BISHOP ROAD WETLAND RESTORATION PROJECT

HYDE COUNTY, NORTH CAROLINA
SCO PROJECT No. 050653801

Prepared for:
North Carolina Department of Environment and Natural Resources,
Ecosystem Enhancement Program
1652 Mail Service Center, Raleigh, NC 27699-1652

FINAL RESTORATION PLAN
August 2006

Final Wetland Restoration Plan Report

Bishop Road,
Hyde County

Prepared for:
North Carolina Ecosystem Enhancement Program

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Executive Summary

ARCADIS was retained by the North Carolina Department of Transportation (NCDOT) to study the potential for wetland mitigation at the Bishop Road site and to develop a Wetland Restoration Plan Report. The Bishop Road site was purchased by NCDOT in the spring of 2001 as a potential wetland mitigation site. The North Carolina Ecosystem Enhancement Program (NCEEP) took over the project and retained ARCADIS to revise and update the Wetland Restoration Plan Report. The Bishop Road site consists of approximately 691.7 acres (279.9 hectares) along US 264 at Bishop Road, north of Scranton, in Hyde County, North Carolina. The Bishop Road site, which has been under pine plantation management for several decades, consists of approximately 399.6 acres (161.8 hectares) of pine stands of various ages, 33.1 acres (13.4 hectares) of timber cutover, 194.2 acres (78.6 hectares) of freshwater emergent marsh, 45.3 acres (18.3 hectares) of riverine forested wetland, and 19.1 acres (7.7 hectares) of roadway fill.

Published information relative to the project area was reviewed, including water resource information, federal and state protected species lists, aerial photographs, and soil survey maps. A Phase I Environmental Site Assessment Transaction Screening was completed for the project area. Additionally, a jurisdictional wetland delineation, a soil profile description, a hydrologic survey, and elevation surveys were performed within the project area. Preliminary survey did not reveal any historic, archaeological, or environmental constraints within the Bishop Road site. A detailed archaeological survey has been performed. The findings of the survey will be included in the final version of this document.

Hyde County is situated in the Tidewater Region of the Coastal Plain physiographic province of North Carolina, the largest geologic belt in the state. The site is reported to contain one soil association that is composed of nearly level, very poorly drained, and poorly drained soils that have a mineral surface layer and a loamy or clayey subsoil. All soils mapped within the Bishop Road site are classified as hydric.

The Bishop Road site is within the Tar-Pamlico River basin. The Bishop Road site is bound to the south by Scranton Creek, to the northwest by Tarklin Creek, and to the west by Pungo River. Numerous unnamed tributaries to these streams, including the headwaters of Tarklin Creek, are present in the southern, western, and northern portions of the site. Additionally, drainage ditches on the Bishop Road site and the adjacent properties transport surface runoff and groundwater towards Tarklin and Scranton Creeks and Pungo River.

The primary hydrologic inputs at the site are likely groundwater, seepage, and precipitation while the primary outputs are likely surface runoff and evapotranspiration. Since the Pungo River and its tributaries form the southern, western, and northern site boundaries, inundation from storm surges is also a likely source of water. The natural drainage of the site and adjacent areas has been altered to facilitate agriculture and timber production. Several drainage ditches have been installed along the roads and across the agricultural fields to help drain surface runoff.

Weyerhaeuser has managed the site for silvicultural uses. Therefore, it has been exempt from the rules set forth in the Section 404/401 program. However, with the NCDOT purchase and change in land use, the site is no longer exempt from the Section 404/401 program. Therefore, all construction, site maintenance, and land management practices implemented within the mitigation site will need to comply with regulations related to jurisdictional wetlands.

The United States Fish and Wildlife Service (USFWS) identified six endangered species, six threatened species, one threatened due to similarity of appearance species, and six federal species of concern (FSC) listed as potentially occurring in Hyde County (March 2006). The following table lists these federally protected species and their status; however, FSC species are not protected by the Endangered Species Act of 1973, as amended, and are not included in the table.

Federally Protected Species Known from Hyde County, North Carolina

Scientific Name	Common Name	Federal Status	State Status	Biological Conclusion
Vertebrates				
Acipenser brevirostrum	Shortnose sturgeon	E	E	No Effect
Alligator mississippiensis	American alligator	T(S/A)	T	No Effect
Caretta caretta	Loggerhead sea turtle	T	T	No Effect
Charadrius melodus	Piping plover	T	T	No Effect
Chelonia mydas	Green sea turtle	T	T	No Effect
Dermochelys coriacea	Leatherback sea turtle	E	E	No Effect
Eretomochelys imbricata	Hawksbill sea turtle	E	E	No Effect
Haliaeetus leucocephalus	Bald eagle	T	T	Not Likely to Adversely Affect
Lepidochelys kempii	Kemp's Ridley sea turtle	E	E	No Effect
Picoides borealis	Red-cockaded woodpecker	E	E	Not Likely to Adversely Affect
Trichechus manatus	West Indian manatee	E	E	No Effect
Vascular Plants				
Aeschynomene virginica	Sensitive jointvetch	T	E	Not Likely to Adversely Affect
Amaranthus pumilus	Seabeach amaranth	T	T	No Effect

Notes: E – Endangered; T – Threatened; T(S/A) – Threatened Due to Similarity of Appearance

Based on a wetland delineation that was verified by the United States Army Corps of Engineers (USACE), approximately 577.5 acres (233.7 hectares) of the site were determined to be jurisdictional wetlands. These jurisdictional wetland areas include 307.6 acres (124.5 hectares) of pine stands, 30.4 acres (12.3 hectares) of timber cutover, 194.2 acres (78.6 hectares) of tidal freshwater marsh, and 45.3 acres (18.3

hectares) of riverine forested wetland. The remaining portion of the site, which covers 114.2 acres (46.2 hectares), was determined to be non-jurisdictional based on the lack of hydrologic influence caused by drainage to the roadside ditches. These non-jurisdictional areas include 92.4 acres (37.4 hectares) of pine stands, 2.7 acres (1.1 hectares) of timber cutover, and 19.1 acres (7.7 hectares) of roadbeds.

The mitigation site will provide for the restoration of 3.3 acres (1.3 hectares) of tidal freshwater marsh, 109.3 acres (44.2 hectares) of non-riverine pine flatwoods, and 1.0 acre (0.4 hectare) of riverine forested wetland; and the preservation of 189.6 acres (76.7 hectares) of tidal freshwater marsh, 320.4 acres (129.7 hectares) of non-riverine pine flatwoods, and 61.6 acres (24.9 hectares) of riverine forested wetland. Approximately 5.0 acres (2.0 hectares) of the tidal freshwater marsh between Bishop Road and Scranton Creek were excluded from the mitigation site as the wetlands in this area have been mitigated for a violation incurred by Weyerhaeuser in late 2000. In addition, 1.9 acres (0.8 hectares) of non-jurisdictional 5-year-old pine flatwood and roadbeds between Bishop Road and US 264 will not be restored as the NCDOT has extended Silverthorne Road across this portion of the site.

Environmental benefit of the project will be a reduction in sediment transported to adjacent water bodies, creating a more diverse wildlife habitat and eliminating temporary habitat impacts associated with timber management and harvesting. Filling the on-site drainage ditches and removing the earthen roads will reduce the amount of suspended solids leaving the site via the ditches. Replacing the pine plantation with a natural plant community and restoring wetland characteristics within the site will create more diverse wildlife habitat on-site than currently exists. The periodic removal of vegetation competing with the planted pine and periodic timber harvesting has been eliminated.

The restoration areas and reference wetland areas will be monitored by groundwater gauges and stem count to determine the success of the mitigation. Monitoring results will be documented on an annual basis. The success criteria for hydrology and vegetation are the restoration of hydrologic regime appropriate for the wetland type restored, and the survival of 260 stems per acre of planted vegetation in the non-riverine pine flatwood. The NCEEP will maintain ownership of the site until all mitigation activities are completed and determined to be successful. Final dispensation of the Bishop Road mitigation site is anticipated to go to NCWRC based on a letter dated December 18, 2001 from NCWRC to ARCADIS expressing interest in the site. ARCADIS requested confirmation of NCWRC's interest in the site. No response has been received to date. Final dispensation of the site will be addressed in the final

version of this document. Upon final dispensation of the site, the deed will state that the property will be managed for the purpose of mitigation in perpetuity.

1. Project Site Identification and Location

ARCADIS was originally retained by the North Carolina Department of Transportation (NCDOT) to study the potential for wetland mitigation at the Bishop Road site and to develop a Wetland Restoration Plan Report. The NCDOT currently owns the 691.7-acre (279.9-hectare) site situated along Bishop Road, between US 264 and the Pungo River, in Hyde County (Figure 1). The North Carolina Ecosystem Enhancement Program (NCEEP) took over the project and retained ARCADIS to revise and update the Wetland Restoration Design Report.

This report describes the objectives, existing conditions, and proposed mitigation components of the Bishop Road wetland mitigation site. For the purposes of this Wetland Restoration Design Report, the site will be referred to as Bishop Road throughout this report. The project vicinity is defined as a larger area, extending approximately one-half mile (0.8 kilometer) on all sides of the project area. The project region is the area generally represented on a standard 7.5-minute United States Geological Survey (USGS) topographic quadrangle map.

1.1 Directions to Project Site

The project site is located along SR 1156 (Bishop Road), between US 264 and the Pungo River, in Hyde County. It is approximately one mile (1.6 kilometer) north of Scranton, 5 miles (8.0 kilometers) southeast of Leechville, and 10 miles (16.0 kilometers) east of Belhaven. The site is bordered to the northwest by Tarklin Creek, the south by Scranton Creek, and the west by the Pungo River. The remainder of the site is bordered by roads, managed timber areas, agricultural fields, and wooded or undeveloped lands (Figure 2).

From Raleigh, take US 64 east towards Wendell. Merge onto US 264 east. Continue on US 264 approximately 135 miles to Bishop Road. Turn right onto Bishop Road. The site abuts the intersection of US 264 and Bishop Road and extends to the west and north.

1.2 USGS Hydrologic Unit Code and NCDWQ River Basin Designations

The Bishop Road site is within the lower Tar-Pamlico River basin, U. S. Geological Survey (USGS) Hydrologic Unit 03020104, and North Carolina Division of Water Quality (NCDWQ) subbasin 03-03-07.

2. Watershed Characterization

2.1 Drainage Area

The Bishop Road site is within the Tar-Pamlico River basin. The Tar-Pamlico River basin is the fourth-largest river basin in the state, covering approximately 5,440 square miles (14,090 square kilometers) and all or part of 16 counties. It originates in the Piedmont physiographic province in the north-central portion of the state and extends southeastward into the Coastal Plain physiographic province, and ultimately to the Atlantic Ocean. The Bishop Road site is situated in NCDWQ subbasin 03-03-07 and USGS Hydrologic Unit 03020104. The watershed for this hydrologic unit covers an area of more than 22,000 acres (8,900 hectares) and encompasses the Northern Atlantic Coastal Plain aquifer system, the Surficial aquifer system, and the Castle Hayne aquifer system.

The Bishop Road site is bounded to the south by Scranton Creek, to the northwest by Tarklin Creek, and to the west by Pungo River. Numerous unnamed tributaries to these streams, including the headwaters of Tarklin Creek, are present in the southern, western, and northern portions of the site. Additionally, drainage ditches on the Bishop Road site and the adjacent properties transport surface runoff and groundwater towards Tarklin and Scranton Creeks.

2.2 Surface Water Classification/Water Quality

All surface waters in the state are assigned a best use classification based on the uses for which the waters are best suited. The entire Tar-Pamlico River basin has been designated as Nutrient Sensitive Waters (NSW). These waters need additional nutrient management due to the excessive growth of microscopic and macroscopic vegetation (NCDWQ 2004). The surface water classification for Scranton Creek and Tarklin Creek is Class SC NSW. Class SC waters denote saltwaters with sufficient water quality to support secondary recreation and aquatic life propagation and survival. No High Quality Waters (HQW), Water Supplies (WS-I or WS II), or Outstanding Resource Waters (ORW) occur at or near the Bishop Road site.

A portion of the Pungo River has been requested for reclassification from SB to SA to apply more protection for shellfish resources. The SB classification denotes saltwaters with sufficient water quality for frequent and/or organized swimming or other human contact. The SA classification denotes saltwaters that have sufficient water quality to support commercial shellfish harvesting. All waters of Pungo River upstream of

Wades Point, including the waters adjacent to the Bishop Road site, are presently closed to shellfish harvest due to high bacteria levels. Studies to determine whether the area meets the standards for the SA classification are ongoing.

NCDWQ rates surface waters based on how well the waters support their designated uses. According to NCDWQ (2004), both Scranton and Tarklin Creeks are rated as "Not Rated (NR)". An NR rating is given to those streams for which no data have been collected to determine appropriate uses. However, both of these creeks are tributaries to the Pungo River, which was rated as "Supporting" by the NCDWQ in 2004. This designation is applied to waters that have a healthy biological community (NCDWQ 2004).

2.3 Physiography, Geology, and Soils

2.3.1 Physiography

Hyde County is situated in the Tidewater Region of the Coastal Plain physiographic province of North Carolina (Gagnon 1999). The Pamlico morphostratographic unit has elevations of less than 25 feet (7.6 meters) above mean sea level (MSL) and includes the Bishop Road site (Soller and Mills 1991; Gagnon 1999). The physiography of the project region was influenced by prehistoric ocean fluctuations.

Hyde County is composed of six landforms: pocosins, broad flat interstream areas, marshes, forested floodplains, lakewash rims, and coastal barrier islands (Gagnon 1999). The pocosin is the dominant landform, occupying the largest acreage in the county. However, the dominant landforms at the Bishop Road site are marsh and forested floodplains.

Topographic variations are minor across the Bishop Road site. A topographic survey of the entire site has not been performed. However, a survey of the existing road beds and associated drainage ditches was performed to confirm observed drainage direction and calculate earth work quantities. According to the USGS topographic map, elevations range between MSL and approximately 5 feet (1.5 meters) above MSL. According to the ARCADIS survey, which was tied to known monument elevations, the elevations along and adjacent to the existing roadbeds and associated ditches range between 2 feet (0.6 meter) below MSL and 4 feet (1.2 meters) above MSL. Micro-topography related to bedding rows and skidder tracks is present within the timber management area, allowing for the formation of isolated areas exhibiting wetter conditions.

2.3.2 Geology and Soils

The Bishop Road site is within the Coastal Plain, the largest geologic belt in the state. The Coastal Plain covers approximately 45 percent of the land area of North Carolina and consists of a wedge of mostly marine sedimentary rocks that gradually thickens eastward. The most common sediment types in the Coastal Plain are sand and clay; however, a large amount of limestone is located in the southern portion. According to the Natural Resources Conservation Service's (NRCS) Soil Survey of Hyde County, North Carolina, geologic marine deposits form a barrier that generally occurs at a depth of 10 feet (3.1 meters) below the soil surface for areas east of the Suffolk Scarp (Gagnon 1999). Based on the Geologic Map of North Carolina, the Bishop Road site is east of the Suffolk Scarp, and the undivided, surficial deposits at the site are comprised of sand, clay, gravel, and peat deposited in marine, fluvial, eolian, and lacustrine environments (NCDLR 1985).

The project region is comprised of sediments that were deposited during transgressive-regressive cycles caused by worldwide sea-level fluctuations. In part, these fluctuations were the result of the expansion and recession of glacial ice caps. During interglacial periods, relatively high sea levels allowed for deposition of marine and shoreline sediments (Soller and Mills 1991). Hyde County emerged from the sea about 75,000 years ago. A cooling trend during that geologic period caused expansion of the polar ice caps and thus lowered sea level. The marine and fluvial sediments deposited by the waters covering the county at that time are the parent material from which the present-day mineral soils formed (Gagnon 1999).

2.4 Historical Land use and Development Trends

The primary land use classification within the project vicinity is forested woodland, which includes the pine flatwood and riverine forested wetland communities present onsite. Agricultural land, forested woodland, and two residences occur within properties along Bishop and Silverthorne Roads and adjacent to the Bishop Road site. Two small cemeteries are located north of Silverthorne Road on the privately owned property adjacent to the Bishop Road site along Silverthorne Road. One additional cemetery was located during archaeological surveys conducted onsite in March, 2006. Specific information regarding the archaeological findings from the March, 2006 surveys will be documented by TRC Garrow Associates, Inc. (TRC).

The history of the site can be traced to the beginning of intensive management of pines, specifically loblolly pine (*Pinus taeda*). The site has been managed for timber since

the early 1900s and was initially converted from its original vegetative community to pine plantation by removing the canopy vegetation that existed at that time. The removal of vegetation was accomplished by first harvesting merchantable trees and then using techniques such as shearing, piling, and burning the slash debris. Clearing the site opened the area for other management operations that could be used to modify the soil and water regime.

The site has been clear-cut several times, followed by artificial regeneration. Tree planting is favored since it allows for control of initial stem spacing. The timber stands across the site have been "bedded" to help keep the roots of planted pine seedlings above the water table, which rises during the wet seasons. The beds consist of continuous rows of mounds created by disk harrows and generally 10 to 12 inches (25.4 to 30.5 centimeters) higher than the adjacent inter-bed areas. Bedding greatly enhances tree survival and early growth by keeping the soil aerated and by reducing competition from shrub and ground-layer vegetation. Bedding also repairs soils compacted during wet-site timber harvests. Skidder tracks, or ruts from mechanical equipment, are present within the inter-bed areas. Aerial photomosaics of the site for the years 1958, 1960, 1992, 1997, and 2001 show the historic use of the site for timber management (Appendix A).

2.5 Endangered/Threatened Species

Some populations of fauna and flora have been, or are, in the process of decline due to either natural forces or their inability to coexist with humans. Federal law (under the provisions of Section 7 of the Endangered Species Act of 1973, as amended [ESA]) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the United States Fish and Wildlife Service (USFWS). Other species may receive additional protection under separate laws.

According to the USFWS, there are seven endangered species, six threatened species, one threatened due to similarity of appearance species, and six federal species of concern (FSC) listed as potentially occurring in Hyde County (March 2006). The North Carolina Natural Heritage Program (NCNHP) identifies another 16 species that are listed and protected by the state as also potentially occurring in the county (March 2006).

The FSC and state-protected species are not protected under the provisions of Section 7 of the ESA. FSC species are defined as species that are under consideration for listing but for which there is insufficient information to support listing as threatened or

endangered (formerly C2 candidate species). As the status of these species may be upgraded at any time, they are included here for consideration. Protections afforded to species listed under state law are not applicable to this project.

The NCNHP database was reviewed for known populations or occurrences of the listed species at or near the Bishop Road site. The NCNHP has identified one population of sensitive jointvetch (*Aeschynomene virginica*, federally threatened) within a roadside ditch adjacent to the west side of US 264, south of the Silverthorne Road extension, and abutting the Bishop Road site. This population was verified during field surveys conducted in the fall of 2001. A survey for sensitive jointvetch was performed by qualified biologists within areas of potential habitat on the site in June 2002. The population was also observed during the 2002 survey. A subsequent survey was conducted in July 2005 by USFWS and ARCADIS to again verify the presence of the known population in the aforementioned ditch along US 264 and also to verify that no new populations had colonized other ditches in the area that are proposed to be impacted by the mitigation activities. No individuals of the species were observed during the 2005 site visit. No impacts to the species are anticipated to occur due to the proposed mitigation.

Table 1 lists the state and federally listed species, their habitat requirements, and habitat availability within the site. Descriptions of the federally listed threatened or endangered species are presented below, and biological conclusions address potential impacts, if applicable, to each species as a result of project implementation.

Shortnose sturgeon (*Acipenser brevirostrum*)

Federal Status: ENDANGERED

State Status: ENDANGERED

The shortnose sturgeon, a member of the family Acipenseridae, is a small species of sturgeon and seldom exceeds 3.28 feet (1.0 meter) in length. Shortnose sturgeons have an elongated, flattened body and a subterminal mouth with barbells, which are suited to their bottom feeding and generally benthic existence. The shortnose sturgeon is found sporadically in coastal rivers along the East Coast from Canada to Florida. These are anadromous fish; however, as the adults seldom travel from their natal river and associated estuary, each river's population is genetically distinct. The preferred habitat of the shortnose sturgeon is deep pools with soft substrates and vegetated bottoms. The shortnose sturgeon spawn in fast-moving, freshwater, riverine reaches with gravel bottoms.

Current threats to habitat are from discharges, dredging, or disposal of materials into rivers, or related development activities involving estuarine and riverine mudflats and mudflats. Shortnose sturgeon occurs in most major river systems along the eastern seaboard of the United States. However, data are lacking for the rivers of North Carolina (NMFS 1998). It is believed that the shortnose sturgeon has occurred in the Roanoke and Neuse rivers, both of which empty into the Pamlico Sound.

Biological Conclusion: No Effect

Suitable habitat for the shortnose sturgeon does not exist within the study area. Fast moving, freshwater, riverine systems with gravel bottoms do not occur within the project study area. Review of NCNHP maps indicated no known population of the species within 1 mile (1.6 kilometers) of the project study area. Implementation of the proposed project will have no effect on the shortnose sturgeon.

American alligator (*Alligator mississippiensis*)

Federal Status: THREATENED (Similar Appearance)

State Status: THREATENED

The American alligator is 6 to 17 feet (1.8 to 5.2 meters) long. It has a broadly rounded snout, which distinguishes it from the American crocodile (*Crocodylus aeutus*), a federally endangered species. Coloration of the alligator is generally black, with young having light markings of yellowish crossbands that may persist into adulthood. These alligators are residents of the great river swamps, lakes, bayous, marshes and other water bodies of Florida and the Gulf and Lower Atlantic Coastal Plains. Nests consist of mounds of vegetative debris in which the eggs are buried between spring and early autumn; incubation time is 65 days. At hatching, most young are between 8 and 9 inches (20.3 to 22.9 centimeters) long.

The American alligator is listed as “threatened due to similar appearance” to provide protection to the American crocodile, a species which it closely resembles. The American crocodile is a tropical species and is not found in salt-water habitats this far north of Florida. The American alligator is not protected under Section 7 of the ESA and therefore does not require a biological conclusion relative to the proposed onsite activities.

Red wolf (*Canis rufus*)

Federal Status: ENDANGERED – EXPERIMENTAL, NONESSENTIAL POPULATION

State Status: SIGNIFICANTLY RARE

The red wolf is a small, slender wolf with long legs. It is intermediate in size between the coyote (*Canis latrans*) and the gray wolf (*C. lupus*), measuring 55 to 65 inches (1.4 to 1.7 meters) in length and weighing 36 to 59 pounds (Linzey and Brecht 2002). The wolf's coloration ranges from grayish-brown to reddish-tawny to black with whitish undersides. The red wolf typically travels and forages in family units consisting of the adult pair and their offspring. The primarily nocturnal wolf feeds on deer, raccoon, and small mammals including rodents, rabbits, and nutria. The wolf also may consume birds and unattended small livestock. A single litter is produced each year between March and May and consists of three to 12 pups. Habitat includes upland and lowland forests, shrublands, coastal prairies and marshes, and other heavily vegetated areas (NatureServe 2002).

Biological Conclusion: May Affect: Not Likely to Adversely Affect

The red wolf is endangered throughout its range, but all native populations are thought to be extinct. An introduction program has established a "wild" population in several eastern North Carolina counties. This introduced population has been designated as "non-essential, experimental" (EXP). EXP species are treated as threatened on public land and for consultation purposes, and as species proposed for listing on private land. Red wolf habitat is present within the project study area. The NCNHP has no records of any known populations of the red wolf within one mile (1.6 kilometers) of the project study area. Therefore, the species is not anticipated to be impacted as a result of project implementation.

Loggerhead sea turtle (*Caretta caretta*)

Federal Status: THREATENED

State Status: THREATENED

The loggerhead sea turtle is medium sized, ranging from 31 to 45 inches (78.7 to 114.3 centimeters) in length and weighing from 170 to 350 pounds (77 to 159 kilograms). It is easily identified by its reddish brown coloration. The carapace has five or more costals on each side, with the first one always touching the nuchal. The underside usually has three large scutes on the bridge between the shells. There is also a

middorsal keel, although it may be low and inconspicuous in larger turtles. Hatchlings range in size from 1.7 to 1.9 inches (4.1 to 4.8 centimeters) and are brown above and either whitish, yellowish, or tan beneath. Young turtles have three dorsal keels and two plastral keels.

Loggerhead turtles are nocturnal nesters. Each nest may contain as many as 120 eggs. The hatchlings emerge approximately two months after the eggs are laid. The turtle is carnivorous throughout its life, with the young obtaining food from living fauna of seagrass beds and mats. Loggerheads eat jellyfish, gastropods, crustaceans, mollusks, fish, and squid (NMFS 1991b).

Biological Conclusion: No Effect

In North Carolina, these turtles nest on ocean-facing beaches along the Outer Banks from mid-May through the end of August. Appropriate foraging and nesting habitat for the loggerhead sea turtle in the form of seagrass beds and mats and ocean-facing beaches is not present in the project limits. Therefore, the species will not be impacted as a result of project implementation.

Piping plover (*Charadrius melodus*)

Federal Status: THREATENED

State Status: THREATENED

The piping plover is a small (6 to 8 inches [15.2 to 20.3 centimeters] tall) shore bird. Summer plumage color is pale sandy colored above and white below with a black neck ring and black bar across the forehead. The short thick bill is orange with a black tip during the summer. During the winter, the neck ring and forehead bar are a pale sandy color, and the bill is completely black. Piping plovers nest on sandy or pebbled beaches above the high-water mark or on lakeshores. The nest is typically a hollow in the sand that may be lined with shells or pebbles. Piping plovers return to their breeding grounds in late March or early April, and the young are generally flying two months later. However, storm tides, predators, or intruding humans sometimes disrupt nests before the eggs hatch. When this happens, the plovers often renest in the vicinity, and young from these late nesting efforts may not be flying until late August. By mid-September, both adult and young plovers will have departed from their breeding areas to migrate to their wintering territory.

Biological Conclusion: No Effect

Critical habitat areas have been designated along the coast of the Atlantic Ocean and the Gulf of Mexico from North Carolina to Texas. Appropriate habitat for the piping plover in the form of sandy or pebbled beaches or lakeshores does not exist in the Bishop Road project limits. As a result, project implementation will not affect the piping plover.

Green sea turtle (*Chelonia mydas*)

Federal Status: THREATENED

State Status: THREATENED

The medium sized sea turtle ranges from 36 to 48 inches (91 to 122 centimeters) in length and can weigh between 250 and 450 pounds (113 to 204 kilograms). General coloration is brown, with the carapace being a light or dark brown that is sometimes shaded with olive. Radiating mottled or wavy dark markings or large dark brown blotches often occur on the carapace. The species is distinguished by having only four costal plates on each side of the carapace, with the first costal not touching the nuchal. Green sea turtles also have only one pair of prefrontal plates between the eyes. Young green sea turtles range in size from 1.7 to 2.4 inches (4.1 to 6.0 centimeters) in length at hatching and are black above. After they are six months old, they become much paler in color. These young turtles may be found in warm, shallow, inshore and nearshore waters where they feed on sea grasses found in estuaries. Green sea turtles occupy three habitat types: high-energy oceanic beaches which are used for nesting, convergence zones in the open sea that are used for migration, and benthic feeding grounds in relatively shallow, protected waters (NMFS 1991a). Nesting in the continental United States is limited to the eastern coast of Florida (USFWS 2003).

Biological Conclusion: No Effect

Appropriate foraging or nesting habitat for the green sea turtle in the form of high-energy oceanic beaches, convergence zones in the open sea, and benthic feeding grounds in relatively shallow, protected waters does not exist within the Bishop Road project limits. Project implementation will not affect the green sea turtle.

Leatherback sea turtle (*Dermochelys coriacea*)

Federal Status: ENDANGERED

State Status: ENDANGERED

Leatherback turtles are the largest of all living turtles, with an average length of 53 to 70 inches (134.6 to 177.8 centimeters) and weight of between 650 and 1,200 pounds (295 and 545 kilograms). Adults are easily distinguished from other turtles by their large, spindle-shaped bodies and their leathery, unscaled carapace that has seven prominent longitudinal dorsal ridges. Coloration can be variable among adults but is essentially black with scattered white blotches along the dorsal ridges. Hatchlings range in size from 2.4 to 3.0 inches (6.0 to 7.6 centimeters) in length, with coloration more distinctly black with white markings on the carapace. Leatherbacks usually nest in autumn and winter, with large groups of turtles arriving together at nesting sites along high-sloped beaches with deepwater approaches such as those found along the coast of the Gulf of Mexico. They are carnivorous throughout their life, with jellyfish being the principal part of their diet. They also feed on tunicates, crustaceans, and juvenile fish (NMFS 1992a). Leatherback turtles are mainly an open ocean species; however, they occasionally forage in shallow bays, estuaries, and the mouths of rivers.

Biological Conclusion: No Effect

Aerial surveys conducted by NCDOT between April and November in 1979, 1982, and 1983 revealed the presence of leatherback turtles near the ocean shoreline between Cape Hatteras, North Carolina, and Cape Sable, Nova Scotia. Appropriate foraging and nesting habitat for these sea turtles in the form of shallow bays, estuaries, the mouths of rivers, and ocean-facing beaches does not exist in the Bishop Road project limits. Project implementation will not affect the leatherback sea turtle.

Hawksbill sea turtle (*Eretomochelys imbricata*)

Federal Status: ENDANGERED

State Status: NOT LISTED

Hawksbill sea turtles range in length from 30 to 35 inches (76.2 to 88.9 centimeters) and can weigh between 95 and 165 pounds (43 to 75 kilograms). General coloration is brown with smaller turtles showing a tortoiseshell pattern. The carapace has four costal plates on each side, with the first plate not touching the nuchal, which is similar to the green sea turtle. However, hawksbill sea turtles have a keel down the center of the carapace and two pairs of prefrontal plates between the eyes that distinguishes them

from the green sea turtles. Young hawksbill turtles are between 1.5 and 1.9 inches (3.8 to 4.8 centimeters) long at hatching and are generally black or very dark brown above and below. The hawksbill is a carnivorous turtle that feeds along the benthic substrate in coastal areas. Its diet consists of tunicates, sponges, crustaceans, and gastropods.

Hawksbill sea turtle nesting in the U.S. is restricted to the southeastern coast of Florida and the Florida Keys, where they are nocturnal nesters (NMFS 1993).

Biological Conclusion: No Effect

Appropriate foraging and nesting habitat for the hawksbill sea turtles in the form of coastal benthic substrate areas and ocean-facing beaches does not exist in the Bishop Road project limits. Project implementation will not affect the species.

Bald eagle (*Haliaeetus leucocephalus*)

Federal Status: THREATENED

State Status: THREATENED

The mature bald eagle (usually 4+ years in age) can be identified by its large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. Bald eagles can easily be distinguished from other birds by their flat wing soar. They are primarily associated with large bodies of water where food is plentiful. Eagle nests are found in proximity to water (usually within 0.5 mile [0.8 kilometer]) with a clear flight path to the water, in the largest living tree in an area, with an open view of the surrounding land. Human disturbance can cause nest abandonment. The breeding season for the bald eagle begins in December and January. Fish are the major food source, although forage items include coots, herons, wounded ducks, and carrion.

Biological Conclusion: May Affect: Not Likely to Adversely Affect

Since July 6, 1999, the bald eagle has been under consideration by the USFWS for a proposed de-listing of its threatened status. However, the raptor will still be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, and populations will continue to be monitored for at least another five years under provisions of the ESA.

Bald eagles are a year-round resident and transient species in North Carolina. Weyerhaeuser personnel reported a bald eagle nesting site south of the Bishop Road site, and a mature bald eagle sighting above the Scranton Creek and Pungo River.

