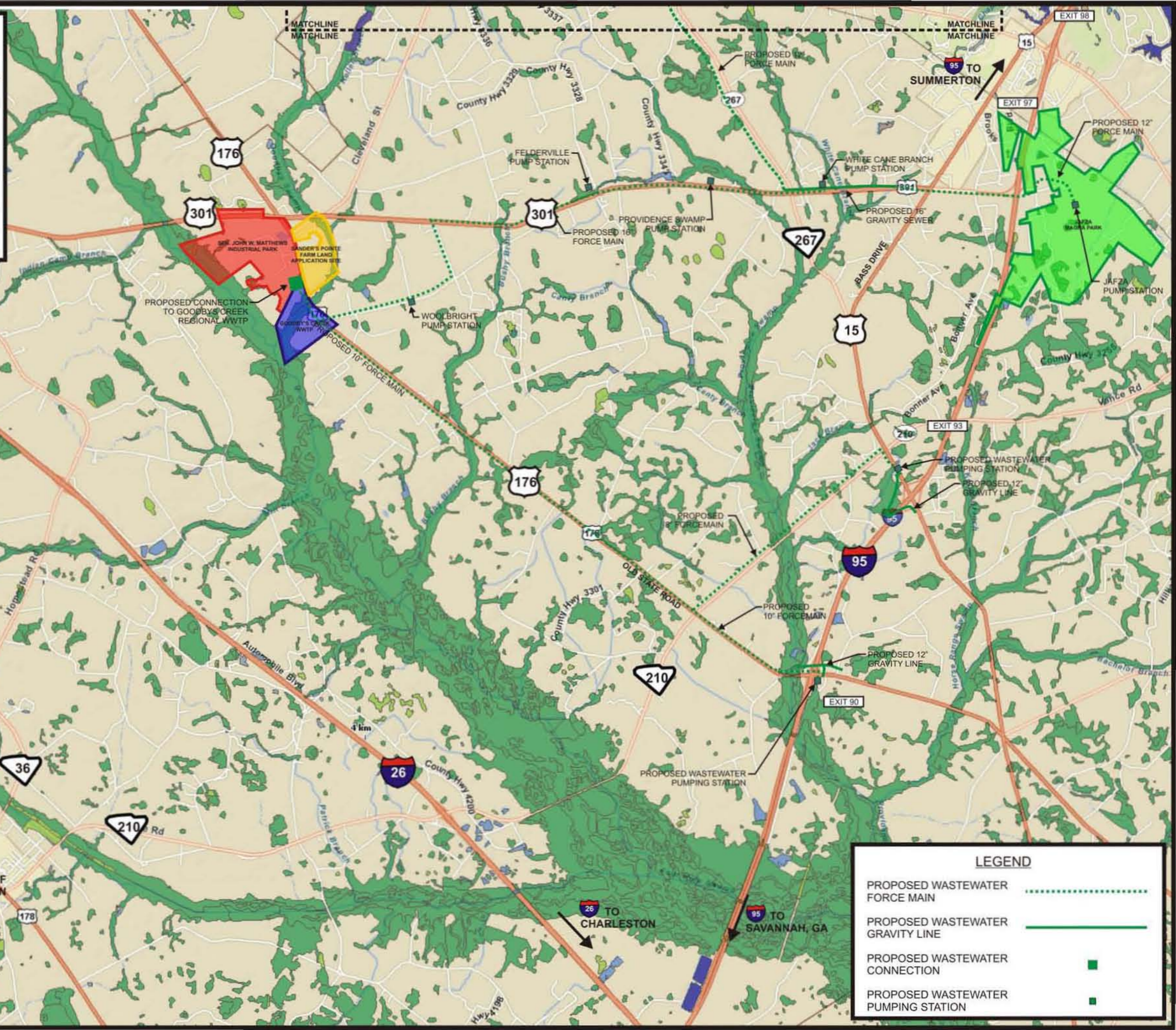
Exhibit B.6 (1)

WETLANDS LEGEND

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

LEGEND

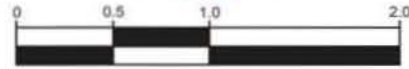
- PROPOSED WASTEWATER FORCE MAIN
- PROPOSED WASTEWATER GRAVITY LINE
- PROPOSED WASTEWATER CONNECTION
- PROPOSED WASTEWATER PUMPING STATION



LEGEND

- PROPOSED WASTEWATER FORCE MAIN 
- PROPOSED WASTEWATER GRAVITY LINE 
- PROPOSED WASTEWATER CONNECTION 
- PROPOSED WASTEWATER PUMPING STATION 

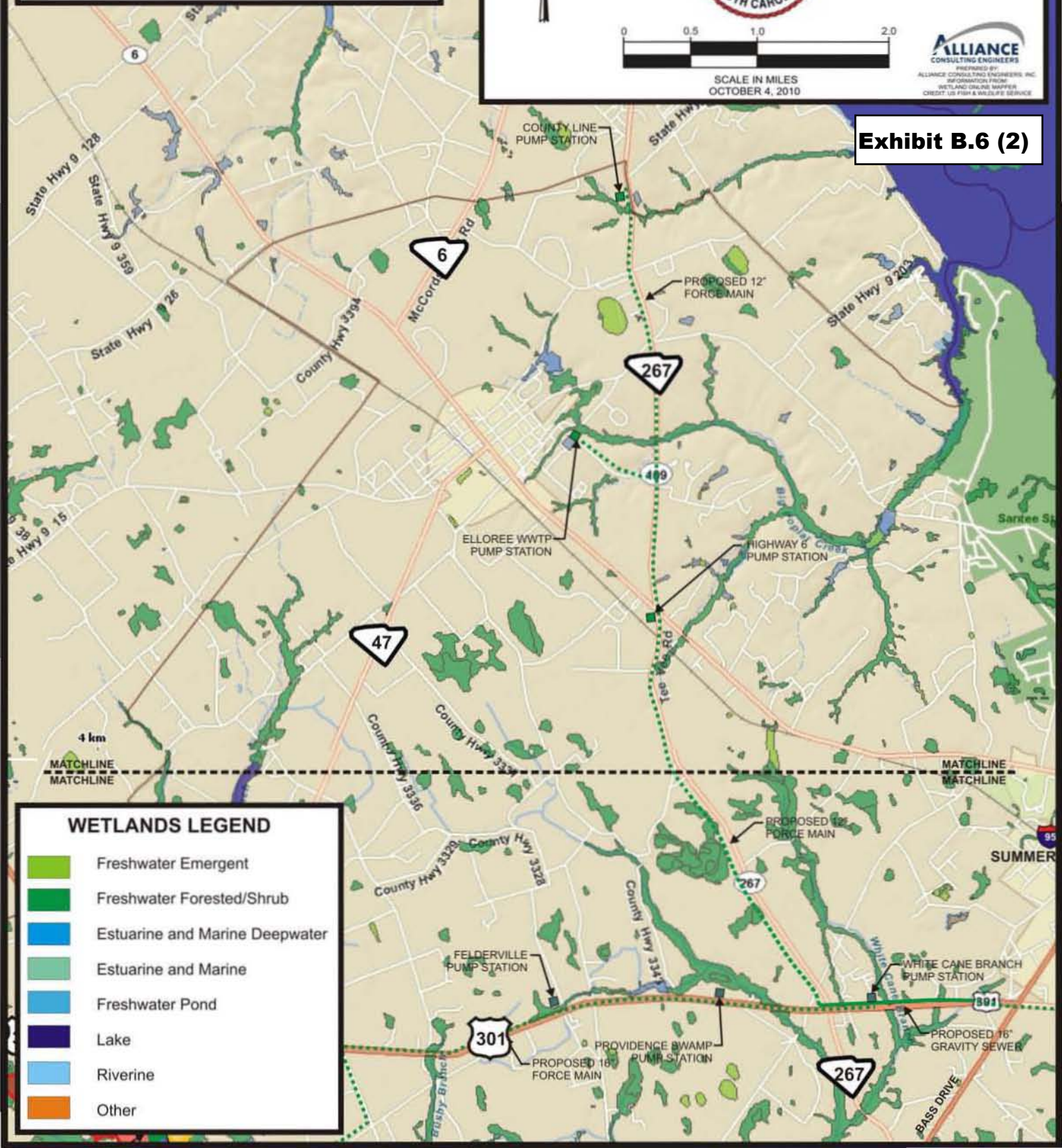
**GOODBYS REGIONAL WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
NWI MAP (2 of 2)**



SCALE IN MILES
OCTOBER 4, 2010

ALLIANCE
CONSULTING ENGINEERS, INC.
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
WETLAND CHAIRS MAPPER
CREDIT: US FISH & WILDLIFE SERVICE



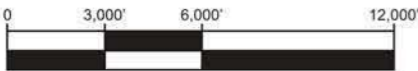
Exhibit B.6 (2)




WETLANDS LEGEND

-  Freshwater Emergent
-  Freshwater Forested/Shrub
-  Estuarine and Marine Deepwater
-  Estuarine and Marine
-  Freshwater Pond
-  Lake
-  Riverine
-  Other

**GOODBYS REGIONAL
WASTEWATER SYSTEM
ORANGEBURG COUNTY, SOUTH CAROLINA
FEMA FLOOD MAP (1 of 2)**

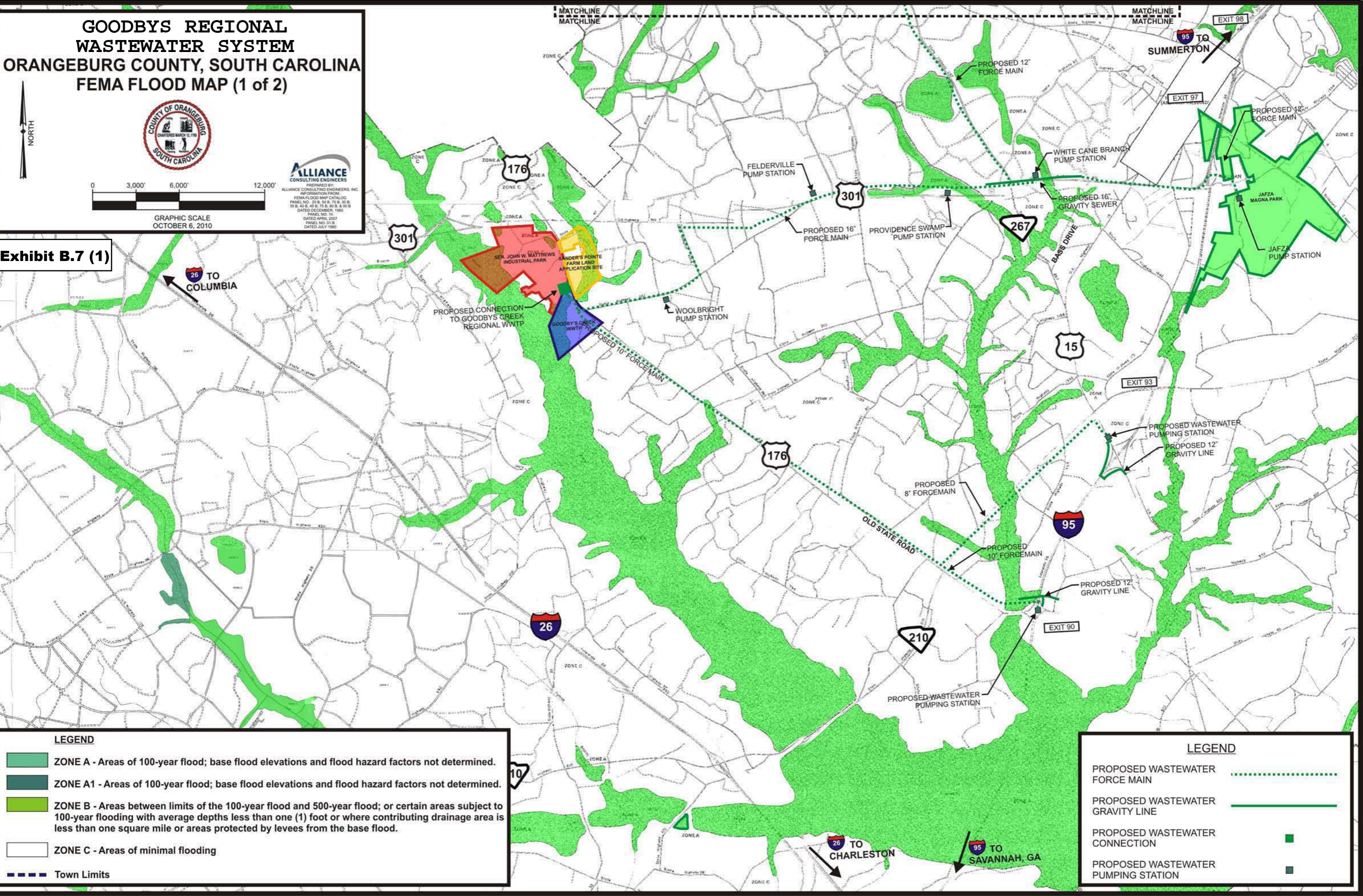




GRAPHIC SCALE
OCTOBER 6, 2010








**ALLIANCE
CONSULTING ENGINEERS, INC.**
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION PACKAGE
FEMA FLOOD MAP CATALOG
PANEL NO. 20 B, 50 B, 75 B, 30 B,
35 B, 40 B, 45 B, 75 B, 50 B, & 30 B
DATED DECEMBER, 1985
PANEL NO. 10
DATED APRIL, 2007
PANEL NO. 01 B
DATED JULY 1985





Exhibit B.7 (1)



LEGEND

-  ZONE A - Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
-  ZONE A1 - Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
-  ZONE B - Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where contributing drainage area is less than one square mile or areas protected by levees from the base flood.
-  ZONE C - Areas of minimal flooding
-  Town Limits

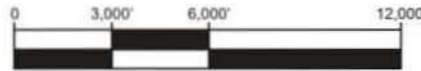
LEGEND

-  PROPOSED WASTEWATER FORCE MAIN
-  PROPOSED WASTEWATER GRAVITY LINE
-  PROPOSED WASTEWATER CONNECTION
-  PROPOSED WASTEWATER PUMPING STATION

LEGEND

- PROPOSED WASTEWATER FORCE MAIN
- PROPOSED WASTEWATER GRAVITY LINE
- PROPOSED WASTEWATER CONNECTION
- PROPOSED WASTEWATER PUMPING STATION

GOODBYS REGIONAL WASTEWATER SYSTEM ORANGEBURG COUNTY, SOUTH CAROLINA FEMA FLOOD MAP (2 of 2)