Habitat for bald eagles exists within the Bishop Road site. The Pungo River and its tributaries provide foraging habitat, and the undeveloped status of the site provides a clear flight path to the water. The portions of the site that contain riverine forested wetlands and the 30-year-old pine flatwood provide nesting habitat. ARCADIS performed a field survey for the bald eagle in November 2002. No evidence of bald eagle nests was observed along the perimeter of the timber stands adjacent to Tarklin Creek. It is recommended that a new survey be conducted prior to final design of the mitigation activities such that any bald eagles that may have moved into the area may be documented. The proposed mitigation activities are not likely to adversely affect the onsite nesting or foraging habitat of the bald eagle.

Kemp's Ridley sea turtle (*Lepidochelys kempii*)

Federal Status: ENDANGERED

State Status: ENDANGERED

The Kemp's Ridley sea turtle is the smallest of the Atlantic sea turtles, ranging in length from 23.0 to 27.5 inches (58 to 70 centimeters) long and weighing between 80 and 100 pounds (36 and 45 kilograms). It is the only sea turtle with an almost circular carapace. Coloration is olive green above and yellow below. The carapace has five costals on each side, with the first one touching the nuchal. The underside has four enlarged scutes on the bridge, each of which is pierced by a pore near the posterior edge. Hatchling turtles are about 1.5 to 1.8 inches (3.8 to 4.4 centimeters) long and are dark gray with a short streak of light gray along the rear edge of the front flipper. Adult turtles usually occur only in the Gulf of Mexico while juveniles and immature individuals range between tropical and temperate areas of the Atlantic coast. The Kemp's Ridley sea turtle is carnivorous throughout its life cycle, with crabs, shrimp, gastropods, clams, and jellyfish as a major portion of the diet (NMFS 1992b).

Biological Conclusion: No Effect

North Carolina's only documented nest of Kemp's Ridley sea turtles was noted in 1992 on Long Beach in Brunswick County. Appropriate nesting or foraging habitat for Kemp's Ridley sea turtle in the form of shallow salt waters and ocean-facing beaches is

not available in the Bishop Road project limits. No impacts to this sea turtle will occur from project implementation.

Red-cockaded woodpecker (*Picoides borealis*)

Federal Status: ENDANGERED

State Status: ENDANGERED

The red-cockaded woodpecker (RCW) is 7.1 to 7.9 inches (18 to 20 centimeters) long with a wingspan of 13.8 to 15.0 inches (35 to 38 centimeters). It is identified by plumage that is entirely black and white except for small red streaks on the sides of the nape of the male. The back of the RCW is black with white horizontal stripes, and the bird has a large white cheek patch surrounded by a black cap, nape, and throat. The woodpecker's diet is composed mainly of insects, including ants, beetles, wood-boring insects, caterpillars, and corn earworms, if available. About 16 to 18 percent of the diet includes seasonal wild fruit (USFWS 1999).

The RCW inhabits open pine forests in the southeastern United States. The RCW is unique among woodpeckers because it nests exclusively in living pine trees. The bird uses open, old growth stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting habitat. Slash, pond, or loblolly pines (*P. elliottii* and *P. serotina*) will also be utilized if longleaf pine is not available. A forested stand must contain at least 50 percent pine and lack a thick understory. The birds excavate nests in pines greater than 60 years old and contiguous with pine stands at least 30 years of age. The foraging range of the RCW may extend 500 acres (200 hectares) and must be contiguous with suitable nesting sites. In good, well stocked pine habitat, sufficient foraging substrate can be provided on 80 to 125 acres (32.4 to 50.6 hectares).

Living pines infected with red-heart disease (*Formes pini*) are often selected for cavity excavation because the inner heartwood is usually weakened. Cavities are located from 12 to 100 feet (3.6 to 30.3 meters) above ground level and below live branches. These trees can be identified by “candles,” a large encrustation of running sap that surrounds the tree below the cavity. Clusters consist of one to many of these candle trees. The RCW lays its eggs in April, May, and June; the eggs hatch approximately 38 days later. Most often, the parent birds and some of their male offspring from previous years form a family unit called a group. Commonly, these groups are comprised of three to five birds. Rearing the young birds becomes a shared responsibility of the group. However, a single pair can breed successfully without the benefit of the helpers.

Biological Conclusion: May Affect: Not Likely to Adversely Affect

Habitat for RCW exists within the project area. Large tracts of forest containing loblolly pine that could be potential habitat are located on the adjacent Weyerhaeuser pine plantation property. However, these stands of trees are less than 40 years old and exhibit a moderately dense understory. No colonies of RCWs have been reported at this or surrounding locations. Proposed project construction is not likely to adversely affect the RCW. Preservation of existing wet pine flatwoods is expected to increase the amount of habitat available for RCW at the Bishop Road site by preventing future logging activities and allowing the 30-year-old pine trees to further mature.

West Indian manatee (*Trichechus manatus*)

Federal Status: ENDANGERED

State Status: ENDANGERED

The West Indian manatee is a Sirenian, which are sometimes called sea cows. They are large mammals that spend their entire lives in water. These manatees are about 10 feet (3.0 meters) long and can weigh as much as 1,000 pounds (454 kilograms). Their forelimbs are modified to form flippers, their hindlimbs are reduced to nothing more than a vestigial pelvis, and their tail is enlarged and flattened horizontally to form a fluke or paddle. Their nostrils are on top of their snouts and are closed by valves except when they surface to breathe about every 3 to 4 minutes. The lips are large and mobile, and they are covered with stiff bristles. Manatees are herbivores whose main food sources are submerged, emergent, and floating aquatic plants, but they will occasionally eat small fish. They can consume as much as 10 percent of their body weight in wet vegetation each day. Manatees spend their time eating, resting, and traveling. Between October and April, or months when the water temperature falls below 70 degrees Fahrenheit (21 degrees Centigrade), they can be found in warm coastal waters or near warm water outfalls around southern Florida. During summer months, they may migrate as far north as coastal Virginia in search of an adequate food supply (USFWS 1999).

Biological Conclusion: No Effect

Critical habitat areas have been designated in Florida as required by the current recovery plan. Any manatees occurring in North Carolina coastal waters would most likely occur in the Pamlico Sound. Appropriate habitat for this species in the form of

open water accessible from the ocean does not exist within the Bishop Road project limits. No impacts will occur to this species due to project implementation.

Sensitive jointvetch (*Aeschynomene virginica*)

Federal Status: THREATENED

State Status: ENDANGERED

Sensitive jointvetch is an herbaceous annual of the legume family and native to the eastern United States. The leaves, consisting of 30 to 56 leaflets, are supported on stems that grow between 3.25 to 8.0 feet (1.0 to 2.4 meters) tall. The leaflet surfaces are gland-dotted, and the leaves are sensitive to touch. The vetch has the typical butterfly-like legume flowers, which are arranged in a long raceme. The flowers are yellow with red streaks and bloom from June through September or later. The fruit is a loment, consisting of 4 to 10 segments, each containing a single seed. The fruit turns dark brown when ripe. Sensitive jointvetch grows in intertidal zones usually at the marsh edge near the upper limits of tidal fluctuation. Critical to the survival of this annual species is the presence of bare to sparsely vegetated substrate for seed germination and growth. These areas include accreting point bars, low swales, and meander zones of tidal rivers. This plant is a species that grows for a relatively short period at a particular location and maintains itself by colonizing new, recently disturbed habitats where it may compete successfully with other early successional species.

Biological Conclusion: May Affect: Not Likely to Adversely Affect

Two populations of sensitive jointvetch are known in North Carolina. One of the populations is immediately adjacent to the Bishop Road site within the roadside ditch along the western side of US 264 between the Silverthorne Road extension and the terminus of Bishop Road. Field investigators verified the presence of these plants during surveys conducted in the fall of 2001 and the summer of 2002. While the Bishop Road site previously exhibited limited areas of habitat in the cutover areas along the marsh edges, sensitive jointvetch was not found to occur in these locations during a survey for the plant, which was conducted in the fall of 2001. An additional survey was conducted in the summer of 2002 to determine if any new plants had colonized the project site. The plant was not found to occur in any area that will be disturbed by the mitigation construction activities proposed herein. A third survey was conducted by representatives of USFWS and ARCADIS in the summer of 2005 to determine if the known population noted previously was still there and to determine if

new plants had colonized the project site. No individuals of the known population were observed, and no new populations were observed. Habitat for the species is present within the project site, but no impacts to individuals are anticipated to occur due to construction activities. Restoration of the tidal freshwater marsh habitat is expected to increase the amount of habitat available for sensitive jointvetch at the Bishop Road site.

Seabeach amaranth (*Amaranthus pumilus*)

Federal Status: THREATENED

State Status: THREATENED

Seabeach amaranth is an annual plant with pink-red or reddish-colored fleshy stems and small rounded leaves that are 0.5 to 1.0 inch (1.3 to 2.5 centimeters) in diameter. The spinach-green, glossy leaves are normally clustered toward the tip of the stem and have a small notch at the rounded tip. The plants are dioecious, and the inconspicuous flowers and fruits are borne in clusters along the stems. Flowering occurs throughout the growing season, extending from early June through late fall. Germination occurs from April to July, when the plant initially forms a small, unbranched sprig that branches profusely into a clump. These clumps can reach as much as 1 foot (0.3 meter) in diameter and consist of 5 to 20 branches. Seabeach amaranth often forms mats by abundant branching of these dense clumps. It is found on Atlantic Ocean barrier island beaches in overwash flats, lower foredunes, and upper strands of noneroding beaches. Small, temporary populations may also be established in other habitats such as soundside beaches, foredune blowouts, and sand and shell material placed as beach replenishment or dredge spoil. Seabeach amaranth is intolerant of competition and does not occur on moderately vegetated sites (Weakley, et al. 1995). Succession of vegetation from annual to perennial dominance reduces habitat availability and would likely exclude these plants as vegetation succession progresses. Seabeach amaranth is also threatened by construction of beach stabilization structures, beach erosion, tidal inundation, beach grooming, insect infestation and herbivory, feral animals, and off-road vehicles.

Biological Conclusion: No Effect

Seabeach amaranth acts as a fugitive species, able to occupy open habitat as it becomes available on sandy beach-like shores of the Pamlico Sound. Habitat for this plant is not available within the Bishop Road project limits. No impacts to this species will occur as a result of project implementation.

2.6 Cultural Resources

A review of properties eligible for the National Register of Historic Places at the State Historic Preservation Office (SHPO) was conducted for the Bishop Road site and the surrounding areas. According to the files, there are no National Register properties within a 1-mile (1.6-kilometer) radius of the site. In addition, the North Carolina Office of State Archaeology was contacted to determine if any documented archaeological sites occur within or near the site. No sites were identified within a 1-mile (1.6-kilometer) radius of the Bishop Road site. However, it should be noted that a cemetery is adjacent to the Bishop Road site north of Silverthorne Road at the western edge of the agricultural field. An archaeological survey was requested by the SHPO and has been performed in the portions of the site abutting Tarklin Creek and Scranton Creek in which construction activities are proposed to occur. The findings have not yet been documented by TRC; however, they are anticipated to be documented prior to finalization of this document and therefore are anticipated to be included in the final version of this document.

2.7 Potential Constraints

One potential constraint to restoration of wetland hydrology within the site is a property corner that abuts the shoulder of West Muriel Road near the eastern extent of the timber cutover area. A roadside ditch is located at the toe of slope adjacent to West Muriel Road that carries water flowing in a southwesterly direction through the site past the property corner.

2.7.1 Property Owner

The NCDOT purchased the Bishop Road site from Weyerhaeuser in the spring of 2002. The primary point of contact regarding ownership and stewardship issues is:

Gregory J. Thorpe, Ph.D.
Environmental Management Director
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611

The development of the site for wetland restoration has been transferred to NCEEP. Therefore, project related issues should be directed to:

Julia C. Hunt
Eastern Project Manager II
North Carolina Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

2.7.2 Site Access

The Bishop Road site is accessible via US 264 and several gravel roads that traverse the site. Bishop Road is an improved gravel road. Silverthorne Road, East and West Muriel Roads, Tarklin Creek Road, and Weyerhaeuser Service Road are unimproved gravel and soil roads (Figure 2). All of the above-mentioned roads currently provide access to the interior portions of the site.

2.7.3 Utilities

No utilities are known to be located within the site. No constraints due to existing utilities are anticipated within the site.

2.7.4 FEMA/Hydrologic Trespass

The Federal Emergency Management Association (FEMA) Flood Insurance Rate Map of Hyde County, North Carolina (Community-Panel Numbers 370133 7644-J) indicates that the site is in a FEMA Flood Zone AE (EL7), areas of flooding (FEMA 2003). Flood Zone AE (EL7) indicates that those areas less than 7 feet (2.1 meters) above MSL are subject to inundation by a 100-year flood, as determined by detailed methods.

Hydrologic trespass is addressed in Sections 3.2.2 and 5.2.

2.7.5 Environmental Hazards

2.7.5.1 Database Search

ARCADIS contracted Environmental Data Resources, Inc. (EDR) to search the federal, state, and local databases in April 2001 to determine whether the Bishop Road site or neighboring areas have a regulatory history of environmental problems that could have an adverse impact on the site. The databases were searched using the America Society for Testing and Materials (ASTM) standard search radius for each database (ASTM 2000). A copy of the EDR report is provided in Appendix B. The search results

indicate that there are no known environmental hazards at or near the Bishop Road site. The database search expired in October 2001; however, the results are not anticipated to have changed since the date of the original search due to no new facilities being observed within a one-mile (1.6-kilometer) radius of the site. The databases searched are listed below.

Federal ASTM Standard

- National Priorities List (NPL)
- Proposed NPL
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- CERCLIS No Further Remedial Action Planned (CERC-NFRAP)
- Corrective Action Report (CORRACTS)
- Resource Conservation and Recovery Information System, which includes information on Treatment, Storage, and/or Disposal (RCRIS-TSD)
- Resource Conservation and Recovery Information System - Small and Large Quantity Generator and/or Transporter (RCRIS-SQG and RCRIS-LQG)
- Emergency Response Notification System (ERNS)

State ASTM Standard

- Inactive Hazardous Sites Inventory (SHWS)
- List of Solid Waste Facilities (SWF/LF)
- Leaking Underground Storage Tanks (LUST)
- Petroleum Underground Storage Tank Database (UST)

Federal ASTM Supplemental

- Superfund (CERCLA) Consent Decrees (CONSENT)
- Records of Decision (ROD)
- Delisted NPL
- Facilities Index System (FINDS)
- Hazardous Materials Information Reporting System (HMIRS)
- Material Licensing Tracking System (MLTS)
- Mines Master Index File (MINES)
- Federal Superfund Liens (NPL Liens)
- PCB Activity Database System (PADS)
- RCRA Administrative Action Tracking System (RAATS)
- Toxic Chemical Release Inventory System (TRIS)
- Toxic Substances Control Act (TSCA)
- FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA (FTTS)

State or Local ASTM Supplemental

- Hazardous Substance Disposal Site (NC HSDS)
- Incident Management Database (IMD)

EDR Proprietary Databases

- Former Manufactured Gas Sites (Coal Gas)

2.7.5.2 Transaction Screening

In addition to the database search, a field reconnaissance of the site was performed to identify potential environmental hazards, including Recognized Environmental Concerns (RECs). RECs are defined as the presence of any hazardous substances or petroleum products in structures on the property or in the ground, groundwater, or surface water on the property.

Small quantities of domestic and construction debris were noted at the site. These items included one larger refrigerator/freezer, one small chest freezer, several pieces of polyvinyl chloride (PVC) pipe, and several pieces of vinyl siding along West Muriel Road. A kerosene heater, stove, and several wooden items were discovered at the end of East Muriel Road. One abandoned automobile was noted at the end of Silverthorne Road. Due to the site's proximity to the Pungo River, hurricane and seasonal floodwaters may be responsible for the deposition of some debris. No RECs were identified.

Based on conversations with Bryant Hardison, Acquisition Forester, Weyerhaeuser, on 17 April 2001, there are no known RECs on the property. A list of questions associated with the Phase 1 Environmental Site Assessment Transaction Screening is provided in Appendix C.

2.7.5.3 Chain of Title

Deed records were reviewed at the Weyerhaeuser Office in Washington, North Carolina. According to the deed for the property, Weyerhaeuser purchased the site in August 1948 from J. W. Wells and wife, Ruth A. Wells. This deed was recorded in Hyde County, Bargain and Sale Book 62, Page 486, and in the Registration of Land Titles Book 3, Page 253. The Wells family was issued a certificate rather than a deed when they purchased the property from Bernard B. Shaw and wife, Fay D. Shaw, in January 1946.

3. Project Site Wetlands (Existing Conditions)

3.1 Jurisdictional Wetlands

Section 404 of the Clean Water Act (CWA) requires regulation of discharges into "Waters of the United States." The United States Environmental Protection Agency (USEPA) is the principal administrative agency of the CWA; however, the United States Army Corps of Engineers (USACE) has the responsibility for implementation, permitting, and enforcement of the provisions of Section 404 of the CWA. The USACE regulatory program is defined in 33 CFR 320-330.

Water bodies, including lakes, rivers, and streams, are subject to jurisdictional consideration under the Section 404 program. Wetlands are also identified as "Waters of the United States." Wetlands, as defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Any action that proposes to place fill in these areas falls under the jurisdiction of the USACE under Section 404 of the CWA (33 U.S.C. 1344). "Waters of the United States" are also regulated by the NCDWQ.

All construction, site maintenance, and land management practices implemented within the mitigation site will need to comply with regulations related to jurisdictional wetlands.

According to the National Wetlands Inventory (NWI) maps, palustrine and emergent wetland types are present along the northern, southern, and western property boundaries of the Bishop Road site. As NWI mapping is not ground-truthed, the maps generally provide incomplete and/or inaccurate information regarding the location and type of wetlands present. In order to confirm NWI mapping, wetland delineations were performed in November 2001 by ARCADIS field investigators and verified by the USACE (Figure 3).

Based on the wetland delineations, the site contains 577.5 acres (233.7 hectares) of jurisdictional wetlands and 114.2 acres (46.2 hectares) of non-jurisdictional areas. Figure 3 shows the location of the existing areas determined to be jurisdictional and non-jurisdictional during the delineation, and the results are summarized in Table 2. USACE Routine Wetland Determination Data Forms are presented in Appendix D.

Hydrophytic vegetation and hydric soils, as verified by the soil profile analysis discussed in Section 3.3, are present throughout the entire 691.7-acre (279.9-hectare) site. However, natural hydrology has been altered by numerous drainage ditches along roadways and throughout the pine flatwood areas.

The depth of the water table is affected by numerous factors, including micro-topography, the presence or absence of roadside ditches, minor drainage, and the age and type of vegetation. Both pine and hardwood wet flats experience saturated soil conditions at any season of the year, but drier conditions usually occur during the growing season when evapotranspiration rates are highest. Growing season is defined as the number of consecutive days where the temperature has not gone below an index temperature for specific vegetation. Based on data collected by the climate station in New Holland, the Hyde County growing season generally ranges from March 20 to November 22 and includes 247 days.

Occurrences of plant species that have adapted to wetland conditions often suggest the presence of wetland hydrology. The National List of Vascular Plant Species that Occur in Wetlands is generally used to determine whether the dominant vegetation at a site is an indicator of wetland hydrology (Reed 1988). An area with 50 percent or more of dominant vegetation that is classified as facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL) is used as an indicator of wetland hydrology. FAC vegetation is 34 to 66 percent as likely to occur in wetlands as non-wetlands. FACW plants occur 67 to 99 percent of the time in wetlands, but can occasionally be found in non-wetlands. Under natural conditions, OBL plants occur more than 99 percent of the time in wetlands. Vegetation in these classifications is considered hydrophytic vegetation and is used to assist with the delineation of jurisdictional wetlands (Environmental Laboratory 1987). Existing successional vegetation at the site is comprised of predominantly hydrophytic vegetation that falls within these three categories.

3.2 Hydrologic Characterization

The primary hydrologic inputs at the site are wind driven tides, groundwater, seepage, and precipitation while the primary outputs are likely surface runoff and evapotranspiration. Since the Pungo River and its tributaries form the southern, western, and northwestern site boundaries, inundation from storm surges is also a likely source of water. Tide and salinity data from various sampling stations on the Pungo River indicate that the waters adjacent to the Bishop Road site have a salinity less than 0.5 parts per thousand (ppt) and are affected by wind driven tides. Evaluation

of the marsh areas on the Bishop Road site revealed that the wind driven tides influence onsite hydrology.

The average annual rainfall for Hyde County, as reported by the State Climate Office of North Carolina (SCO) from 1961 to 1990 was between 50 and 56 inches (127.0 to 142.2 centimeters) (2001). Rainfall data collected at the New Holland climate station, which is approximately 16 miles (25.7 kilometers) east of the project area, show the highest levels of rainfall during the last 30 years have typically occurred during the summer months (NRCS 1999).

The natural drainage of the site and adjacent areas has been altered to facilitate agriculture and timber production. Several drainage ditches have been installed along the roads and across the agricultural fields within adjacent properties help to drain surface runoff (Figure 4). Elevations of the existing ditches along Bishop Road, Silverthorne Road, West Muriel Road, and East Muriel Road were surveyed in February 2006 to determine the drainage patterns for surface water runoff along the roadways and adjacent areas that may drain across the roadway corridors. Discussions with a 35-year resident of Bishop Road were also conducted to confirm drainage patterns and to obtain any historical flood information. Profiles of the ditches are provided in the attached Plan Sheets (Appendix E), and ditch location and flow direction are depicted in Figure 4. A summary of the survey data observed follows.

The southern half of the portion of Bishop Road that lies between US 264 and Silverthorne Road drains to the south into an outfall ditch on the west side of US 264 near the Bishop Road intersection. The outfall drains directly toward Scranton Creek, which is located a few hundred feet south of the Bishop Road intersection. The northern half of this portion of Bishop Road drains to the north and connects to ditches along Silverthorne Road. A 21-inch (53-centimeter) diameter concrete pipe culvert is below Bishop Road at the Silverthorne Road intersection and drains from east to west. According to the local resident, the section of Bishop Road between US 264 and Silverthorne Road floods three or four times annually due to backwater from Scranton Creek.

The ditches within the adjacent properties and along the section of Bishop Road from the Silverthorne Road intersection to a point approximately 4,000 feet (1,219 meters) north (the limit of the agricultural fields) drain to three pipe culverts crossing Bishop Road. The pipes all drain from east to west and collect runoff from the fields. The outfall ditches at the downstream end of the pipes extend to a small creek, which drains to the southwest, crosses Silverthorne Road and extends to Scranton Creek. The local

resident reported that this section of Bishop Road does not flood, although the ditches fill to the roadway shoulder several times annually.

The ditches in the northern section of Bishop Road between Muriel Road and the northern limit of agricultural fields drain to the north and connect to the ditches along East and West Muriel Roads. The section of Bishop Road south of the northern portion of the site contains no roadway ditches. Surface runoff from the existing roadway corridor flows south toward the ditches that begin at the limit of the agricultural fields.

Ditches along Silverthorne Road drain toward two pipe culverts crossing the road. These pipes drain from north to south and ultimately discharge into Scranton Creek, which is approximately 500 feet (152 meters) south of Silverthorne Road. The western end of Silverthorne Road includes a section approximately 600 feet (183 meters) long with no roadway ditches. Surface runoff in this area drains toward a marsh that is situated perpendicular to and on both sides of the roadway within this area.

Ditches extend along both sides of the entire length of East Muriel Road. In general, the ditches slope from west to east beginning at the Bishop Road intersection. The ditches end approximately 100 feet (30.5 meters) beyond the eastern end of the roadway in a topographically lower area and do not appear to be directly connected to outfall ditches. Surface runoff from these ditches would discharge to the topographically lower area and may flood portions of the roadway as well. Any runoff beyond the top of banks would remain within the Bishop Road site and flow north toward Tarklin Creek as shallow concentrated flow or as sheet flow, crossing East Muriel Road if necessary to reach Tarklin Creek. The local resident has never observed any flow beyond the top of the banks of these ditches.

Ditches extend along both sides of the entire length of West Muriel Road and are connected to each other around the southern terminus of the road. Any runoff beyond the top of banks would remain within the Bishop Road site and flow toward Tarklin Creek to the north or Scranton Creek to the south as shallow concentrated flow or as sheet flow. The ditch along the southern side of West Muriel Road connects to two outfall ditches that flow south to Scranton Creek. The local resident has never observed any flow beyond the top of the banks of these ditches.

3.2.1 Drainage Alteration Plan

The attached Plan Sheets (Appendix E) illustrate the proposed drainage pattern alteration for the site. The existing drainage ditches throughout the site which convey surface and groundwater to Tarklin Creek, Scranton Creek and the Pungo River will be filled. This will raise groundwater elevation to within 12 inches of the ground surface. The existing ditches along the property line will be maintained to prevent hydrologic trespass onto the adjacent properties.

One new ditch will be constructed to prevent water from backing up onto an adjacent property (Sheet 5). The property corner is located immediately south of West Muriel Road ditch. Currently, the water in this ditch flows to the west and then turns to the south in a connecting ditch before flowing into Scranton Creek, as described in Section 3.2. The new ditch will begin at the property corner and flow in a northerly direction approximately 100 feet (30.5 meters). Water from the new ditch will then seep into Tarklin Creek. The ditch will maintain the current groundwater elevations in the area.

3.2.2 Drainage Alteration Analysis

Analysis of the drainage alteration proposed at the site show adjacent properties will not be negatively affected. The existing drainage ditches on adjacent private properties will be maintained to minimize the potential for hydrologic trespass. A small section of ditch and the excavation of a new ditch will prevent hydrologic trespass at a property corner west of the Bishop Road and West Muriel Road intersection.

3.2.3 Hydrologic Budget for Restoration Site

The fact that hydrology indicators are not present over the entire site (the non-jurisdictional areas) and are closely related to roadside and drainage ditches, the hydrologic output of the site is greater than the input. The system of drainage ditches routes the majority of surface flow associated with precipitation and groundwater off the site into adjacent water bodies. This flow pattern results in a deficit in the water budget, hence the lack of hydrology indicators within the non-jurisdictional areas of the site.

Filling the drainage ditches will greatly reduce, if not eliminate, the hydrologic output from the site associated with the ditches. It will also raise groundwater elevations closer to the ground surface, thus restoring the hydrology in the non-jurisdictional areas.

3.3 Soil Characterization

According to Gagnon (1999), one soil association is present at the Bishop Road site, the Hydeland-Acredale-Argent association. Soil associations generally consist of one or more major soils and some minor soils or miscellaneous areas. These associations provide a broad perspective of the soils and landscapes in a particular area. They establish a basis for comparing the potentials of large areas for general kinds of land use.

The Hydeland-Acredale-Argent association is composed of nearly level, very poorly drained, and poorly drained soils that have a mineral surface layer and a loamy or clayey subsoil. The association occurs along broad, flat interstream areas, in depressions, and along the outer edges of pocosins. Its composition is approximately 33 percent Hydeland soils, 26 percent Acredale soils, 19 percent Argent soils, and 22 percent minor soils, including Brookman, Chapanoke, Weeksville, Yeopim, and Pasquotank soils (Gagnon 1999). Based on Gagnon (1999), 12 soil mapping units cover the project site (Figure 5). Each unit is listed and briefly described in Section 3.3.1.

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (Cowardin, et al. 1979). Soils referred to as "Hydric A" are completely hydric throughout the mapped soil unit. "Hydric B" soils are non-hydric soils that contain inclusions of hydric soils. These inclusions are usually situated in depressional areas or along the border with other soil units. All soils mapped within the Bishop Road site are either "Hydric A" or "Hydric B" (Gregory 2001) (Figure 6).

Soil moisture conditions that maintain aquic conditions as defined in Keys to Soil Taxonomy (NRCS 1998) can be correlated to the hydric soil conditions of jurisdictional wetlands. The hydrology criterion required by the USACE wetland delineation manual (Environmental Laboratory 1987) is inundation or saturation to within 12 inches (25.4 centimeters) of the soil surface continuously for at least 5 percent of the growing season in most years. Soils with aquic conditions are those that have continuous or periodic saturation and where the presence of redoximorphic features indicates the reduction of ferrous iron and manganese in the soil. Sixty-four (64) percent of the Bishop Road site is underlain by soils that have been taxonomically described as having aquic moisture regimes (NRCS 1998). Another 32 percent of the project area is underlain by soils that are classified as histosols, which are organic

hydric soils. The remaining 4 percent of the site is underlain by soils that do not fall into either of these taxonomic groups but are classified as hydric. Restoration of the hydrologic function at the mitigation site will restore and improve the wetland soil conditions and allow further development of the hydric characteristics of the soils at the site.

Ninety-six (96) soil profiles were hand-augered and examined, and the data were recorded on USACE Data Forms for Wetland Determination. The data forms are presented in Appendix D, and the 96 soil profile locations are shown on Figure 6. A description of some characteristics of the soils series mapped within the Bishop Road site follow in Section 3.3.1, and additional information pertaining to each of the soil series is presented in Table 3. However, these soils have been modified by the recurring disturbance associated with silvicultural practices and a lack of normal hydrologic conditions caused by the maintained drainage ditches.

3.3.1 Taxonomic Classification (including series)

3.3.1.1 Acredale silt loam (AcA). Typic Endoaqualf.

The poorly drained soil occurs on broad, flat interstream areas and is listed as a Hydric A soil. The soil developed from loamy and silty marine and fluvial parent materials. The soil is characterized by moderate to high percentages of organic matter in the surface layer, extending to a depth of 7 inches (17.8 centimeters). The mapped series consists of 95 percent Acredale soil with similar inclusions and 5 percent contrasting inclusions. Examples of similar inclusions are intermingled, small areas that have a dark surface layer that is 7 to 10 inches (17.8 to 25.4 centimeters) thick. Contrasting inclusions include intermingled areas of Argent soils that have more clay in the subsoil than the Acredale soil, intermingled areas of Yonges soils that have a sandier subsoil than the Acredale soil, and the very poorly drained Brookman and Hydeland soils in depressions and low areas on interstream divides.

3.3.1.2 Argent loam (ArA). Typic Endoaqualf.

Argent loam is classified as a poorly drained soil occurring along broad, flat interstream areas. It is listed as a Hydric A soil and developed from clayey marine and fluvial parent materials. The soil is characterized by a 5-inch (12.7-centimeter) surface layer that is composed of moderate to high levels of organic matter, including partially decomposed leaves, roots, and twigs. The composition of the mapped series consists of 90 percent Argent soil with similar inclusions and 10 percent of contrasting

inclusions. Similar inclusions are intermingled, small areas that have a dark surface layer that is 7 to 10 inches (17.8 to 25.4 centimeters) thick. Contrasting inclusions consist of very poorly drained Brookman and Hydeland soils in depressions and in areas further from drainage ways, areas of intermingled Acredale and Yonges soils that have less clay in the subsoil than the Argent soil, and small areas that are ponded for brief periods.

3.3.1.3 Belhaven muck (BnA). Terric Medisaprist.

Belhaven muck is classified as a very poorly drained soil occurring along forested floodplains and the freshwater marshes of Lake Mattamuskeet. It is listed as a Hydric A soil and is characterized by dark reddish-brown muck throughout the upper 40 inches (101.6 centimeters) that is underlain by mucky sandy loam. The soil developed from marine and fluvial sediments. The composition of the mapped series is approximately 90 percent Belhaven muck and similar inclusions and 10 percent contrasting inclusions. The small areas of similar inclusions generally have a thin, mineral surface layer. The contrasting inclusions are intermingled areas of Dorovan soils that have more than 51 inches (129.5 centimeters) of muck, areas that have less than 16 inches (40.6 centimeters) of muck and are near the edge of the map unit, and small areas that are ponded for long or very long periods.