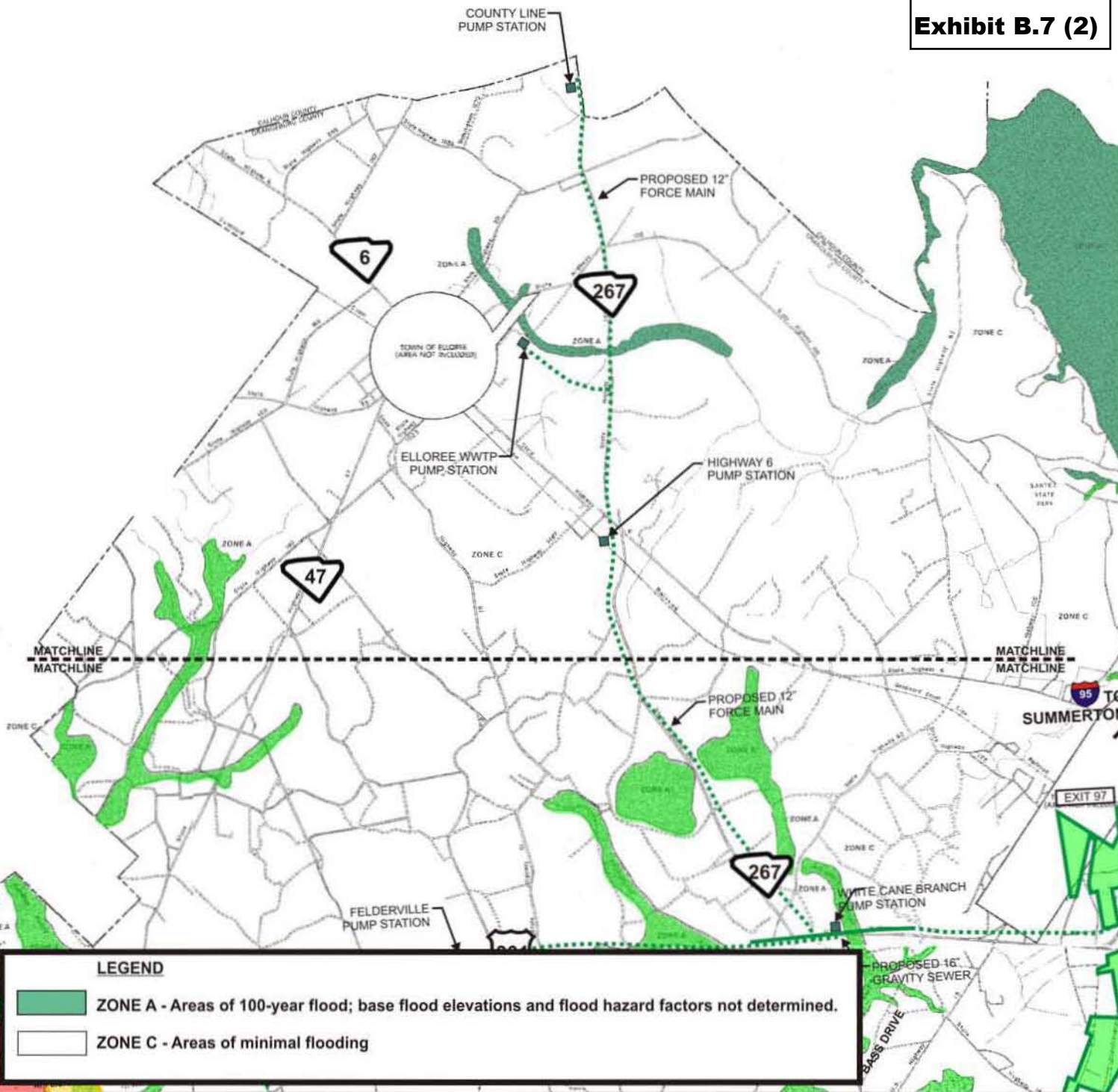


GRAPHIC SCALE
OCTOBER 6, 2010



PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION PACKAGE
FEMA FLOOD MAP CYCLES
PANEL NO. 25 A, 25 B, 25 C, 25 D, 25 E, 25 F, 25 G, 25 H, 25 I, 25 J, 25 K, 25 L, 25 M, 25 N, 25 O, 25 P, 25 Q, 25 R, 25 S, 25 T, 25 U, 25 V, 25 W, 25 X, 25 Y, 25 Z
DATED DECEMBER, 1999
PANEL NO. 27
DATED APRIL, 2007
PANEL NO. 31 B
DATED JULY 1998

Exhibit B.7 (2)



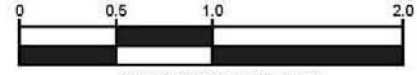
LEGEND

- ZONE A - Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
- ZONE C - Areas of minimal flooding

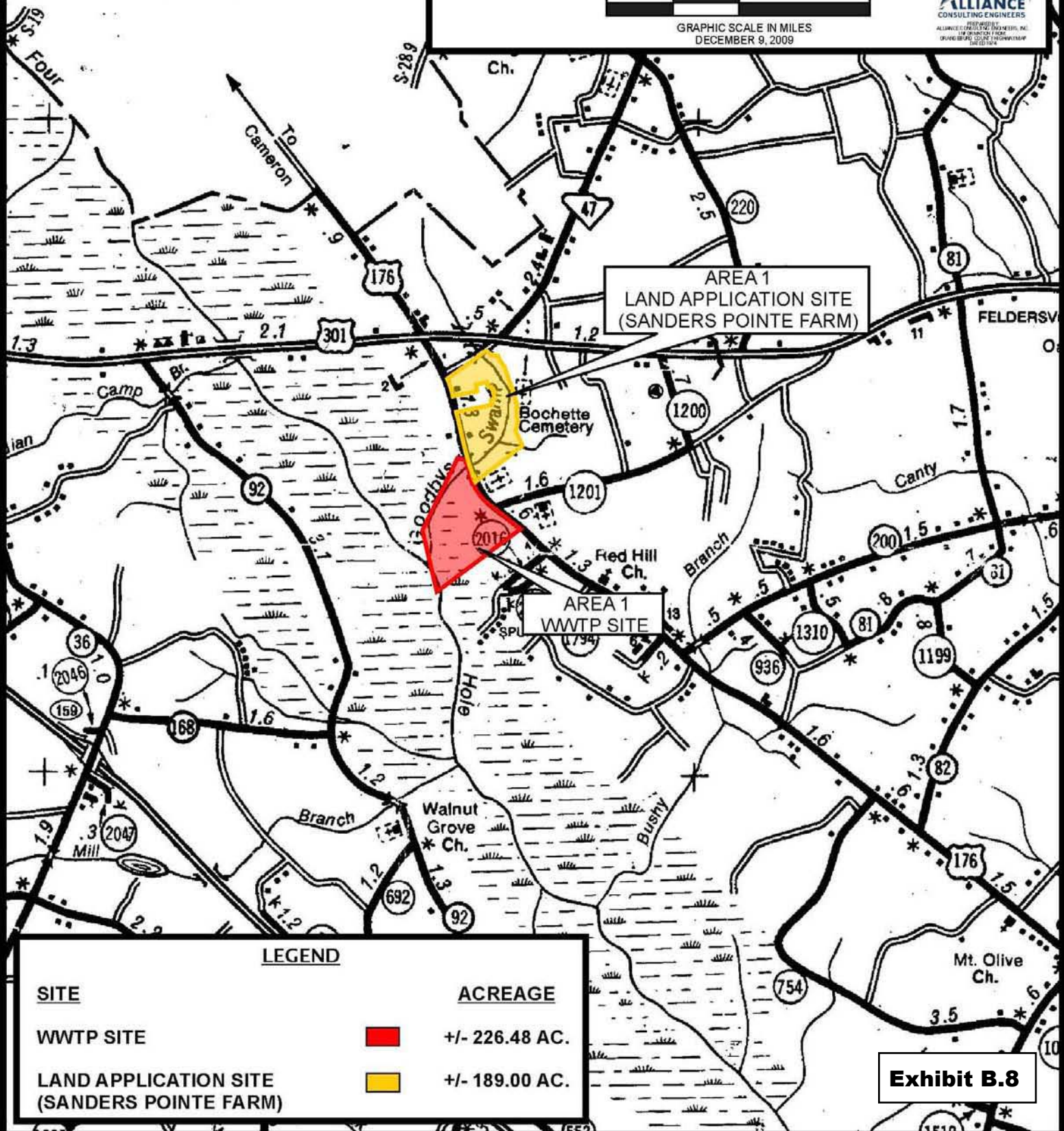
PROPOSED WASTEWATER TREATMENT PLANT AND LAND APPLICATION SITE ORANGEBURG COUNTY, SOUTH CAROLINA SITE LOCATION MAP



+/- 415 Acres



GRAPHIC SCALE IN MILES
DECEMBER 9, 2009



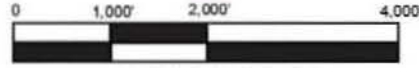
LEGEND	
SITE	ACREAGE
WWTP SITE	 +/- 226.48 AC.
LAND APPLICATION SITE (SANDERS POINTE FARM)	 +/- 189.00 AC.

Exhibit B.8

**PROPOSED WASTEWATER TREATMENT PLANT
AND LAND APPLICATION SITE
ORANGEBURG COUNTY, SOUTH CAROLINA
AERIAL MAP**



+/- 415 Acres



GRAPHIC SCALE IN MILES
DECEMBER 9, 2008



176

301

AREA 1
LAND APPLICATION SITE
(SANDERS POINTE FARM)

AREA 1
WWTP SITE

LEGEND

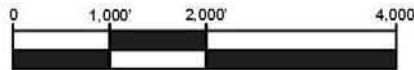
<u>SITE</u>		<u>ACREAGE</u>
WWTP SITE		+/- 226.48 AC.
LAND APPLICATION SITE (SANDERS POINTE FARM)		+/- 189.00 AC.

Exhibit B.9

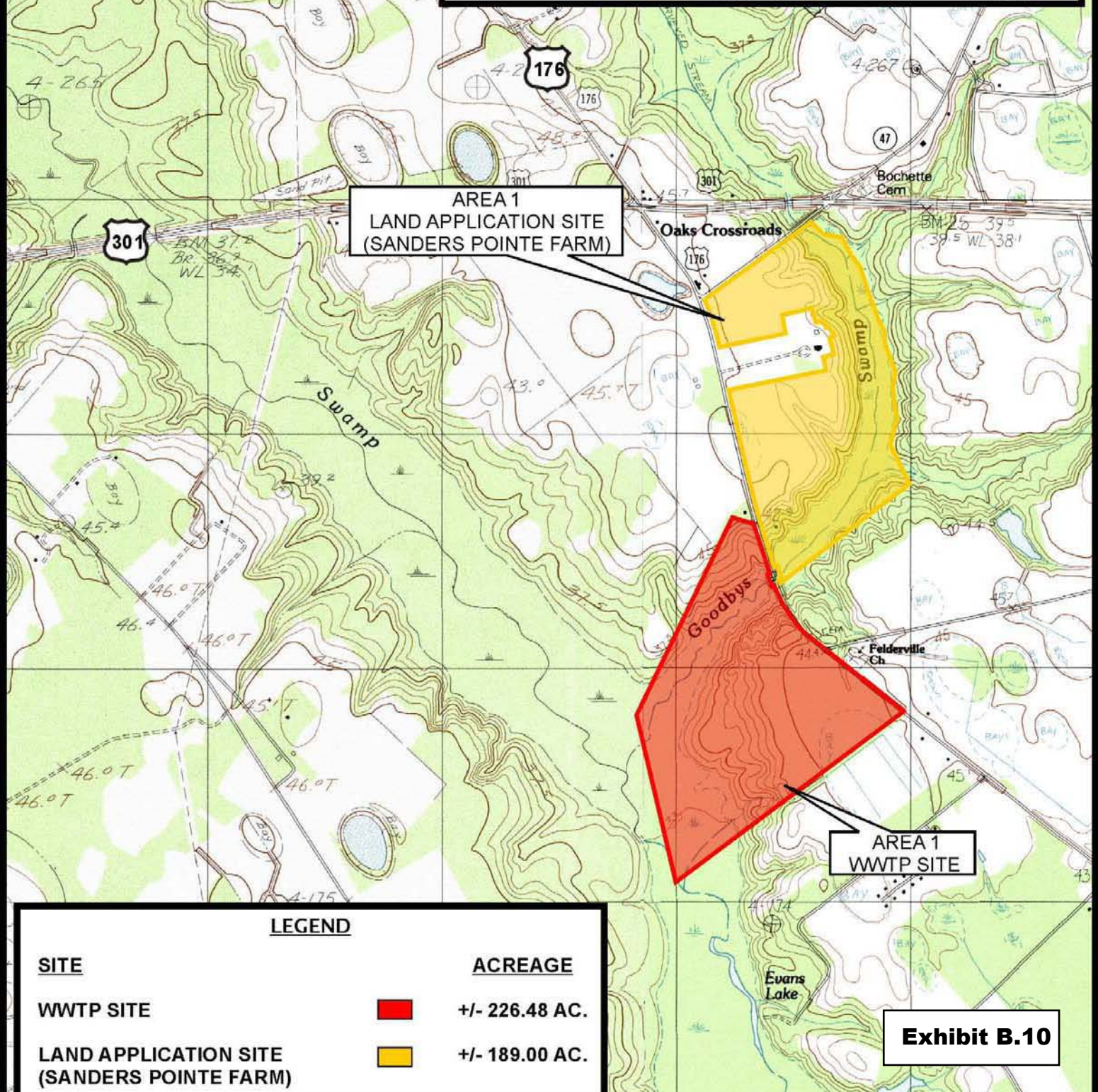
PROPOSED WASTEWATER TREATMENT PLANT AND LAND APPLICATION SITE ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP



+/- 415 Acres



GRAPHIC SCALE
CONTOUR INTERVAL 1.5 METERS
DECEMBER 9, 2009



**AREA 1
LAND APPLICATION SITE
(SANDERS POINTE FARM)**

**AREA 1
WWTP SITE**

LEGEND

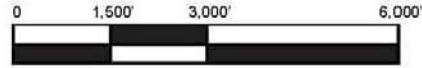
SITE	ACREAGE
WWTP SITE	 +/- 226.48 AC.
LAND APPLICATION SITE (SANDERS POINTE FARM)	 +/- 189.00 AC.

Exhibit B.10

PROPOSED WASTEWATER TREATMENT PLANT AND LAND APPLICATION SITE ORANGEBURG COUNTY, SOUTH CAROLINA SOILS MAP



+/- 415 Acres



GRAPHIC SCALE
DECEMBER 9, 2009



PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
REGISTERED PROFESSIONAL ENGINEERS
ORANGEBURG, SOUTH CAROLINA
DATE: 12/09

176

AREA 1
LAND APPLICATION SITE
(SANDERS POINTE FARM)

301



Exhibit B.11

AREA 1
WWTP SITE

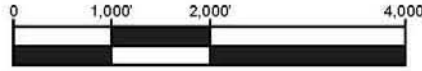
LEGEND	HSG	
Ailey (AeB)	B	
Blanton (BIB)	A	
Bonneau (BoB)	A	
Coxville (Cx)	D	
Dothan (DaB)	B	
Goldsboro (GoA)	B	
Mouzon (Mo)	D	
Noboco (NoA, NoB)	B	
Rains (Ra)	D	
Troup (TrB, TrC)	A	
Udorthents (Ud)	Z	

LEGEND		
SITE		ACREAGE
WWTP SITE		+/- 226.48 AC.
LAND APPLICATION SITE (SANDERS POINTE FARM)		+/- 189.00 AC.

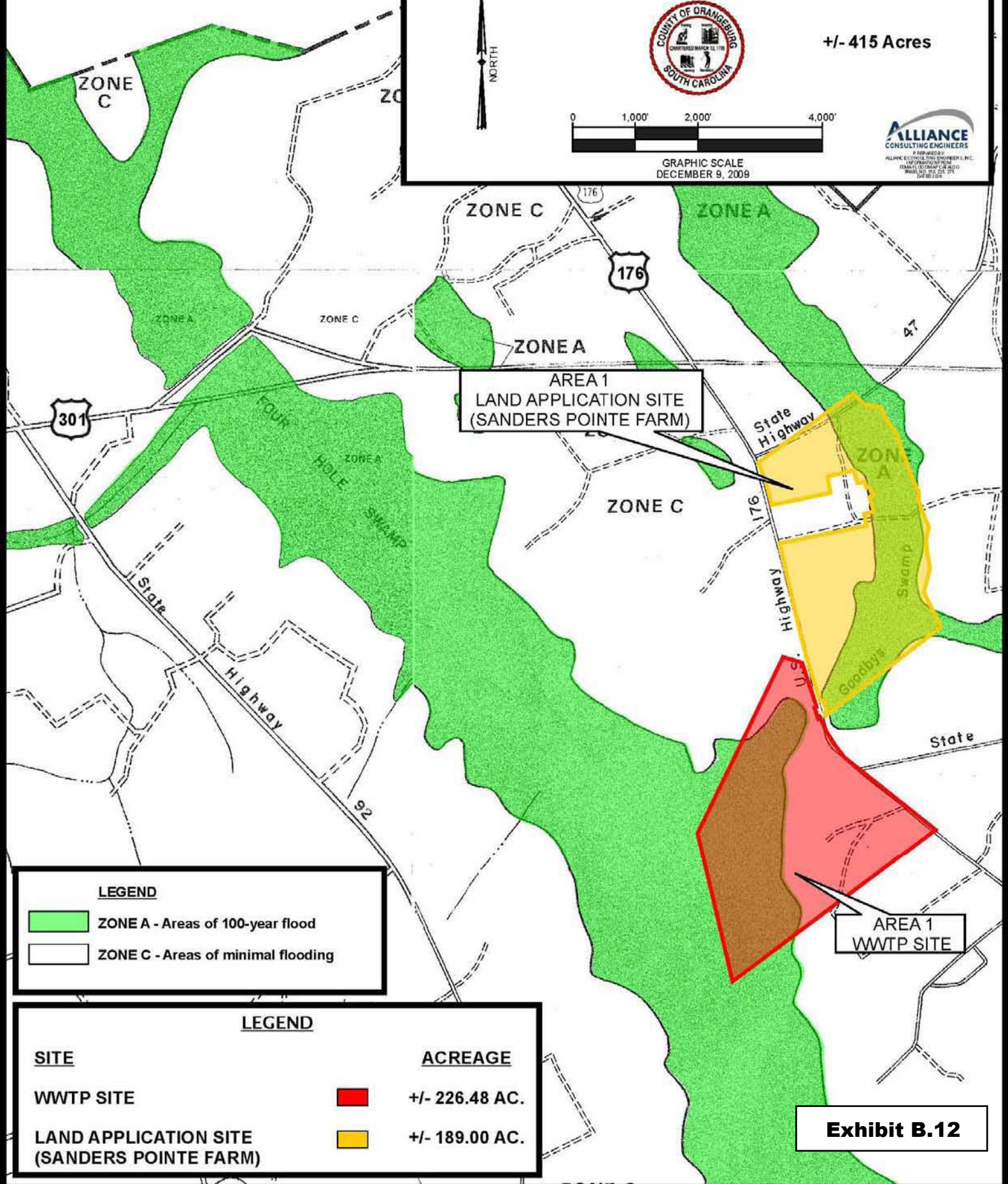
PROPOSED WASTEWATER TREATMENT PLANT AND LAND APPLICATION SITE ORANGEBURG COUNTY, SOUTH CAROLINA FEMA MAP



+/- 415 Acres



GRAPHIC SCALE
DECEMBER 9, 2009



LEGEND

- ZONE A - Areas of 100-year flood
- ZONE C - Areas of minimal flooding

LEGEND

SITE	ACREAGE
WWTP SITE	 +/- 226.48 AC.
LAND APPLICATION SITE (SANDERS POINTE FARM)	 +/- 189.00 AC.

AREA 1
WWTP SITE

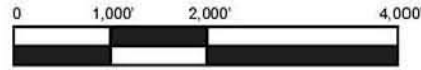
AREA 1
LAND APPLICATION SITE
(SANDERS POINTE FARM)

Exhibit B.12

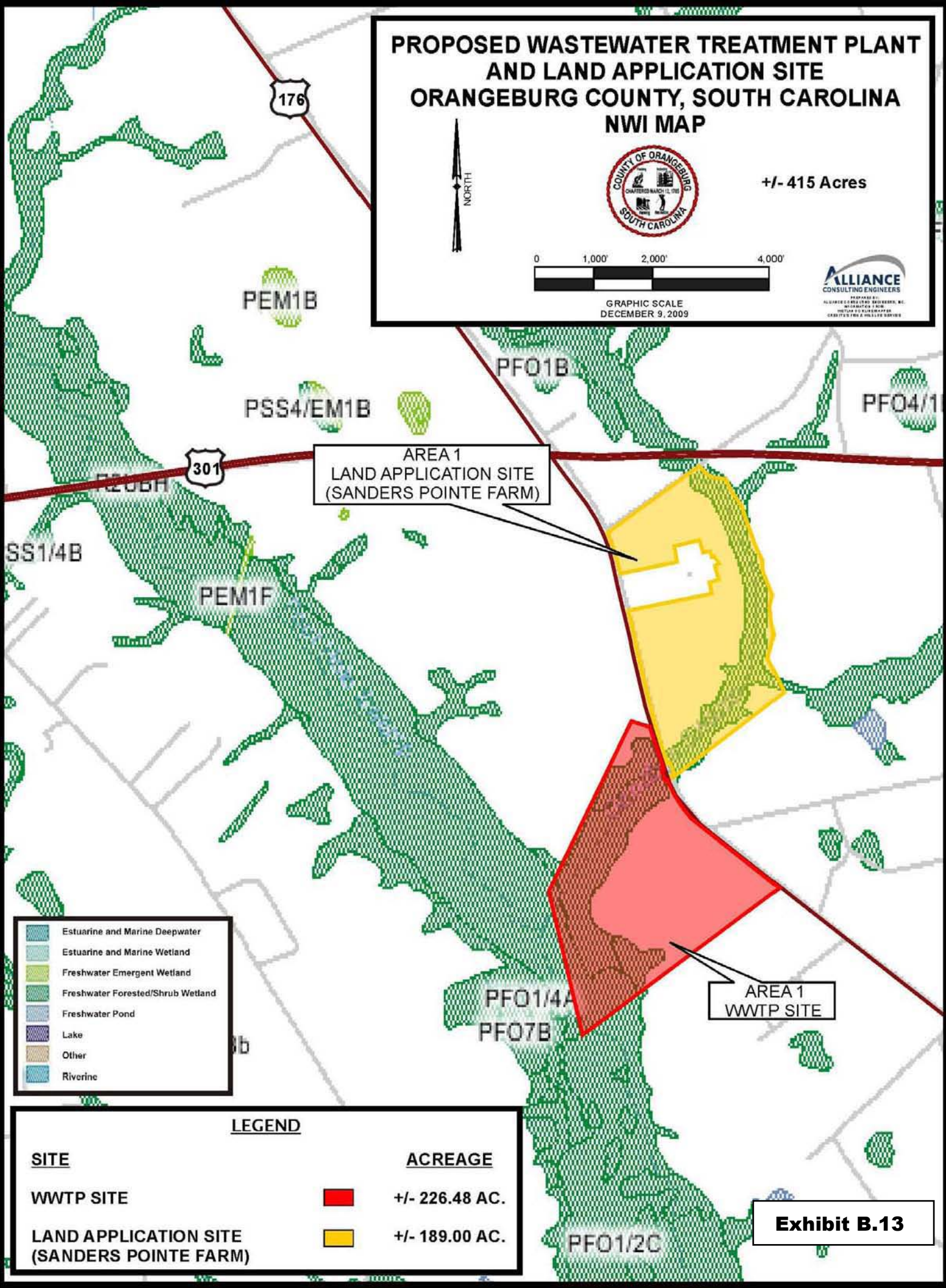
PROPOSED WASTEWATER TREATMENT PLANT AND LAND APPLICATION SITE ORANGEBURG COUNTY, SOUTH CAROLINA NWI MAP



+/- 415 Acres



GRAPHIC SCALE
DECEMBER 9, 2009



AREA 1
LAND APPLICATION SITE
(SANDERS POINTE FARM)

AREA 1
WWTP SITE

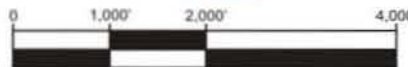
	Estuarine and Marine Deepwater
	Estuarine and Marine Wetland
	Freshwater Emergent Wetland
	Freshwater Forested/Shrub Wetland
	Freshwater Pond
	Lake
	Other
	Riverine

LEGEND

SITE		ACREAGE
WWTP SITE		+/- 226.48 AC.
LAND APPLICATION SITE (SANDERS POINTE FARM)		+/- 189.00 AC.

Exhibit B.13

**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
AERIAL MAP (1 of 4)**



GRAPHIC SCALE
NOVEMBER 25, 2009

ALLIANCE
CONSULTING ENGINEERS

PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
NO ORIGINATOR FROM
SCORE, SOURCE QUANT MAP
PELLEPPVILLE NE & SE, SC 1981
HOLLY HILL, NC, SC
NEGAN CAMP BRANCH NE, NW, SE & SW, SC
ORANGEBURG SOUTH NE & SE, SC
VINCE NW & SW, SC
WADCOO BRANCH NE, SC

Exhibit B.14 (1)

**TEEVEE ROAD /
COUNTY LINE
PUMPING STATION
(~.25 AC.)**

**ELLOREE WWTP
PUMPING STATION
(~.25 AC.)**

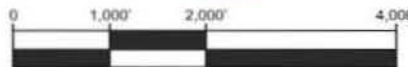
**HWY 6 / TEEVEE ROAD
PUMPING STATION
(~.25 AC.)**

267

6

267

**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
AERIAL MAP (2 of 4)**



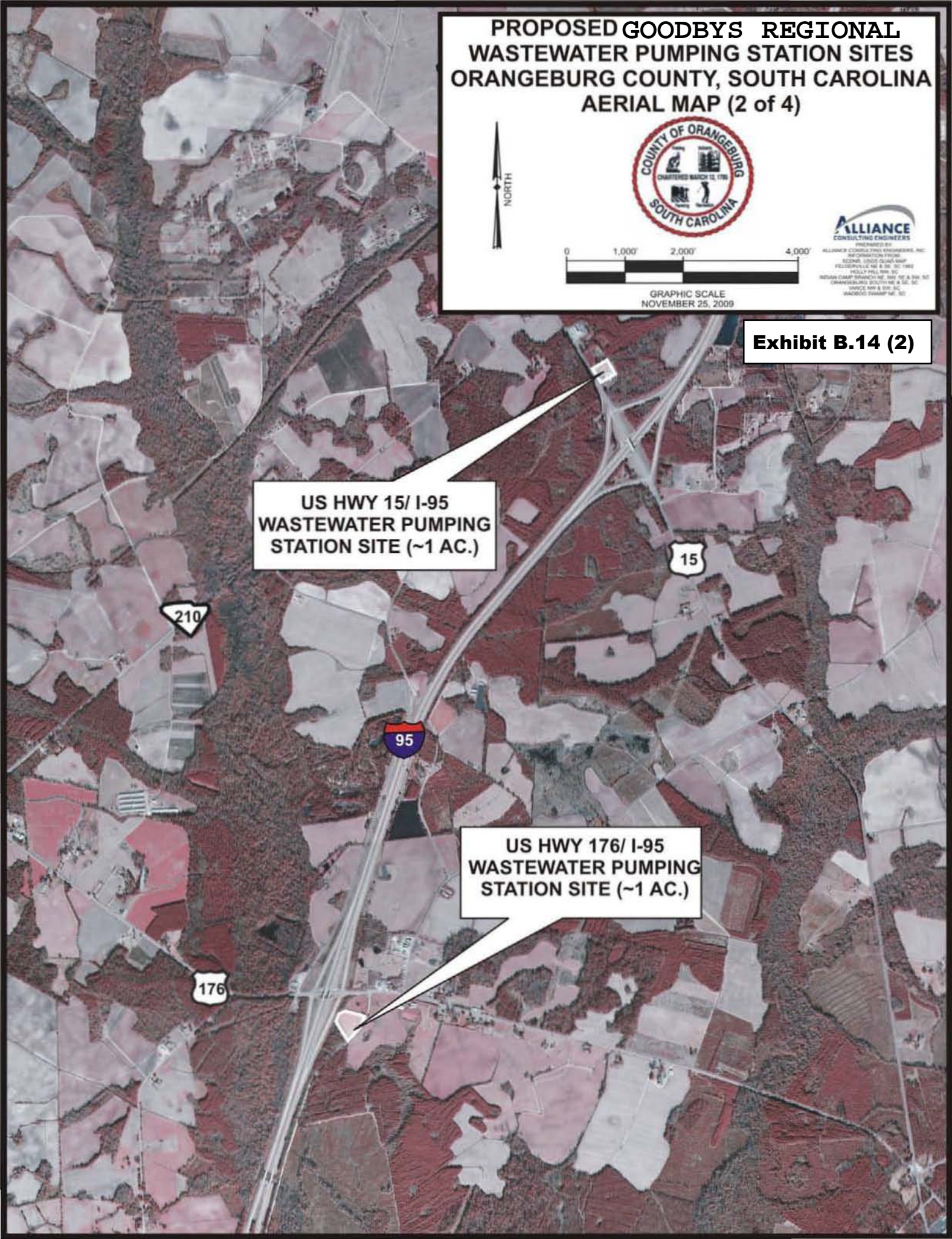
GRAPHIC SCALE
NOVEMBER 25, 2009

PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
SOURCE: UNITED QUAD MAP
FELDERVILLE, NE & SW, SC 1985
WELLS HILL, SW, SC
NOVAN CAMP BRANCH, NE, SW, SE & SW, SC
ORANGEBURG SOUTH, NE & SW, SC
WINDY HILL & SW, SC
WADSWORTH, NE, SC

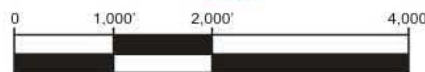
Exhibit B.14 (2)

**US HWY 15/ I-95
WASTEWATER PUMPING
STATION SITE (~1 AC.)**

**US HWY 176/ I-95
WASTEWATER PUMPING
STATION SITE (~1 AC.)**



PROPOSED GOODBYS REGIONAL WASTEWATER PUMPING STATION SITES ORANGEBURG COUNTY, SOUTH CAROLINA AERIAL MAP (3 of 4)



GRAPHIC SCALE
NOVEMBER 25, 2009

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCDWR, USGS QUAD MAP
FELDERVILLE NE & SE, SC 1982
HOLLY HILL NW, SC
INDIAN CAMP BRANCH NE, NW, SE & SW, SC
ORANGEBURG SOUTH NE & SE, SC
VANCE NW & SW, SC
WADBOO SWAMP NE, SC

Exhibit B.14 (3)