3.3.1.4 Bolling loamy fine sand (BoA). Aquic Hapludalf.

The soil is classified as a moderately well drained soil occurring on smooth to slightly rounded ridges along the upland edge of marshes and creeks bordering the Pungo River. It is characterized by having moderate to high levels of organic matter in the 6-inch (15.2-centimeter) surface layer and low levels in the subsurface layers. Bolling loamy fine sand is listed as a Hydric B soil. The soil developed out of loamy marine and fluvial parent material. Its composition is 80 percent Bolling soil and similar inclusions and 20 percent contrasting inclusions. The similar inclusions commonly associated with the map unit are not listed in the Soil Survey of Hyde County, North Carolina (Gagnon 1999). Examples of contrasting inclusions are poorly drained Yonges soils in depressions and drainage ways, intermingled areas of the somewhat poorly drained Fork soils in depressions and at the edge of the map unit, and very poorly drained Dorovan soils on floodplains near the edge of the map unit.

3.3.1.5 Brookman loam (BrA). Typic Umbraqualf.

Brookman loam is a very poorly drained soil occurring on broad, flat interstream areas, depressions, and the outer edge of pocosins. It is listed as a Hydric A soil. The soil is characterized by a seven-inch (17.8-centimeter) surface layer containing high to very high levels of organic matter. Its composition is 90 percent Brookman soil and similar inclusions and 10 percent contrasting inclusions. The similar inclusions are intermingled small areas with less than 8 inches (20.3 centimeters) of muck on the surface. The contrasting inclusions include intermingled areas of Hydeland soils that have a silty subsoil, Pettigrew soils with a muck surface layer that is 8 to 16 inches (20.3 to 40.6 centimeters) thick, poorly drained Argent soils, and small areas that are ponded for brief to very long periods.

3.3.1.6 Chapanoke silt loam (ChA). Aeric Endoaquult.

The soil is situated on smooth ridges on the upland edge of creeks and marshes, near the Pungo River and its tributaries. Chapanoke silt loam developed from marine and fluvial sediments and has a three-inch (7.6-centimeter) surface layer with moderate to high levels of organic matter. Chapanoke silt loam is listed as a Hydric B soil. It is classified as somewhat poorly drained and is composed of 85 percent Chapanoke soils and similar inclusions and 15 percent contrasting inclusions. Small areas of similar inclusions are those that have a dark surface layer that is 7 to 10 inches (17.8 to 25.4 centimeters) thick or those that are at the outer edge of the map unit and have slopes of more than 2 percent. Contrasting inclusions include poorly drained Acredale soils on the outer edge of the map unit, poorly drained Argent soils with a clayey subsoil on the outer edge of the map unit, and intermingled areas of Yeopim soils that are moderately well drained.

3.3.1.7 Fork fine sandy loam (FkA). Aeric Endoaquult.

Fork fine sandy loam is classified as a somewhat poorly drained soil occurring on low, smooth ridges along the Pungo River. The parent material of the Fork series is marine and fluvial sediments. It is listed as a Hydric B soil and has a surface layer that is 8 inches (20.3 centimeters) thick. Organic matter content is moderate to high in the surface layer and low in the subsoil. Its composition is 85 percent Fork soils and similar inclusions and 15 percent contrasting inclusions. The similar inclusions are intermingled, small areas that have a surface layer greater than 7 inches (17.8 centimeters) thick. The contrasting inclusions include the poorly drained Yonges and

the moderately well drained Bolling soils near the outer edge of the map unit, and intermingled areas of Chapanoke soils that have a silty subsoil.

3.3.1.8 Hydeland silt loam (HyA). Typic Umbraqualf.

The soil is situated on broad, flat interstream areas, depressions, and the outer edge of pocosins. It is classified as a very poorly drained soil and is listed as a Hydric A soil. The soil developed from loamy marine and fluvial sedimentary parent material. Hydeland silt loam is characterized by a 6-inch (15.2-centimeter) thick surface layer with high to very high levels of organic matter that extend into the upper portions of the subsoil. The composition of Hydeland silt loam is 90 percent Hydeland soil and similar inclusions and 10 percent contrasting inclusions. Similar inclusions are small, intermingled areas that have an organic surface layer less than 8 inches (20.3 centimeters) thick and small, intermingled areas that have a dark surface layer 7 to 10 inches (17.8 to 25.4 centimeters) thick. The contrasting inclusions include poorly drained Acredale soils that are on the outer edge of the map unit and have a surface layer less than 7 inches (17.8 centimeters) thick, Roper soils that are on the outer edge of the map unit and have a muck surface layer more than 8 inches (20.3 centimeters) thick, Brookman soils that are on the outer edge of the map unit and have more clay in the subsoil than the Hydeland soil, Weeksville soils that are on the outer edge of the map unit and have less clay in the subsoil than the Hydeland soil, and small areas that are ponded for very brief to long periods.

3.3.1.9 Longshoal mucky peat (LfA). Typic Medisaprist.

The very poorly drained soil is situated in brackish marshes adjacent to rivers, creeks, and the Pamlico Sound. The soil developed out of organic material over marine and fluvial sediments. Longshoal mucky peat is listed as a Hydric A soil and is characterized by dark reddish-brown mucky peat in the upper 12 inches (30.5 centimeters) and dark reddish-brown to very dark brown muck from 12 inches to 72 inches (30.5 to 182.9 centimeters) deep. Organic matter content is very high throughout the soil profile. It consists of 90 percent Longshoal soil and similar inclusions and 10 percent contrasting inclusions. The similar inclusions are small areas that have a mineral surface layer less than 16 inches (40.6 centimeters) thick and are near the edge of the sound and bays. Contrasting inclusions are Delway soils that are on the outer edge of the map unit and have a muck layer 16 to 51 inches (14.6 to 129.5 centimeters) thick and intermingled, small areas that have more than 22 inches (55.9 centimeters) of mucky peat on the surface.

3.3.1.10 Stockade mucky sandy loam (StA). Typic Umbraqualf.

The soil is classified as a very poorly drained soil occurring on broad, flat interstream areas and depressions. The parent material of the soil is marine and fluvial sediment. Stockade mucky sandy loam is listed as a Hydric A soil. Organic matter content is high to very high in the 6-inch-thick (15.2-centimeter-thick) surface layer and in the upper portions of the subsoil. Its composition is 90 percent Stockade and similar inclusions and 10 percent contrasting inclusions. The similar inclusions consist of small, intermingled areas that have less than 8 inches (20.3 centimeters) of muck in the surface layer. Contrasting inclusions include Newholland soils near the outer edge of the map unit that have a sandier subsoil; Hydeland soils near the outer edge of the map unit that have a siltier subsoil; Wasda, Conaby, Pettigrew, and Roper soils near the outer edge of the map unit that have a muck surface layer more than 8 inches (20.3 centimeters) thick; Yonges soils near the outer edge of the map unit that have a dark surface layer less than 7 inches (17.8 centimeters) thick; intermingled, small areas of Portsmouth soils that have less than 35 inches (88.9 centimeters) of loamy material over sand; and small, intermingled areas that are ponded for brief periods.

3.3.1.11 Yeopim silt loam (YeA). Aquic Hapludult.

The moderately well drained soil occurs along the upland edge of creeks and marshes along the Pungo River and its tributaries and is listed as a Hydric B soil. The soil developed from marine and fluvial sediments. Yeopim silt loam has a silt loam subsoil and is characterized by moderate to high levels of organic matter in the thin surface layer and low levels thereof in the underlying material. The mapped series is composed of 80 percent Yeopim soil and similar inclusions and 20 percent contrasting inclusions. The similar inclusions are small areas that have slopes of more than 3 percent and small areas that have a clayey subsoil. The contrasting inclusions associated with Yeopim silt loam are poorly drained Acredale soils in depressions and drainage ways and somewhat poorly drained Chapanoke soils in depressions and at the edge of the map unit.

3.3.1.12 Yonges silt loam (YoA). Typic Endoaqualf.

Yonges silt loam occurs on broad, flat interstream areas and depressions. It is classified as poorly drained and is listed as a Hydric A soil. The soil developed from marine and fluvial sedimentary parent material. The surface layer is 7 inches (17.8 centimeters) thick and contains moderate to high levels of organic matter. The composition of the Yonges silt loam map unit is 85 percent Yonges soil and similar

inclusions and 15 percent contrasting inclusions. The similar inclusions include small, intermingled areas that have a surface layer that is 7 to 10 inches (17.8 to 25.4 centimeters) thick. The contrasting inclusions are Stockade soils near the outer edge of the map unit and with a surface layer more than 10 inches (25.4 centimeters) thick, Acredale soils near the outer edge of the map unit and with more silt in the subsoil, Argent soils near the outer edge of the map unit and with more clay in the subsoil, and somewhat poorly drained Fork soils near the outer edge of the map unit.

3.4 Plant Community Characterization

This section describes the existing vegetation and associated wildlife that occur within the project area. The proposed mitigation area is composed of different vegetative communities based on current and historic land use, topography, soils, hydrology, and disturbance. Scientific nomenclature and common names (when applicable) are provided for each plant and animal species listed. Subsequent references to the same organism include only the common name.

Community boundaries within the site are generally well defined due to long-term timber management. Distribution and composition of these communities reflect variations in micro-topography, soils, hydrology, disturbance, and past and present land uses. Four plant communities are present at the Bishop Road site: tidal freshwater marsh, pine flatwood, timber cutover, and riverine forested wetland. Subcategories of the tidal freshwater marsh and pine flatwood communities have been generated to further define the onsite vegetative communities. The plant communities present onsite are depicted on Figure 7, and their areas of cover are provided in Table 4.

3.4.1 Tidal Freshwater Marsh

Approximately 194.2 acres (78.6 hectares) of tidal freshwater marsh are present onsite. Four tidal freshwater marsh subcategories consisting of marsh, marsh pond, marsh sloughs, and the Weyerhaeuser mitigation site are present adjacent to Tarklin Creek, Scranton Creek, and the Pungo River. All tidal freshwater marsh areas are jurisdictional wetlands.

The marsh area is approximately 176.0 acres (71.2 hectares) in size and is bound by Tarklin Creek to the northwest, Scranton Creek to the south, and the Pungo River to the west. In the areas adjacent to the existing pine stand, the transition from timber to marsh is abrupt. The dominant vegetation within the marsh area is needlerush (*Juncus*

roemerianus), and sawgrass (*Cladium jamaicense*) and cordgrasses (*Spartina cynosuroides* and *S. patens*) are the co dominant species.

An approximately 2.2-acre (0.9-hectare) marsh pond is in the southeastern corner of the site on the west side of Bishop Road, near the intersection with US 264. The dominant vegetation of the marsh pond includes water lily (*Nymphaea* sp.), pennywort (*Obolaria virginica*), cattail (*Typha latifolia*), sawgrass, rushes (*Juncus* sp.), broomsedge (*Andropogon virgatum*), loblolly bay (*Gordonia lasianthus*), and chokeberry (*Aronia arbutifolia*).

Marsh sloughs are throughout the site adjacent to marsh communities. The marsh sloughs comprise approximately 11.4 acres (4.6 hectares) of the site. Several onsite roadside ditches and offsite agricultural and roadside ditches discharge into the marsh sloughs. Herbaceous species such as sawgrass, cattail, cordgrass, and needlerush comprise the dominant vegetation along the marsh sloughs. In areas closest to Scranton and Tarklin Creeks, sawgrass, needlerush, and cordgrass represent approximately 90 percent of the herbaceous cover. As the sloughs extend inland, the vegetation transitions to include herbaceous cover of cattail in addition to the species previously noted.

Weyerhaeuser received a notice of violation from the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Coastal Management (DCM) for land clearing activities that occurred in August 2000. According to a November 1, 2000 letter sent to Weyerhaeuser from the DCM, site preparation for reforestation activities impacted approximately 5 acres (2.0 hectares) of jurisdictional coastal wetlands. Because of this violation, Weyerhaeuser was required to provide 5.0 acres (2.0 hectares) of onsite marsh restoration. The 5.0-acre (2.0-hectare) tidal freshwater marsh mitigation site was completed prior to the sale of the property to NCDOT in the spring of 2002 and is excluded from the NCEEP mitigation site.

3.4.2 Pine Flatwood

Pine plantations normally have various aged stands of pine maintained for standard timber rotation. The pine stands historically maintained by Weyerhaeuser at the Bishop Road site and now considered pine flatwoods consist primarily of loblolly pines ranging from approximately 5 years old to 30 years old and cover approximately 399.6 acres (161.8 hectares). The youngest stands are composed of 5-year-old saplings, cover approximately 45.3 acres (18.3 hectares), and a majority of the southeastern portion of the site. Of the 399.6 acres (161.8 hectares), 92.4 acres (37.4 hectares) were

determined to be non-jurisdictional areas, and 307.2 acres (124.4 hectares) were determined to be jurisdictional wetlands. The average height of the pines in the 5-year-old stand is 7 feet (2.1 meters), allowing for a dense growth of successional species to continue to dominate this area. The early successional species include herbaceous and woody vegetation such as greenbrier (*Smilax* sp.), broomsedge, yellow jessamine (*Gelsemium sempervirens*), wax myrtle (*Myrica cerifera*), silverling (*Baccharis halimifolia*), chokeberry, sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), and titi (*Cyrilla racemiflora*). Species such as spike-rush (*Eleocharis* sp.) and royal fern (*Osmundo regalis*) occur in depressions in the inter-bed areas.

The stands of 7 to 10-year-old pines are located along East Muriel Road, the southern corner of the West Muriel Road and Bishop Road intersection, the northwestern corner of the Weyerhaeuser Service Road intersection with US 264, and a majority of the southwestern and southern portion of the site. The stands cover approximately 239.9 acres (97.1 hectares), and 184.5 acres (74.7 hectares) were determined to be jurisdictional wetlands. The average height of the pines in the 7 to 10-year-old stand is approximately 10 feet (3 meters), which is resulting in a thinning of the successional species noted within the 5-year-old stand. Vegetative species other than loblolly pine noted within this community include greenbrier, yellow jessamine, blackberry (*Rubus argutus*), wax myrtle, sweet gum, red maple, titi, and spike-rush.

A stand of 15-year-old pines is within the northwestern portion of the site, between West Muriel Road and the convergence of Tarklin Creek and the Pungo River. The stand covers approximately 30.2 acres (12.2 hectares), and all but 0.2 acre (0.1 hectare) of the stand was determined to be a jurisdictional wetland. The area has a sparse understory of woody vines and shrubby hardwoods that include greenbrier, yellow jessamine, giant cane (*Arundinaria gigantea*), red bay (*Persea borbonia*), wax myrtle, sweet bay (*Magnolia virginiana*), red maple, chokeberry, sweet gum, and bracken fern (*Pteridium aquilinum*).

Stands of approximately 30-year-old pines are on the northwest side of the intersection of West Muriel Road and Bishop Road, and in the southwest corner of the US 264 and Weyerhaeuser Service Road intersection. These stands cover a total of approximately 84.2 acres (34.1 hectares). Of the stands, 58.2 acres (23.6 hectares) were determined to be jurisdictional wetlands, and 26.0 acres (10.5 hectares) were determined to be non-jurisdictional areas. The stands exhibit a sparse understory dominated by woody vines and shrubby trees. The full canopy provides extensive shading, and a thick layer of pine needles may prevent most herbaceous vegetation from growing in this stand. Understory species included sphagnum moss (*Sphagnum* sp.), spleenwort (*Asplenium*

sp.), bracken fern, greenbrier, yellow jessamine, giant cane, red bay, wax myrtle, sweet bay, red maple, chokeberry, and sweet gum.

3.4.3 Timber Cutover

Weyerhaeuser clearcut approximately 33.1 acres (13.4 hectares) of the 30-year-old pine stand previously located east of the curve in West Muriel Road before NCDOT purchased the property in the spring of 2002. The timber cutover area is dominated by herbaceous vegetation and is in an early successional state. Of the 33.1 acres (13.4 hectares), 30.4 acres (12.3 hectares) were determined to be jurisdictional wetlands, and 2.7 acres (1.1 hectares) were determined to be non-jurisdictional areas.

3.4.4 Riverine Forested Wetland

A riverine forested wetland associated with the headwaters of Tarklin Creek comprises approximately 45.3 acres (18.3 hectares) of the Bishop Road site. All of this plant community is considered jurisdictional wetland. The riverine forested wetland abuts the northeastern most property boundary and is accessed by Weyerhaeuser Service Road. The dominant canopy vegetation of the riverine forested wetland is bald cypress (*Taxodium distichum*), loblolly pine, sweet gum, water oak (*Quercus nigra*), and red maple. The understory of woody shrubs and vines includes sweet gum, red maple, silver maple (*A. saccharinum*), wax myrtle, tag alder (*Alnus serrulata*), greenbrier, poison ivy (*Toxicodendron radicans*), and royal fern.

3.4.5 Biotic Resources

3.4.5.1 Wildlife and Wildlife Habitat

A combination of many biotic and abiotic factors determines the inherent productivity of a forested wetland site and its capacity to support a community of wildlife species. The abundance of wildlife species varies with the temporal context of factors affecting populations. Controlling or limiting factors will have different short-term (months, seasons) and long-term (years, decades) effects. Historical events continue to influence present-day wildlife populations and the range of practicable management options.

Principal abiotic factors in forested wetlands are soil, water, weather, topography, and disturbance. Soils have the major influence on the inherent fertility of a site and reflect other considerations such as the predominant historical role of climate and hydrology. Abiotic factors are an important determinant of a site's ability to function as wildlife

habitat. These factors have both direct and indirect effects on wildlife populations. Direct effects include mortality caused by natural events such as fires, storms, drought, unusual temperatures, and flooding. Indirect effects include adverse impacts on reproduction and survival.

An important stand-scale biotic feature affecting wildlife abundance and diversity in forested wetlands is the structural diversity of vegetation in vertical and horizontal dimensions. Increased structural diversity promotes more opportunities to forage, nest, and escape from predators.

Species observed directly, or by evidence of scat or tracks, are denoted by an asterisk. Many birds utilize open habitat areas such as marsh environments and timber cutover because the diverse vegetation provides foraging and breeding sites. Commonly observed avian species may include red-winged blackbird* (*Agelaius phoeniceus*), Eastern bluebird* (*Sialia sialis*), marsh wren* (*Cistothorus palustris*), blue jay (*Cyanocitta cristata*), northern cardinal* (*Cardinalis cardinalis*), and fish crow* (*Corvus ossifragus*). Waterfowl can be found in open water habitats such as the onsite marsh pond. Species likely to occur within the site include mallard (*Anas platythynchos*), black duck (*A. rubripes*), merganser (*Mergus* sp.), and Canada goose* (*Branta canadensis*). Larger birds of prey often nest in large trees adjacent to the open land and water of marshes. Large birds of prey anticipated to occur within the site include osprey (*Pandion haliaetus*), red-tail hawk* (*Buteo jamaicensis*), and bald eagle*. The shrubby and forested portions of the Bishop Road site are likely to support woodland birds such as gray catbird* (*Dumetella carolinensis*), wood thrush* (*Hylocichla mustelina*), blue jay, Carolina chickadee* (*Parus carolinensis*), cardinal*, red-bellied woodpecker (*Melanerpes carolinus*), northern flicker* (*Colaptes auratus*), pileated woodpecker* (*Dryocopus pileatus*), mourning dove* (*Zenaida macroura*), downy woodpecker* (*Picoides pubescens*), and boat-tailed grackle* (*Quiscalus major*).

Marsh rabbits* (*Sylvilagus palustris*) and/or eastern cottontails* (*S. floridanus*), raccoon (*Procyon lotor*), and white-tailed deer* (*Odocoileus virginianus*) may be the most common mammals found in this area. Less common mammals in the area may include marsh rice rat (*Oryzomys palustris*), cotton mouse (*Peromyscus gossypinus*), Eastern gray squirrel (*Sciurus carolinensis*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), Virginia opossum (*Didelphis virginiana*), red fox (*Vulpes vulpes*), river otter* (*Lutra canadensis*) and black bear* (*Ursus americanus*). Reptiles expected to occur at the site include common kingsnake (*Lampropeltis getula*), red-bellied water snake* (*Nerodia erthrogaster*), black rat snake* (*Elaphe obsoleta obsoleta*) and

cottonmouth (*Agkistrodon piscivorus*). Although amphibians were not observed at the site, southern toad (*Bufo terrestris*), bullfrog (*Rana catesbeiana*), green frog (*R. clamitans*), Eastern box turtle (*Terrapene carolina carolina*) and Eastern mud turtle (*Kinosternon subrubrum*) are expected to inhabit the area based on the habitat available. Fire ants* (*Solenopsis* sp.) were observed within the Bishop Road site.

4. Reference Wetlands

A reference wetland site optimally is a functioning climax wetland community, which is near the project area and with characteristics similar to those that are to be restored at the mitigation site. The reference site characteristics should include similar soils, vegetation, and hydrology as the proposed restoration site. Unfortunately, large portions of the coastal wet pine flatwood areas in Hyde County have been impacted by silviculture and agriculture during the last century. Nearby undisturbed habitats similar to the Bishop Road site, which could be used as reference wetlands, are not available.

In order to design the mitigation site for a climax community representing the natural steady state for a non-riverine pine flatwood community, the vegetative species found in common pine flatwood stands was researched. In addition, a property exhibiting mature vegetation situated opposite US 264 near the project site was used as a potential reference site. This property is owned and managed by Mr. Bruce Cameron. The site was historically covered with planted pine similar to the Bishop Road site. However, silvicultural management was converted to wildlife and vegetation management during the last 50 to 60 years. The absence of thinning, select cutting, and clear cutting has allowed the community to climax with pine as a co-dominant species rather than a dominant species.

The existing onsite marsh areas were used as reference wetlands for the two restoration areas along Tarklin Creek Road, and the restoration area along Bishop Road east of the existing open water marsh pond. The existing marsh pond area adjacent to Bishop Road near the intersection with US 264 and marsh sloughs along Scranton and Tarklin Creeks was used as reference wetlands for the marsh pond restoration area, and the marsh sloughs restoration areas, respectively (Figure 8).

The existing riverine forested wetland community in the northeast corner of the site was used as a reference wetland for the riverine forested wetland restoration area along the Weyerhaeuser Service Road. The existing riverine forested wetland community is north of the East Muriel Road terminus adjacent to the Tarklin Creek headwaters.

4.1 Hydrologic Characterization and Gauge Data Summary

Gauge data is not yet available for the reference wetland locations. Groundwater gauges were installed within the Bishop Road site in March 2006 to allow monitoring of groundwater levels within the reference wetlands and the areas to be restored to jurisdictional wetlands both before and after mitigation construction activities have

been conducted. The gauges are scheduled to be monitored throughout 2006 in order to establish a groundwater level baseline for comparison to post-mitigation groundwater data that will be collected by the gauges installed within the proposed restoration areas.

4.2 Soil Characterization

4.2.1 Taxonomic Classification (including series)

Soils underlying Mr. Cameron's property include Acredale silt loam, Argent loam, Brookman loam, Chapanoke silt loam, Hydeland silt loam, Stockade mucky sandy loam, and Yonges silt loam. All of these soils occur within the Bishop Road site.

The existing onsite marsh pond is mapped in the soil survey (Gagnon 1999) as open water and Argent loam. The existing marsh sloughs are underlain by Argent loam, Belhaven muck, Bolling loamy fine sand, Chapanoke silt loam, Fork fine sandy loam, Hydeland silt loam, Longshoal mucky peat, and Yonges silt loam.

The existing riverine forested wetland community is underlain by Acredale silt loam, Belhaven muck, Longshoal mucky peat, Stockade mucky sandy loam, and Yonges silt loam. The riverine forested reference wetland is also located fully within the Bishop Road site. All soils listed in this section are described in detail in Section 3.3.

4.2.2 Profile Description

Profile descriptions for all soils mapped within reference wetland areas are included in Section 3.3.1.

4.3 Plant Community Characterization

4.3.1 Community Descriptions – All Strata

During a site survey on Mr. Cameron's property in August 2001, sample plot locations were evaluated within the non-riverine forested wetland and within the tidal freshwater marsh adjacent to Scranton Creek. Field investigators noted pond pine in addition to many different species of hardwoods throughout the vegetative stratum, including willow oak (*Q. phellos*), swamp chestnut oak (*Q. michauxii*), red bay, sweet bay, sweet gum, and black gum (*Nyssa sylvatica*).

Additional surveys of hydrophytic vegetation found in the successional communities at the Bishop Road site were also used as a reference for the type of herbaceous plants, woody vines, and shrubs that will likely occur on the mitigation site through natural seeding. These species are mainly pioneer species that are expected to quickly invade the area once clearing has begun.

Within the existing marsh pond and sloughs, herbaceous species, such as sawgrass, cattail, needlerush, and cordgrass, comprise the dominant vegetation, with woody shrubs, such as marsh mallow (*Hibiscus moscheutos*), wax myrtle, loblolly bay, chokeberry, and silverling, occurring sporadically along the inland perimeter of the marsh.

The existing riverine forested wetland will be preserved and is expected to provide a natural seed source for regeneration that will supplement the vegetation planted in the restoration areas. Dominant canopy vegetation within this portion of the site includes bald cypress, loblolly pine, sweet gum, water oak, and red maple. The understory, vine, and groundcover strata within this community are dominated by sweet gum, red maple, silver maple, wax myrtle, tag alder, greenbrier, poison ivy, and royal fern.

5. Project Site Restoration Plan

5.1 Restoration Project Goals and Objectives

Restoration and preservation activities can be accomplished simultaneously to expedite both time and labor considerations. A conceptual wetland mitigation design is provided in Figure 8. Table 5 provides a summary of proposed communities, mitigation types, existing vegetation communities, and estimated acreages.

The proposed tidal freshwater marsh mitigation consists of restoring non-jurisdictional areas impacted by construction of roads and timbering operations to tidal freshwater marsh communities, and preserving the existing jurisdictional marsh pond, marsh sloughs, and marsh areas. The proposed non-riverine pine flatwood mitigation consists of restoring existing non-jurisdictional pine flatwood, timber cutover areas, and roadbeds to non-riverine pine flatwood communities, and preserving existing jurisdictional pine flatwood and timber cutover areas. The proposed riverine forested wetland mitigation consists of restoring a non-jurisdictional area impacted by construction of the Weyerhaeuser Service Road to a riverine forested wetland, and preserving existing jurisdictional riverine forested wetland areas.

Filling the on-site drainage ditches and removing the earthen roads will reduce the amount of suspended solids leaving the site via the ditches. Sediment from the ditches and earthen roads is currently carried by water in the ditches to adjacent bodies of water during storm events. Filling the ditches will eliminate the concentrated flow by allowing the majority of precipitation to infiltrate and not run off the site through the ditches.

Replacing the pine plantation with a natural plant community and restoring wetland characteristics within the site will create more diverse wildlife habitat on-site than currently exists. The pine plantations are periodically maintained to facilitate the growth of loblolly pines by eliminating competing understory trees. This maintenance reduces the vegetation diversity on the site and temporarily impacts wildlife. The periodic harvesting of the pine will also be eliminated, thereby further reducing temporary impacts to plant communities and associated wildlife.

5.1.1 Target Wetland Communities/ Buffer Communities

Based on the data collected from reference vegetation locations and Classification of the Natural Communities of North Carolina, A Third Approximation (Schafale and

Weakley 1990), communities likely to occur naturally within the Bishop Road site were determined. Slight variations in topography, as well as hydrology and soil types, influence the plant species and community types that will occur in a coastal wetland. Considering these variables, as well as existing conditions at the site, three mitigation communities are proposed: tidal freshwater marsh, non-riverine pine flatwood, and riverine forested wetland.

5.2 Hydrologic Trespass

The filling of ditches and removal of road beds may result in hydrologic trespass in one location. A property corner west of the intersection of Bishop Road and West Muriel Road is located immediately south of one of the drainage ditches. The property is currently in pine plantation. In order to reduce the potential for hydraulic trespass, a 100-foot (30-meter) section of the ditch (50 feet [15 meters] east and west of the property corner) will not be filled. A new ditch will be constructed from the existing ditch, extending to the north across the existing roadbed. This ditch will continue to drain the adjacent property.

Hydraulic trespass is not expected to be an issue for the remaining adjacent residences, agricultural fields, and privately owned pine stands along Bishop Road. Continued maintenance of the existing drainage ditches on adjacent properties is anticipated to provide sufficient drainage for these areas.

5.3 Hydrologic Modifications

5.3.1 Narrative of Modifications

Wetland functions are self-sustaining properties that exist in the natural environment and provide a perceived benefit, or value, to humankind. The wetland functions that provide the greatest values include flood water retention, erosion and sediment control, wildlife habitat, water supply and aquifer recharge, pollution control by nutrient reduction and removal, and recreation.

The most important factor in wetland mitigation design is the hydrologic function of the site. When proper hydrologic function occurs, hydric soil development and growth of hydrophytic vegetation can occur (Mitsch and Gosselink 2000). Hydrologic conditions at the Bishop Road site depend on the various inputs of climate and seasonal precipitation; overland flooding from stormwater runoff, tides and storm surges; surface water retention; and depth to groundwater. Removal of topographic constraints

to hydrologic functions across the site, such as drainage ditches and bedding elevations, will allow reestablishment of the natural hydrology.

5.3.2 Scaled Schematic of Modifications

See design sheets (Appendix E) for proposed modifications.

5.4 Soil Restoration

5.4.1 Narrative and Soil Preparation and Amendment

The roadbeds for Bishop Road, Silverthorne Road, East and West Muriel Roads, Tarklin Creek Road, and the Weyerhaeuser Service Road were constructed using the soil excavated for the roadside ditches as fill material. The average cross-section of the Weyerhaeuser-maintained roads is approximately 60 feet (18.3 meters), measured from the outside edges of the adjacent ditches. The 60-foot-wide (18.3-meter-wide) corridor centered on these roadbeds (30 feet [9.1 meters] from the roadway centerline) will be excavated in the areas of proposed restoration. Existing vegetation within the corridor will be removed before the excavation work commences. The fill material excavated from the roadbeds and spoil pile berms, when present, will be used to fill the roadside drainage ditches. The roadway areas will be graded to match adjacent natural elevations and ripped to eliminate compaction. Groundwater gauge data will be required to confirm the wetland hydrology restoration potential.

Within the restoration areas with bedding rows and skidder tracks, the rows will be eliminated by pushing the bedded materials into the furrows adjacent to the bedding rows. These areas will be disked to break up the plow pan and reduce soil compaction that may have resulted from historic management practices.

5.5 Natural Plant Community Restoration

5.5.1 Narrative and Plant Community Restoration

The presence of vegetation provides several important functions within a wetland. These functions include water storage, sediment retention, nutrient removal, and wildlife habitat. The various layers of vegetation, from herbaceous to woody canopy, provide benefits to multiple communities of wildlife.

As previously stated, the 684.8 acres (277.2 hectares) of proposed mitigation do not include the 5.0-acre (2.0-hectare) Weyerhaeuser mitigation site, 0.9 acre (0.4 hectare) of Silverthorne Road that has recently been extended from Bishop Road to US 264, and 0.7 acre (0.3 hectare) of Silverthorne Road to be retained west of the intersection of Bishop Road. The proposed mitigation estimates are conservatively based and do not reflect any changes or modifications that may occur from site conditions during construction.

5.5.1.1 Natural Communities Proposed for Wetland Restoration

Three communities are proposed for restoration at the Bishop Road mitigation site: tidal freshwater marsh, non-riverine pine flatwoods, and riverine forested wetlands. Some of the existing ditches that carry surface water to Tarklin Creek, Scranton Creek, and the Pungo River will be filled as a part of the restoration plan. The existing vegetation within the non-jurisdictional areas of the site will be removed. Elevations will be modified to either match the adjacent jurisdictional areas or to return it to its natural state. The existing ditches within the Bishop Road site that provide hydrologic connectivity between the offsite ditches and Tarklin Creek, Scranton Creek, and the Pungo River will be retained in order to prevent hydraulic trespass to the adjacent properties (Figure 4). The proposed restoration areas are shown in Figure 9 and are listed in Table 5.

5.5.1.1.1 Tidal Freshwater Marsh

Tidal freshwater marshes typically occur along the margins of estuaries and along drowned rivers and creeks that experience tidal flooding. Flooding may not occur regularly, depending on landscape position. Moderate to high nutrient levels from an accumulation of organic matter can support varied and dense herbaceous vegetation. Some seasonal succession may occur, with a dominance of fleshy broad-leaved plants such as pennywort and pickerelweed transitioning to perennials and graminoids such as cordgrass, sawgrass, and wild rice (*Zizania aquatica*) (Schafale and Weakley 1990). A shrub and tree canopy is absent. These marshes grade into various wetland and upland communities, depending on topography and soil type. Most of these marsh areas have organic soils, with some mineral soils developing where sediments have accumulated from overland erosion of adjacent areas.

The waters of Scranton Creek, Tarklin Creek, and the Pungo River abut the Bishop Road site, are influenced by wind driven tides, and are expected to have little saltwater influence (Geise, et al. 1979). Soil maps of the existing outer marsh areas along the

perimeter of the mitigation site show an organic Longshoal (LfA) mucky peat. This soil transitions to a mineral Fork (FkA) fine sandy loam or Chapanoke (ChA) silt loam in the inner marsh areas along the marsh sloughs connected to the creeks. The Longshoal soil units are expected to have saturated conditions, with water at or near the soil surface throughout the year. Dominant vegetation in these areas is perennial and consists of grass species such as those described by Schafale and Weakley (1990). The inner marsh soils, Fork and Chapanoke, are expected to have saturated conditions during most of the year due to poor drainage characteristics.

5.5.1.1.2 Non-Riverine Pine Flatwood

Since few undisturbed areas of natural communities exist near the Bishop Road site, the non-riverine areas are best represented by the two systems described by Schafale and Weakley (1990) as a wet pine flatwood and a non-riverine wet hardwood forest, presented below. For this mitigation site, the combination of these systems proposed for preservation and restoration, respectively, at the Bishop Road site is referred to as a non-riverine pine flatwood.

Wet pine flatwood communities occur on flat, wet Coastal Plain mineral soils, are seasonally saturated by high groundwater levels and precipitation, and support a dominant canopy of loblolly or pond pine. Canopy openings provide areas for shrubby hardwood species such as inkberry (*Ilex glabra*), red bay, and staggerbush (*Lyonia mariana*) and herbaceous species such as bracken fern and broomsedge. Wet pine flatwoods occur mostly in the outer and middle Coastal Plain on sites that are drier than pine savannas.

Non-riverine wet hardwood forests are found in the outer parts of embayed sections of the Coastal Plain along poorly drained interstream flats (Schafale and Weakley 1990). The fine-textured mineral soils include poorly drained loams or clays that are seasonally saturated. Precipitation, high water tables, and overland flow are the primary causes of saturation. A combination of bottomland oak or mixed hardwood vegetation located on interstream flats distinguishes this community from other swamp forests or mixed hardwood forests. Typical canopy species include swamp chestnut oak, laurel oak (*Q. laurifolia*), cherrybark oak (*Q. pagodaefolia*), tulip poplar (*Liriodendron tulipifera*), red maple, and black gum. Understory shrubs and woody vines include pawpaw (*Asimina triloba*), ironwood (*Carpinus caroliniana*), spicebush (*Lindera benzoin*), redbay, wax myrtle, poison ivy, and muscadine (*Vitis* sp.).

5.5.1.1.3 Riverine Forested Wetland

The natural riverine communities associated with the tidally influenced creeks of the Coastal Plain are best represented by Schafale and Weakley's (1990) cypress-gum swamp (blackwater type). These swamps occur along the sloughs, swales, and floodplains of blackwater rivers and creeks in the Coastal Plain. The seasonally to semi-permanently flooded soils may be organic medisaprists or mineral soils with an aquic moisture regime. These riverine areas are characterized by their highly variable flow regimes, with short periods of flooding and periods of low flow. Undisturbed communities are dominated by a canopy of swamp tupelo (*Nyssa biflora*) and bald cypress, and have a dense shrub understory of red maple, redbay, titi, and fetterbush (*Lyonia* sp.). Scattered canopy openings provide habitat for herbaceous species such as sedges, rushes, and pennywort.

The hydrology of the headwater area is expected to be saturated throughout the year, with periodic flooding due to tidal influences, precipitation, and overland flow. Since few natural undisturbed areas exist at the Bishop Road site, the vegetation in this community is expected to be a result of impacts from timber management. The canopy is dominated by bald cypress and loblolly pine, with a shrub layer of sweet gum, red maple, tag alder, Southern red cedar (*Juniperus silicicola*), and wax myrtle. Woody vines and herbaceous species include poison ivy, greenbrier, and royal fern. Natural succession to a climax wetland forest similar to the cypress-gum swamp (blackwater type) community described above is expected to occur over time.

5.5.1.2 Restoration Methodology

5.5.1.2.1 Methods for Restoring Tidal Freshwater Marsh Wetlands

The restoration plan includes approximately 3.3 acres (1.3 hectares) of tidal freshwater marsh restoration. Four non-jurisdictional areas of existing roadbeds will be restored to tidal freshwater marsh after removal of the roadbeds and filling of roadside ditches. Excavation equipment will be used to remove the existing vegetation and reduce the elevation of the roadbeds to match the adjacent jurisdictional areas. The four areas comprise approximately 1.1 acres (0.4 hectare). Approximately 2.2 acres (0.9 hectare) of 5-year-old pine flatwood will also be restored to tidal freshwater marsh.

Site Preparation

One marsh slough restoration area is near the western terminus of Silverthorne Road. The existing roadbed transects a marsh slough that extends from Scranton Creek to north of Silverthorne Road. The removal of fill material from approximately 0.1 acre

(0.04 hectare) of the roadbed is anticipated to restore the hydrology of the marsh slough.

Two marsh restoration areas are in the northern portion of the site along Tarklin Creek Road where a bridge previously crossed Tarklin Creek. Material from approximately 0.7 acre (0.3 hectare) of roadbed will be removed in these areas and used to fill the adjacent drainage ditches. Removal of the roadbed material is anticipated to restore tidal freshwater marsh habitat and improve the hydrologic connection to the marsh communities east of Tarklin Creek Road.

A marsh restoration area is in the southeastern most portion of the site along Bishop Road. Material from approximately 0.3 acre (0.1 hectare) of roadbed will be removed and used to fill the adjacent drainage ditches. Removal of the roadbed material and filling of the roadside ditches is anticipated to restore tidal freshwater marsh habitat and provide a hydrologic connection to the adjacent existing marsh pond.

One marsh pond restoration area is in the southeastern most portion of the site west of Bishop Road and abuts the northern edge of the existing marsh pond area. The marsh pond restoration area presently consists of approximately 2.2 acres (0.9 hectare) of 5-year-old pine flatwood that is bedded and planted with loblolly pines. Excavation equipment will be used to remove the existing vegetation, eliminate the existing bedding rows by pushing the bedded materials into the furrows between the rows, and to match the existing adjacent marsh pond elevation.

Soils

The dominant soils in these proposed restoration areas were identified as either an Argent loam or a Longshoal mucky peat. These soils are both listed on the state hydric soils list as Hydric A soils. Figure 5 shows the soil units mapped at the Bishop Road site. The Argent soil unit is a poorly drained soil taxonomically identified as an Endoaqualf soil, meaning it is classified as a endoaquic soil. Endoaquic are soils that are in such a landscape position that the regional water table is at or near the soil surface for extended periods of time. The presence of an aquic condition is indicated by redoximorphic features within the soil profile, such as iron or manganese concretions or oxidized root channels. The Longshoal soil unit is a very poorly drained soil that is taxonomically identified as a Medisaprist, which is a saprist soil located in a temperate climate. Saprist soils are organic soils in which the organic material has reached the most decomposed stage (Brady and Weil 2000).

Hydrology

The tidal freshwater marsh restoration is anticipated to be provided by removing roadbed fill material, filling roadside drainage ditches, and eliminating the existing bedding rows in the pine flatwood. The cut and fill associated with the marsh slough area near the western terminus of Silverthorne Road and the marsh area in the northern portion of the site will provide hydrologic connections between the existing marsh areas. Excavation of the marsh pond area north of the existing marsh pond will increase the acreage of onsite marsh ponds from approximately 2.2 acres (0.9 hectare) to approximately 4.4 acres (1.8 hectares). Periodic wind driven tidal influence will provide additional hydrologic input of surface water to these portions of the site (Gagnon 1999).

Vegetation

Species to be planted within the tidal freshwater marsh restoration areas include herbaceous vegetation such as sawgrass, needlerush, and cordgrass (Table 6). Plantings will be approved by NCEEP, with an estimated 3.3 acres (1.3 hectares) being planted for tidal freshwater marsh restoration. Natural seeding from a variety of native perennial herbaceous plants and successional shrub species that occur in the project area is expected to colonize the restored tidal freshwater marsh areas. These species are likely to include a variety of sedges (OBL to FACW) and rushes (OBL to FACW) within the marsh, chokeberry (FACW), wax myrtle (FAC), and silverling (FAC) along the boundaries. Some of the woody species have rapid growth rates as compared to the herbaceous species that will be planted. The fast-growing woody species will provide shading for the installed plantings while they become established at the site. Recommended species for installation in the tidal freshwater marsh restoration areas are included in Table 6. Figure 9 shows the locations of the proposed tidal freshwater marsh restoration areas.

Spacing of installed plants will depend on species habit for rate of growth and spreading as well as existing conditions at the site. The marsh grasses will be planted on 3-foot (0.9-meter) centers. Planting density will be 4,840 plants per acre.

5.5.1.2.2 Methods for Restoring Non-Riverine Pine Flatwood Wetlands

The non-riverine pine flatwood restoration areas include approximately 109.3 acres (44.2 hectares) of non-jurisdictional areas within the existing pine flatwood, timber cutover, and roadbed areas throughout the site. The 5-year-old pine flatwood in the

southeastern portion of the site along Bishop Road will provide approximately 8.0 acres (3.2 hectares) of restoration to this community. The non-riverine pine flatwood restoration areas consist of approximately 56.1 acres (22.7 hectares) of existing 10-year-old pine flatwood along East Muriel Road and south of West Muriel Road adjacent to Bishop Road, north of the Weyerhaeuser Service Road, and north, south, and west of Silverthorne Road. Approximately 26.0 acres (10.5 hectares) of existing 30-year old pine flatwood north and south of the Weyerhaeuser Service Road, north and west of West Muriel Road, and east of Tarklin Creek Road will be included in the non-riverine pine flatwood restoration areas. The non-riverine pine flatwood restoration areas will also include approximately 0.2 acre (0.1 hectare) of 15-year old pine flatwood west of West Muriel Road and approximately 2.7 acres (1.1 hectares) of timber cutover adjacent to West Muriel Road. Additionally, approximately 16.3 acres (6.6 hectares) of roadbed will be removed and restored to non-riverine pine flatwood.

Site Preparation

The non-riverine pine flatwood restoration area within the 10-year-old pine stand adjacent to East and West Muriel Roads includes the highest elevation within the Bishop Road site. The restoration area will be cleared and grubbed to remove the existing vegetation, which includes rows of planted pine as well as successional herbaceous and woody species. Bedding rows will be eliminated by pushing the bedded materials into the furrows adjacent to the bedding rows throughout the restoration area. The site will be disked to break up the plow pan and reduce soil compaction that may have resulted from historic management practices.

The two non-riverine pine flatwood restoration areas west of Silverthorne Road in the 10-year-old pine flatwood, which are approximately 5.5 acres (2.2 hectares) and 3.9 acres (1.6 hectares) in size, are topographically higher than the adjacent cutover area, which may be due to the bedding rows and timber slash debris. In order to restore the groundwater hydrologic influence, the natural elevation and surface topography will be restored. Soil cut from this area will be used to fill the roadside ditches within restoration areas, as well as provide replacement soil, as needed, for the roadbeds after fill material is removed.

Restoration is anticipated to be accomplished by removing 16.3 acres (6.6 hectares) of existing roadbed fill material and using it to fill the adjacent drainage ditches. The roadbeds proposed to be removed are on portions of Bishop Road, Silverthorne Road, Tarklin Creek Road, and the entire roadbed section of East and West Muriel Roads and the Weyerhaeuser Service Road.

The 30-year-old pine flatwood south of the Weyerhauser Service Road and north of East Muriel Road will not be cleared. Currently, the areas lack hydrology indicators required to be jurisdictional. Removing the roadbed and filling the ditches will restore the hydrology. It is not necessary to clear the trees and replant as hydrophytic vegetation exists in these areas. These areas provide the only RCW habitat on site.

Soils

The dominant soils in this proposed restoration area were identified as Acredale silt loam, Argent loam, Chapanoke silt loam, and Hydeland silt loam. The Acredale, Argent, and Hydeland soil series are listed on the state hydric soils list as Hydric A soils, and the Chapanoke soil series is listed on the state hydric soils list as a Hydric B soil. Figure 5 depicts the soil mapping units mapped within the Bishop Road site. The Acredale and Argent soil units are poorly drained soils taxonomically identified as Endoaqualf soils, meaning they are classified as endoaquic soils. The Chapanoke soil unit is a somewhat poorly drained soil taxonomically identified as an Endoaquult soil, meaning it is classified as an endoaquic soil. The Hydeland soil unit is a very poorly drained soil taxonomically identified as an Umbraqualf soil, meaning it is classified as an umbric soil with aquic conditions. Umbric soils are those that have thick, dark, organic-rich surface horizons.

Hydrology

Based on the mapped soil units, the non-riverine pine flatwood restoration areas are expected to have seasonal saturation at or near the soil surface. However, extensive draining and historic land use practices have reduced the groundwater hydrologic influence to these areas. The hydrologic regime to be restored to the areas is seasonally inundated or saturated to within 12 inches (30.5 centimeters) of the surface for 5 to 12.5 percent of the growing season. The wetland hydrology in these areas is anticipated to be restored by removing roadbed fill material, filling roadside drainage ditches, and reducing the existing elevations to match those of the adjacent jurisdictional areas. As a result of the cut and fill work, the normal water table is expected to return to within 12 inches (30.5 centimeters) of the soil surface for more than 5 percent of the growing season.

Vegetation

Vegetative species to be planted within the non-riverine pine flatwood restoration areas will be approved by NCEEP and may include species such as green ash (*Fraxinus*

pennsylvanica) (FACW), pond pine (FACW), bald cypress (OBL), swamp tupelo (OBL), and swamp chestnut oak (FACW-). Natural seeding from existing native woody vine, shrub, and tree species, such as loblolly pine, wax myrtle, and chokeberry, present in adjacent areas is expected to occur. Table 6 includes a list of recommended plant species for use in the non-riverine pine flatwood restoration areas.

Plant spacing intervals are anticipated to range from 6 to 10 feet (1.8 to 3.0 meters) with an average of eight feet (2.4 meters). Planting density for hardwoods and needle-leaved trees will be 680 stems per acre with an estimated 109.3 acres (44.2 hectares) being planted for the non-riverine pine flatwood restoration. A minimum of 50 percent coverage will be provided by planted pine species in order to achieve a pine-dominated community.

5.5.1.2.3 Methods for Restoring Riverine Forested Wetland

Site Preparation

The restoration plan provides for restoration of approximately 1 acre (0.4 hectare) of riverine forested wetland. The riverine forested wetland restoration area consists of the northern portion of the Weyerhaeuser Service Road. The roadbed will be removed, and the roadside ditches will be filled. Excavation equipment will be used to remove the existing vegetation and reduce the elevation of the roadbeds to match the adjacent jurisdictional areas.

Soils

The dominant soils in this proposed restoration area were identified as Belhaven muck and Yonges silt loam. Figure 5 depicts the soil units mapped within the Bishop Road site. The Belhaven and Yonges series are listed on the state hydric soils list as Hydric A soils. The Belhaven soil unit is a very poorly drained soil taxonomically identified as a Medisaprist. The Yonges soil unit is a poorly drained soil that is taxonomically identified as an Endoaquulf.

Hydrology

Based on the mapped soil units found in this proposed restoration area, the area is expected to have seasonal saturation at the soil surface or inundation. However, extensive draining and land use practices have reduced the groundwater hydrologic influence in this area. The hydrologic regime to be restored to the area is inundated or

saturated to within 12 inches (30.5 centimeters) of the surface for 12.5 to 25 percent of the growing season and is expected to experience periodic overbank flooding. Removing roadbed fill material and filling roadside drainage ditches will be completed in order to restore the hydrology in the area. As a result of the cut and fill work, the hydrologic connection to the Tarklin Creek headwaters is anticipated to be improved, and the normal water table level is expected to return to within 12 inches (30.5 centimeters) of the soil surface for 25 to 75 percent of the growing season.

Hydraulic trespass is not expected to be an issue for the adjacent offsite areas. Continued maintenance of the existing offsite drainage ditches by Weyerhaeuser should provide sufficient drainage for these areas.

Vegetation

The riverine forested wetland restoration area is expected to have hydrologic input from adjacent existing riverine forested wetlands; therefore, the area will require species tolerant of frequent flooding and saturated conditions throughout the year. Species to be planted will be approved by NCEEP and may include both hardwood and needle-leaved species such as water tupelo (*N. aquatica*) (OBL), bald cypress (OBL), Atlantic white cedar (*Chamaecyparis thyoides*) (OBL), overcup oak (*Q. lyrata*) (OBL), and pond pine (FACW+). Natural seeding from existing, native woody vine, shrub, and tree species, such as red maple, sweet gum, chokeberry, and wax myrtle, from adjacent areas is also expected to occur.

Plant spacing is anticipated to be at eight-foot (2.4-meter) intervals. The final spacing determination will be based on total planting area and total number of trees to be planted. Planting density for hardwoods and needle-leaved trees will be 680 stems per acre with an estimated 1 acre (0.4 hectare) being planted for this riverine forested wetland restoration.

5.5.2 On-Site Invasive Species Management

As with all ground disturbing activities, the establishment of invasive species is a concern. Newly disturbed ground provides a medium for early succession vegetation, some of which is considered invasive, to establish and out-compete the desired vegetation. Fast-growing species, such as sweet gum and red maple, can develop dense stands in mitigation sites, particularly in the coastal plain. If left unchecked, these species can overtake the site, wasting the time and money spent planting the desired species.

The performance of planted woody vegetation will be documented during the monitoring period. If it becomes evident that sweet gum and red maple are out-competing the planted trees, remedial actions will be taken. These actions could include cutting, physically removing, or herbicidal treatment of the undesired species. Before any action is taken, options will be discussed with EEP and an implementation plan developed. The threshold for triggering invasive species management is greater than 40 percent composition of sweet gum or red maple in all monitoring plots or greater than 60 percent of both species after 2 years.

To prevent the introduction of invasive species from other sites, the contractor will be required to power wash all construction equipment prior to it entering the Bishop Road site. Also, the tidal marsh areas will be constructed first. This will prevent the spread of any invasives already occurring on site to these areas.

5.6 Natural Plant Community Preservation

The restoration plan provides for the preservation of approximately 189.6 acres (76.7 hectares) of tidal freshwater marsh, approximately 320.0 acres (129.6 hectares) of jurisdictional non-riverine pine flatwood, approximately 61.6 acres (24.9 hectares) of jurisdictional riverine forested wetland. The existing tidal freshwater marsh areas at the Bishop Road site have a well-established herbaceous community that includes various species such as sawgrass, needlerush, and cordgrass. The non-riverine pine flatwood preservation areas consist of 34.3 acres (13.9 hectares) of 5-year-old pine flatwood, 167.5 acres (67.8 hectares) of 10-year-old pine flatwood, 30.0 acres (12.1 hectares) of 15-year-old pine flatwood, 58.2 acres (23.6 hectares) of 30-year-old pine flatwood, and 30.4 acres (12.3 hectares) of timber cutover. The riverine forested wetland preservation area consists of 16.3 acres (6.6 hectares) of 10-year-old pine flatwood and 45.3 acres (18.3 hectares) of existing riverine forested wetland. The existing riverine forested wetland community associated with Tarklin Creek will provide a natural seed source for regeneration that will supplement the vegetation in the preservation area.

6. Performance Criteria

In order to determine if the restoration site is performing as designed, performance criteria to monitor the development of the site are required. Monitoring provides quantitative data and documentation of changes occurring at the site. The criteria including monitoring vegetation development, changes in groundwater elevations and soil profile analysis. All post-construction monitoring data will be compared to preconstruction data and all previous years' data. This comparison will show whether the site is progressing towards the desired outcome.

6.1 Devices

A search for available hydrologic data provided by federal and state agencies confirmed that no publicly available data currently exist for this portion of Hyde County. Therefore, in order to monitor the hydrologic regime of the site, groundwater gauges were installed in the tidal freshwater marsh, non-riverine pine flatwood, and riverine forested wetland restoration areas. Ten 40-inch (101.6-centimeter) Remote Data Systems (RDS) water level gauges were installed in the restoration areas along the existing roadbeds, within the 15- and 30-year-old pine stands adjacent to West Muriel Road, and within the 10-year-old pine stands along East Muriel and Bishop Roads and US 264. Additionally, four 40-inch (101.6-centimeter) RDS water level gauges were installed in the existing wetland areas within the site. The data from these gauges will be used as a reference for comparison of the data collected by the gauges placed within the restoration areas.

6.2 Wetlands

Data from all monitoring gauges will be recorded on a daily basis and collected five times during the 2006 monitoring period in order to establish the groundwater levels during the entire growing season. The groundwater data will be compared with monthly precipitation data in order to estimate the return cycle for water inputs.

Groundwater gauges have been installed within the non-riverine pine flatwood, riverine forest wetland restoration areas and onsite reference areas. The data collected from the restoration site gauges will be used to determine the hydrologic success of the restoration. The reference areas are located near and, in some instances, adjacent to the restoration areas. Therefore, the groundwater levels within the restoration areas should be very similar to those in the reference areas. If groundwater levels within the restored areas do not meet the criteria of within 12 inches (30.5 centimeters) of surface

for 5 to 12.5 percent of the growing season, then the levels will be compared to those in the adjacent reference areas. If there is a significant difference in groundwater levels, remedial actions will be coordinated with NCEEP.

6.3 Vegetation

Vegetation success within the restored non-riverine pine flatwood area will be measured by survivability over a 5 year monitoring period. Success will be based on the survival of 260 stems per acre after 5 years. An intermediate benchmark of 320 stems per acre surviving after 3 years will be used to determine if the area may meet the 5-year survival rate without requiring contingency measures. A survey of vegetation during the growing season (mid-March to mid-November) will be conducted annually over the 5 year monitoring period in order to determine survival rate of the installed plantings. This survey will track the total mortality on an annual basis and be used to calculate survivability at the end of 5 years. Survival of fewer than 320 stems per acre at the end of 3 years and fewer than 260 stems per acre at the end of 5 years will require the identification and implementation of appropriate contingency measures by the NCEEP. If the contingency measures involve re-planting an area, then the monitoring timeline for the re-planted area will be reset to year one.

The above performance criteria will be applied to restoration areas that are cleared and replanted. Vegetation within the 30-year-old pine communities will not be cleared and replanted. Therefore, vegetation monitoring will not be conducted in this community.

A total of 35 permanent woody vegetation monitoring plots measuring approximately 1,076 square feet (100 square meters) will be located and marked for each annual monitoring event. The planted individuals will be marked such that they can be found in successive years. Mortality will be determined from the difference between the previous year's living planted seedlings and the current year's living planted seedlings. The location of some of the vegetation monitoring plots will be tied to the groundwater monitoring wells in order to collect data on both hydrologic and vegetative success at a single location. The remaining vegetation monitoring plots will be located in other areas of the site in order to capture variation in topography, hydrology, soil conditions, and species selection throughout the disturbed areas.

Invasive species will not be counted toward meeting the vegetation success criteria. A maximum of 20 percent of the site species composition may be composed of invading species. Anticipated invasive species include primarily red maple and sweet gum.

Remedial action, as discussed in Section 5.4.2, may be required if invasive species are found to present a problem during the monitoring period.

6.4 Schedule Reporting

Monitoring results will be documented on an annual basis as evidence that the mitigation goals are being achieved. A mitigation monitoring report following NCEEP format will be completed for each year's monitoring and submitted. The report will discuss the conditions of the site relative to the standards previously discussed for mitigation success. If standards are not met, NCEEP will perform appropriate remedial activities to satisfy the regulatory team.

6.5 Final Dispensation

The NCEEP will maintain ownership of the site until all mitigation activities are completed and determined to be successful. Final dispensation of the Bishop Road mitigation site is anticipated to go to NCWRC based on a letter dated December 18, 2001 from NCWRC to ARCADIS expressing interest in the site. ARCADIS requested confirmation of NCWRC's interest in the site. No response has been received to date. Final dispensation of the site will be addressed in the final version of this document. Upon final dispensation of the site, the deed will state that the property will be managed for the purpose of mitigation in perpetuity.

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Tables

Table 1. Protected Species Listed for Hyde County, North Carolina

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat	Habitat Available
Vertebrates					
Shortnose sturgeon	*Acipenser brevirostrum*	E	E	brackish water of large rivers and estuaries; spawns in freshwater areas	No
American alligator	*Alligator mississippiensis*	T(S/A)	T	great river swamps, lakes, bayous, marshes, and other water bodies of Florida and the Gulf and Lower Atlantic Coastal Plains	Yes
American eel	*Anguilla rostrata*	FSC	-	oceanic and coastal waters; may inhabit freshwater rivers, streams, and ponds	Yes
Red wolf	*Canis rufus*	E (XN)	SR	upland and lowland forests, shrublands, coastal prairies and marshes, and other	Yes
Loggerhead sea turtle	*Caretta caretta*	T	T	nests on beaches; forages in ocean and sounds	No
Piping plover	*Charadrius melodus*	T	T	ocean beaches and island-end flats	No
Green sea turtle	*Chelonia mydas*	T*	T	nests on beaches; forages in ocean and sounds	No
Timber rattlesnake	*Crotalus horridus*	-	SC	forested wetland areas	Yes
Black-throated green warbler	*Dendroica virens waynei*	FSC	SR	forests, thickets, or old fields	Yes
Leatherback sea turtle	*Dermochelys coriacea*	E	E	oceans, rarely in sounds	No
Little blue heron	*Egretta caerulea*	-	SC	forests or thickets on maritime islands	No
Snowy egret	*Egretta thula*	-	SC	forests or thickets on maritime islands	No
Tricolored heron	*Egretta tricolor*	-	SC	forests or thickets on maritime islands	No
Hawksbill sea turtle	*Eretomochelys imbricata*	E	-	oceans, rarely in sounds	No
Peregrine falcon	*Falco peregrinus*	-	E	herbaceous wetland, forests, tidal flats, and urban locations near water	Yes
Bald eagle	*Haliaeetus leucocephalus*	T	T	mature forests near large bodies of water such as lakes and sounds	Yes
Outer Banks kingsnake	*Lampropeltis getula sticticeps*	-	SC	maritime forests, thickets, and grasslands on the Outer Banks	No
Black rail	*Laterallus jamaicensis*	FSC	SR	brackish marshes, rarely fresh marshes	No
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E	E	oceans and sounds	No
Carolina diamondback terrapin	*Malaclemys terrapin centrata*	-	SC	salt or brackish waters	Yes
Carolina salt marsh snake	*Nerodia sipedon williamengelsi*	-	SC	salt or brackish marshes	Yes
Red-cockaded woodpecker	*Picoides borealis*	E	E	mature open pine forests, mainly in longleaf pine	No
Glossy ibis	*Plegadis falcinellus*	-	SC	forests or thickets on maritime islands	No
Black skimmer	*Rynchops niger*	-	SC	sand flats on maritime islands	No
Pigmy rattlesnake	*Sistrurus miliarius*	-	SC	moist to wet lowlands	Yes
Least tern	*Sterna antillarum*	-	SC	beaches and other edges of water with less than 20 percent vegetative cover	No
Common tern	*Sterna hirundo*	-	SC	edges of water; nests on sandy to stony beaches, matted vegetation, or marsh islands	Yes
Gull-billed tern	*Sterna nilotica*	-	SC	salt or brackish waters, plowed fields, and, less frequently, freshwater marshes	Yes
West Indian manatee	*Trichechus manatus*	E	E	warm waters of estuaries and river mouths	No
Vascular Plants					
Sensitive jointvetch	*Aeschynomene virginica*	T	T	freshwater to slightly brackish tidal marshes and wet ditches	Yes
Seabeach amaranth	*Amaranthus pumilus*	T	T	ocean beaches and island-end flats	No
Saltmarsh spikerush	*Eleocharis halophila*	-	T**	brackish and freshwater marshes	Yes
Carolina grasswort	*Lilaeopsis carolinensis*	-	T	freshwater marshes, pools, tidal marshes	Yes
Grassleaf arrowhead	*Sagittaria weatherbiana*	FSC	SR-T	fresh to slightly brackish marshes, streams, swamps, and pond margins	Yes
Small-leaved meadow-rue	*Thalictrum macrostylum*	FSC**	SR-L	bogs and wet woods	Yes
Dune blue curls	*Trichostema sp. 1*	FSC	SR-L	dunes, openings in maritime forest and scrub	No

Notes:

E	Endangered	A taxon "in danger of extinction throughout all or a significant portion of its range."
(XN)	Experimental, nonessential	Experimental, nonessential population of an endangered species are treated as threatened species on public land, for consultation purposes, and as species proposed for listing on private land.
T	Threatened	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
FSC	Federal Species of Concern	A species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing.)
SC	Special Concern	Any species of wild animal native or once-native to North Carolina which is determined by the N.C. Wildlife Resources Commission to require monitoring but which may be taken under certain regulations.
SR	Significantly Rare	Any species which has not been listed by the N.C. Wildlife Resources Commission as Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined by the N.C. Natural Heritage Program to need monitoring.
-T	Throughout	These species are rare throughout their ranges with fewer than 100 populations total.
-L	Limited	The range of the species is limited to North Carolina and adjacent states. Species may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide.
*	Obscure Record	The date and/or location of observation is uncertain.
**	Historic Record	The species was last observed in the county more than 50 years ago.