95 TO
SUMMERTON

EXIT 98

EXIT 97

301

**FELDERVILLE
PUMPING STATION
(~.25 AC.)**

267

95

15

**WOOLBRIGHT
PUMPING STATION
(~.25 AC.)**

EXIT 93

176

210

EXIT 90

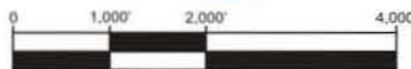
95 TO
SAVANNAH, GA

LEGEND

POTENTIAL PUMPING STATION
SITE SELECTION DUE TO
ENGINEERING CONSTRAINTS



**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
AERIAL MAP (4 of 4)**



GRAPHIC SCALE
NOVEMBER 25, 2009

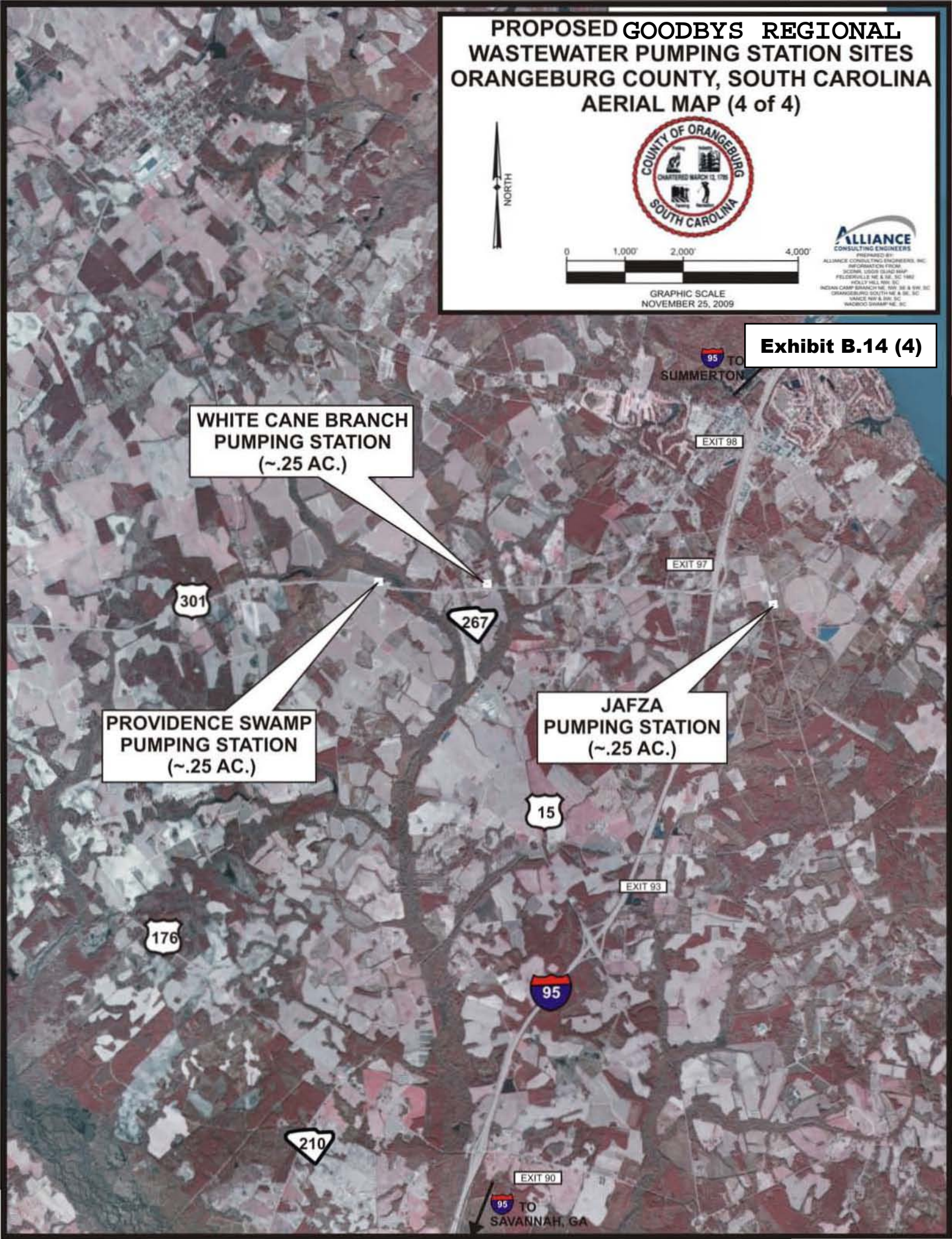
ALLIANCE
CONSULTING ENGINEERS
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCSRS, USGS QUAD MAP
FELDERVILLE ME & SE, SC 1480
HOLLY HILL NW, SC
INDIAN CAMP BRANCH NE, SW, SE & SW, SC
ORANGEBURG SOUTH ME & SE, SC
YANCEY NW & SW, SC
WACOCO DRAMP NE, SC

Exhibit B.14 (4)

**WHITE CANE BRANCH
PUMPING STATION
(~.25 AC.)**

**PROVIDENCE SWAMP
PUMPING STATION
(~.25 AC.)**

**JAFZA
PUMPING STATION
(~.25 AC.)**



PROPOSED GOODBYS REGIONAL WASTEWATER PUMPING STATION SITES ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (1 of 4)



GRAPHIC SCALE
JUNE 15, 2010

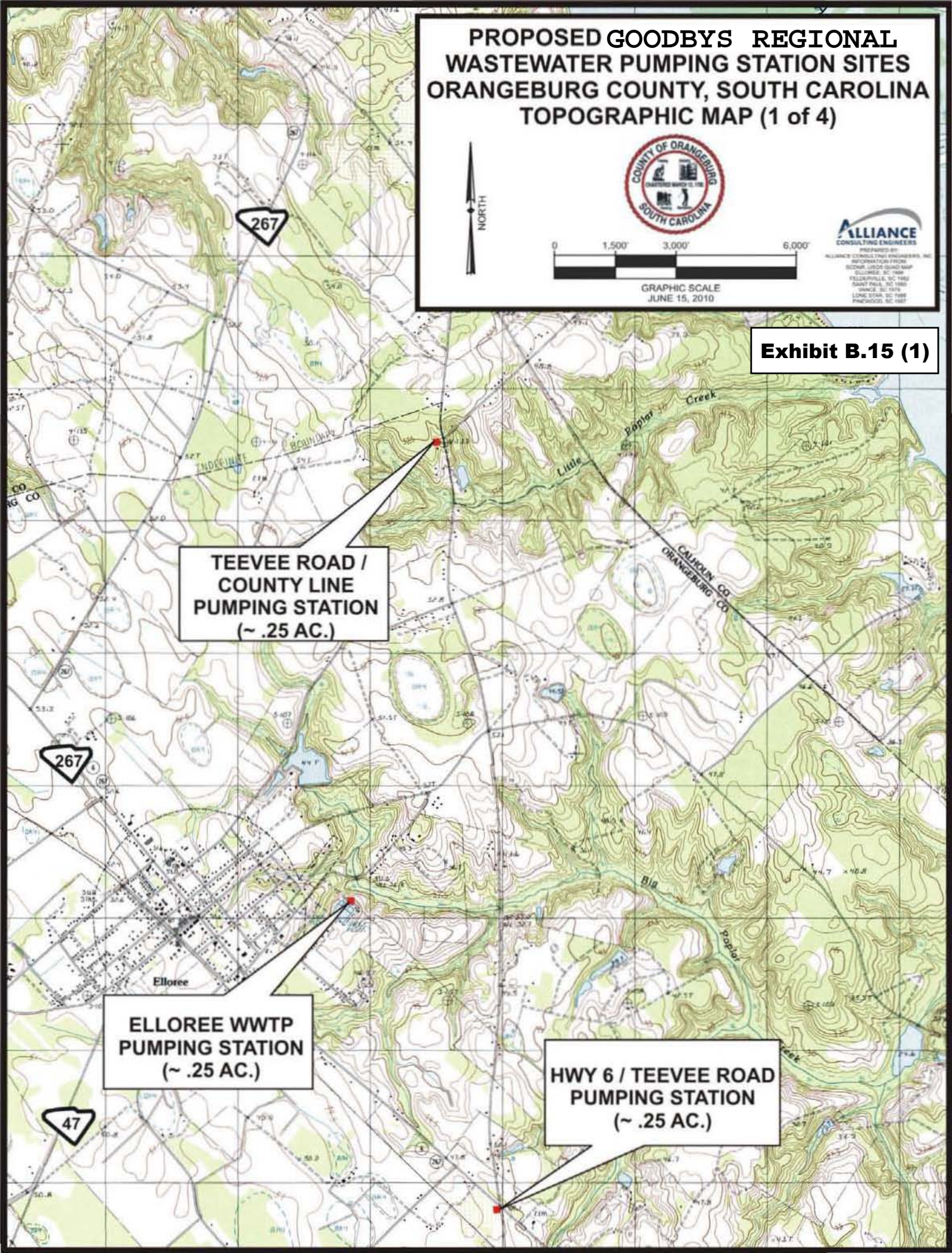
ALLIANCE
CONSULTING ENGINEERS
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCORP LOCAL ROAD MAP
ELLOREE, SC 1989
WELLSVILLE, SC 1989
SANT PAUL, SC 1989
ORANGE, SC 1978
LONG STAR, SC 1989
PINEWOOD, SC 1987

Exhibit B.15 (1)

**TEEVEE ROAD /
COUNTY LINE
PUMPING STATION
(~ .25 AC.)**

**ELLOREE WWP
PUMPING STATION
(~ .25 AC.)**

**HWY 6 / TEEVEE ROAD
PUMPING STATION
(~ .25 AC.)**



PROPOSED GOODBYS REGIONAL WASTEWATER PUMPING STATION SITES ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (2 of 4)



GRAPHIC SCALE
CONTOUR INTERVAL VAIES
NOVEMBER 25, 2009

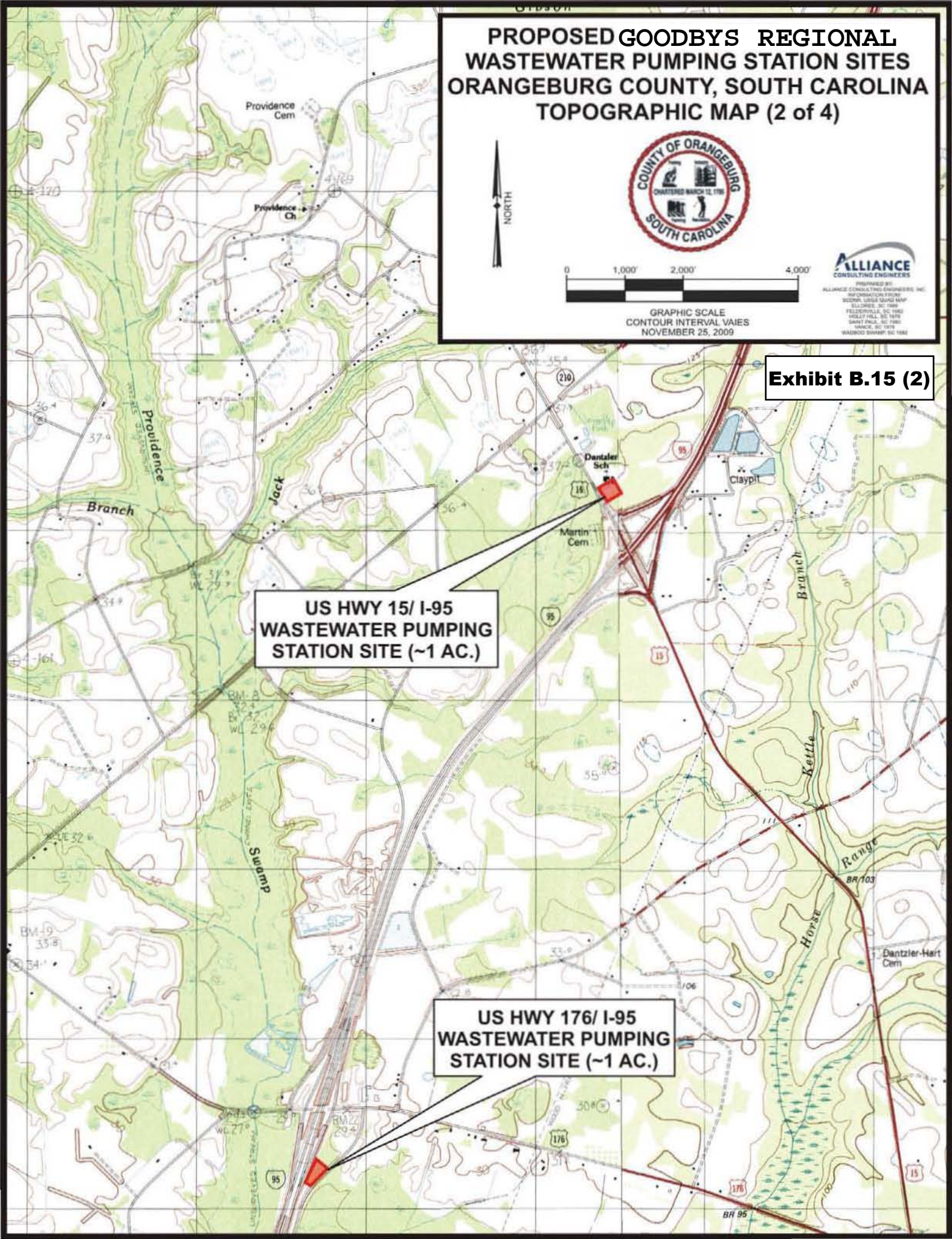


PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
SCORP, LINDSAY BOARD MAP
ELLERRE, SC 1989
FELDERVILLE, SC 1940
HOLLY HILL, SC 1978
SAINT PAUL, SC 1980
WANDER, SC 1978
WADSWOOD SWAMP, SC 1982

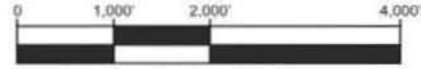
Exhibit B.15 (2)

**US HWY 15/ I-95
WASTEWATER PUMPING
STATION SITE (~1 AC.)**

**US HWY 176/ I-95
WASTEWATER PUMPING
STATION SITE (~1 AC.)**



**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
TOPOGRAPHIC MAP (3 of 4)**



GRAPHIC SCALE
JUNE 15, 2010

ALLIANCE
CONSULTING ENGINEERS, INC.
PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
SCORER, LORDE ROAD MAP
COLUMBIA, SC 1989
FELLSVILLE, SC 1989
SAINT PAUL, SC 1989
WANCE, SC 1978
LONG STAR, SC 1989
PINEWOOD, SC 1987

Exhibit B.15 (3)

**FELDERVILLE
PUMPING STATION
(~ .25 AC.)**

**WOOLBRIGHT
PUMPING STATION
(~ .25 AC.)**

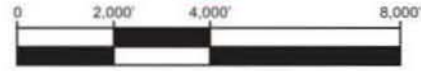


Felderville

Saluda
Ch

Ball

PROPOSED GOODBYS REGIONAL WASTEWATER PUMPING STATION SITES ORANGEBURG COUNTY, SOUTH CAROLINA TOPOGRAPHIC MAP (4 of 4)



GRAPHIC SCALE
JUNE 15, 2010

ALLIANCE
CONSULTING ENGINEERS, INC.
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
SCORP, 1985 QUAD MAP
BELLING, SC 1989
FELDERVILLE, SC 1989
SAINT PAUL, SC 1989
WANCE, SC 1989
LONE STAR, SC 1989
PINEWOOD, SC 1989

Exhibit B.15 (4)



**PROVIDENCE SWAMP
PUMPING STATION
(~ .25 AC.)**



**WHITE CANE BRANCH
PUMPING STATION
(~ .25 AC.)**

BASS DRIVE

EXIT 98

EXIT 97



**JAFZA
PUMPING STATION
(~ .25 AC.)**

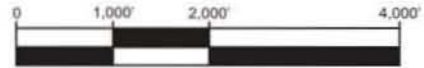
JAFZA
MAGNA PARK

EXIT 98

**95 TO
SUMMERTON**

TOWN OF SANTEE
WATER SYSTEM

**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
SOILS MAP (1 of 4)**



GRAPHIC SCALE
NOVEMBER 25, 2009



PREPARED BY:
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM:
ORANGEBURG COUNTY SOILS SURVEY
SHEETS 33 & 34
DATED 1984

**TEEVEE ROAD /
COUNTY LINE
PUMPING STATION
(~.25 AC.)**

**ELLOREE WWTP
PUMPING STATION
(~.25 AC.)**

**HWY 6 / TEEVEE ROAD
PUMPING STATION
(~.25 AC.)**

Exhibit B.16 (1)

LEGEND

HSG

Ailey (AeC)

B



Lucy (LcB)

A



Noboco (NoA)

C

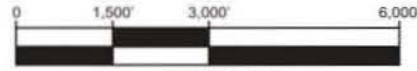


Troup (TrB)

A



**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
SOILS MAP (2 of 4)**






GRAPHIC SCALE
NOVEMBER 25, 2009

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
ORANGEBURG COUNTY SOILS SURVEY
SHEETS 11 & 14
DATED 1984

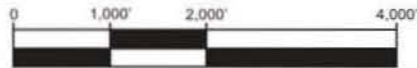
Exhibit B.16 (2)

**US HWY 15/ I-95
WASTEWATER PUMPING
STATION SITE (~1 AC.)**

**US HWY 176/ I-95
WASTEWATER PUMPING
STATION SITE (~1 AC.)**

LEGEND		HSG	
Dothan (DaA)	B		
Rain (Ra)	D		
Stallings (Sa)	C		

PROPOSED GOODBYS REGIONAL WASTEWATER PUMPING STATION SITES ORANGEBURG COUNTY, SOUTH CAROLINA SOILS MAP (3 of 4)



GRAPHIC SCALE
NOVEMBER 25, 2009

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
ORANGEBURG COUNTY SOILS SURVEY
SHEETS 11 & 42
DATED 1984

Exhibit B.16 (3)

47

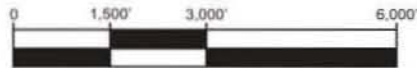
**FELDERVILLE
PUMPING STATION
(~.25 AC.)**