Table 2: Summary of Existing Jurisdictional and Non-Jurisdictional Areas

Existing Community	Estimated Acres (Hectares)	Jurisdictional Acres (Hectares)	Non-Jurisdictional Acres (Hectares)
Pine Flatwood			
5-Year Old Pine	45.3 (18.3)	34.3 (13.9)	11.0 (3.6)
10-Year Old Pine	239.9 (97.1)	183.8 (74.4)	56.1 (22.7)
15-Year Old Pine	30.2 (12.2)	30.0 (12.1)	0.2 (0.1)
30-Year Old Pine	84.2 (34.1)	58.2 (23.6)	26.0 (10.5)
Timber Cutover	33.1 (13.4)	30.4 (12.3)	2.7 (1.1)
Tidal Freshwater Marsh			
Marsh Pond	2.2 (0.9)	2.2 (0.9)	
Marsh Sloughs	11.4 (4.6)	11.4 (4.6)	
Marsh	176.0 (71.2)	176.0 (71.2)	
Weyerhaeuser Mitigation Area	5.0 (2.0)	5.0 (2.0)	
Riverine Forested Wetland	45.3 (18.3)	45.3 (18.3)	
Roadbeds	19.1 (7.7)		19.1 (7.7)
Total Acres (Hectares)	691.7 (279.9)	577.5 (233.7)	114.2 (46.2)

Table 3. Existing Soils - Bishop Road Wetland Restoration Site, Hyde County, North Carolina

Symbol	Series	Taxonomy (Subgroup)	Slope (%)	Permeability	Hydric Class.	Drainage Class.*	Available Water Capacity	High Water Table	Shrink-swell Potential
AcA	Acredale silt loam	Typic Endoaqualf	0-2	Slow	A	P	Moderate to High	<1.0 ft	Moderate
ArA	Argent loam	Typic Endoaqualf	0-2	Slow	A	P	Moderate to High	<1.0 ft	Moderate
BnA	Belhaven muck	Terric Medisaprist	0-2	Slow to Rapid	A	VP	High to Very High	<1.0 ft	Low
BoA	Bolling loamy fine sand	Aquic Hapludalf	0-3	Moderate	B	MW	Moderate to High	1.5 ft to 2.5 ft	Low
BrA	Brookman loam	Typic Umbraqualf	0-2	Slow	A	VP	Moderate to High	<1.0 ft	Low to Moderate
ChA	Chapanoke silt loam	Aeric Endoaquult	0-2	Moderately Slow	B	SP	High	0.5 ft to 1.5 ft	Low
FkA	Fork fine sandy loam	Aeric Endoaquult	0-2	Moderate	B	SP	Moderate to High	1.0 ft to 2.0 ft	Low
HyA	Hydeland silt loam	Typic Umbraqualf	0-2	Moderately Slow	A	VP	Moderate to High	<1.0 ft	Low
LfA	Longshoal mucky peat	Typic Medisaprist	0-1	Moderately Rapid	A	VP	Very High	<0.5 ft	Low
StA	Stockade mucky sandy loam	Typic Umbraqualf	0-2	Moderate	A	VP	Moderate to High	<1.0 ft	Low
YeA	Yeopim silt loam	Aquic Hapludult	0-3	Moderately Slow	B	MW	High	1.5 ft to 3.0 ft	Low
YoA	Yonges silt loam	Typic Endoaqualf	0-2	Moderately Slow	A	P	Moderate to High	<1.0 ft	Low

* MW, P, and VP denote drainage classification (MW=Moderately well-drained, P=Poorly drained, and VP=Very poorly drained)

Table 4: Natural Vegetative Communities

Community	Estimated Existing Acres (Hectares)
Pine Plantation	
5-Year Old Pine	45.3 (18.3)
10-Year Old Pine	239.9 (97.1)
15-Year Old Pine	30.2 (12.2)
30-Year Old Pine	84.2 (34.1)
Timber Cutover	33.1 (13.4)
Tidal Freshwater Marsh	
Marsh Pond	2.2 (0.9)
Marsh Sloughs	11.4 (4.6)
Marsh	176.0 (71.2)
Weyerhaeuser Mitigation Area	5.0 (2.0)
Riverine Forested Wetland	45.3 (18.3)
Total Acreage	672.6 (272.2)*

- Roadbeds, which comprise an additional 19.1 acres (7.7 hectares) of the site, are not included in the total acreage.

Table 5: Summary of Mitigation Types and Existing Vegetative Communities

Existing Vegetative Communities	Proposed Mitigation Types											
	Tidal Freshwater Marsh						Non-riverine Pine Flatwoods		Riverine Forested Wetland		Weyer-haeuser Mitigation Area	Silverthorne Road
	Marsh Sloughs		Marsh Pond		Marsh							
	Restoration	Preservation	Restoration	Preservation	Restoration	Preservation	Restoration	Preservation	Restoration	Preservation		
Pine Plantation												
•5-Year Old Pine			2.2 (0.9)				8.0 (3.2)	34.3 (13.9)				0.9 (0.4)
•10-Year Old Pine							56.1 (22.7)	167.5 (67.8)		16.3 (6.6)		
•15-Year Old Pine							0.2 (0.1)	30.0 (12.1)				
•30-Year Old Pine							26.0 (10.5)	58.2 (23.6)				
Timber Cutover							2.7 (1.1)	30.4 (12.3)				
Tidal Freshwater Marsh												
•Marsh Pond				2.2 (0.9)								
•Marsh Sloughs		11.4 (4.6)										
•Marsh						176.0 (71.2)						
•Weyerhaeuser Mitigation Area											5.0 (2.0)	
Riverine Forested Wetland										45.3 (18.3)		
Roadbeds	0.1 (0.04)				0.3 (0.1)		16.3 (6.6)		1.0 (0.4)			0.7 (0.3)
Total Acres (Hectares)	0.1 (0.04)	11.4 (4.6)	2.2 (0.9)	2.2 (0.9)	0.3 (0.1)	176.0 (71.2)	109.3 (44.2)	320.4 (129.8)	1.0 (0.4)	61.6 (24.9)	5.0 (2.0)	1.6 (0.6)

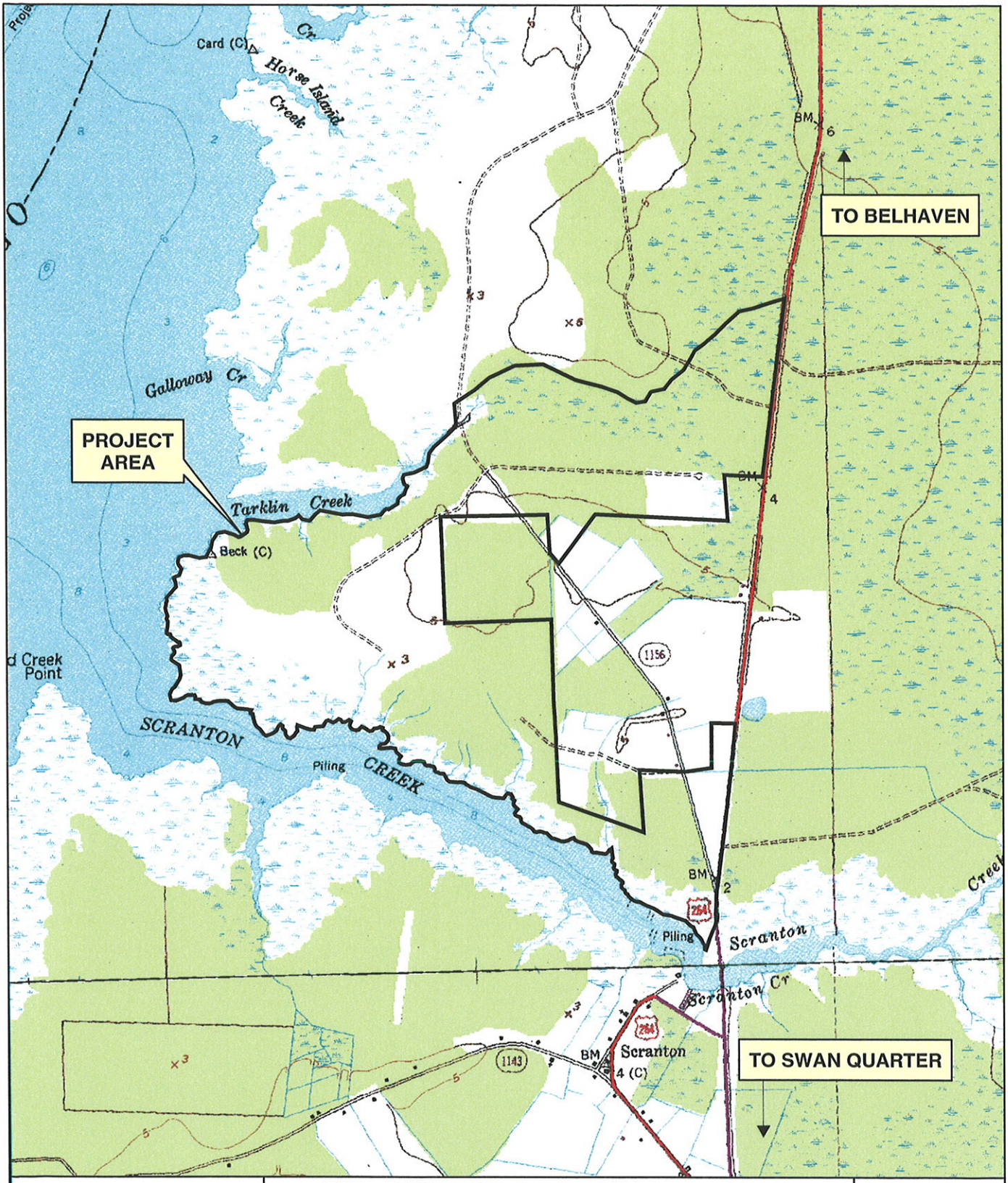
Table 6. Proposed Vegetation and Planting Zones

	Tidal Freshwater Marsh		Non-Riverine Pine Flatwoods		Riverine Forested	
Herbaceous (seed)			Switch grass	*Panicum virgatum*	Switch grass	*Panicum virgatum*
			Slender spikegrass	*Chasmanthium laxum*	Slender spikegrass	*Chasmanthium laxum*
			Soft rush	*Juncus effusus*	Soft rush	*Juncus effusus*
			Broomsedge	*Andropogon virginicus*	Broomsedge	*Andropogon virginicus*
			Lurid sedge	*Carex lurida*	Lurid sedge	*Carex lurida*
			Hop sedge	*Carex lupulina*	Hop sedge	*Carex lupulina*
			Woolgrass sedge	*Scirpus cyperinus*	Woolgrass sedge	*Scirpus cyperinus*
			Rough-leaved goldenrod	*Solidago rugosa*	Rough-leaved goldenrod	*Solidago rugosa*
			Beggar's ticks	*Bidens frondosa*	Beggar's ticks	*Bidens frondosa*
Herbaceous (container/plug/bare-root)	Black needlerush	*Juncus roemerianus*	Broomsedge	*Andropogon virginicus*	Royal fern	*Osmunda regalis*
	Sawgrass	*Cladium jamaicense*	Cinnamon fern	*Osmunda cinnamomea*	Arrow arum	*Peltandra virginica*
	Smooth cordgrass	*Spartina alterniflora*	Swamp mildweed	*Asclepias incarnata*	Monkey flower	*Mimulus ringens*
	Pickerelweed	*Pontederia cordata*	Sedge	*Carex stricta*	Netted chain fern	*Woodwardia areolata*
	Saltmarsh bulrush	*Scirpus robustus*	Soft rush	*Juncus effusus*	Cinnamon fern	*Osmunda cinnamomea*
	Seaside goldenrod	*Solidago sempervirens*	Slender spikegrass	*Chasmanthium laxum*	Sedge	*Carex stricta*
	Arrow arum	*Peltandra virginica*	Southern sedge	*Carex glaucescens*	Soft rush	*Juncus effusus*
	Rice cutgrass	*Leersia oryzoides*			Southern sedge	*Carex glaucescens*
	Monkey flower	*Mimulus ringens*				
	Duck potato	*Sagittaria lancifolia*				
	Swamp mildweed	*Asclepias incarnata*				
	Switch grass	*Panicum virgatum*				
Shrub	Rose mallow	*Hibiscus moscheutos*	Ti-ti	*Cyrilla racemiflora*	Swamp rose	*Rosa palustris*
	Swamp rose	*Rosa palustris*	Wax myrtle	*Morella cerifera*	Ti-ti	*Cyrilla racemiflora*
			Choke cherry	*Aronia arbutifolia*	Wax myrtle	*Morella cerifera*
			Highbush blueberry	*Vaccinium corymbosum**	Tag alder	*Alnus serrulata*
			Shining fetterbush	*Lyonia lucida*	Shining fetterbush	*Lyonia lucida*
			Sweetpepper bush	*Clethra alnifolia*		
			America holly	*Ilex opacca*		
Trees			Pond pine	*Pinus serotina*	Bald cypress	*Taxodium distichum*
			Water oak	*Quercus nigra*	Water tupelo	*Nyssa aquatica*
			Willow oak	*Quercus phellos*	Water oak	*Quercus nigra*
			Swamp white oak	*Quercus michauxii*	Overcup oak	*Quercus lyrata*
			Sweet bay	*Magnolia virginiana*	Willow oak	*Quercus phellos*
			Atlantic white-cedar	*Chamaecyparis thyoides*	Sweet bay	*Magnolia virginiana*
			Loblolly bay	*Gordonia lasianthus*	Water hickory	*Carya aquatica*
					Atlantic white-cedar	*Chamaecyparis thyoides*

* aka *Vaccinium formosum*

Figures

Figures



Prepared For:

Ecosystem Enhancement Program

2,000 1,000 0 2,000 4,000 Feet

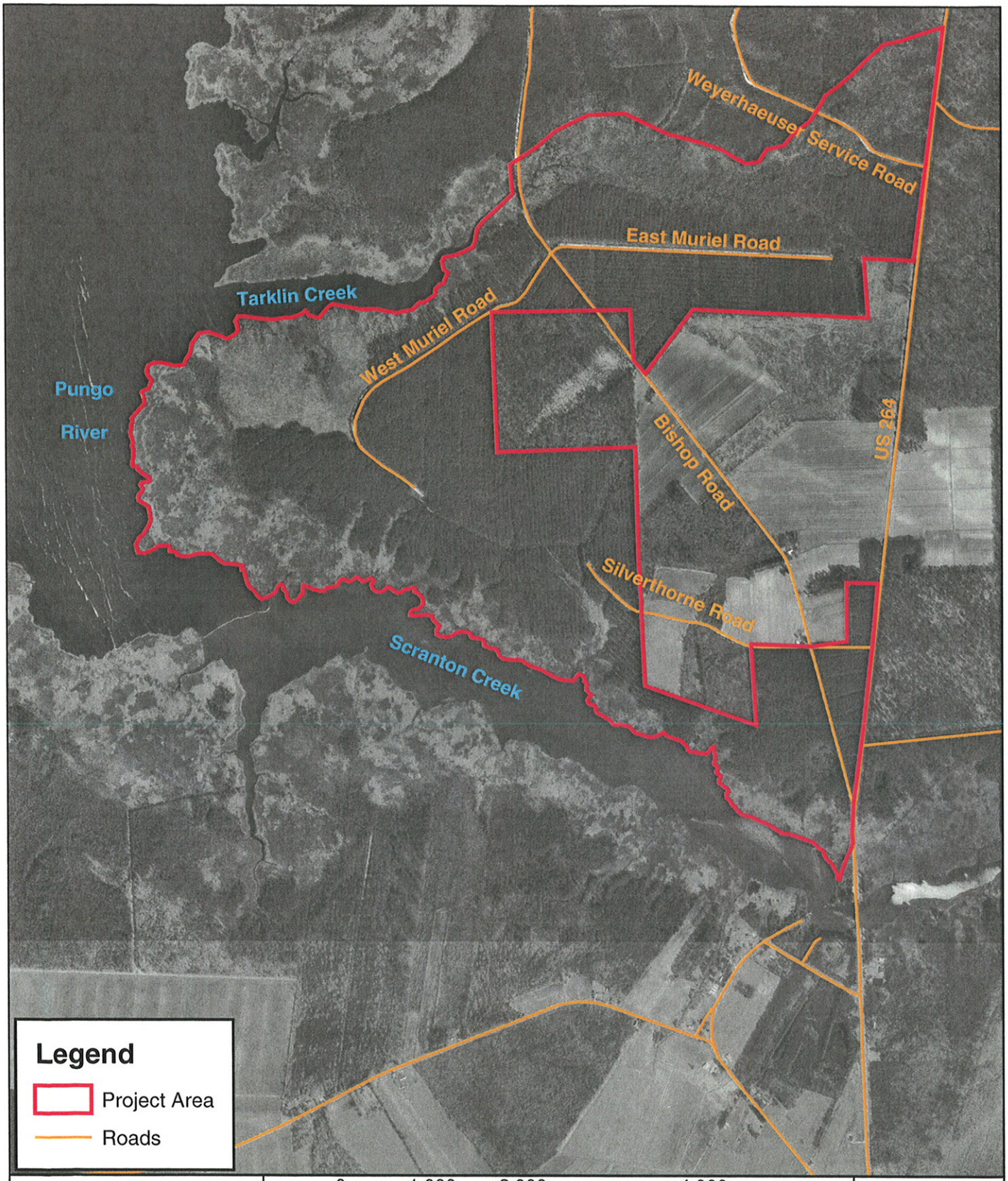
0 0.25 0.5 1 Miles

SCALE: 1:24,000

N W E S

PROJECT SITE VICINITY MAP
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA

Figure No.
1



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Ecosystem Enhancement Program

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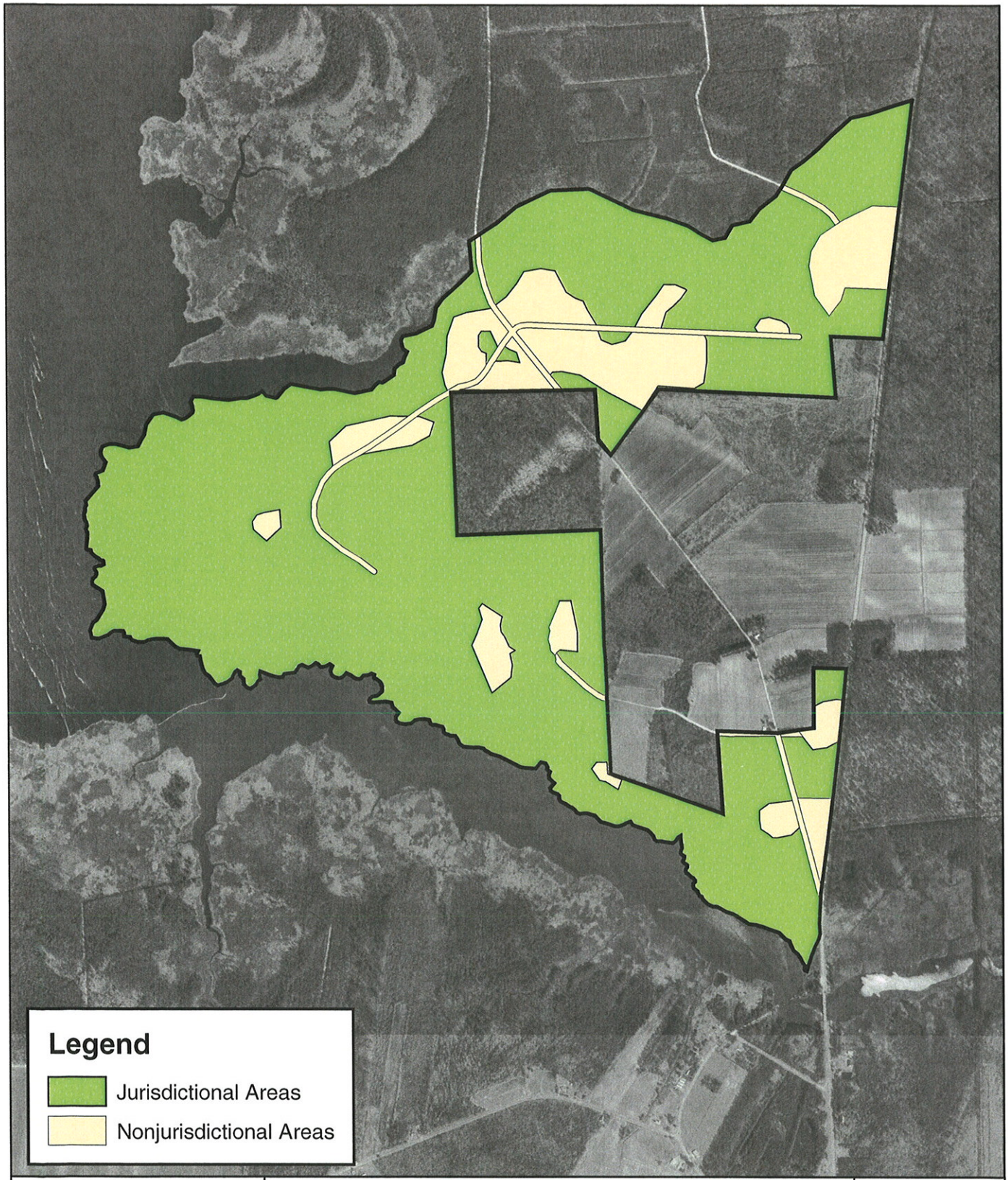
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE AERIAL VICINITY MAP
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
2



Prepared For:

Ecosystem Enhancement Program

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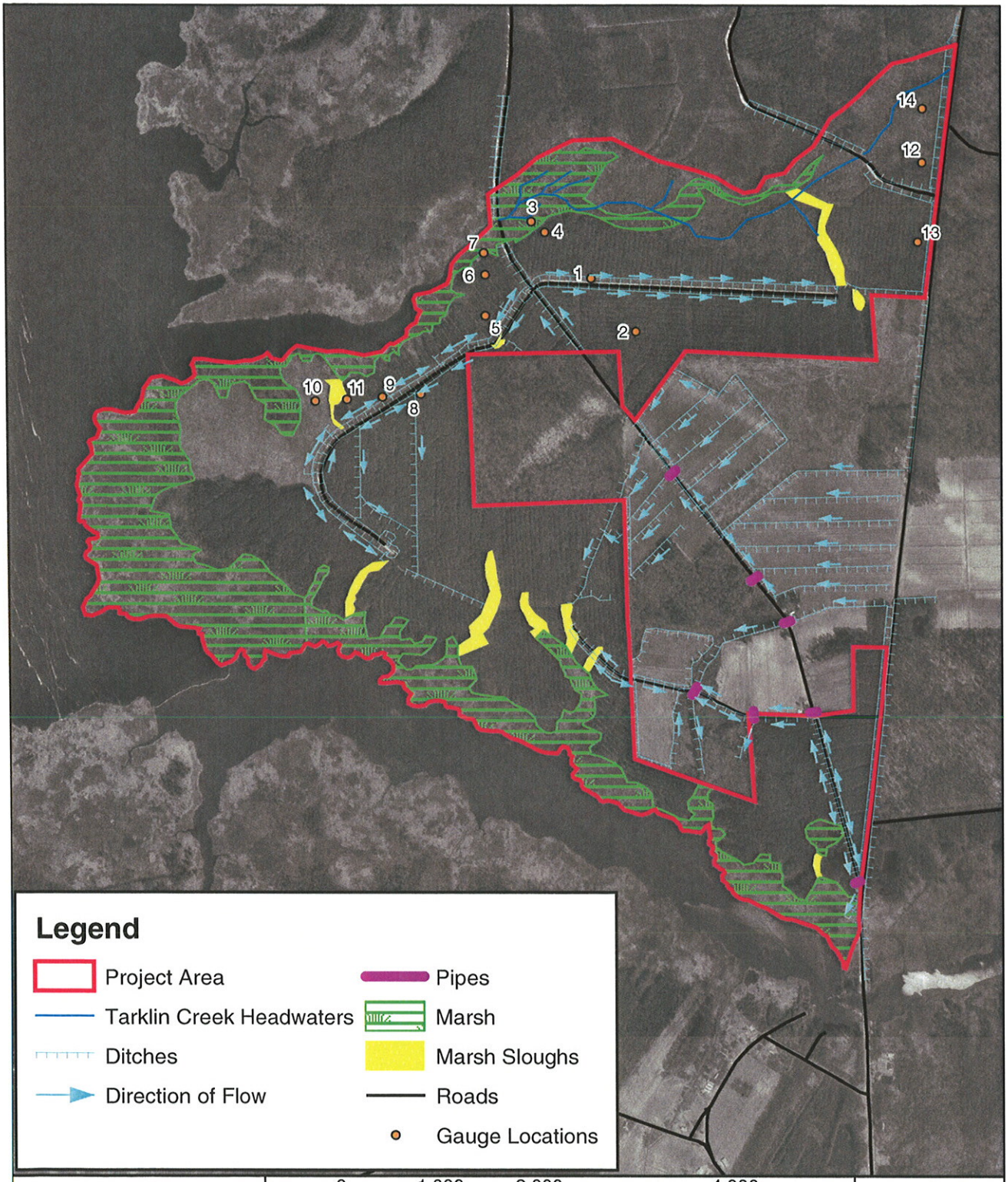
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE WETLAND DELINEATION MAP
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
3



Prepared For:

Ecosystem Enhancement Program

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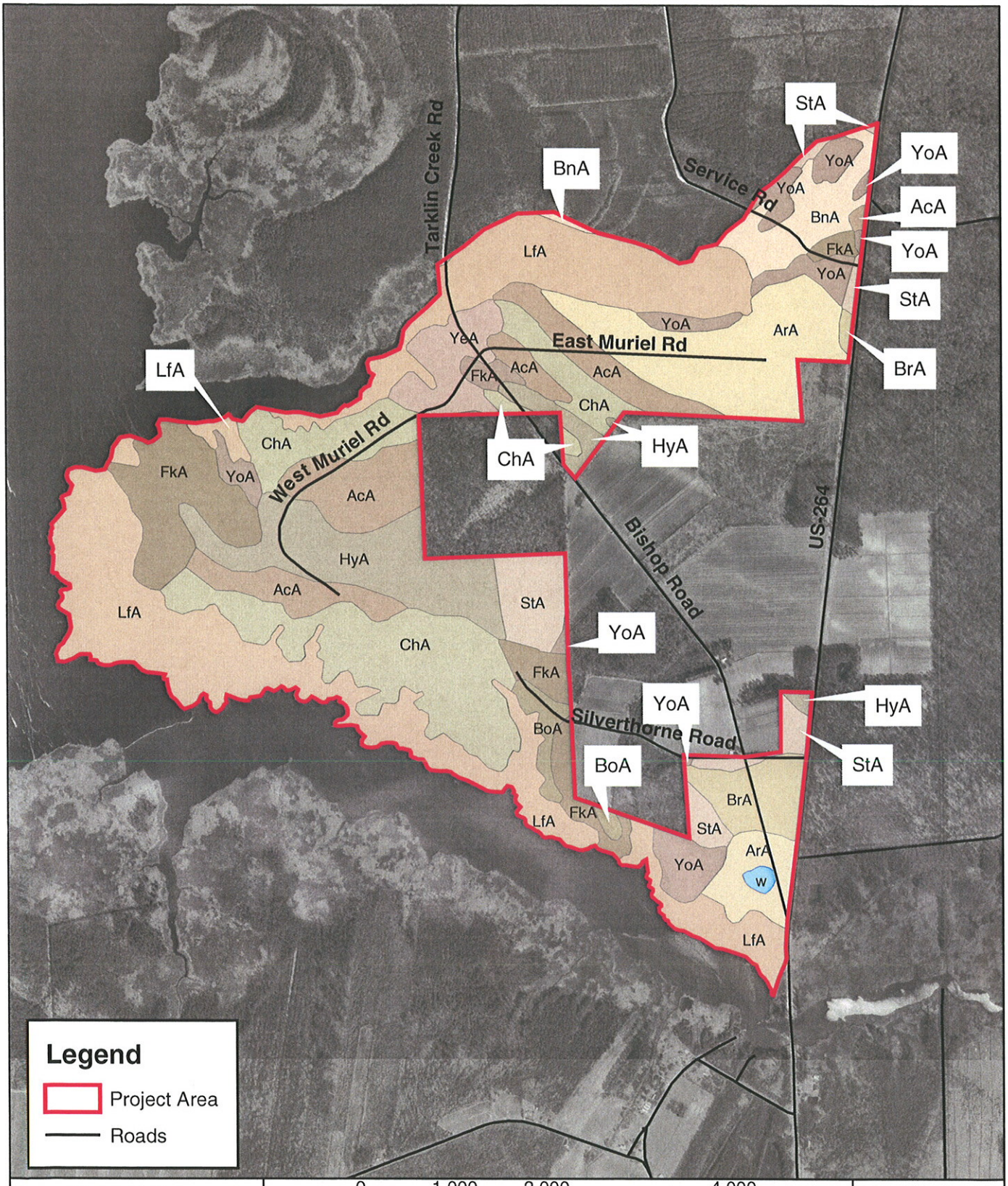
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE HYDROLOGICAL FEATURES MAP
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
4



Prepared For:

Ecosystem Enhancement Program

0 1,000 2,000 4,000 Feet

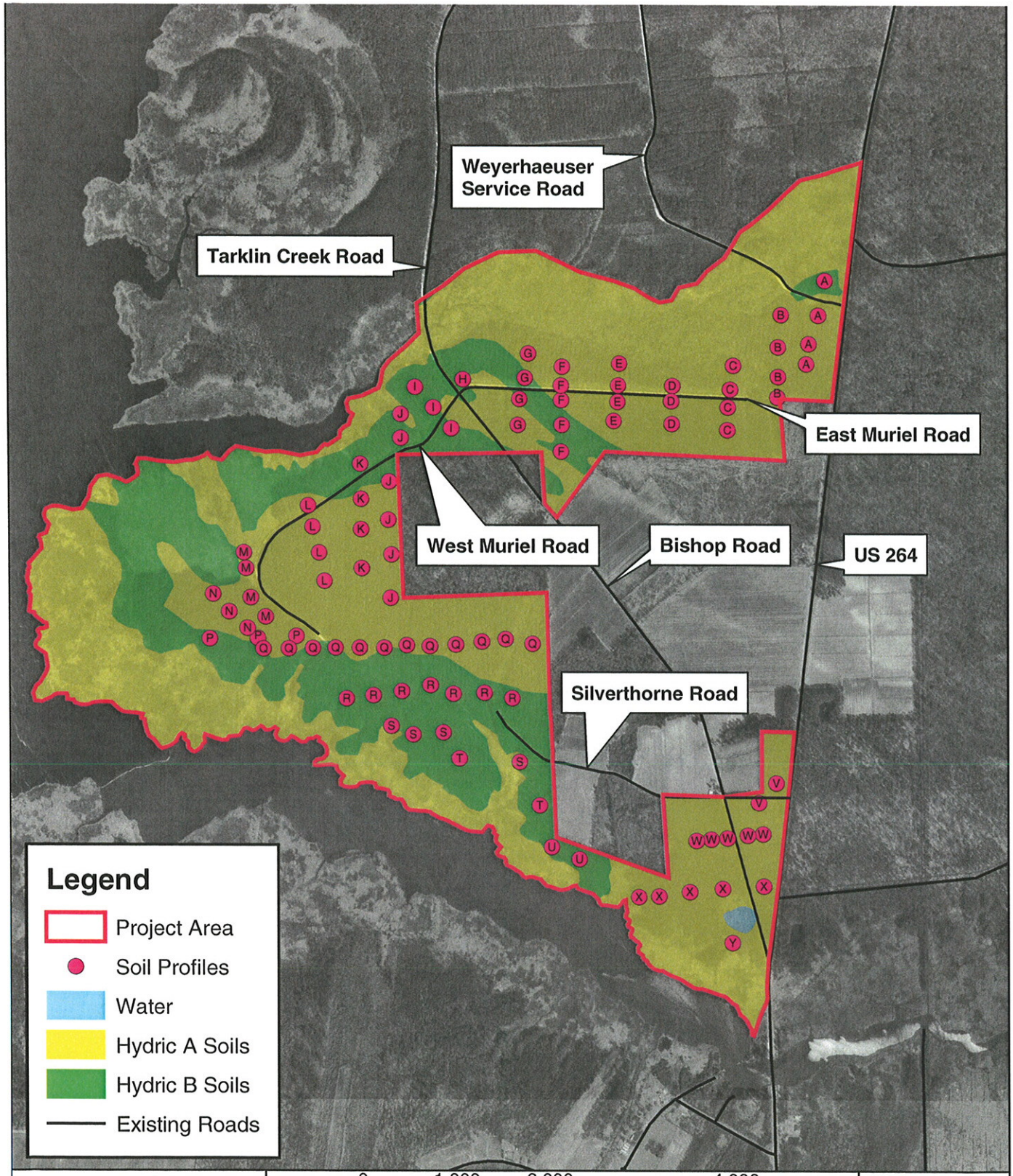
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE NRCS SOIL SURVEY MAP
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
5



Prepared For:

Ecosystem Enhancement Program

0 1,000 2,000 4,000 Feet

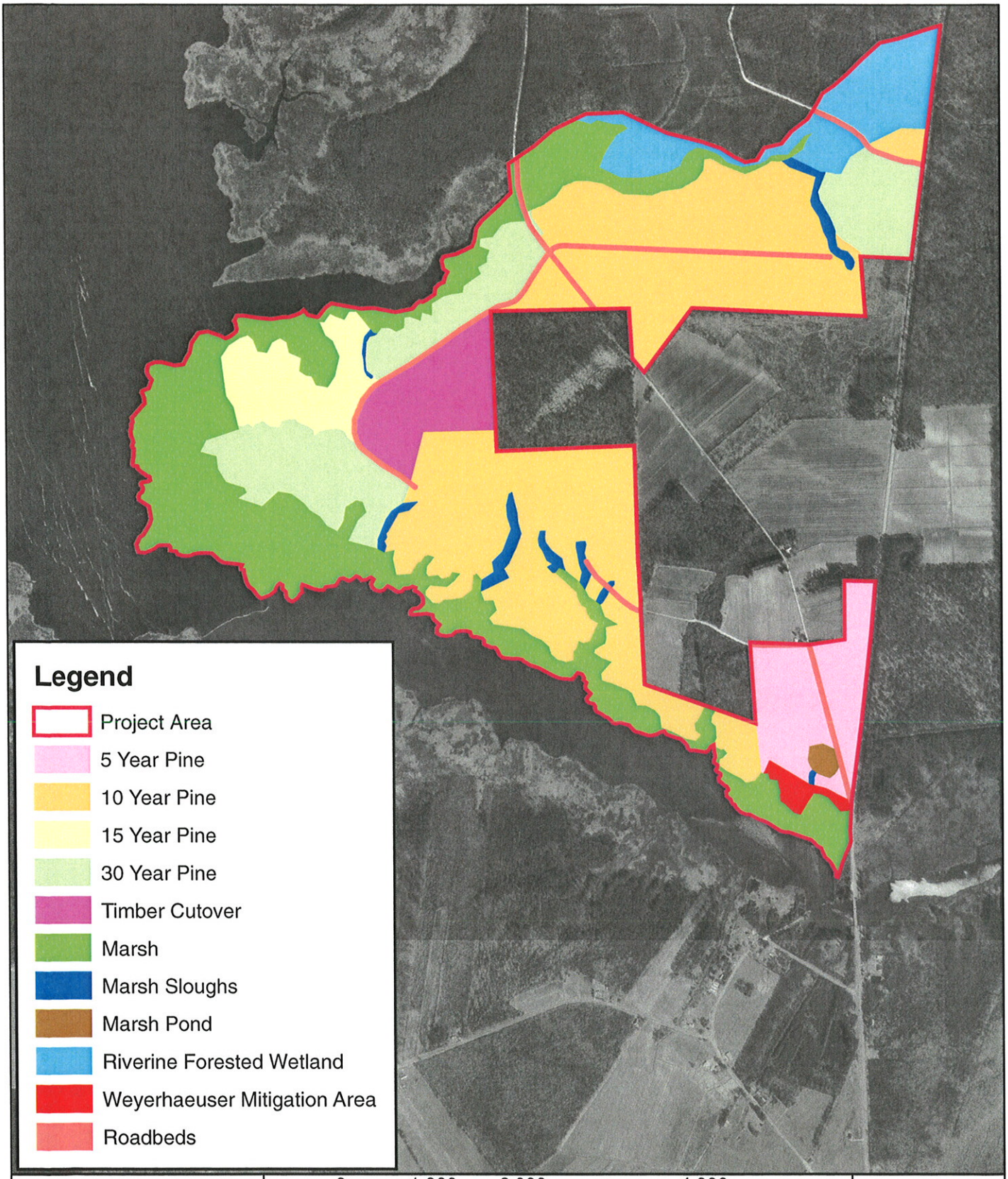
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE SOIL PROFILE LOCATIONS
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
6



Prepared For:

Ecosystem Enhancement Program

0 1,000 2,000 4,000 Feet

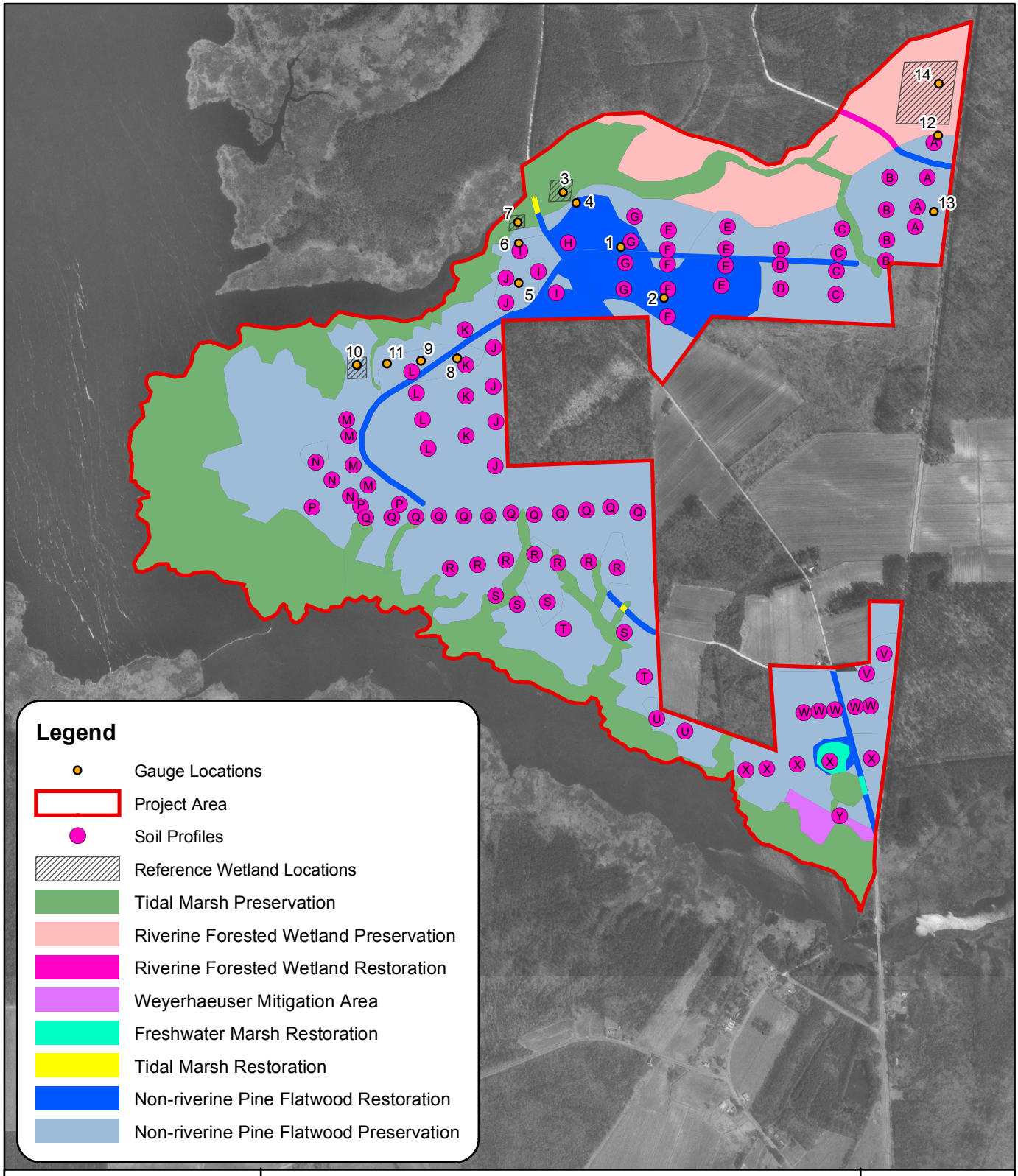
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE VEGETATIVE COMMUNITIES
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
7



Prepared For:

Ecosystem Enhancement Program

0 1,000 2,000 4,000 Feet

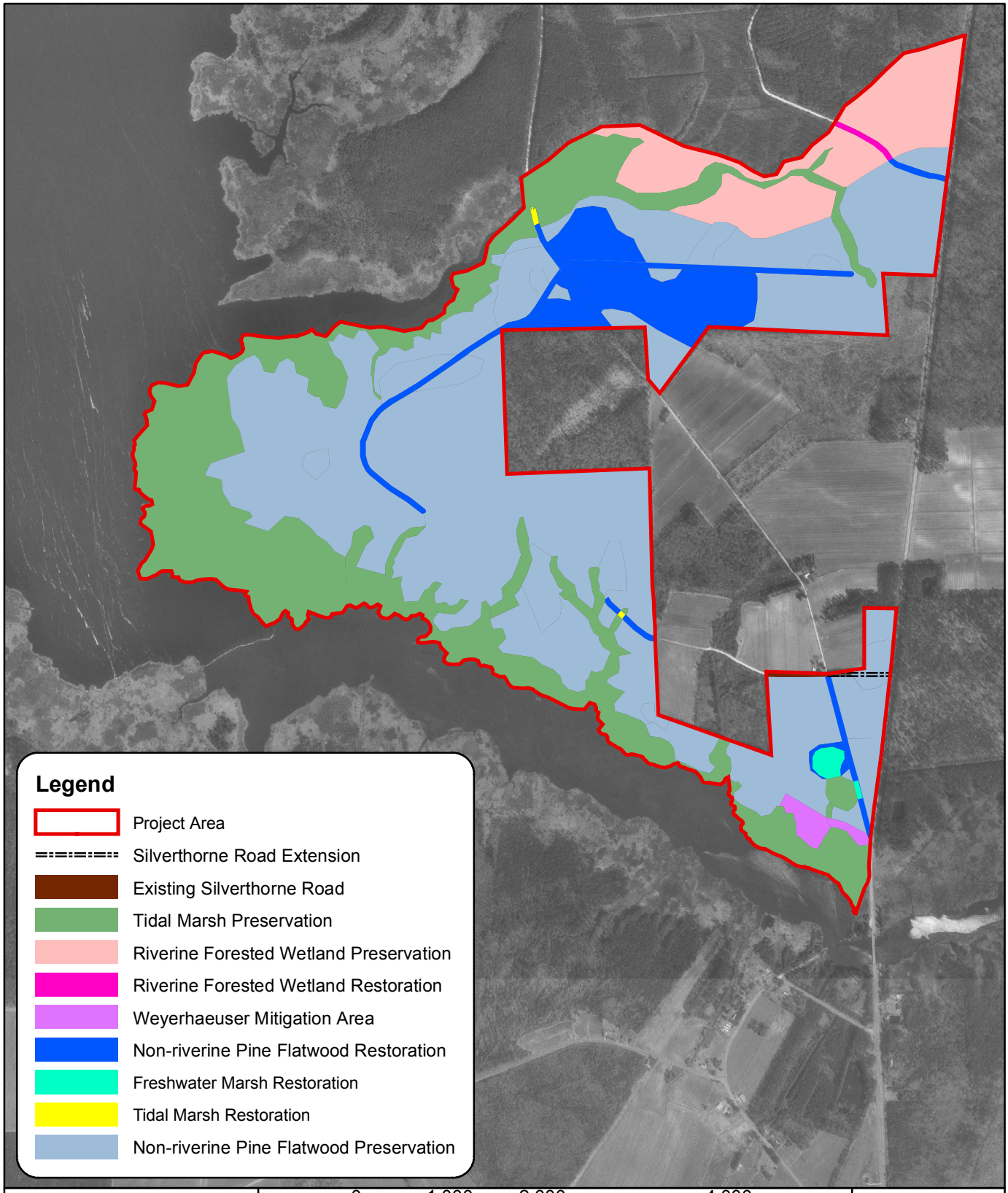
0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

REFERENCE WETLANDS WITH
GAUGE AND SOIL PROFILE LOCATIONS
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
8



Prepared For:

Ecosystem Enhancement Program

0 1,000 2,000 4,000 Feet

0 0.25 0.5 1 Miles

SCALE: 1:18,000

N W E S

PROJECT SITE CONCEPTUAL PLAN
Bishop Road Wetland Mitigation Site
HYDE COUNTY, NORTH CAROLINA
Image: 1993 USGS DOQQ

Figure No.
9

Appendix A

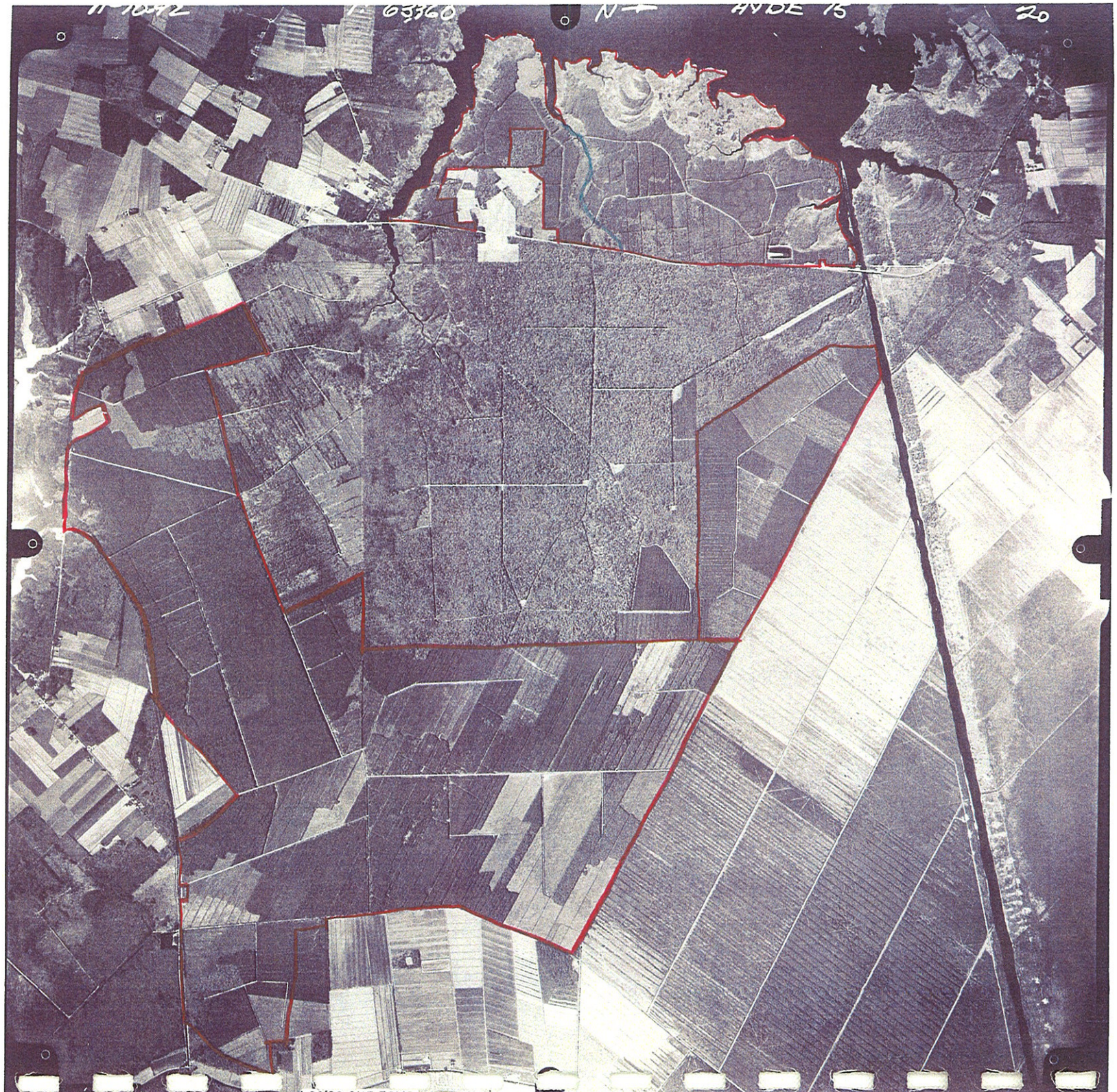
Aerial Photographs – 1958, 1960, 1992, 1997, and 2001

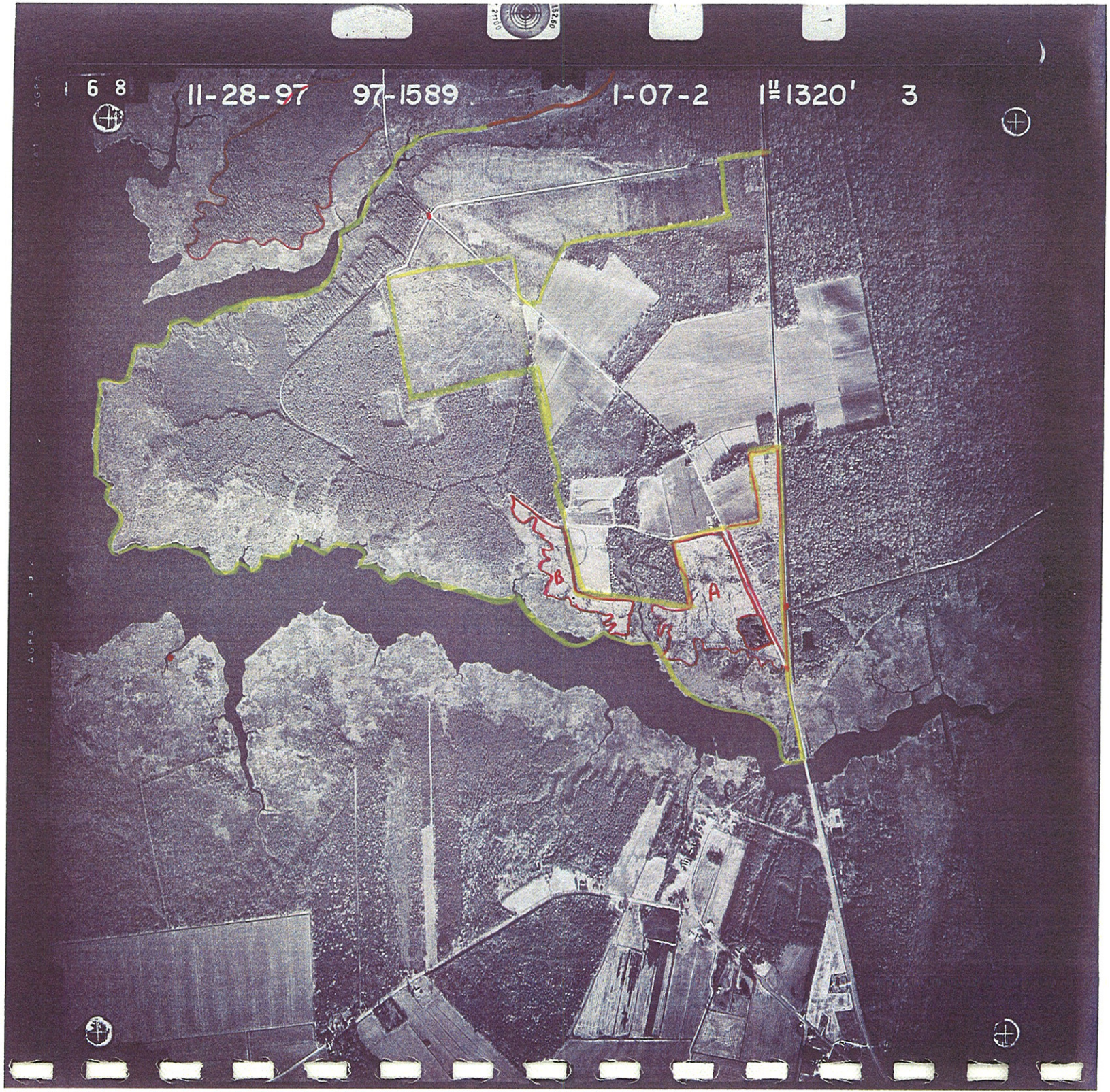
Appendix A

Aerial Photographs – 1958, 1960, 1992, 1997, and 2001


4
cut
cut
U 4-6 51-1J-58 18 6 3,4


U 4-6 51-1J-60 18 6 4




6 8
11-28-97
97-1589
1-07-2
1"=1320'
3
B
A

AERIAL EXPERTS

WEYERHAEUSER / NC TIMBERLANDS

TRACT : HYDE-6

SCALE : 1" = 1320'

DATE : 03-17-01

SPOT # 10

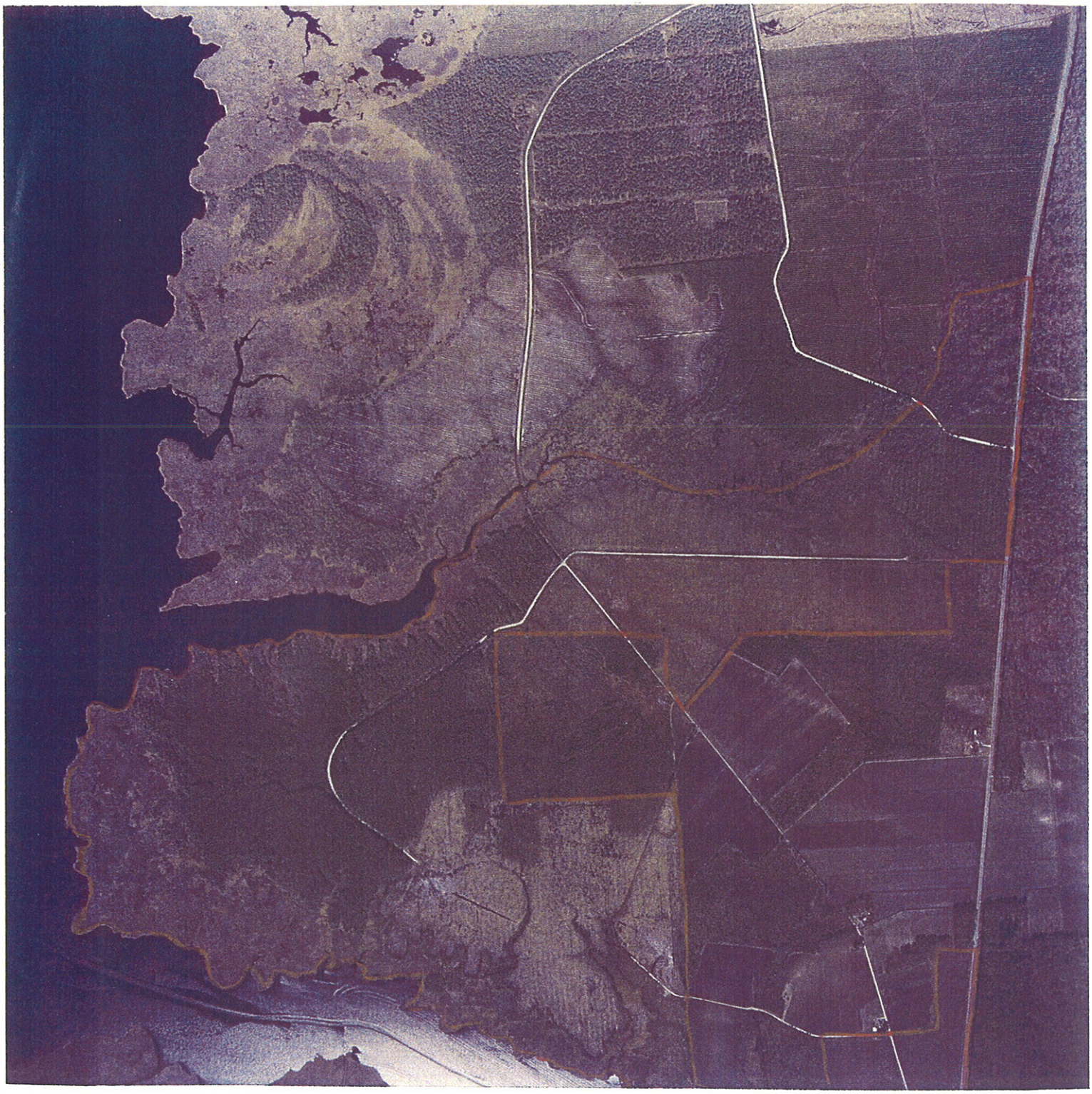
MAP NO. I-07-02

JOB # 2754

R1F6

NORTH

585 VALLEY VIEW ROAD PELHAM, AL 35124 205.987.1771



Appendix B

Environmental Data Resources, Inc., Report

Appendix B

Environmental Data Resources, Inc.,
Report

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

SR 1156(BISHOP ROAD)AT US 264
SCRANTON, NC 27875

COORDINATES

Latitude (North):	35.511400 - 35° 30' 41.0''
Longitude (West):	76.456300 - 76° 27' 22.7''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	367934.5
UTM Y (Meters):	3930533.8

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	2435076-E4 PONZER, NC
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL ---- National Priority List
Proposed NPL ---- Proposed National Priority List Sites
CERCLIS ---- Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ---- CERCLIS No Further Remedial Action Planned
CORRACTS ---- Corrective Action Report
RCRIS-TSD ---- Resource Conservation and Recovery Information System
RCRIS-LQG ---- Resource Conservation and Recovery Information System
RCRIS-SQG ---- Resource Conservation and Recovery Information System
ERNS ---- Emergency Response Notification System

STATE ASTM STANDARD

SHWS ---- Inactive Hazardous Sites Inventory
SWF/LF ---- List of Solid Waste Facilities
LUST ---- Incidents Management Database
UST ---- Petroleum Underground Storage Tank Database

EXECUTIVE SUMMARY

FEDERAL ASTM SUPPLEMENTAL

CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
Delisted NPL	National Priority List Deletions
FINDS	Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS	Hazardous Materials Information Reporting System
MLTS	Material Licensing Tracking System
MINES	Mines Master Index File
NPL Liens	Federal Superfund Liens
PADS	PCB Activity Database System
RAATS	RCRA Administrative Action Tracking System
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

NC HSDS	Hazardous Substance Disposal Site
IMD	Incident Management Database

EDR PROPRIETARY DATABASES

Coal Gas	Former Manufactured Gas (Coal Gas) Sites

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:
There were no unmapped sites in this report.

OVERVIEW MAP - 0619588.1r - ARCADIS Geraghty & Miller

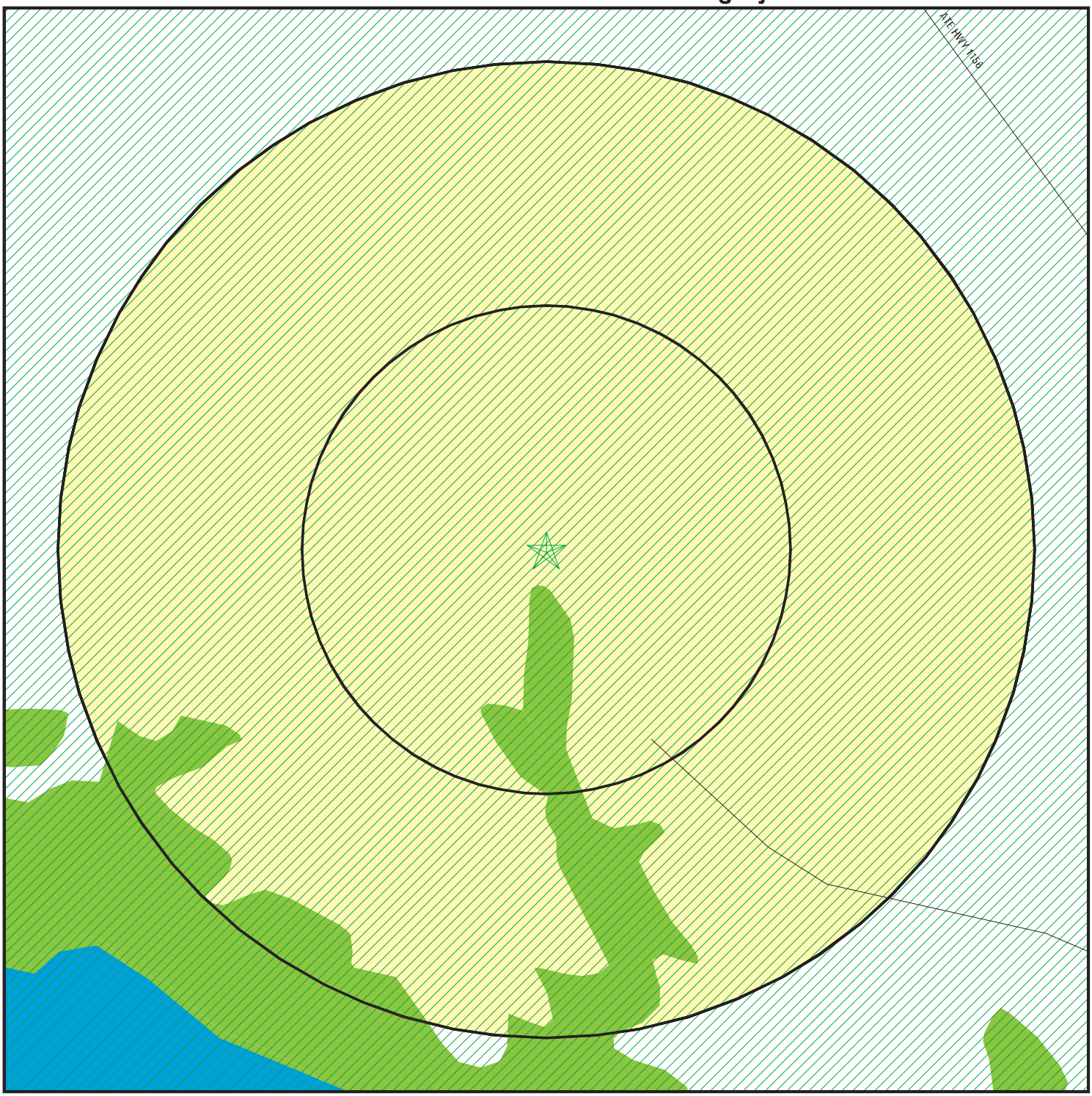
0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Wetlands
- Hazardous Substance Disposal Sites

N

TARGET PROPERTY:	Bishop Road Weyerhaeuser Site	CUSTOMER:	ARCADIS Geraghty & Miller
ADDRESS:	SR 1156(Bishop Road)at US 264	CONTACT:	Cindy Carr
CITY/STATE/ZIP:	Scranton NC 27875	INQUIRY #:	0619588.1r
LAT/LONG:	35.5114 / 76.4563	DATE:	April 13, 2001 2:03 pm

DETAIL MAP - 0619588.1r - ARCADIS Geraghty & Miller



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Wetlands
- Hazardous Substance Disposal Sites

0 1/16 1/8 1/4 Miles

N

TARGET PROPERTY:	Bishop Road Weyerhaeuser Site	CUSTOMER:	ARCADIS Geraghty & Miller
ADDRESS:	SR 1156(Bishop Road)at US 264	CONTACT:	Cindy Carr
CITY/STATE/ZIP:	Scranton NC 27875	INQUIRY #:	0619588.1r
LAT/LONG:	35.5114 / 76.4563	DATE:	April 13, 2001 2:03 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
State Haz. Waste		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
NC HSDS		1.000	0	0	0	0	NR	0
IMD		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

NO SITES FOUND

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
		NO SITES FOUND				

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 01/23/01
Date Made Active at EDR: 02/16/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 02/05/01
Elapsed ASTM days: 11
Date of Last EDR Contact: 02/05/01

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 01/23/01
Date Made Active at EDR: 02/16/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 02/05/01
Elapsed ASTM days: 11
Date of Last EDR Contact: 02/05/01

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/28/00
Date Made Active at EDR: 02/28/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 12/29/00
Elapsed ASTM days: 61
Date of Last EDR Contact: 03/26/01

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 12/28/00
Date Made Active at EDR: 02/28/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 12/29/00
Elapsed ASTM days: 61
Date of Last EDR Contact: 03/26/01

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 04/20/00
Date Made Active at EDR: 08/01/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/12/00
Elapsed ASTM days: 50
Date of Last EDR Contact: 03/14/01

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 06/21/00
Date Made Active at EDR: 07/31/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 07/10/00
Elapsed ASTM days: 21
Date of Last EDR Contact: 01/30/01

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 08/08/00
Date Made Active at EDR: 09/06/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 08/11/00
Elapsed ASTM days: 26
Date of Last EDR Contact: 02/02/01

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/97
Database Release Frequency: Biennially
Date of Last EDR Contact: 03/19/01
Date of Next Scheduled EDR Contact: 06/18/01

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies
Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/30/99
Database Release Frequency: Annually
Date of Last EDR Contact: 01/09/01
Date of Next Scheduled EDR Contact: 04/09/01

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/23/01
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 02/05/01
Date of Next Scheduled EDR Contact: 05/07/01

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/07/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/09/01
Date of Next Scheduled EDR Contact: 04/09/01

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 05/31/00
Database Release Frequency: Annually
Date of Last EDR Contact: 01/23/01
Date of Next Scheduled EDR Contact: 04/23/01

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/30/01
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/09/01
Date of Next Scheduled EDR Contact: 04/09/01

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/01/98
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 01/02/01
Date of Next Scheduled EDR Contact: 04/02/01

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 02/20/01
Date of Next Scheduled EDR Contact: 05/21/01

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/01/00
Database Release Frequency: Annually
Date of Last EDR Contact: 02/12/01
Date of Next Scheduled EDR Contact: 05/14/01

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/13/01
Date of Next Scheduled EDR Contact: 06/11/01

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/97
Database Release Frequency: Annually
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 03/30/01
Date of Next Scheduled EDR Contact: 06/12/01

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-564-2501
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-564-2501

Date of Government Version: 08/10/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

STATE OF NORTH CAROLINA ASTM STANDARD RECORDS

SHWS: Inactive Hazardous Sites Inventory
Source: Department of Environment, Health and Natural Resources
Telephone: 919-733-2801
State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 01/05/01
Date Made Active at EDR: 02/12/01
Database Release Frequency: Annually
Date of Data Arrival at EDR: 01/16/01
Elapsed ASTM days: 27
Date of Last EDR Contact: 01/16/01

SWF/LF: List of Solid Waste Facilities
Source: Department of Environment, Health and Natural Resources
Telephone: 919-733-0692
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/02/01
Date Made Active at EDR: 02/28/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 01/30/01
Elapsed ASTM days: 29
Date of Last EDR Contact: 01/30/01

LUST: Incidents Management Database
Source: Department of Environment, Health and Natural Resources
Telephone: 919-733-1315
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 01/25/01
Date Made Active at EDR: 02/28/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 01/29/01
Elapsed ASTM days: 30
Date of Last EDR Contact: 01/29/01

UST: Petroleum Underground Storage Tank Database
Source: Department of Environment, Health and Natural Resources
Telephone: 919-733-1308
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 11/09/00
Date Made Active at EDR: 01/15/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 12/08/00
Elapsed ASTM days: 38
Date of Last EDR Contact: 03/12/01

STATE OF NORTH CAROLINA ASTM SUPPLEMENTAL RECORDS

HSDS: Hazardous Substance Disposal Site
Source: North Carolina Center for Geographic Information and Analysis
Telephone: 919-733-2090
Locations of uncontrolled and unregulated hazardous waste sites. The file includes sites on the National Priority List as well as those on the state priority list.