**WOOLBRIGHT
PUMPING STATION
(~.25 AC.)**

301

LEGEND		HSG	
Clarendon (Cda)	C		
Dothan (DaA)	B		

**PROPOSED GOODBYS REGIONAL
WASTEWATER PUMPING STATION SITES
ORANGEBURG COUNTY, SOUTH CAROLINA
SOILS MAP (4 of 4)**



GRAPHIC SCALE
NOVEMBER 25, 2009

ALLIANCE
CONSULTING ENGINEERS
PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
INFORMATION FROM
ORANGEBURG COUNTY SOILS SURVEY
SHEETS 32, 33, 43, & 44
DATED 1984

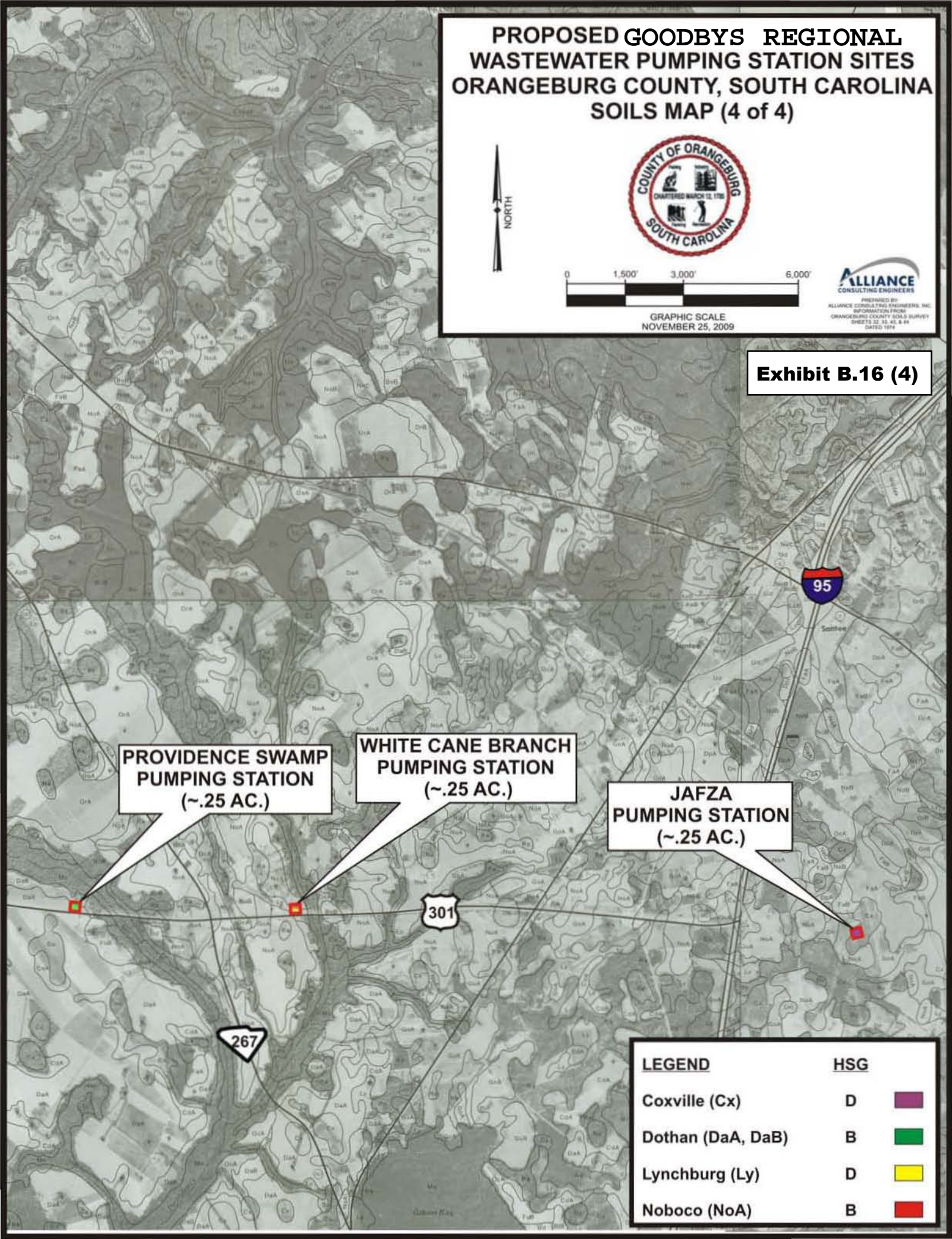
Exhibit B.16 (4)

**PROVIDENCE SWAMP
PUMPING STATION
(~.25 AC.)**

**WHITE CANE BRANCH
PUMPING STATION
(~.25 AC.)**

**JAFZA
PUMPING STATION
(~.25 AC.)**

LEGEND	HSG	
Coxville (Cx)	D	
Dothan (DaA, DaB)	B	
Lynchburg (Ly)	D	
Noboco (NoA)	B	



PROPOSED GOODBYS REGIONAL WASTEWATER PUMPING SITE ORANGEBURG COUNTY, SOUTH CAROLINA SITE SELECTION MAP



GRAPHIC SCALE
June 3, 2010



PREPARED BY
ALLIANCE CONSULTING ENGINEERS, INC.
REGISTERED PROFESSIONAL ENGINEERS
INFORMATION ENGINEERING
10000 LINDSEY GARDEN WAY
FLEETWOOD HILLS, MS & SC, 39506
HOLLY HILL, MS & SC, 39022
NORFOLK CAMP BRANCH, MS, 39156 & SC, 29504
ORANGEBURG SOUTH, MS & SC, 29117
SANDHURST, MS & SC, 29154
WADSWOOD BRANCH, MS, SC

LEGEND

Existing Lake Marion Water Agency Water Transmission Main



Potential Wastewater Pumping Site Boundary



Wetlands/Flood Plains



SCDOT Right-of-Way



Land in Urban Use



Important Farmlands



Exhibit B.17

210

US HWY 176/ I-95
WASTEWATER
PUMPING SITE (~1 AC.)

176

95



Appendix C

Bob Freeman

From: Smith, George - Aiken, SC [George.Smith@sc.usda.gov]
Sent: Thursday, May 06, 2010 11:35 AM
To: Bob Freeman
Cc: Cardwell, Michele - Aiken, SC
Subject: FW: Orangeburg County Water System Expansion

Four your information!

From: Fowler, Randy - North Charleston, SC
Sent: Thursday, May 06, 2010 11:25 AM
To: Smith, George - Aiken, SC
Subject: Orangeburg County Water System Expansion

George

I received the request to complete a Farmland Conversion Impact Rating for an elevated storage tank site at the intersection of US 15 and I-95 (Site A) and at the intersection of US 176 and I-95 (Site B). Both of these sites are approximately 1 acre in size. Site A and B was previously evaluated during the review for the Orangeburg Wastewater Improvements project. Site A is considered as a prior converted (PC) site. The site is located on an abandoned Orangeburg County school facility. This site has no farmland impact potential.

Site B was previously evaluated using form AD 1006 (see form for the Orangeburg County Wastewater Improvements Project). The site was determined to contain approximately one acre of statewide important farmland with a relative value of 81.

Randy Fowler
Resource Soil Scientist
USDA, Natural Resources Conservation Service
2070 Northbrook Boulevard, Suite A8
North Charleston, South Carolina 29406
Phone: (843) 727-4160 Ext. 3
Cell: (843) 726-1233
Fax: (843) 727-4541



1550 Henley Street, Room 103
Orangeburg, South Carolina 29115
(803) 534-2409 ext.3
(803) 536-5827 FAX

Mr. Bob Freeman, Engineering Associate, E.I.T.
Alliance Consulting Engineers, Inc.
P. O. Box 8147
Columbia, South Carolina 29202-8147

April 20, 2010

Dear Mr. Freeman:

A Farmland Protection Policy Act (FPPA) determination by the USDA-Natural Resources Conservation Service (NRCS) of sites A, B, C & D is as follows: This is to be evaluated utilizing Form AD1006 Farmland Impact Conversion Rating, A/K/A LESA Form.

Site A - US Hwy 15/1-95 (Approximately 1.0 acres for Wastewater Pump Site)

This site is considered as a Prior Converted Site (PC) as the land use has been determined. The site is located at an abandoned Orangeburg County School Facility. Clearly the action has no farmland impact potential.

Site B - US Hwy 176/1-95 (Approximately 1.0 acres for Wastewater Pump Site)

This site is to be evaluated utilizing Form AD1006 Farmland Impact Conversion Rating, A/K/ A LESA Form. The site contains Coxville and Ocilla soil types. It appears to contain approximately 70% Ocilla and 30% Coxville soils. Coxville Soils are "Statewide Important Farmland" soil type with a relative value of 89 and Ocilla Soils are also "Statewide Important Farmland" soil type with a relative value of 77. A weighted average relative value was calculated as follows $7 \times 77 = 539$ plus $3 \times 89 = 267$ Total = $806/10 = 80.6$ or a relative value of soils located on site of "81". The combined score for this site is 165 points. The site is considered as "important farmland". The applicant must seek alternative sites or supply sufficient, well documented, that there is no "practicable alternative" to the proposed site.

Site C - Sanders Pointe farm land Application Site - This site contains approximately 50 acres to be utilized. The site will be utilized as a treated wastewater discharge (effluent) application site. The land use will not be changed and will remain in hay production. The discharge should actually enhance the agricultural production on the site, therefore; it could not be considered as a conversion of "important farmland".

Site D - Goodbys Creek Regional Wastewater Treatment Plant (WWTP) Site - approximately 5 acres. This site is to be evaluated utilizing Form AD1006 Farmland Impact Conversion Rating, A/K/ A LESA Form. The site contains Blanton (BiB) and Mouzon (Mo) soil types. Both of these soil types are categorized as "Other" Soils. This means that the soils in question are classified as neither Prime, Statewide, Locally Important nor Unique Farmland soil types. This is further evidenced by the assigned relative value of 37 for each of these soil types. In accordance with the Farmland Protection Policy Act (FPPA) Final Rule of 1994, by definition this cannot be classified as "Important Farmland" and clearly excluded from review. Note: the entire site was approximately a 226 acre site, but was not evaluated as the area to be directly impacted contained the approximate 5 acres evaluated.

If you have any questions, please call Pamela Thomas, State Soil Scientist, at 803-252-3896.

Sincerely,

Odessa S. Armstrong
District Conservationist

United States Department of Agriculture



Natural Resources Conservation Service
2070 Northbrook Blvd., A-8
N. Charleston, SC 29406-9253

Telephone: (843) 727-4160, ext. 3
Fax: (843) 727-4541

MEMORANDUM

TO: Robert Freeman
Alliance Consulting Engineers, Inc.

FROM: Randy Fowler, Resource Soil Scientist

SUBJECT: Phase IV, Town of Bowman
Orangeburg County Wastewater System

DATE: November 1, 2010

This is in response to your request for a Farmland Protection policy Act (FPPA) determination for Phase IV of the Water System Expansions for the Town of Bowman (Project No. 10106-38) and the Orangeburg County Wastewater System (Project No. 09152-38). This request was received in my office on October 26, 2010.

Phase IV of the Water System Expansions for the Town of Bowman, Orangeburg County, South Carolina, Project No. 10106-38:

From the information you provided, it appears that all proposed improvements (looped distribution network and nine (9) miles of water mains will be constructed within existing rights-of-way of the South Carolina Department of Transportation, Orangeburg County, and private roadways. Since these areas have been prior converted from potential farmland use, no FPPA review is required. However, these areas should still be reviewed for potential indirect impacts to adjoining farmland.

Proposed Orangeburg County Wastewater System, Project No. 09152-38:

In a letter dated April 20, 2010 (see attached), NRCS reviewed this project and made a FPPA determination for four sites (US Highway 15/I-95, US Highway 176/I-95, Sanders Pointe Farm-Land Application Site, and Goodbys Creek Regional Wastewater Treatment Plant Site). However, since this original determination, eight additional sites have been added to the project. The FPPA determinations for these additional sites are provided on the attached AD-1006 forms.

If you have any questions or need additional information please contact me at 843 727-4160*3 or at randy.fowler@sc.usda.gov.

Helping People Help the Land

An Equal Opportunity Provider and Employer

Exhibit C.2 (2)

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 12/23/09	
Name Of Project Orangeburg County Wastewater System	Federal Agency Involved USDA-RD		
Proposed Land Use Utility Infrastructure	County And State Orangeburg County, South Carolina		
PART II (To be completed by NRCS)		Date Request Received By NRCS	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Acres Irrigated 0/1K Average Farm Size 274 acres
Major Crop(s) Soybeans, Corn, Small Grain	Farmable Land In Govt. Jurisdiction Site B	Amount Of Farmland As Defined In FPPA Acres: %	
Name Of Land Evaluation System Used LESA	Name Of Local Site Assessment System LESA	Date Land Evaluation Returned By NRCS March 11, 2010	

PART III (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	1.0	1.0	50.0	5.0
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	1.0	1.0	50.0	5.0

PART IV (To be completed by NRCS) Land Evaluation Information	Site A	Site B	Site C	Site D
A. Total Acres Prime And Unique Farmland		0		
B. Total Acres Statewide And Local Important Farmland		5		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0.00001		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		100		

PART V (To be completed by NRCS) Land Evaluation Criterion	Site A	Site B	Site C	Site D
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	0	0 81	0	0

PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use	15		13		
2. Perimeter In Nonurban Use	10		5		
3. Percent Of Site Being Farmed	20		20		
4. Protection Provided By State And Local Government	20		20		
5. Distance From Urban Builtup Area	15		15		
6. Distance To Urban Support Services	15		6		
7. Size Of Present Farm Unit Compared To Average	10		0		
8. Creation Of Nonfarmable Farmland	10		0		
9. Availability Of Farm Support Services	5		5		
10. On-Farm Investments	20		0		
11. Effects Of Conversion On Farm Support Services	10		0		
12. Compatibility With Existing Agricultural Use	10		0		
TOTAL SITE ASSESSMENT POINTS	160	0	0 78	0	0

PART VII (To be completed by Federal Agency)	Site A	Site B	Site C	Site D
Relative Value Of Farmland (From Part V)	100	0	0 165	0
Total Site Assessment (From Part VI above or a local site assessment)	160	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
----------------	-------------------	--

Reason For Selection:
 Site A - Prior Converted, not scored
 Site B - Consider as "Important Farmland"
 Site C - Non Conversion & will remain in Ag Production - not evaluated
 Site D - Soil types BiB & Mo not classified as "Important" - not evaluated

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency) Date Of Land Evaluation Request 10/3/10

Name Of Project Orangeburg County Wastewater System Federal Agency Involved USDA-RD

Proposed Land Use Utility Infrastructure County And State Orangeburg County, South Carolina

PART II (To be completed by NRCS) Date Request Received By NRCS 10/26/2010

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form). Yes No Acres Irrigated 274 Average Farm Size

Major Crop(s) Soybeans, Corn, Small grains Farmable Land In Govt. Jurisdiction Acres: 485,540 69.3% Amount Of Farmland As Defined in FPPA Acres: 478,270 82.5%

Name Of Land Evaluation System Used LESA Name Of Local Site Assessment System Date Land Evaluation Returned By NRCS 11/11/2010

PART III (To be completed by Federal Agency) Alternative Site Rating

	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	0.3	0.3	0.3	0.3
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	0.3	0.3	0.3	0.3

PART IV (To be completed by NRCS) Land Evaluation Information

A. Total Acres Prime And Unique Farmland	0.0	0.0	0.3	0.0
B. Total Acres Statewide And Local Important Farmland	0.0	0.0	0.0	0.3
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.0	0.0	0.0	0.0
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	82.5	100	20.4	82.4

PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)

0 37 0 0 0 93 0 89

PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b)) Maximum Points

1 Area In Nonurban Use	15	15	15	15	15
2 Perimeter In Nonurban Use	10	0	0	0	10
3 Percent Of Site Being Farmed	20	0	0	0	0
4 Protection Provided By State And Local Government	20	20	20	20	20
5 Distance From Urban Builtup Area	15	15	15	15	15
6 Distance To Urban Support Services	15	10	10	10	10
7 Size Of Present Farm Unit Compared To Average	10	0	0	0	0
8 Creation Of Nonfarmable Farmland	10	0	0	0	0
9 Availability Of Farm Support Services	5	0	0	0	0
10 On-Farm Investments	20	0	0	0	0
11 Effects Of Conversion Or Farm Support Services	10	0	0	0	0
12 Compatibility With Existing Agricultural Use	10	0	0	0	0
TOTAL SITE ASSESSMENT POINTS	160	0 68	0	0	0 70

PART VII (To be completed by Federal Agency)

Relative Value Of Farmland (From Part V)	100	0 37	0 0	0 93	0 89
Total Site Assessment (From Part VI above or a local site assessment)	160	0 68	0 67	0 67	0 70
TOTAL POINTS (Total of above 2 lines)	260	0 105	0 67	0 160	0 159

Site Selected: A, B, C & D Date Of Selection Was A Local Site Assessment Used? Yes No

Reason For Selection: there maybe no other practicle alternatives for selected sites scoring 160 or higher.