Date of Government Version: 06/21/95
Database Release Frequency: Biennially
Date of Last EDR Contact: 03/05/01
Date of Next Scheduled EDR Contact: 06/04/01

IMD: Incident Management Database
Source: Department of Health and Natural Resources
Telephone: 919-733-1315

Date of Government Version: 01/25/01
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/29/01
Date of Next Scheduled EDR Contact: 04/30/01

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR PROPRIETARY DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

The EDR Radius Map™ Report

Bishop Road Weyerhaeuser Site
SR 1156(Bishop Road)at US 264
Scranton, NC 27875

Inquiry Number: 0619588.1r

April 13, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-HOW

Appendix C

Transaction Screening Questionnaire

Appendix C

Transaction Screening Questionnaire

ARCADIS G&M of North Carolina, Inc.
Raleigh, North Carolina

Environmental Compliance Executive Summary

Job No: NC601023.0000
Site ID: Weyerhaeuser Site "H-6"

Location: Bishop Road (SR 1156)
Hyde County, North Carolina

Date: 04/17/01
Name of Owner: Weyerhaeuser Corporation
Contact: Bryant Hardison, RLS, Acquisition Forester
Name of Occupant (if different):

Transaction Screen Questionnaire Comments:

- All Transaction Screen questions were answered "NO."
- Limited amounts of illegally dumped trash were observed along Muriel and Silverthorne Roads. The items consisted of domestic and construction-related debris.

Recommendations:

- ARCADIS G&M of North Carolina, Inc. recommends no further inquiry regarding this property and its purchase by North Carolina Department of Transportation for mitigation purposes.

ARCADIS G&M of North Carolina, Inc.
Raleigh, North Carolina

Transaction Screen Questionnaire

Job No: NC601023.0000
Site ID: Weyerhaeuser Site "H-6"

Location: Bishop Road (SR 1156)
Hyde County, North Carolina

Date: 04/17/01
Name of Owner: Weyerhaeuser Corporation
Contact: Bryant Hardison, RLS, Acquisition Forester
Name of Occupant (if different):

Question	Owner	Occupants (if applicable)	Observed During Site Visit
1a. Is the property used for industrial use?	NO		NO
1b. Is any adjoining property used for an industrial use?	NO		NO
2a. Did you observe evidence or do you have any prior knowledge that the property has been used for an industrial use in the past?	NO		NO
2b. Did you observe evidence or do you have any prior knowledge that the adjoining property has been used for an industrial use in the past?	NO		NO
3a. Is the property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	NO		NO
3b. Is the adjoining property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	NO		NO
4a. Did you observe evidence or do you have any prior knowledge that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	NO		NO
4b. Did you observe evidence or do you have any prior knowledge that the adjoining property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	NO		NO
5a. Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on, or used at the property or facility?	NO		NO
5b. Did you observe evidence or do you have any prior knowledge that there have been previously, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of >5 gal (19 L) in volume or 50 gal (190 L) in the aggregate, stored on, or used at the property or facility?	NO		NO
6a. Are there currently any industrial drums (typically 55 gal (208 L)) or sacks of chemicals located on the property or at the facility?	NO		NO
6b. Did you observe evidence or do you have any prior knowledge that there have been previously, any industrial drums (typically 55 gal (208 L)) or sacks of chemicals located on the property or at the facility?	NO		NO
7a. Did you observe evidence or do you have any prior knowledge that fill dirt has been brought onto the property that originated from a contaminated site?	NO		NO
7b. Did you observe evidence or do you have any prior knowledge that fill dirt has been brought onto the property that is of unknown origin?	NO		NO
8a. Are there currently any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal?	NO		NO
8b. Did you observe evidence or do you have any prior knowledge that there have been previously, any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal?	NO		NO
9a. Is there currently any stained soil on the property?	NO		NO
9b. Did you observe evidence or do you have any prior knowledge that there have been previously, any stained soil on the property?	NO		NO
10a. Are there currently any registered or unregistered storage tanks (above or underground) located on the property?	NO		YES

Transaction Screen Questionnaire

Job No: NC601023.0000
Site ID: Weyerhaeuser Site "H-6"

Location: Bishop Road (SR 1156)
Hyde County, North Carolina

Date: 04/17/01
Name of Owner: Weyerhaeuser Corporation
Contact: Bryant Hardison, RLS, Acquisition Forester
Name of Occupant (if different):

Question	Owner	Occupants (if applicable)	Observed During Site Visit
10b. Did you observe evidence or do you have any prior knowledge that there have been previously, any registered or unregistered storage tanks (above or underground) located on the property?	NO		NO
11a. Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe a fill pipe protruding from the ground on the property or adjacent to any structure located on the property?	NO		NO
11b. Did you observe evidence or do you have any prior knowledge that there have been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground or adjacent to any structure located on the property?	NO		NO
12a. Are there currently any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?	NO		NO
12b. Did you observe evidence or do you have any prior knowledge that there have been previously, any flooring, drains, or walls located within the facility that were stained by substances other than water or were emitting foul odors?	NO		NO
13a. If the property is served by a private well or non-public water system, is there evidence or do you have any prior knowledge that contaminants have been identified in the well or system that exceeded guidelines applicable to the water system?	NO		NO
13b. If the property is served by a private well or non-public water system, is there evidence or do you have any prior knowledge that the well has been designated as contaminated by any government environmental/health agency?	NO		NO
14. Does the owner or occupant of the property have any knowledge of environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?	NO		
15a. Has the owner or occupant of the property been informed of the past existence of hazardous substances or petroleum products with respect to the property or any facility located on the property?	NO		
15b. Has the owner or occupant of the property been informed of the current existence of hazardous substances or petroleum products with respect to the property or any facility located on the property?	NO		
15c. Has the owner or occupant of the property been informed of the past existence of environmental violations with respect to the property or any facility located on the property?	NO		
15d. Has the owner or occupant of the property been informed of the current existence of environmental violations with respect to the property or any facility located on the property?	NO		
16. Does the owner or occupant of the property have any knowledge of any environmental site assessment of the property or facility that indicated the presence of hazardous substances or petroleum products on, or contamination of, the property or recommended further assessment of the property?	NO		
17. Does the owner or occupant of the property know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property?	NO		
18a. Does the property discharge waste water, on or adjacent to the property, other than storm water, into a stormwater sewer system?	NO		NO
18b. Does the adjoining property discharge waste water, on or adjacent to the property, other than storm water, into a sanitary sewer system?	NO		NO
19. Did you observe evidence or do you have any prior knowledge that any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials have been dumped above grade, buried and/or burned on the property?	NO		NO

Transaction Screen Questionnaire

Job No: NC601023.0000
Site ID: Weyerhaeuser Site "H-6"

Location: Bishop Road (SR 1156)
Hyde County, North Carolina

Date: 04/17/01
Name of Owner: Weyerhaeuser Corporation
Contact: Bryant Hardison, RLS, Acquisition Forester
Name of Occupant (if different):

Question	Owner	Occupants (if applicable)	Observed During Site Visit
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	NO		NO

Government Records/Historical Sources Inquiry

21. Do any of the following Federal government record systems list the property or any property within the circumference of the area noted below:

National Priorities List - within 1.0 mile (1.6 km)	NO
CERCLIS List - within 0.5 mile (0.8 km)	NO
RCRA CORRACTS Facilities - within 1.0 mile (1.6 km)	NO
RCRA non-CORRACTS TSD Facilities - within 0.5 mile (0.8 km)	NO

22. Do any of the following state record systems list the property or any property within the circumference of the area noted below:

List maintained by state governmental agency of hazardous waste sites identified for investigation or remediation that is the state agency equivalent to NPL - within approximately 1.0 mile (1.6 km)	NO
List maintained by state governmental agency of sites identified for investigation or remediation that is the state equivalent to CERCLIS - within 0.5 mile (0.8 km)	NO
Leaking Underground Storage Tank (LUST) List - within 0.5 mile (0.8 km)	NO
Solid Waste/Landfill Facilities - within 0.5 mile (0.8 km)	NO

23. Based upon a review of fire insurance maps or consultation with the local fire department serving the property, all as specified in ASTM standards (E 1528-00), are any buildings or other improvements on the property or on an adjoining property identified as having been used for an industrial use or uses likely to lead to contamination of the property? NO

The preparer of this questionnaire must complete and sign the following statements. (For definition of "preparer" and "user" see 5.3 or 3.3.25.)

The questionnaire was completed by:

Name	Lane Sauls
Title	Senior Scientist
Firm	ARCADIS G&M of North Carolina, Inc.
Address	2301 Rexwoods Drive, Suite 102 Raleigh, North Carolina 27607
Phone Number	(919) 782-5511
Date	04/17/01

If the preparer is different than the user, complete the following:

Name of User	N.C. Dept. of Transportation
User's Address	1548 Mail Service Center Raleigh, North Carolina 27699-1548
User's Phone Number	(919) 733-3141
Preparer's relationship to site	Scientist
Preparer's relationship to user	Consultant

The preparer presents to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

_____ Signature

_____ Date

References:
Environmental Data Resources, Inc., Inquiry Number: 0619588.1r

Appendix D

U.S. Army Corps of Engineers
Routine Wetland Determination Data
Forms

Appendix D

U.S. Army Corps of Engineers
Routine Wetland Determination Data
Forms

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, MARTHA BREWSTER, HAROLD BRADY, TOM BARRETT*

Date: *11/26/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *10 year old pine*
Transect ID: *A*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Gelsemium sempervirens*	*vine*	*FAC*	9.	*Smilax rotundifolia*	*vine*	*FAC*
2.	*Pteridium aquilinum*	*herb*	*FACU*	10.	*Myrica heterophylla*	*shrub*	*FACW*
3.	*Vaccinium sp.*	*shrub*	*FACW, FACU*	11.			
4.	*Liquidambar styraciflua*	*tree*	*FAC*	12.			
5.	*Rubus sp.*	*shrub*	*FAC-, FACW*	13.			
6.	*Osmunda regalis*	*herb*	*OBL*	14.			
7.	*Quercus laurifolia*	*tree*	*FACW*	15.			
8.	*Smilax bona-nox*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No indicators were observed*

SOILS

Map Unit Name (Series and Phase): *Fork fine sandy loam*

Drainage Class: *somewhat poorly*

Taxonomy (Subgroup) *Aeric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*Oi*				*organic*
3-6"	*A*	*10 YR 3/1*	*10 YR 6/2*	*few, coarse, faint*	*granular, friable, sandyloam*
6-20"	*B1*	*2.5 Y 6/4*	*2.5 Y 6/8*	*few, coarse, faint*	*granular, friable, sandyloam*
20+	*B2*	*2.5 Y 6/4*	*7.5 YR 5/8*	*few, fine, distinct*	*friable, nonsticky, sandyloam*
			10 YR 7/1	*few, coarse, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Fork is a Hydric B soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/26/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *A*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Liquidambar styraciflua*	*tree*	*FAC*	9.	*Quercus nigra*	*tree*	*FAC*
2.	*Acer rubrum*	*tree*	*FAC*	10.			
3.	*Symplocos tinctoria*	*shrub*	*FAC*	11.			
4.	*Ilex opaca*	*shrub*	*FAC-*	12.			
5.	*Vaccinium stamineum*	*shrub*	*FACU*	13.			
6.	*Smilax smallii*	*vine*	*FACU*	14.			
7.	*Gelsemium sempervirens*	*vine*	*FAC*	15.			
8.	*Myrica heterophylla*	*shrub*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators.*

SOILS

Map Unit Name (Series and Phase): *Yonges loam*

Drainage Class: *poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*OA*				*organic duff*
2-6"	*A*	*10 YR 3/1*			*sandy loam, friable, granular*
6-18"	*Btg1*	*10 YR 7/1*	*10 YR 6/6*	*few, medium, faint*	*sandy loam, friable, granular*
18+	*Btg2*	*5 YR 7/2*	*7.5 YR 7/6*	*common, medium, distinct*	*sandy clay, slightly sticky*
			2.5 YR 8/2	*many, coarse, prominent*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, MARTHA BREWSTER, HAROLD BRADY, TOM BARRETT*

Date: *11/26/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** / No
Is the site significantly disturbed (Atypical Situation)? Yes / **No**
Is this area a potential Problem Area? Yes / **No**
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *A*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Liquidambar syraciflua*	*tree*	*FAC*	9.			
2.	*Quercus nigra*	*tree*	*FAC*	10.			
3.	*Smilax rotundifolia*	*vine*	*FAC*	11.			
4.	*Ilex opaca*	*shrub*	*FAC-*	12.			
5.	*Vitis rotundifolia*	*vine*	*FAC*	13.			
6.	*Toxicondendron radicans*	*vine*	*FAC*	14.			
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Vaccinium stamineum*	*shrub*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly or very poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*OA*				*organic*
2-8"	*A*	*10 YR 3/1*			*sandy loam, friable, granular*
8-18"	*B1*	*2.5 Y 6/2*	*2.5 Y 6/6*	*few, medium, distinct*	*sandy loam, friable, granular*
18+	*B2*	*7.5 YR 7/2*	*10 YR 6/6*	*common, medium, distinct*	*sandy clay, slightly sticky*
			5 YR 7/8	*common, medium, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, MARTHA BREWSTER, HAROLD BRADY, TOM BARRETT*

Date: *11/26/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *30 year old pine*
Transect ID: *A*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus nigra*	*tree*	*FAC*	9.	*Ilex opaca*	*shrub*	*FAC-*
2.	*Quercus michauxii*	*tree*	*FACW-*	10.	*Quercus phellos*	*tree*	*FACW-*
3.	*Magnolia virginiana*	*tree*	*FACW*	11.	*Symplocos tinctoria*	*shrub*	*FAC*
4.	*Acer rubrum*	*tree*	*FAC*	12.			
5.	*Pteridium aquilinum*	*herb*	*FACU*	13.			
6.	*Vaccinium stamineum*	*shrub*	*FACU*	14.			
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Smilax rotundifolia*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators 0-13", however two secondary indicators exist.*

SOILS

Map Unit Name
(Series and Phase): *Hydeland silt loam*

Drainage Class: *very poorly*

Field Observations

Taxonomy (Subgroup) *Umbric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-13"	*A*	*10 YR 3/1*	*wavy boundry*		*silt loam, friable, granular*
13-24+	*Btg*	*2.5 YR 5/2*			*sandy loam, friable, granular, fine*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *B*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus rubra*	*tree*	*FACU*	9.	*Ilex opaca*	*shrub*	*FAC-*
2.	*Quercus michuaxii*	*tree*	*FACW-*	10.	*Quercus nigra*	*tree*	*FAC*
3.	*Acer rubrum*	*tree*	*FAC*	11.	*Toxicodendron radicans*	*vine*	*FAC*
4.	*Smilax bona-nox*	*vine*	*FAC*	12.			
5.	*Smilax rotundifolia*	*vine*	*FAC*	13.			
6.	*Chasmanthium laxum*	*herb*	*FACW-*	14.			
7.	*Vaccinium stamineum*	*shrub*	*FACU*	15.			
8.	*Myrica cerifera*	*shrub*	*FAC+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Yonges loam*

Drainage Class: *poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*Oi*				*organic*
1-5"	*A*	*5 YR 4/1*			*silt loam, friable, granular*
5-15"	*B1*	*2.5 Y 7/2*			*silt loam, friable, granular*
15-24+	*B2*	*5 YR 7/1*	*5 YR 5/8*	*common, distinct, medium*	*silty clay, plastic*
			7.5 YR 7/6	*common, distinct, medium*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *No mottling in the B horizon until 15" below the surface. The series description indicates mottling begins at 10".*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine plantation*
Transect ID: *B*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus michauxii*	*tree*	*FACW-*	9.	*Vaccinium stamineum*	*shrub*	*FACU*
2.	*Liquidambar styraciflua*	*tree/shrub*	*FAC*	10.			
3.	*Quercus nigra*	*tree/shrub*	*FAC*	11.			
4.	*Aronia arbutifolia*	*shrub*	*FACW*	12.			
5.	*Pinus taeda*	*tree*	*planted*	13.			
6.	*Smilax rotundifolia*	*vine*	*FAC*	14.			
7.	*Smilax smallii*	*vine*	*FACU*	15.			
8.	*Pteridium aquilinum*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No hydrological indicators were observed.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly or very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*A*	*10 YR 4/1*			*silt loam, friable, nonsticky*
3-8"	*BE*	*10 YR 4/2*			*silt loam, friable*
8-16"	*B1*	*2.5 YR 5/1*	*7.5 YR 5/8*	*few, fine, distinct*	*silt loam, friable*
16-24+	*B2*	*2.5 Y 6/1*	*7.5 YR 5/8*	*few, fine, distinct*	*silt clay loam, slightly sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [X] Yes [ ] No
Is the site significantly disturbed (Atypical Situation)? [ ] Yes [X] No
Is this area a potential Problem Area? [ ] Yes [X] No
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *B*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Liquidambar styraciflua*	*tree*	*FAC*	9.	*Smilax bona-nox*	*vine*	*FAC*
2.	*Acer rubrum*	*tree*	*FAC*	10.	*Ilex opaca*	*shrub*	*FAC-*
3.	*Quercus nigra*	*tree*	*FAC*	11.			
4.	*Gelsemium sempervirens*	*vine*	*FAC*	12.			
5.	*Myrica cerifera*	*shrub*	*FAC+*	13.			
6.	*Vaccinium arboreum*	*shrub*	*FACU*	14.			
7.	*Smilax rotundifolia*	*vine*	*FAC*	15.			
8.	*Quercus michauxii*	*tree*	*FACW-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[ ] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				*organic*
1-5"	*A*	*7.5 YR 4/1*			*silt loam, friable, granular*
5-15"	*B1*	*2.5 Y 7/2*			*silt loam, friable, granular*
15-24+	*B2*	*5 YR 6/1*	*5 YR 5/8*	*common, medium, distinct*	*sandy clay, plastic, sticky, fine*
			7.5 YR 7/6	*common, medium, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *No mottling in the B horizon until 15".*
Argent is classified as a Hydric A soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** / No
Is the site significantly disturbed (Atypical Situation)? Yes / **No**
Is this area a potential Problem Area? Yes / **No**
(If needed, explain on reverse)

Community ID: *Pine plantation*
Transect ID: *B*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus nigra*	*shrub*	*FAC*	9.	*Arundinaria gigantea*	*herb*	*FACW*
2.	*Liquidambar styraciflua*	*shrub/tree*	*FAC*	10.	*Juncus effusus*	*herb*	*FACW+*
3.	*Quercus michauxii*	*tree*	*FACW-*	11.			
4.	*Pinus taeda*	*tree*	*Planted*	12.			
5.	*Simlax smallii*	*vine*	*FACU*	13.			
6.	*Gelsemium sempervirens*	*vine*	*FAC*	14.			
7.	*Pteridium aquilinum*	*herb*	*FACU*	15.			
8.	*Chasmanthium laxum*	*herb*	*FACW-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **n/a** (in.)
Depth to Free Water in Pit: **n/a** (in.)
Depth to Saturated Soil: **n/a** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No hydrologic indicators; however, two secondary indicators are present.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*10 YR 3/1*			*silt loam, friable*
5-15"	*B1*	*10 YR 4/1*	*2.5 Y 7/1*	*common, medium, distinct*	*silt loam, friable, nonsticky*
15-24+	*B2*	*10YR 6/1*	*7.5 YR 5/8*	*common, medium, distinct*	*silty clay loam, firm, sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

			Community ID:	*5 year pine plantation*
Do Normal Circumstances exist on the site?	[X] Yes	[ ] No	Transect ID:	*C*
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No	Plot ID:	*1*
Is this area a potential Problem Area?	[ ] Yes	[X] No		
(If needed, explain on reverse)				

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus phellos*	*shrub*	*FACW-*	9.	*Rubus sp.*	*vine*	*FAC*
2.	*Myrica cerifera*	*shrub*	*FAC+*	10.	*Pinus taeda*	*shrub*	*planted*
3.	*Baccharis halimifolia*	*shrub*	*FAC*	11.			
4.	*Quercus nigra*	*shrub*	*FAC*	12.			
5.	*Liquidambar styraciflua*	*shrub*	*FAC*	13.			
6.	*Dichanthelium consanguineum*	*herb*	*FAC*	14.			
7.	*Juncus effusus*	*herb*	*FACW+*	15.			
8.	*Smilax smallii*	*vine*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators were observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*A*	*10 YR 4/1*			*Silt loam*
4-15"	*Btg1*	*10 YR 5/1*	*10 YR 6/8*	*common, coarse, distinct*	*silt loam, friable, slightly sticky*
15-24+	*Btg2*	*2.5 Y 6/1*	*2.5 Y 6/8*	*common, coarse, distinct*	*silty clay, firm, slightly sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	**Yes**	No
Is the site significantly disturbed (Atypical Situation)?	Yes	**No**
Is this area a potential Problem Area?	Yes	**No**
(If needed, explain on reverse)		

Community ID: *5 year pine plantation*
Transect ID: *C*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.			
2.	*Liquidambar styraciflua*	*shrub*	*FAC*	10.			
3.	*Baccharis halimifolia*	*shrub*	*FAC*	11.			
4.	*Pinus taeda*	*shrub*	*planted*	12.			
5.	*Rubus sp.*	*vine*	*FAC, FACW*	13.			
6.	*Smilax smallii*	*vine*	*FACU*	14.			
7.	*Juncus effusus*	*herb*	*FACW+*	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators were observed.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*A*	*7.5 YR 4/1*			*silt loam*
2-10"	*Btg1*	*2.5 Y 6/2*	*2.5 Y 6/4*	*few, fine, faint*	*silt loam, slightly sticky, friable*
			5 YR 4/6	*common, medium, prominent*	
10-24+	*Bt*	*2.5 Y 6/8*	*10 YR 6/8*	*common, coarse, distinct*	*clay, firm, sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *5 year pine plantation*
Transect ID: *C*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.			
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.			
3.	*Pinus taeda*	*shrub*	*planted*	11.			
4.	*Juncus effusus*	*herb*	*FACW+*	12.			
5.	*Erianthus gigantea*	*herb*	*FACW*	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **20** (in.)
Depth to Saturated Soil: **12** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [X] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [X] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [ ] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*A*	*10 YR 5/2*			*silt loam*
1-12"	*Btg1*	*5 Y 5/1*	*5 YR 5/8*	*common, medium, distinct*	*silty clay loam, slightly sticky, firm*
			5 Y 6/8	*common, medium, faint*	
12-24+	*Btg2*	*2.5 Y 5/1*	*10 YR 6/8*	*common, coarse, distinct*	*silty clay, very firm, sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *5 year pine plantation*
Transect ID: *C*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.			
2.	*Myrica cerifera*	*shrub*	*FAC+*	10.			
3.	*Acer rubrum*	*shrub*	*FAC*	11.			
4.	*Pinus taeda*	*shrub*	*planted*	12.			
5.	*Juncus effusus*	*herb*	*FACW+*	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators were observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*A*	*7.5 Y 3/2*			*silt loam*
1-8"	*Btg1*	*5 YR 4/1*	*7.5 YR 4/3*	*few, fine, faint*	*silt loam, slightly sticky, friable*
8-18"	*Btg2*	*7.5 YR 4/1*	*7.5 YR 4/6*	*few, fine, distinct*	*silt loam, slightly sticky, friable*
18-24+	*Btg3*	*10 YR 5/1*	*2.5 Y 7/1*	*common, coarse, distinct*	*silty clay*
			10 YR 5/8	*common, medium, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *5 year old pine*
Transect ID: *D*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.	*Eupatorium capillifolium*	*herb*	*FACU*
2.	*Myrica heterophylla*	*shrub*	*FACW*	10.	*Erianthus gigantea*	*herb*	*FACW*
3.	*Solidago sp.*	*herb*	*FAC, FACU+*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Juncus effusus*	*herb*	*FACW+*	12.			
5.	*Chasmanthium laxum*	*herb*	*FACW-*	13.			
6.	*Rubus sp.*	*shrub*	*FAC, FACW*	14.			
7.	*Panicum spp.*	*herb*	*FAC*	15.			
8.	*Liquidambar styraciflua*	*tree*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *1 inch lens of perched water at 20 inches. Some drainage pattern but mired by bedding and roots.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*Oi*				*organic*
1-8"	*A*	*2.5 YR 3/1*			*silt loam, friable, granular*
8-17"	*Btg1*	*10 YR 5/1*	*7.5 YR 6/8*	*common, medium, distinct*	*sandy clay, fine*
17-24+	*Btg2*	*2.5 YR 5/1*	*2.5 Y 7/8*	*common, medium, distinct*	*many roots*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *1 inch lens of perched water at 20 inches. Soil with saturated lens.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *5 year old pine*
Transect ID: *D*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.	*Aster dumosa*	*herb*	*FAC*
2.	*Myrica heterophylla*	*shrub*	*FACW*	10.	*Rhexia mariana*	*herb*	*FACW+*
3.	*Chasmanthium laxum*	*herb*	*FACW*	11.	*Ludwigia alternifolia*	*herb*	*OBL*
4.	*Solidago spp.*	*herb*	*FACW-*	12.	*Liquidambar styraciflua*	*tree*	*FAC*
5.	*Eleocharius sp.*	*herb*	*FACW*	13.	*Pinus taeda*	*tree*	*planted*
6.	*Juncus effusus*	*herb*	*FACW-*	14.	*Dichanthelium consanguineum*	*herb*	*FAC*
7.	*Rubus sp.*	*shrub*	*FAC, FACW*	15.			
8.	*Acer rubrum*	*tree*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *Some evidence of standing water and drainage pattern, but mired by bedding and/or roots.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*A*	*5 YR 3/2*			*silty loam, organic*
1-16"	*Btg1*	*2.5 YR 5/2*	*7.5 YR 5/6*	*common, medium, distinct*	*silt clay loam, friable, nonsticky*
16-24+	*Btg2*	*2.5 YR 6/1*	*2.5 YR 5/8*	*common, medium, distinct*	*clay loam, slightly plastic*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *5 year old pine*
Transect ID: *D*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica heterophylla*	*shrub*	*FACW*	9.	*Quercus nigra*	*tree*	*FAC*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Smilax rotundifolia*	*vine*	*FAC*
3.	*Andropogon virginicus*	*herb*	*FAC-*	11.	*Vaccinium sp.*	*shrub*	*FAC*
4.	*Liquidambar styraciflua*	*tree*	*FAC*	12.	*Solidago spp.*	*herb*	*FAC, FACU+*
5.	*Quercus michauxii*	*tree*	*FACW-*	13.	*Juncus coriaceus*	*herb*	*FACW+*
6.	*Arundinaria gigantea*	*herb*	*FACW*	14.			
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Quercus phellos*	*tree*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[X] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[ ] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No obvious surface hydrology; however more than two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*A*	*5 YR 3/2*			*loam, friable, organic, granular*
1-14"	*Btg1*	*10 YR 5/1*	*10 YR 5/6*	*few, distinct, fine*	*silty clay loam, friable, nonsticky*
14-24+	*Btg2*	*5 YR 7/1*	*2.5 Y 7/8*	*coarse, common,distinct*	*silty clay, plastic*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *5 year old pine plantation*
Transect ID: *E*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.			
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.			
3.	*Pinus taeda*	*shrub*	*planted*	11.			
4.	*Solidago altissima*	*herb*	*FACU*	12.			
5.	*Andropogon virginicus*	*herb*	*FAC-*	13.			
6.	*Juncus effusus*	*herb*	*FACW-*	14.			
7.	*Smilax smallii*	*vine*	*FACU*	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*A*	*10 YR 3/1*			*silt loam*
3-12"	*Btg1*	*2.5 Y 6/1*	*10 YR 6/8*	*common, coarse, distinct*	*silty clay loam, friable, Fe conc.*
			2.5 YR 4/8	*common, medium, prominent*	
12-24+	*Btg2*	*10 YR 5/1*	*10 YR 6/8*	*common, coarse, distinct*	*clay loam, firm, slightly sticky*
			2.5 YR 4/8	*common, medium, prominent*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *5 year old pine plantation*
Transect ID: *E*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*shrub*	*planted*	9.	*Solidago spp.*	*herb*	*FAC*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Juncus effusus*	*herb*	*FACW-*
3.	*Myrica cerifera*	*shrub*	*FAC+*	11.			
4.	*Gordonia lasianthus*	*shrub*	*FACW*	12.			
5.	*Liquidambar styraciflua*	*shrub*	*FAC*	13.			
6.	*Rubus sp.*	*vine*	*FAC*	14.			
7.	*Smilax bona-nox*	*vine*	*FAC*	15.			
8.	*Andropogon virginicus*	*herb*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology; however, two secondary indicators exist.*

SOILS

Map Unit Name
(Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations
Confirm Mapped Type? [Yes] No

Taxonomy (Subgroup) *Typic Endoaqualfs*

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*A*	*10 YR 4/2*			*silt loam, friable, nonsticky*
3-18"	*Btg1*	*2.5 Y 7/2*	*10 YR 6/8*	*common, medium, distinct*	*silt loam, friable*
18-24"	*Btg2*	*10 YR 6/1*	*10 YR 5/8*	*common, coarse, distinct*	*silty clay loam, slightly sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- [X] Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- [X] Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *5 year old pine plantation*
Transect ID: *E*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*Shrub*	*FAC*	9.	*Smilax smallii*	*vine*	*FACU*
2.	*Myrica cerifera*	*Shrub*	*FAC+*	10.			
3.	*Gordonia lasianthus*	*Shrub*	*FACW*	11.			
4.	*Acer rubrum*	*Shrub*	*FAC*	12.			
5.	*Pinus taeda*	*Shrub*	*planted*	13.			
6.	*Andropogon virginicus*	*herb*	*FAC-*	14.			
7.	*Solidago altissima*	*herb*	*FACU+*	15.			
8.	*Rubus sp.*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology was observed.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*10 YR 3/1*			*silt loam, friable*
5-12"	*BA*	*10 YR 4/1*	*10 YR 5/4*	*few, fine, faint*	*silty clay loam, friable*
12-24+	*Btg*	*2.5 Y 6/1*	*7.5 YR 6/8*	*common-many, coarse, distinct*	*silty clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [X] Yes [ ] No
Is the site significantly disturbed (Atypical Situation)? [ ] Yes [X] No
Is this area a potential Problem Area? [ ] Yes [X] No
(If needed, explain on reverse)