- A = County Line Pumping Station
- B = Effiee WWTP Pumping Station
- C = Highway 6 Pumping Station
- D = Jafza Pumping Station

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency) Date Of Land Evaluation Request 10/3/10

Name Of Project Orangeburg County Wastewater System Federal Agency Involved USDA-RD

Proposed Land Use Utility Infrastructure County And State Orangeburg County, South Carolina

PART II (To be completed by NRCS) Date Request Received By NRCS 10/26/2010

Does the site contain prime, unique, statewide or local important farmland? Yes No
 (If no, the FPPA does not apply - do not complete additional parts of this form.) Acres Irrigated Average Farm Size 274

Major Crop(s) Soybeans, corn, small grains Farmable Land In Govt. Jurisdiction Acres: 485,540 69.3% Amount Of Farmland As Defined in FPPA Acres: 478,270 82.5%
 Name Of Land Evaluation System Used LESA Name Of Local Site Assessment System Date Land Evaluation Returned By NRCS 11/1/2010

PART III (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	0.3	0.3	0.3	0.3
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	0.3	0.3	0.3	0.3

PART IV (To be completed by NRCS) Land Evaluation Information	Site A	Site B	Site C	Site D
A. Total Acres Prime And Unique Farmland	0.3	0.3	0.3	0.3
B. Total Acres Statewide And Local Important Farmland	0.0	0.0	0.0	0.0
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.0	0.0	0.0	0.0
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	42.4	20.4	20.4	9.3

PART V (To be completed by NRCS) Land Evaluation Criterion	Site A	Site B	Site C	Site D
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	89	93	93	100

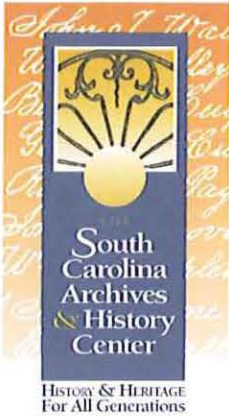
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use	15	15	15	15	15
2. Perimeter In Nonurban Use	10	6	6	10	10
3. Percent Of Site Being Farmed	20	0	0	0	0
4. Protection Provided By State And Local Government	20	20	20	20	20
5. Distance From Urban Builtup Area	15	15	15	15	15
6. Distance To Urban Support Services	15	10	10	10	10
7. Size Of Present Farm Unit Compared To Average	10	0	0	0	0
8. Creation Of Nonfarmable Farmland	10	0	0	0	0
9. Availability Of Farm Support Services	5	0	0	0	0
10. On-Farm Investments	20	0	0	0	0
11. Effects Of Conversion On Farm Support Services	10	0	0	0	0
12. Compatibility With Existing Agricultural Use	10	0	0	0	0
TOTAL SITE ASSESSMENT POINTS	160	66	66	60	66

PART VII (To be completed by Federal Agency)	Site A	Site B	Site C	Site D
Relative Value Of Farmland (From Part V)	89	93	93	100
Total Site Assessment (From Part VI above or a local site assessment)	66	66	60	66
TOTAL POINTS (Total of above 2 lines)	155	159	166	166

Site Selected A, B, C + D Date Of Selection 11/15/10 Was A Local Site Assessment Used? Yes No

Reason For Selection: There may be no other practical alternatives for selected sites scoring 160 or higher.

- A = White Cane Branch Pumping Station
 - B = Providence Swamp Pumping Station
 - C = Felderville Pumping Station
 - D = Woolbright Road Pumping Station
- 3 of 3**



October 7, 2008

Mr. Sean Norris, MA, RPA
TRC Garrow Associates, Inc.
621 Chatham Ave.
Columbia, South Carolina 29205

Re: Cultural Resources Survey of the Goodbys Creek Regional Wastewater Treatment Plant, Orangeburg
County, South Carolina
SHPO Project No. 08-CC0105

Dear Sir:

Our Office has received the documentation dated September 11, 2008 that you submitted as due diligence for the project referenced above. This letter is for preliminary, informational purposes only and does not constitute consultation or agency coordination with our Office as defined in 36 CFR 800: "Protection of Historic Properties" or by any state regulatory process. The recommendation stated below could change once the responsible federal and/or state agency initiates consultation with our Office.

If the Goodbys Creek Regional Wastewater Treatment Plant project (as described in the above-mentioned report) were to require state permits or federal permits, licenses, funds, loans, grants, or assistance for development, we would recommend to the federal or state agency or agencies that we concur with the report recommendations that one potentially eligible site (38OR303) is known to occur within the proposed development tract.

The State Historic Preservation Office will provide comments regarding our assessment of effects [36 CFR 800(d)] for all archaeological resources within the wastewater treatment plant once the federal or state agency initiates consultation. Additional guidance regarding our Office's role in the compliance process and historic preservation can be found on our website at:

<http://www.state.sc.us/scdah/hpreview.htm>

<http://www.state.sc.us/scdah/histcpl.htm>

If you have any questions, please contact me at (803) 896-6181 or at ccantley@scdah.state.sc.us.

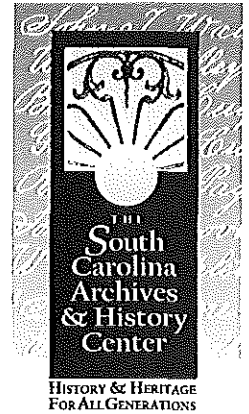
Sincerely,

Chuck Cantley, MA, RPA
Staff Archaeologist
State Historic Preservation Office

Exhibit C.4

December 2, 2009

Mr. Sean Norris
TRC
621 Chatham Ave.
2nd Floor
Columbia, SC 29205



Re: Goodbys Creek Regional WWTP, Sanders Pointe Farm Tract
SHPO Project No. 08-CC0099

Dear Mr. Norris:

Our Office has received the documentation dated November 18, 2008 that you submitted as due diligence for the project referenced above. This letter is for preliminary, informational purposes only and does not constitute consultation or agency coordination with our Office as defined in 36 CFR 800: "Protection of Historic Properties" or by any state regulatory process. The recommendation stated below could change once the responsible federal agency initiates consultation with our Office.

If the Sanders Pointe Farm Tract (as described in the above-mentioned report) were to require state permits or federal permits, licenses, funds, loans, grants, or assistance for development, we would recommend to the federal or state agency or agencies that we concur with the report recommendations that no listed or eligible National Register sites are known to occur within the proposed development tract.

The State Historic Preservation Office will provide comments regarding our assessment of effects [36 CFR 800(d)] for all historic and archaeological resources within the McAlhany Sewer Line corridor once the federal or state agency initiates consultation. Project Review Forms and additional guidance regarding our Office's role in the compliance process and historic preservation can be found on our website at:

<http://www.state.sc.us/scdah/hpreview.htm>

<http://www.state.sc.us/scdah/histepl.htm>

If you have any questions, please contact me at (803) 896-6181 or at ccantley@scdah.state.sc.us.

Sincerely,

Chuck Cantley, MA, RPA
Staff Archaeologist/GIS Coordinator
State Historic Preservation Office

cc: Alan Shirey, Corps of Engineers
John McLauchlin, Jr., Orangeburg Co.

January 27, 2010

RECEIVED

JAN 29 2010

ALLIANCE
CONSULTING ENGINEERS, INC.



Deepal S. Eliatamby
Alliance Consulting Engineers
P.O. Box 8147
Columbia, SC 29202-8147

Re: Proposed Wastewater System for Jafza Logistics Center, Orangeburg,
Orangeburg County, SC
SHPO #: 09CW0839

Dear Mr Eliatamby:

Thank you for your letter of December 28, which we received on December 30, regarding the above referenced project. We also received maps and a phase one cultural resources report as supporting documentation for this undertaking. The State Historic Preservation Office is providing comments to USDA Rural Development pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800.

The proposed Goodby's Creek Wastewater Treatment Plant is to be constructed next to a National Register eligible archaeological site. We believe that the construction of the plant will cause **no adverse effect** to the site provided that the land south of Goodby's Creek remains undisturbed by construction or construction related activities.

If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials. The federal agency or the applicant receiving federal assistance should contact our office immediately.

If you have any questions, please contact me at (803) 896-6169 or cwilson@scdah.state.sc.us.

Sincerely,

A handwritten signature in black ink, appearing to read 'Caroline', is written over a horizontal line.

Caroline Dover Wilson
Review and Compliance Coordinator
State Historic Preservation Office

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427
Fax 803-328-5791

803-779-2079

February 16, 2010

Attention: Robert Freeman
Alliance Consulting Engineers
P.O. Box 8147
Columbia, SC 29202-8147

Re. THPO #	TCNS #	Project Description
2010-339-5		Clarendon Co.'s Rural Wastewater System Expansion in Clarendon Co., SC Proj. No. 09127-14
2010-339-6		Proposed Orangeburg Co. Wastewater System in Orangeburg Co., SC Proj. No. 09152-38

Dear Mr. Freeman,

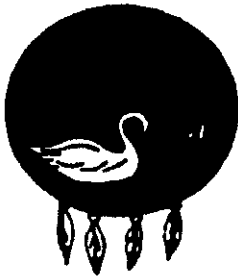
The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

Avoid sites 380R303 and 380R305.

If you have questions please contact Caitlin Totherow at 803-328-2427 ext. 226, or e-mail caitlinh@ccppcrafts.com.

Sincerely,

Caitlin Totherow for
Wenonah G. Haire
Tribal Historic Preservation Officer



EASTERN SHAWNEE TRIBE

CULTURAL PRESERVATION DEPARTMENT

P.O. Box 350, Seneca, MO 64865

918-666-2435 ext 247

culturalpreservation@estoo.net

December 28, 2009

Alliance Consulting Engineers, Inc.
Deepal S. Eliatamby
P.O. Box 8147
Columbia, SC 29202-8147

RECEIVED

JAN 6 9

ALLIANCE
CONSULTING ENGINEERS, INC.

Re: Orangeburg County Water System Expansion Project/Orangeburg, SC
Project #09151-38

Dear Deepal S. Eliatamby;

In regard to the above referenced project, the Eastern Shawnee Tribe of Oklahoma has no objection to the proposed water system expansion proposal. At this time, we are not currently aware of existing documentation directly linking Shawnee religious, cultural or historic sites to Orangeburg County.

We would like to ask that if at anytime during the project any inadvertent discoveries are uncovered that you would notify us immediately. Thank you for the opportunity to comment.

If you need further assistance please feel free to notify me by email at rdushane@estoo.net or by telephone at 918-666-2435 Ext. 247.

Best Regards,

Robin Dushane
Cultural Preservation Department

Cc/jh



**United States Department of Agriculture
Rural Development
Aiken Area Office
Aiken, South Carolina**

March 3, 2010

Ms. Caroline Dover Wilson
State Historic Preservation Officer
Division of Archives and History
8301 Parklane Road
Columbia, SC 29233

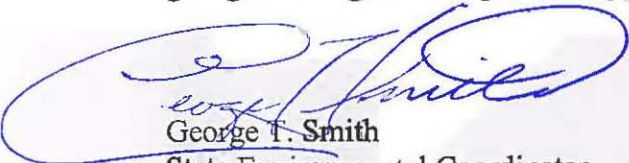
Re: Orangeburg County Wastewater Treatment Plant
Goodbys Creek
Orangeburg County, SC

Ms. Wilson,

Based upon a review of the information provided by Alliance Consulting Engineers, Inc. (including a cultural resource survey of subject site), and correspondence with SHPO and the Catawba Indian Nation, USDA Rural Development has made a determination of **no adverse effect** to cultural resources. Construction will not commence until the SHPO and all consulting Tribal entities have had an opportunity to review and respond to our determination of effect.

In accordance with 36 CFR Section 800.4(d)(1), Results of identification and evaluation, we request that you submit your review of our determination of effect to our office within 30 days. If you do not provide a written response within the 30-day timeline, we will assume you have no objection to our finding.

Should you have any questions please contact me at **(803) 649-4221** or **george.smith@sc.usda.gov**. We appreciate your assistance in this matter.


George T. Smith
State Environmental Coordinator
USDA/Rural Development

1555 E. Richland Avenue • Suite 100 • Aiken, SC 29801
Phone: (803) 649-4221 • Fax: (803) 642-0732 • Web: <http://www.rurdev.usda.gov/sc>

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**United States Department of Agriculture
Rural Development**
Aiken Area Office
Aiken, South Carolina

March 3, 2010

Russ Townsend, Deputy THPO
Eastern Band of Cherokee Indians
Qualla Boundary
P.O. Box 455
Cherokee, N.C. 28719

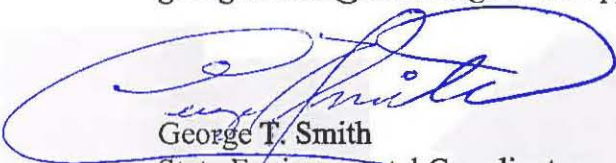
Re: Orangeburg County Wastewater Treatment Plant
Goodbys Creek
Orangeburg County, SC

Mr. Townsend,

Based upon a review of the information provided by Alliance Consulting Engineers, Inc. (including a cultural resource survey of subject site), and correspondence with SHPO and the Catawba Indian Nation, USDA Rural Development has made a determination of **no adverse effect** to cultural resources. Construction will not commence until the SHPO and all consulting Tribal entities have had an opportunity to review and respond to our determination of effect.

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United States Department of Agriculture
Rural Development
Aiken Area Office
Aiken, South Carolina

March 3, 2010

Ms. Robin Dushane, Cultural Preservation Dir.
Eastern Shawnee Tribe of Oklahoma
P. O. Box 350
Seneca, MO 64865

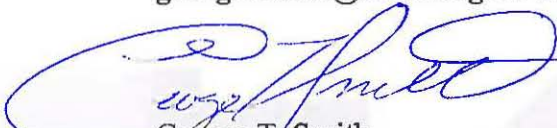
Re: Orangeburg County Wastewater Treatment Plant
Goodbys Creek
Orangeburg County, SC

Ms. Dushane,

Based upon a review of the information provided by Alliance Consulting Engineers, Inc. (including a cultural resource survey of subject site), and correspondence with SHPO and the Catawba Indian Nation, USDA Rural Development has made a determination of **no adverse effect** to cultural resources. Construction will not commence until the SHPO and all consulting Tribal entities have had an opportunity to review and respond to our determination of effect.

In accordance with 36 CFR Section 800.4(d)(1), Results of identification and evaluation, we request that you submit your review of our determination of effect to our office within 30 days. If you do not provide a written response within the 30-day timeline, we will assume you have no objection to our finding.

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George T. Smith
State Environmental Coordinator
USDA/Rural Development

1555 E. Richland Avenue • Suite 100 • Aiken, SC 29801
Phone: (803) 649-4221 • Fax: (803) 642-0732 • Web: <http://www.rurdev.usda.gov/sc>

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Exhibit C-11



**United States Department of Agriculture
Rural Development**
Aiken Area Office
Aiken, South Carolina

March 3, 2010

Dr. Wenonah Haire, THPO
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, S.C. 29730

Re: Orangeburg County Wastewater Treatment Plant
Goodbys Creek
Orangeburg County, SC

Dr. Haire,

Based upon a review of the information provided by Alliance Consulting Engineers, Inc.(including a cultural resource survey of subject site), and correspondence with SHPO and the Catawba Indian Nation, USDA Rural Development has made a determination of **no adverse effect** to cultural resources. Construction will not commence until the SHPO and all consulting Tribal entities have had an opportunity to review and respond to our determination of effect.

In accordance with 36 CFR Section 800.4(d)(1), Results of identification and evaluation, we request that you submit your review of our determination of effect to our office within 30 days. If you do not provide a written response within the 30-day timeline, we will assume you have no objection to our finding.

Should you have any questions please contact me at (803) 649-4221 or george.smith@sc.usda.gov. We appreciate your assistance in this matter.

George T. Smith
State Environmental Coordinator
USDA/Rural Development

1555 E. Richland Avenue • Suite 100 • Aiken, SC 29801
Phone: (803) 649-4221 • Fax: (803) 642-0732 • Web: <http://www.rurdev.usda.gov/sc>

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Exhibit C.12



United States Department of the Interior



FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

January 12, 2010

Ms. Amanda White
Biologist
S&ME
134 Suber Road
Columbia, SC 29210

Re: Protected Species Assessment
Orangeburg County Waste Water System Expansion Project
Orangeburg County, South Carolina

S&ME Project No. 1614-09-439

FWS Log No. 2010-TA-0122

Dear Ms. White:

The U.S. Fish and Wildlife Service (Service) has reviewed your December 15, 2009, letter regarding the above-referenced project. This project consists of the construction of approximately 14.94 miles (78,900 linear feet) of new waste water lines within rights-of-way of existing roads in Orangeburg County, South Carolina. In addition, two pumping stations are proposed in two separate locations. The purpose of the project is to provide waste water service to approximately 220-250 customers that currently use septic systems and future industrial/commercial development along these road corridors. Waste water line expansions are proposed along S.C. Highway 210 (Vance Road), U.S. Highway 176 (Old State Road), U.S. Highway 15 (Bass Drive), and areas surrounding Exits 90 and 93 of Interstate 95. The following comments are submitted under the Fish and Wildlife Service Coordination Act, as amended (16 U.S.C. 661-667e), Migratory Bird Treaty Act (16 U.S.C. 703-712), and section 7 of the Endangered Species Act (Act), as amended (16 U.S.C. 1531-1543).

The Service is concerned about residential and commercial development that will result from the installation of centralized water services. Increased development impairs water quality through direct construction runoff, altered hydrology from increased impervious surface area, nutrient loading from wastewater treatment effluent, and water temperature increases due to deforestation of the watershed, among others. A nearby water monitoring station on Providence Swamp at East Frontage Road is currently listed on the South Carolina Department of Health & Environmental Control 303d list of impaired waters for aquatic life and recreational use due to high fecal coliform. Also, the relationship between the proposed project and the planned



Exhibit C.13 (1)

Goodbys Creek Wastewater Treatment Plant means that project activities have the ability to degrade water quality in Four Hole Swamp, a vitally important ecosystem for Trust resources, including migratory birds, federally listed species, and aquatic species.

With regard to the proposed waste water line project, we recommend utilizing best management practices with regard to soil erosion prevention during construction. Minimizing soil disturbance and using silt fences will reduce sediment loads from entering waterways and thus reduce potential negative impacts to aquatic resources. Additionally, any required stream crossings should be achieved by either attaching the new line to an existing structure (i.e., bridge), or by directional drilling to avoid open trenching of the stream. No fill should be placed in wetlands or streams, and adjacent access roads and drainage ditches should not alter natural flow regimes through these areas. Where lines will be placed in trenches, the natural pre-project elevations should be maintained. All lines that are constructed in wetland or riparian areas should be re-vegetated in native plant species. Compensatory mitigation should be provided for all adverse impacts. Finally, construction and maintenance activities in forested communities should take place outside of the breeding season of migratory birds (March - August).

We recommend that project plans be developed to avoid impacting wetland areas and reserve the right to review any required federal or state permits at the time of public notice issuance. All unavoidable impacts including temporary ones must be mitigated for under the revised Department of the Army Corps of Engineers Regulatory Division Standard Operating Procedure (RD-SOP-02-01). The U.S. Army Corps of Engineers should be contacted to assist you in determining if wetlands are present or if a permit is required for this activity.

Provided the above mentioned recommendations are incorporated into the project design, it is the Service's determination that this action is not likely to adversely affect federally protected species and/or designated or proposed critical habitat. In view of this, we believe that the requirements of section 7 of the Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Your interest in endangered species is appreciated. If you have any questions please contact Ms. Melissa Bimbi of my staff at (843) 727-4707, ext. 217. In future correspondence concerning the project, please reference FWS Log No 2010-TA-0122.

Sincerely,



Diane L. Lynch
Acting Field Supervisor

DLL/MKB



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69-A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

March 23, 2010

RECEIVED

MAR 26 2010

**ALLIANCE
CONSULTING ENGINEERS, INC.**

Regulatory Division

Mr. David M. Winburn
Alliance Consulting Engineers
Post Office Box 8147
Columbia, South Carolina 29202-8147

RE: SAC-2010-47-2JG

Dear Mr. Winburn:

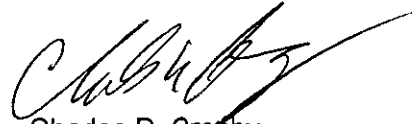
This is in response to your recent letter dated March 19, 2010, wherein you inquired as to the necessity of obtaining a Department of the Army permit for the construction of 15 miles of proposed wastewater force mains and gravity lines, two pump station sites, and the Goodby's Creek wastewater treatment plant and the Sanders Farm wastewater land application sites. All of the proposed work is to be constructed within upland areas along the corridor and directional boring will be utilized for any wetland or creek crossings. In addition, the work will not involve any crossings of Navigable Waters nor placement of any fill material into wetlands or other Waters of the United States. All construction activities will occur in upland areas. The proposed work is located along Highway 176, Highway 210, the sites of two pumping stations (one off Highway 176 and another off of Highway 15), and the site of the Goodby's Creek Wastewater treatment plant and the Sanders Farm Land Application site in Orangeburg County, South Carolina, as shown on sheets 1-4 of 4 of the attached maps entitled "PROPOSED ORANGEBURG COUNTY WASTEWATER SYSTEM, ORANGEBURG COUNTY, SOUTH CAROLINA, WASTEWATER IMPROVEMENTS MAP."

A review of the information you provided indicates that the work will not involve work in a Navigable Water of the United States, nor will it entail the placement of fill material in wetlands/waters of the United States. Therefore, a Department of the Army permit is not required, and you may proceed with the project.

In future correspondence concerning this matter, please refer to SAC-2010-47-2JG. You may need state or local assent. Prior to performing any work, you should contact the South Carolina Department of Health and Environmental Control. A copy of this letter is being forwarded to that agency for their information. The address for this agency is provided on the enclosed list for your convenience.

If you have any questions concerning this matter, please contact Mary Hope Green at 843-329-8044 or toll free (outside of the Charleston area) at 1-866-329-8187.

Respectfully,

A handwritten signature in black ink, appearing to read 'Charles R. Crosby', written in a cursive style.

Charles R. Crosby
Chief, South Branch

Copy Furnished:

SCDHEC
Attn: Mr. Chuck Hightower
Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201



C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment

March 23, 2010

USDA – Rural Development
P. O. Box 2477
Aiken, SC 29801

Re: **Public Sewer Expansion In Orangeburg County**

To Whom It May Concern:

The purpose of this letter is to express support for public sewer expansion in three areas of Orangeburg County: the **Edisto Drive** area, the **Town of Bowman** area, and the **Town of Vance** area. All three of these areas have marginal soils that are challenging for septic tank systems to perform properly. In addition, our office has experienced a history of complaints involving very old septic systems in these areas that have failed over time. We therefore support any resources that can be directed towards the expansion of a public sewer system to serve those in these impacted areas.

Should you need additional assistance, please feel free to contact me at 803-536-9105.

Sincerely,

Trey Reed
Environmental Health Director
SCDHEC Public Health Region 5

Michael Chappell
Regional Health Director
SCDHEC Public Health Region 5

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

Region 5

Serving Aiken, Allendale, Bamberg, Barnwell, Calhoun and Orangeburg Counties

Orangeburg Public Health Office • PO Box 1126 • 1550 Carolina Avenue • Orangeburg, SC 29116 • Phone: (803) 533-7116 • www.scdhec.gov



227 GATEWAY DRIVE, SUITE 213-A AIKEN, SOUTH CAROLINA 29803 TEL.: 803-652-2225 FAX: 803-652-7811

February 6, 2008

Mr. J. William (Bill) Clark, Administrator
Orangeburg County
Post Office Drawer 9000
Orangeburg, SC 29116-9000

RE: Goodbys Creek Regional WWTP
Orangeburg County, SC

Dear Bill:

Three Rivers Solid Waste Authority understands that Orangeburg County is planning the construction of the Goodbys Creek Regional Wastewater Treatment Plant (WWTP) just south of the Matthews Industrial Park at the intersection of U.S. Highway 301 and U.S. Highway 176. The WWTP will have a rated capacity of 1.5 million gallons per day (MGD) with approximately 0.5 MGD committed to the Matthews Industrial Park, 0.5 MGD committed to the Town of Santee, and 0.5 MGD committed to the Town of Elloree/Calhoun County. The WWTP will feature tertiary treatment through the use of membrane bioreactors, and the effluent will be land applied. Biosolids from the WWTP will undergo aerobic digestion, thickening, and solar drying in order to produce Class B Biosolids having a minimum solids content of 50%. While we understand that you are in pursuit of suitable land application sites for these biosolids, we also understand that you would like to have the option of disposing of as much as 1,150 tons of biosolids per year in the Three Rivers Solid Waste Authority landfill.

In accordance with your request, the Three Rivers Solid Waste Authority Regional Landfill is pleased to acknowledge its willingness to accept the sludge from the proposed Goodbys Creek Regional WWTP for disposal, and we are pleased to certify that this landfill is SWAIP (special waste) approved.

Let us know if you have any questions or if we might provide additional information.

Very truly yours,

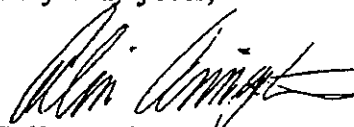
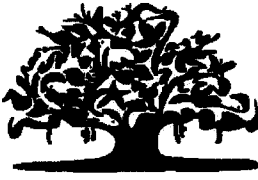

Colin Covington
General Manager

Exhibit C.16

• AIKEN • ALLENDALE • BAMBERG • BARNWELL •
• CALHOUN • EDGEFIELD • MCCORMICK • ORANGEBURG • Santee •



**COASTAL
CONSERVATION
LEAGUE**

May 1, 2009

Lieutenant Colonel J. Richard Jordan, III
Commander, U.S. Army Engineer District, Charleston
69A Hagood Avenue
Charleston, SC 29403-5107

Re: Comments on the Draft Finding of No Significant Impact and Draft Environmental Assessment for the Goodby's Creek Regional Wastewater Treatment Plant

Dear. Lieutenant Colonel Jordan:

This letter documents our concerns with the Draft Finding of No Significant Impact ("FONSI") and Draft Environmental Assessment ("EA") for the Goodby's Creek Regional Wastewater Treatment Plant. The Coastal Conservation League's mission is to protect the natural environment of the South Carolina coastal plain and to enhance the quality of life of our communities by working with individuals, businesses and government to ensure balanced solutions. We appreciate your consideration of the following comments:

As discussed below, the FONSI and the EA are inadequate in two key respects. First, the Draft EA fails to disclose the full extent of the project's impacts on air quality and wetlands or the extent and nature of cumulative impacts. Second, the FONSI erroneously concludes that the project will have no effect on air quality and wetlands based on this incomplete analysis and not based on the project as a whole. Because these impacts remain undisclosed and will likely be significant, the Draft EA provides an inadequate basis for the issuance of a FONSI. The U.S. Army Corps of Engineers ("Corps") must address these issues in an Environmental Impact Statement ("EIS").

Air Quality Impacts

Because the project provides infrastructure necessary for the construction of the Matthews Industrial Park and the Jafza International facility in Orangeburg County, the Draft EA necessarily encompasses the impacts of these developments. It ignores, however, the most significant source of air quality impacts stemming from these projects – diesel emissions from the 50,000 daily truck trips generated by Jafza's distribution

center.¹ The Draft EA acknowledges that types of anticipated developments include rail facilities, truck and rail distribution/warehouse buildings, and transportation access connections. (Draft EA Appendix D at 1.) Yet, it disregards the nature of the Jafza International site as a proposed distribution hub in considering air quality impacts, disclosing only the anticipated emissions from stationary sources. Based on this misleading and incomplete presentation of anticipated impacts, the Draft FONSI concludes that the project would have “no effect” on air quality. (Draft FONSI at 4.) This is incorrect.

The anticipated flood of diesel-powered trucks into the area represents a major source of harmful air pollutants. Combustion of diesel fuel emits a range of pollutants including NOx, SOx, volatile organic compounds (“VOCs”), and particulate matter. The increased emissions of these pollutants accompanying the influx of truck traffic will necessarily impact air quality. This degradation of air quality poses threats to human health and the surrounding environment, and these impacts must be quantified and analyzed.

The fine particulate matter from diesel exhaust poses a significant health hazard because once the particles are inhaled, the lungs cannot adequately filter them out. Particulate matter can cause serious problems – increased rates of asthma, lung cancer, death from heart disease, strokes, respiratory infections, reduced lung function growth, and infant mortality. Researchers have concluded that “[e]levated fine particulate air pollution exposures [are] associated with significant increases in lung cancer mortality.”² Studies have also highlighted the connection between air pollution and impaired lung development in children.³ Moreover, California’s South Coast Air Quality Management District determined that diesel particulate pollution is responsible for seventy percent of the area’s cancer risk stemming from air pollution.⁴ In addition, the Air Resources Board

¹ See Wilbur Smith Assocs., S.C. State Rail Plan 2008 Update 100 (March 2009) (explaining that economic planners for Jafza International predict the company’s distribution center will generate 50,000 truck trips per day) (attached as Exhibit 1) .

² C. Arden Pope III, et al., *Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution*, JAMA 2002; 287:1132-1141. For further evidence relating to the health effects of fine particulate pollution, see Nino Kunzli, et. Al, *Ambient Air Pollution and Atherosclerosis in Los Angeles*, Environmental Perspectives vol. 113 (Feb. 2005).

³ W. James Gauderman, et al., *The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age*, N. Engl. J. Med. 2004; 351:1057-1067 (Sept. 9, 2004).

⁴ South Coast Air Quality Management District, *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-II)* (2000), available at <http://www.aqmd.gov/matesiidf/matestoc.htm> (last visited April 28, 2009).

in California has estimated that air pollution from “goods movement activities” results in roughly 2,400 premature deaths annually in the state, mostly from particulate pollution.⁵

The exhaust from diesel-burning engines is also particularly dangerous because it is laden with an assortment of known toxins, such as formaldehyde, acetaldehyde, acrolein, benzene, 1,3-butadiene, polycyclic aromatic hydrocarbons (PAHs) and nitro-PAHs.⁶ The U.S. Environmental Protection Agency (“EPA”) has recognized that such “organic compounds present on the [diesel] particle[s] and in the gases are individually known to have mutagenic and carcinogenic properties,” and, further, that diesel exhaust as a whole is “likely to be carcinogenic to humans.”⁷

Furthermore, the substantial increase in emissions from diesel-powered trucks stands to increase ozone concentrations in the project area as well. Ozone – a main constituent of smog – is a criteria air pollutant with well-documented adverse health and environmental effects. Although ozone is not emitted directly from an exhaust pipe, its two primary precursors are NOx and VOCs. Emissions of both precursors will rise as a result of the project, meaning that ozone concentrations will also rise.

In summary, this project paves the way not only for the stationary facilities at the Jafza International site, but also for the 50,000 daily truck trips the site expects to generate. Emissions from these diesel-powered vehicles will affect air quality in the project area and beyond. A complete EA must therefore include an assessment of the air pollution generated by vehicular emissions and the effects of such pollution on people and their environment. Moreover, because the health and environmental effects of these emissions will likely be significant, the Corps must analyze the effects of increased air pollution in an EIS.

Wetlands Impacts

The project involves the construction of a 1.5 million gallon per day wastewater treatment plant adjacent to Goodbys Creek, as well as 17 miles of associated wastewater transmission lines. (Draft EA at 1.) The project area represents an inter-riverine portion of South Carolina’s midlands whose dominate features are swamps, including Four Hole Swamp and Goodby’s Swamp. (Draft EA, Appendix D at 3.) The National Park Service includes Four Hole Swamp on its Nationwide River Inventory, a listing based on scenery, recreational opportunities, fish populations and habitat, wildlife populations and habitat, historical significance, and outstanding cultural resources. (Draft EA at 9.) In addition to Four Hole and Goodby’s Swamp, the immediate area of the project overlaps a number of

⁵ Cal. Air Resources Bd., *Proposed Emission Reduction Plan for Ports and Goods Movement in California* (2006), available at <http://www.arb.ca.gov/planning/gmerp/gmerp.htm> (last visited April 28, 2009).

⁶ National Center for Environmental Assessment (2002). *Health Assessment Document for Diesel Engine Exhaust*, EPA/600/8-90/057F.

⁷ EPA, *Health Assessment Document for Diesel Engine Exhaust*, 1-1, 1-2, 1-4.

water bodies, including Providence Swamp, White Cane Branch Swamp, Little Poplar Creek, and Big Poplar Creek. (Draft EA at 7.)

Although the project involves construction of 17 miles of pipeline through an area dominated by swampland and intersected by a number of water bodies, the Draft EA asserts that the project would impact less than ½ acre of wetlands, and the Draft FONSI discloses no wetlands impacts beyond a short term increase in turbidity where the wastewater treatment lines cross streams and wetlands. According to the EA, additional wetlands acreage will be impacted, but the wetlands will ultimately be restored to their original grade following completion of the project. (Draft EA at 11.) Although the Draft EA's "conclusions" section suggests impacts from construction of wastewater treatment lines and pump stations would "temporarily" impact less than ½ acre of wetlands, the discussion of water quality impacts suggests much more far reaching effects. (Draft EA at 11, 14.)

To satisfy the National Environmental Policy Act ("NEPA"), the environmental analysis of the project must fully disclose the project's environmental impacts, including impacts on wetlands. The Draft EA, however, masks the full extent of the project's wetlands impacts with promises of future mitigation. The Corps must disclose the number of acres the project will impact, regardless of whether it claims that the impacts will subsequently be remedied through mitigation. Moreover, the Corps has an obligation to first avoid and minimize wetland impacts to the maximum extent practicable before resorting to mitigation as compensation for unavoidable impacts. Without adequate, accurate information concerning the acreage of wetlands impacted, the nature of the impacts, and the mitigation methods required, the public cannot determine whether the Corps has complied with this mandate and what the true footprint of the project will be. Compounding this problem, the Draft EA and FONSI fail to provide sufficient information for the public to discern whether impacts would occur in areas in which mitigation is particularly difficult to achieve, and whether the mitigation anticipated is mandated by binding authority, or simply expected to occur. "Many Carolina bays are indicated across the vicinity of the Project Area with several included in the Project Area," (Draft EA Appendix D at 3), and these unique wetlands may well be difficult to restore.

Both the Draft EA and Draft FONSI present a misleading characterization of the project's effect on wetlands that ignores the bulk of construction impacts. Consequently, both are legally flawed. The Corps must fully disclose the anticipated wetlands impacts and more complete information concerning the expected mitigation. Because the effects of constructing 17 miles of pipeline through a landscape dominated by swamps and other water bodies will likely be significant, these impacts should be explored in an EIS.

Cumulative Impacts

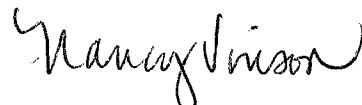
As the Draft EA acknowledges, the project serves primarily to provide infrastructure necessary for other proposed developments, including the Matthews Industrial Park, the Jafza International site, and increased residential development. Due

to its role in facilitating and spurring further conversion of agricultural and forested land into commercial and industrial sites, the project has numerous and significant cumulative impacts. The Draft EA notes briefly that the anticipated land-use changes will further impact wetlands and may also affect water quality, cultural resources, threatened/endangered species, biological resources, and human health and welfare. (Draft EA at 13.) It asserts that the precise nature of these impacts is unknown, but assumes that the effects will not be detrimental. (Draft EA at 13.)

In fact, far more information concerning the cumulative impacts of the project is available, and this information shows that the effects would be detrimental. For example, as explained above, Jafza International has already outlined plans for its each phase of its site development, and has predicted the influx of 50,000 daily truck trips into the area, as well as the routes on which this traffic would travel. Moreover, given the predominance of swamps and other water bodies in the area, the Corps can anticipate that the proposed changes in land use will be accompanied by proposals to fill wetlands. The Corps must consider and disclose the effects, many of which are detrimental, of the developments that depend on construction of the project to move forward with their plans.

Overall, the Corps proposes to lay a foundation for commercial and industrial development, but delay consideration of the impacts of that development until the momentum generated on each project weighs more heavily in favor of its completion. This strategy subverts the intent of NEPA, which requires integration of environmental analysis into other planning at the earliest possible time to ensure that planning and decisions reflect environmental values and avoid potential delays and conflicts further down the line. 40 C.F.R. § 1501.2 (2009). The wastewater treatment plant is intended to usher in dramatic changes in the character of the surrounding area, and the Corps must analyze and disclose the significant and far reaching impacts of the anticipated alteration in land-use in an EIS so that the effects of this project are considered and understood before the Corps moves forward with construction of this infrastructure project. The Corps cannot provide the groundwork for development and consider only later what the effects of that development might be.

Sincerely,



Nancy Vinson, Program Director

"Nature and Community in Balance"

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

April 22, 2009

Joseph A. Jones, Chief
Planning Division
Charleston District
U.S. Army Corps of Engineers
69A Hagood Avenue
Charleston, South Carolina 29403-5017

Subject: EPA's Review of Draft Environmental Assessment (EA) & Draft Finding of No Significant Impact (FONSI) for the Wastewater Infrastructure Project in Eastern Orangeburg County, Near the Towns of Elloree and Santee, SC

Dear Mr. Jones:

Consistent with Section 102(2)(c) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the Draft EA and Draft FONSI for the proposed Wastewater Infrastructure Project in Eastern Orangeburg County, near the Towns of Elloree and Santee, SC. It is our understanding the U.S. Army Corps of Engineers (Corps), Charleston District, working in cooperation with the Lake Marion Regional Water Agency, Santee-Cooper (South Carolina Public Service Authority), and Orangeburg County, is proposing to construct this wastewater infrastructure project. The proposed project consists of approximately 17 miles of wastewater transmission lines and a 1.5 million gallon per day (average daily flow) wastewater treatment plant, constructed adjacent to Goodbys Creek near the intersection of U.S. Highway 301 (Hwy 301) and U.S. Highway 176 (Hwy 176). The wastewater lines are proposed to be constructed in (or near) the right-of-way (ROW) along Hwy 301 and Woodbridge Road, between the Town of Santee and the plant site, and in (or near) the right-of-way (ROW) along State Highway 267, between the Town of Elloree and Hwy 301.

The proposed wastewater treatment facility has been proposed for purposes of serving "the needs of the adjacent Matthews Industrial Park, the proposed Jafza International logistics/distribution center near Santee, expected residential development in unincorporated areas of southern Calhoun County, as well as some of the wastewater needs for the Towns of Elloree and Santee." The proposed treatment plant facility will feature a "membrane bioreactor treatment system to achieve tertiary treatment standards, and then the treated effluent will be discharged onto upland sprayfields in the vicinity of the treatment plant."

EPA Region 4 concurs with the proposed Wastewater Infrastructure Project provided that:

- All temporarily impacted wetlands will be fully restored to their original grade and condition following completion of the project, and that the proposed project will not result in any long term adverse environmental impacts. Any unavoidable wetlands impacts will be fully mitigated.
- The proposed action will not adversely affect any threatened or endangered species.
- The proposed action will not adversely impact any cultural resources.
- The proposed action will not adversely impact air quality.
- The proposed action will fully comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.
- No unacceptable adverse cumulative or secondary impacts will result from the implementation of the proposed action.
- Goodbys Swamp at Hwy 176, about 6 miles SW of the Town of Ellore (Station RS-01036), has had two waterbody segments listed in the past on the State of South Carolina's 303(d) Impaired Waters List. This waterbody has recreational (swimming) and aquatic life designated use classifications in various places. Goodbys has had an impaired macroinvertebrate community, as well as having a pathogens problem (fecal coliform bacteria). This Wastewater Infrastructure Project should not cause or contribute to any further impairment(s) of waterbodies in the Goodbys Watershed.
- The site grading, excavation, and construction plans should include effective (and enforceable) measures that will be implemented to prevent erosion and sediment runoff from the project site both during and after construction.
- A local land disturbance/construction permit and an NPDES stormwater permit will also be required, and these should be referenced on the plans and in the specifications.
- EPA also recommends that any Total Maximum Daily Load (TMDL) studies that have been prepared and approved for any downstream waterbodies (or other streams impacted by the project) be reviewed by the Project Engineer to ensure that the proposed action will not impede TMDL implementation activities.

We appreciate the opportunity to review the project. Should you have questions, feel free to coordinate with Paul Gagliano, P.E., of my staff at 404/562-9373 or at gagliano.paul@epa.gov.

Sincerely,



Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management



United States Department of the Interior

FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407



July 29, 2008

Mr. Joseph A. Jones
Chief, Planning Branch
U.S. Army Corps of Engineers
69A Hagood Avenue
Charleston, SC 29403-5107

Dear Mr. Jones:

Your letter of July 23, 2008, requested comments on a proposed wastewater treatment plant near Goodbys Creek in Orangeburg County, South Carolina. The project includes construction of a 1.5 million gallon per day wastewater treatment facility. An environmental assessment (EA) was prepared by the Charleston District in 2006 for a similar but smaller treatment plant at this location.

In order to adequately document impacts and assess potential mitigation measures, we recommend that the EA for the expanded project provide information on the following issues:

- To avoid or minimize impacts to forested wetlands, evaluate use of a directional drilling alternative for the wastewater line crossing of Goodbys Swamp,
- Discuss the expected efficiency of the treatment plant in nutrient removal,
- Discuss the tertiary treatment standards that will be met,
- Evaluate spray field soil suitability to accept the additional treated effluent, and
- Evaluate potential impacts to wetlands adjacent to the spray fields.

We appreciate the opportunity to provide these comments. Please contact Ed EuDaly at 843-727-4707 extension 227 if you have any questions.

Sincerely,

Timothy N. Hall
Field Supervisor

TNH/EME



Exhibit C.19



United States Department of the Interior



FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

April 23, 2009

Mr. Joseph A. Jones
Chief, Planning Branch
U.S. Army Corps of Engineers
69A Hagood Avenue
Charleston, SC 29403-5107

Attn: Alan Shirey

Re: Draft Environmental Assessment, Goodby's Creek Regional Wastewater Treatment Plant, Orangeburg County, SC, FWS Log No. 42410-2009-FA-0206

Dear Mr. Jones:

The U.S. Fish and Wildlife Service (Service) has received the Environmental Assessment (EA) for the proposed wastewater infrastructure project in the eastern portion of Orangeburg County, SC. The U.S. Army Corps of Engineers (Corps), working in cooperation with the Lake Marion Regional Water Agency, Santee Cooper and Orangeburg County, developed this Draft EA to address potential environmental impacts that may result from this project. Preparation of this Draft EA was pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended to review environmental consequences that may occur as a result of Federal projects. Upon review of the Draft EA the Service offers the following comments for the Corps consideration.

The Service recognizes the effort made to avoid and minimize impacts to resources in the siting of the wastewater treatment plant (WWTP). We applaud the use of directional drilling as the preferred method of pipe installation to avoid surface crossings of streams such as Providence Swamp and Goodby's Creek. Additionally, much of the work will be located in previously disturbed transportation or power line right of ways, minimizing impacts to undisturbed wetlands and streams.

The Service is concerned that the EA may not provide an adequate examination of the project's Purpose and Need. Although the EA states the project is to serve the wastewater needs of nearby towns and developments, it does not provide an explanation of these needs. Section 1508.9(b) of the Council of Environmental Quality (CEQ) regulations for implementing NEPA requires a discussion on the need for the proposal as well as a discussion on alternatives considered and

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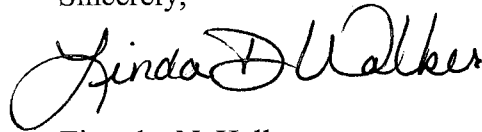
Exhibit C.20(1)

environmental impacts. The Service recommends the Final EA satisfy this requirement through discussions on the area's current wastewater treatment capabilities or deficiencies and identifying volume capacities that may be required for the area's planned development projects.

The Draft EA states the WWTP will discharge treated effluent onto upland spray fields in the vicinity of the plant. Neither a description of these upland areas nor their specific location was identified in the document. Discharge of treated effluent represents an impact and must be analyzed in the EA. However, during a recent site visit with Corps personnel, the proposed spray field locations were identified as fallow agricultural fields directly adjacent to the proposed WWTP. The Service recommends the Final EA provide a brief discussion of the spray fields as well as potential impacts resulting from receipt of treated effluent.

The Service appreciates the opportunity to comment on this project in its early stage of development. If you have any questions on the Service's comments or recommendations, please contact Mark Caldwell (843) 727-4707 ext 215.

Sincerely,

A handwritten signature in black ink that reads "Timothy N. Hall". The signature is written in a cursive, flowing style.

Timothy N. Hall
Field Supervisor

TNH/MAC



Audubon SOUTH CAROLINA

Francis Beidler Forest
Audubon Center & Sanctuary
336 Sanctuary Road
Harleyville, SC 29448
Tel: 843-462-2150
Fax: 843-462-2713
www.beidlerforest.com

August 19, 2006

Mr. Alan Shirey
U.S. Army Corps of Engineers
Charleston District
69-A Hagood Avenue
Charleston, SC 29403-5107

RE: Potable Water and Wastewater Infrastructure Improvements in Orangeburg County at Intersection of U.S. Hwy 301 and U.S. Hwy 176, Orangeburg County, South Carolina

Dear Mr. Shirey,

Please accept this letter as the official comments of Audubon South Carolina (ASC) on the above referenced project.

ASC has worked for over thirty years to protect and preserve Four Holes Swamp, one of the most intact and undisturbed hydrological systems in South Carolina. ASC's efforts have included the acquisition and permanent conservation of nearly 15,000 acres downstream of the John W. Matthews, Jr. Industrial Park. ASC submits these comments both as an organization representing the best interests of the wildlife and communities of Four Holes Swamp and as a significant landowner with the potential for significant impacts downstream of this site.

ASC supports economic development as a means to improve the quality of life of the residents of Orangeburg County, South Carolina. ASC has long held the belief that conservation and growth are not incompatible and has entered into a partnership with the Orangeburg County Economic Development Commission and Orangeburg County Government to support economic development where most appropriate. ASC is pleased to see that the innovative potable water and wastewater treatment solutions, as proposed by ASC, have been adopted for the Matthews Industrial Park.

Orangeburg County's intent to cluster its industrial and commercial development, rather than allow those activities to create sprawl is to be complimented. The clustering of the infrastructure and future businesses for this primarily rural, agricultural landscape protects the surrounding communities and natural resources of Four Holes Swamp.

Audubon South Carolina would like to offer the following comments on potential impact to Four Holes Swamp:



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