Community ID: *5 year old pine plantation*
Transect ID: *E*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Acer rubrum*	*shrub*	*FAC*	10.			
3.	*Liquidambar styraciflua*	*shrub*	*FAC*	11.			
4.	*Myrica cerifera*	*shrub*	*FAC+*	12.			
5.	*Qeurcus nigra*	*shrub*	*FAC*	13.			
6.	*Pinus taeda*	*shrub*	*planted*	14.			
7.	*Solidago altissima*	*shrub*	*FACU+*	15.			
8.	*Rubus sp.*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[ ] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No obvious surface hydrology was observed.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*A*	*10 YR 4/2*			*silt loam*
3-12"	*Btg1*	*5 Y 7/1*	*2.5 Y 6/8*	*common, coarse, distinct*	*silty clay loam, friable*
12-24+	*Btg2*	*5 Y 6/1*	*10 YR 6/8*	*common, coarse, distinct*	*silty clay loam, slightly sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *5 year old pine*
Transect ID: *F*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Smilax glauca*	*vine*	*FAC*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Solidago altissima*	*herb*	*FACU+*	10.	*Acer rubrum*	*tree*	*FAC*
3.	*Rubus sp.*	*shrub*	*FAC*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Chasmanthium laxum*	*herb*	*FACW-*	12.			
5.	*Baccharis halimifolia*	*shrub*	*FAC*	13.			
6.	*Myrica cerifera*	*shrub*	*FAC+*	14.			
7.	*Persea borbonia*	*shrub*	*FACW*	15.			
8.	*Liquidambar styraciflua*	*tree*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *poorly to very poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7"	*A*	*5 YR 4/1*			*silty loam, friable, granular*
7-18"	*Btg1*	*7.5 YR 6/1*	*10 YR 6/8*	*common, distinct, medium*	*silty clay loam*
18-24+	*Btg2*	*7.5 YR 6/1*	*10 YR 6/8*	*common, distinct, medium*	*silty clay, blocky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Argent is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *5 year pine plantation*
Transect ID: *F*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Rhus copallina*	*shrub*	*N/1*	9.	*Myrica cerifera*	*shrub*	*FAC+*
2.	*Solidago altissima*	*herb*	*FACU+*	10.	*Solidago tenuifolia*	*herb*	*N/1*
3.	*Rubus spp.*	*shrub*	*FAC*	11.	*Juncus effusus*	*herb*	*FACW+*
4.	*Liquidambar styraciflua*	*tree*	*FAC*	12.	*Pinus taeda*	*tree*	*planted*
5.	*Smilax glauca*	*vine*	*FAC*	13.			
6.	*Vaccinium stamineum*	*shrub*	*FACU*	14.			
7.	*Andropogon virginicus*	*herb*	*FAC-*	15.			
8.	*Chasmanthium laxum*	*herb*	*FACW-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7"	*A*	*5 YR 4/1*			*Silty loam*
7-18"	*B1*	*7.5 YR 6/1*	*10 YR 6/8*	*common, distinct, medium*	*silty clay loam*
18-24+	*B2*	*7.5 YR 6/1*	*10 YR 6/8*	*common, distinct, medium*	*silty clay, blocky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area?	[ ] Yes	[X] No
(If needed, explain on reverse)		

Community ID: *5 year old pine*
Transect ID: *F*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica heterophylla*	*shrub*	*FACW*	9.	*Liquidambar styraciflua*	*tree*	*FAC*
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.	*Quercus nigra*	*tree*	*FAC*
3.	*Andropogon virginicus*	*herb*	*FAC-*	11.	*Solidago spp.*	*herb*	*N/I*
4.	*Chasmanthium laxum*	*herb*	*FACW-*	12.	*Pinus taeda*	*tree*	*planted*
5.	*Acer rubrum*	*tree*	*FAC*	13.			
6.	*Quercus stellata*	*tree*	*FACU*	14.			
7.	*Rubus sp.*	*shrub*	*FAC*	15.			
8.	*Smilax rotundifolia*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: 16 (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [X] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [ ] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *Few oxidized root channels in upper 12". No obvious hydrological connection.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*A1*	*7.5 YR 3/2*			*silty clay loam, organic material*
1-4"	*A2*	*5 YR 4/1*			*silty clay loam*
4-16"	*Btg1*	*2.5 YR 6/2*	*5 YR 7/8*	*common, distinct, coarse*	*sandy clay loam, fine*
16-24"	*Btg2*	*2.5 YR 7/1*	*7.5 YR 6/8*	*common, prominent, coarse*	*sandy clay, plastic, fine*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *1 inch water lense at approximately 16" perched on clay.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *5 year old pine*
Transect ID: *F*
Plot ID: *4*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Rubus spp.*	*shrub*	*FAC*	9.	*Smilax rotundifolia*	*vine*	*FAC*
2.	*Quercus nigra*	*tree*	*FAC*	10.	*Chasmanthium laxum*	*herb*	*FACW-*
3.	*Solidago spp.*	*herb*	*UPL*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Andropogen virginicus*	*herb*	*FAC-*	12.			
5.	*Eupatorium capillifolium*	*herb*	*FACU*	13.			
6.	*Baccharis halimifolia*	*shrub*	*FAC*	14.			
7.	*Myrica heterophylla*	*shrub*	*FACW*	15.			
8.	*Persea borbonia*	*shrub*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks: *Vegetation is mainly upland species, includes sumac, and hexastylis.*

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrology on the surface*

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *somewhat poorly*

Field Observations

Taxonomy (Subgroup) *Aeric Endoaquults*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*7.5 YR 4/2*			*silt loam*
5-16"	*E*	*2.5 Y 7/3*			*silt loam, granular, friable*
16-24"	*Btg*	*10 YR 7/2*	*2.5 Y 7/8*	*common, coarse, prominent*	*silty clay, subangular blocky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Chapanoke is a Hydric B soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *5 year old pine*
Transect ID: *F*
Plot ID: *5*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Solidago spp.*	*herb*	*UPL*	9.	*Rhus copallina*	*shrub*	*N/1*
2.	*Symplocos tinctoria*	*shrub*	*FAC*	10.	*Smilax bona-nox*	*vine*	*FAC*
3.	*Smilax rotundifolia*	*vine*	*FAC*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Andropogon spp.*	*herb*	*FAC-*	12.			
5.	*Baccharis halimifolia*	*shrub*	*FAC*	13.			
6.	*Liquidambar styraciflua*	*tree*	*FAC*	14.			
7.	*Rubus spp.*	*shrub*	*FAC*	15.			
8.	*Quercus stellata*	*tree*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *somewhat poorly*

Field Observations

Taxonomy (Subgroup) *Aeric Endoaquults*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*7.5 YR 4/2*			*silt loam*
6-19"	*E*	*2.5 Y 7/3*			*silt loam*
19-24+	*Btg*	*10 YR 7/2*	*7.5 Y 7/8*	*common, coarse, prominent*	*silty clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Chapanoke is a Hydric B soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	**Yes**	No
Is the site significantly disturbed (Atypical Situation)?	Yes	**No**
Is this area a potential Problem Area?	Yes	**No**
(If needed, explain on reverse)		

Community ID: *5 year old pine plantation*
Transect ID: *G*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Solidago altissima*	*herb*	*FACU+*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Chasmanthium laxum*	*herb*	*FACW-*
3.	*Myrica cerifera*	*shrub*	*FAC+*	11.			
4.	*Pinus taeda*	*shrub*	*planted*	12.			
5.	*Rubus spp.*	*vine*	*FAC*	13.			
6.	*Smilax laurifolia*	*vine*	*FACW+*	14.			
7.	*Smilax smallii*	*vine*	*FACU*	15.			
8.	*Andropogon virginicus*	*herb*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*10 YR 3/1*			*loam, friable*
5-18"	*Btg1*	*10 YR 7/1*	*7.5 YR 5/8*	*common, med-coarse, distinct*	*silt loam*
18-24+	*Btg2*	*10 YR 5/1*	*10 YR 6/8*	*common, coarse, distinct*	*silty clay loam, Fe concretions*
			2.5 YR 4/8	*common, medium, prominent*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [X] Yes [ ] No
Is the site significantly disturbed (Atypical Situation)? [ ] Yes [X] No
Is this area a potential Problem Area? [ ] Yes [X] No
(If needed, explain on reverse)

Community ID: *5 year old pine plantation*
Transect ID: *G*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*shrub*	*planted*	9.			
2.	*Myrica cerifera*	*shrub*	*FAC+*	10.			
3.	*Baccharis halimifolia*	*shrub*	*FAC*	11.			
4.	*Rubus spp.*	*vine*	*FAC*	12.			
5.	*Solidago altissima*	*herb*	*FACU+*	13.			
6.	*Solidago microcephala*	*herb*	*UPL*	14.			
7.	*Andropogon virginicus*	*herb*	*FAC-*	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks: *Logging deck row.*

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[ ] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*10 YR 3/1*			*silt loam, friable*
5-18"	*Btg1*	*10 YR 6/2*	*10 YR 6/8*	*common, fine, distinct*	*silty clay loam, friable*
18-24+	*Btg2*	*10 YR 4/1*	*10 YR 4/6*	*few, fine, faint*	*silty clay loam, firm*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *5 year old pine plantation*
Transect ID: *G*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.	*Erianthus gigantea*	*herb*	*FACW*
2.	*Pinus taeda*	*shrub*	*planted*	10.			
3.	*Acer rubrum*	*shrub*	*FAC*	11.			
4.	*Rubus spp.*	*vine*	*FAC*	12.			
5.	*Smilax rotundifolia*	*vine*	*FAC*	13.			
6.	*Solidago altissima*	*herb*	*FACU+*	14.			
7.	*Andropogon virginicus*	*herb*	*FAC-*	15.			
8.	*Solidago microcephala*	*herb*	*UPL*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*A*	*10 YR 3/1*			*loam, friable, nonsticky*
3-5"	*A/B*	*10 YR 4/1*			*loam, friable, nonsticky*
5-24+	*Btg*	*10 YR 7/2*	*10 YR 5/8*	*common, coarse, distinct*	*silt loam, friable, nonsticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area?	[ ] Yes	[X] No
(If needed, explain on reverse)		

Community ID: *5 year old pine plantation*
Transect ID: *G*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*Shrub*	*Planted*	9.	*Smilax smallii*	*Vine*	*FACU*
2.	*Quercus nigra*	*Shrub*	*FAC*	10.	*Gelsemium sempervirens*	*Vine*	*FACU*
3.	*Quercus alba*	*Shrub*	*FACU*	11.	*Solidago altissima*	*Herb*	*FACU+*
4.	*Cyrilla racemiflora*	*Shrub*	*FACW*	12.	*Andropogon virginicus*	*Herb*	*FAC-*
5.	*Liquidambar styraciflua*	*Shrub*	*FAC*	13.			
6.	*Myrica cerifera*	*Shrub*	*FACW*	14.			
7.	*Nyssa sylvatica*	*Shrub*	*FAC*	15.			
8.	*Rubus spp.*	*Vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Chapanoke Silt Loam*

Drainage Class: *Somewhat Poorly*

Taxonomy (Subgroup) *Aeric Endoaquults*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	*A*	*10 YR 4/1*			*Loam, friable, subangular blocky, non-sticky*
4-6	*B/A*	*2.5 Y 6/4*			*Loam, friable, subangular blocky, non-sticky*
6-20	*Bt*	*2.5 Y 7/4*	*10 YR 6/8*	*Few, Medium, Distinct*	*Silt Loam, friable, non-sticky*
20-24+	*Btg*	*10 YR 6/1*	*10 YR 5/8*	*Many, Coarse, Distinct*	*Silty clay loam, friable, non-sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Chapanoke is a Hydric B soil
Depleted matrix appears to be "albic" beginning at 24-inches; color is 2.5 Y 8/1.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No
Wetland Hydrology Present? Yes [No]
Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/27/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *5 year old pine plantation*
Transect ID: *H*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*Shrub*	*planted*	9.	*Solidago altissima*	*Herb*	*FACU+*
2.	*Acer rubrum*	*Tree*	*FAC*	10.	*Solidago microcephala*	*Herb*	*N/I*
3.	*Liquidambar styraciflua*	*Tree*	*FAC*	11.			
4.	*Rubus spp.*	*Shrub*	*FAC*	12.			
5.	*Persea borbonia*	*Shrub*	*FACW*	13.			
6.	*Baccharis halimifolia*	*Shrub*	*FAC*	14.			
7.	*Vaccinium stamineum*	*Shrub*	*FACU*	15.			
8.	*Smilax glauca*	*Vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
____ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology.*

SOILS

Map Unit Name (Series and Phase): *Yeopim silt loam*

Drainage Class: *Moderately well*

Taxonomy (Subgroup) *Aquic hapludults*

Field Observations
Confirm Mapped Type? Yes [No]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5	*A*	*2.5 YR 3/1*			*Silt loam, many roots, granular, friable*
5-16	*B*	*10 YR 8/2*			*Silt loam*
16-24+	*Bt*	*10 YR 7/8*	*7.5 YR 7/2*	*Common, Medium, Distinct*	*Silty clay loam, subangular blocky, friable*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Yeopim is classified as a Hydric B soil. The colors observed do not match the typical pedon of this series.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *30 year old pine*
Transect ID: *1*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus nigra*	*tree*	*FAC*	9.	*Liquidambar styraciflua*	*tree*	*FAC*
2.	*Acer rubrum*	*tree*	*FAC*	10.	*Vaccinium arboreum*	*shrub*	*FACU*
3.	*Gelsemium sempervirens*	*vine*	*FAC*	11.	*Quercus phellos*	*tree*	*FACW-*
4.	*Quercus stellata*	*tree*	*FACU*	12.	*Ilex opaca*	*shrub*	*FAC-*
5.	*Myrica cerifera*	*shrub*	*FAC+*	13.	*Pinus taeda*	*tree*	*planted*
6.	*Ilex glabra*	*shrub*	*FACW*	14.			
7.	*Smilax rotundifolia*	*vine*	*FAC*	15.			
8.	*Persea borbonia*	*shrub*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [ ] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Yeopim silt loam*

Drainage Class: *Moderately Well*

Field Observations

Taxonomy (Subgroup) *Aquic Hapludults*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*Oi*				*many fine medium roots*
2-4"	*A*	*10YR 4/1*			*loam, granular, friable*
4-15"	*Bt1*	*2.5 Y 7/6*	*2.5 Y 6/8*	*few, fine, faint*	*sandy loam, friable, fine*
15-24+	*Bt2*	*2.5 Y 7/6*	*2.5 Y 6/8*	*common--many, coarse, distinct*	*sandy clay loam, firm*
			2.5 Y 6/1	*common--many, coarse, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Yeopim is a Hydric B soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area?	[ ] Yes	[X] No
(If needed, explain on reverse)		

Community ID: *30 year old pine*
Transect ID: *1*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Smilax rotundifolia*	*vine*	*FAC*	9.	*Vaccinium stamineum*	*shrub*	*FACU*
2.	*Acer rubrum*	*tree*	*FAC*	10.	*Ilex opaca*	*shrub*	*FAC-*
3.	*Juncus effusus*	*herb*	*FACW+*	11.	*Solidago fistulosa*	*herb*	*FAC+*
4.	*Arundinaria gigantea*	*herb*	*FACW+*	12.	*Chasmanthium laxum*	*herb*	*FACW-*
5.	*Gelsemium sempervirens*	*vine*	*FAC*	13.	*Pinus taeda*	*tree*	*planted*
6.	*Quercus nigra*	*tree*	*FAC*	14.			
7.	*Symplocos tinctoria*	*shrub*	*FAC*	15.			
8.	*Eupatorium capillifolium*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Yonges loam*

Drainage Class: Poorly

Field Observations

Taxonomy (Subgroup): *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*10 YR 2/1*			*loam, granular, organic*
5-14"	*Btg1*	*10 YR 6/2*	*10 YR 6/4*	*few, faint, medium*	*sandy loam, slightly firm, fine*
14-24+	*Btg2*	*10 YR 5/2*	*10 YR 5/6*	*common, coarse, distinct*	*sandy clay loam, firm*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Yonges is a Hyric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *5 year old pine plantation*
Transect ID: *1*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*shrub*	*planted*	9.	*Solidago altissima*	*herb*	*FACU+*
2.	*Myrica cerifera*	*shrub*	*FAC+*	10.	*Andropogon virginicus*	*herb*	*FAC-*
3.	*Baccharis halimifolia*	*shrub*	*FAC*	11.	*Solidago microcephala*	*herb*	*NA*
4.	*Acer rubrum*	*shrub*	*FAC*	12.	*Juncus effusus*	*herb*	*FACW+*
5.	*Liquidambar styraciflua*	*shrub*	*FAC*	13.			
6.	*Rubus sp.*	*vine*	*FAC*	14.			
7.	*Smilax rotundifolia*	*vine*	*FAC*	15.			
8.	*Gelsemium sempervirens*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[ ] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Yeopim silt loam*

Drainage Class: *Moderately well*

Field Observations

Taxonomy (Subgroup): *Aquic Hapludults*

Confirm Mapped Type? Yes [No]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				*Organic*
1-6"	*A*	*7.5 YR 3/1*			*sandy loam, friable*
6-10"	*B1*	*5 YR 7/2*			*sandy loam, non-sticky*
10-24"	*B2*	*2.5 YR 6/2*	*7.5 YR 7/6*	*common, medium, distinct*	*clay loam, friable*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Water lens at approximately 20". Yeopim is classified as a Hydric B soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *J*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*tree*	*planted*	9.	*Pteridium aquilinum*	*herb*	*FACU*
2.	*Persea borbonia*	*shrub*	*FACW*	10.			
3.	*Quercus rubra*	*tree*	*FACU*	11.			
4.	*Vaccinium arboreum*	*shrub*	*FACU*	12.			
5.	*Liquidambar styraciflua*	*tree/shrub*	*FAC*	13.			
6.	*Quercus phellos*	*tree*	*FACW-*	14.			
7.	*Nyssa sylvatica*	*shrub*	*FAC*	15.			
8.	*Smilax rotundifolia*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Longshoal mucky peat*

Drainage Class: *very poorly*

Field Observations

Taxonomy (Subgroup) *Typic Haplosaprists*

Confirm Mapped Type? Yes [No]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*7.5 YR 3/1*			*sandy loam, many fine roots*
6-24+	*B*	*10 YR 7/6*			*sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Drainage ditch adjacent to marsh possibly affecting hydrology.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *30 year old pine plantation*
Transect ID: *J*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*tree*	*planted*	9.	*Liquidambar styraciflua*	*tree/shrub*	*FAC*
2.	*Persea borbonia*	*shrub*	*FACW*	10.	*Vaccinium stamineum*	*shrub*	*FACU*
3.	*Acer rubrum*	*shrub*	*FACW*	11.			
4.	*Myrica cerifera*	*shrub*	*FAC+*	12.			
5.	*Quercus nigra*	*shrub*	*FAC*	13.			
6.	*Nyssa sylvatica*	*shrub*	*FAC*	14.			
7.	*Smilax rotundifolia*	*vine*	*FAC*	15.			
8.	*Gelsemium sempervirens*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
____ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators*

SOILS

Map Unit Name
(Series and Phase): *Yeopim loam*

Drainage Class: *Moderately well*

Taxonomy (Subgroup) *Aquic Hapludults*

Field Observations
Confirm Mapped Type? Yes [No]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*A*	*7.5 YR 3/1*			*silty loam, many fine roots*
4-11"	*B1*	*7.5 YR 7/3*	*10 YR 6/6*	*faint, fine, few*	*silt loam, friable*
11-24+	*B2*	*10 YR 6/4*	*2.5 YR 8/2*	*common, coarse, distinct*	*silty clay loam, friable, non-sticky*
			10 YR 6/8	*common, medium, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *cutover pine*
Transect ID: *J*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Osmunda regalis*	*herb*	*OBL*
2.	*Quercus nigra*	*shrub*	*FAC*	10.	*Andropogon virginicus*	*herb*	*FAC-*
3.	*Liquidambar styraciflua*	*shrub*	*FAC*	11.	*Panicum verrucosum*	*herb*	*FACW*
4.	*Acer rubrum*	*shrub*	*FAC*	12.	*Ilex opaca*	*shrub*	*FAC-*
5.	*Nyssa sylvatica*	*shrub*	*FAC*	13.			
6.	*Arundinaria gigantea*	*herb*	*FACW*	14.			
7.	*Smilax rotundifolia*	*vine*	*FAC*	15.			
8.	*Gelsemium sempervirens*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
X FAC-Neutral Test
X Other (Explain in Remarks)

Remarks: *Evidence of hydrology was observed throughout the soil column. Mottles present in B horizon.*

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *Somewhat poorly*

Taxonomy (Subgroup) *Aeric Endoaquults*

Field Observations
Confirm Mapped Type? Yes [No]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				*Organic*
1-5"	*A*	*7.5 YR 3/1*			*silty loam, many fine roots*
5-24+	*B*	*2.5 YR 7/1*	*2.5 YR 7/8*	*medium, common, distinct*	*sandy clay loam, friable, nonsticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	**Yes**	No
Is the site significantly disturbed (Atypical Situation)?	Yes	**No**
Is this area a potential Problem Area?	Yes	**No**
(If needed, explain on reverse)		

Community ID: *cutover pine*
Transect ID: *J*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus nigra*	*shrub*	*FAC*	9.	*Erianthus gigantea*	*herb*	*FACW*
2.	*Persea borbonia*	*shrub*	*FACW*	10.	*Gelsemium sempervirens*	*herb*	*FACW*
3.	*Acer rubrum*	*shrub*	*FAC*	11.	*Osmunda regalis*	*herb*	*OBL*
4.	*Liquidambar styraciflua*	*shrub*	*FAC*	12.	*Smilax smallii*	*herb*	*FACU*
5.	*Baccharis halimifolia*	*shrub*	*FAC*	13.			
6.	*Pinus taeda*	*shrub*	*planted*	14.			
7.	*Arundinaria gigantea*	*herb*	*FACW*	15.			
8.	*Andropogon virginicus*	*herb*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Field Observations

Taxonomy (Subgroup) *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*7.5 YR 2.5/1*			*silty clay loam*
6-16"	*Bg1*	*2.5 YR 4/1*	*2 G 7/5B*	*coarse, prominent, common*	*silty clay loam, friable, fine*
16-24+	*Bg2*	*2.5 YR 6/1*	*7.5 YR 6/8*	*common, medium, distinct*	*silty clay loam, fine*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area?	Yes	No
(If needed, explain on reverse)		

Community ID: *cutover pine*
Transect ID: *J*
Plot ID: *5*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Eleocharis tuberculosa*	*herb*	*FACW+*
2.	*Liquidambar styraciflua*	*shrub*	*FAC*	10.	*Smilax smallii*	*vine*	*FACU*
3.	*Ilex glabra*	*shrub*	*FACW*	11.	*Ilex opaca*	*shrub*	*FAC-*
4.	*Pinus taeda*	*shrub*	*FAC*	12.	*Smilax laurifolia*	*vine*	*FACW+*
5.	*Acer rubrum*	*shrub*	*FAC*	13.	*Osmunda regalis*	*herb*	*OBL*
6.	*Smilax rotundifolia*	*vine*	*FAC*	14.			
7.	*Quercus phellos*	*tree*	*FACW-*	15.			
8.	*Arundinaria gigantea*	*herb*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup) *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*5 YR 2.5/1*			*silty loam*
5-12"	*B1*	*2.5 YR 5/2*	*7.5 YR 5/1*	*common, coarse, faint*	*sandy clay loam, fine*
			10 YR 4/2	*coarse, few, distinct*	
12-24+	*B2*	*5 YR 6/1*	*5 YR 7/8*	*common, distinct*	*sandy clay loam, fine*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *cutover pine*
Transect ID: *J*
Plot ID: *6*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*tree*	*planted*	9.	*Juncus effusus*	*herb*	*FACW+*
2.	*Persea borbonia*	*shrub*	*FACW*	10.	*Aster spp.*	*herb*	*N/I*
3.	*Myrica cerifera*	*shrub*	*FAC+*	11.			
4.	*Liquidambar styraciflua*	*shrub*	*FAC*	12.			
5.	*Acer rubrum*	*shrub*	*FAC*	13.			
6.	*Eleocharis tuberculosa*	*herb*	*FACW+*	14.			
7.	*Osmunda regalis*	*herb*	*OBL*	15.			
8.	*Smilax rotundifolia*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Field Observations

Taxonomy (Subgroup) *Umbric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*O*				*Organic*
2-14"	*A*	*7.5 YR 3/1*			*silty clay loam*
14-24+	*Bg*	*2.5 YR 6/1*	*7.5 YR 6/6*	*fine, distinct, common*	*silty clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No	
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No	
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No	

Community ID: *30 year old pine*
Transect ID: *K*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.	*Quercus phellos*	*tree*	*FACW-*
2.	*Vaccinium corymbosum*	*shrub*	*FACW*	10.	*Ilex opaca*	*shrub*	*FAC-*
3.	*Liquidambar styraciflua*	*tree*	*FAC*	11.	*Quercus nigra*	*tree*	*FAC*
4.	*Smilax rotundifolia*	*vine*	*FAC*	12.	*Pinus taeda*	*tree*	*planted*
5.	*Berchemia scandens*	*vine*	*FACW*	13.			
6.	*Persea borbonia*	*tree*	*FACW*	14.			
7.	*Gelsemium sempervirens*	*vine*	*FAC*	15.			
8.	*Vitis rotundifolia*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	N/A	(in.)
Depth to Saturated Soil:	N/A	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [X] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators.*
Few oxidized roots in Bt horizon.

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *Somewhat poorly*

Taxonomy (Subgroup): *Aeric Endoaquults*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*A*	*2.5 Y 2.5/1*			*silt loam, organic grease, fine roots*
4-6"	*AB*	*2.5 Y 4/1*			*fine sandy loam, granular, friable*
6-12"	*Bt*	*2.5 Y 6/3*	*10 YR 6/8*	*common, medium, distinct*	*fine sandy loam, friable, subangular blocky*
12-24+	*Btg*	*10 YR 6/1*	*10 YR 5/8*	*common, medium, distinct*	*silty clay, firm, organic film on ped faces*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Few oxidized roots in Bt horizon.*
Chapanoke is a Hydric B soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *30 year old pine*
Transect ID: *K*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.	*Symplocos tinctoria*	*shrub*	*FAC*
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.	*Quercus stellata*	*tree*	*FACU*
3.	*Liquidambar styraciflua*	*tree*	*FAC*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Prunus serotina*	*tree*	*FACU*	12.			
5.	*Persea borbonia*	*tree*	*FACW*	13.			
6.	*Smilax rotundifolia*	*vine*	*FAC*	14.			
7.	*Smilax laurifolia*	*vine*	*FACW+*	15.			
8.	*Vaccinium stamineum*	*shrub*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [ ] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *Typic Endoaquults*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*A*	*10 YR 4/2*			*fine sandy loam, granular, friable, many roots*
2-6"	*BA*	*2.5 Y 6/4*			*fine sandy loam, medium subangular blocky, friable*
6-20"	*Btg1*	*2.5 Y 6/2*	*2.5 Y 5/6*	*common, medium, distinct*	*silty clay loam, medium subangular blocky, fribable,*
20-24+	*Btg2*	*2.5 Y 7/2*	*10 YR 5/6*	*common, medium, distinct*	*silty loam, friable, subangular blocky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [**No**]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *K*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Arundinaria gigantea*	*herb*	*FACW*	9.	*Pinus taeda*	*tree*	*planted*
2.	*Persea borbonia*	*shrub*	*FACW*	10.			
3.	*Myrica cerifera*	*shrub*	*FAC+*	11.			
4.	*Smilax rotundifolia*	*vine*	*FAC*	12.			
5.	*Vaccinium arboreum*	*shrub*	*FACU*	13.			
6.	*Liquidambar styraciflua*	*tree*	*FAC*	14.			
7.	*Acer rubrum*	*tree*	*FAC*	15.			
8.	*Ilex opaca*	*shrub*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*A*	*2.5 Y 2.5/1*			*loam, granular, fine roots, organic*
2-15"	*Btg1*	*2.5 Y 6/2*			*silt loam, granular, friable*
15-24"	*Btg2*	*10 YR 6/2*	*7.5 YR 5/8*	*few, fine, distinct*	*silty clay loam, friable, subangular blocky*
			2.5 Y 6/6	*common, coarse, faint*	
24-26+	*Btg3*	*2.5 Y 6/1*	*10 YR 6/8*	*common, coarse, distinct*	*silty clay loam, slightly firm, subangular blocky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- [X] Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- [X] Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area?	[ ] Yes	[X] No
(If needed, explain on reverse)		

Community ID: *30 year old pine*
Transect ID: *K*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acer rubrum*	*tree*	*FAC*	9.	*Ilex opaca*	*shrub*	*FAC-*
2.	*Liquidambar styraciflua*	*tree*	*FAC*	10.	*Quercus nigra*	*tree*	*FAC*
3.	*Persea borbonia*	*tree*	*FACW*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Smilax rotundifolia*	*vine*	*FAC*	12.			
5.	*Arundinaria gigantea*	*herb*	*FACW*	13.			
6.	*Pteridium aquilinum*	*herb*	*FACU*	14.			
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.	*Gelsemium sempervirens*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or tide Gauge
- ____ Aerial Photographs
- ____ Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	N/A	(in.)
Depth to Saturated Soil:	N/A	(in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [X] Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators. Few oxidized root channels in Btg horizon.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup) *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*2.5 Y 3/1*			*silt loam, many roots, friable, granular*
6-20"	*Btg1*	*10 YR 4/1*	*10 YR 5/8*	*common, medium, distinct*	*sandy clay loam, friable, subangular blocky*
20-28+	*Btg2*	*10 YR 4/1*	*10 YR 5/6*	*few, fine-med., faint*	*sandy loam, subangular blocky, friable*
			10 YR 7/2	*few, medium, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Few oxidized root channels in Btg horizon. Small iron concretions. Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *15 year old pine plantation*
Transect ID: *L*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Ilex opaca*	*shrub*	*FAC-*
2.	*Liquidambar styraciflua*	*shrub*	*FACW*	10.	*Smilax rotundifolia*	*vine*	*FAC*
3.	*Quercus nigra*	*shrub*	*FACW*	11.			
4.	*Pinus taeda*	*tree*	*planted*	12.			
5.	*Chasmanthium laxum*	*herb*	*FACW-*	13.			
6.	*Gelsemium sempervirens*	*vine*	*FAC*	14.			
7.	*Quercus rubra*	*shrub*	*FACU*	15.			
8.	*Nyssa sylvatica*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
x No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *oxidized root channels begin at 12".*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? Yes [No]

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*7.5 YR 3/1*			*silty loam, many fine roots*
5-12"	*B*	*7.5 YR 7/4*	*10 YR 6/6*	*common, faint, fine*	*silty loam, friable, non-sticky, subangular blocky*
12-24+	*Bt*	*2.5 Y 6/8*	*5 YR 7/1*	*prominent, coarse, common*	*silty clay loam, non-sticky, oxidized root channels*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *The matrix color of the B horizon does not meet the jurisdictional requirement normally assoicated with the mapped soil unit.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *L*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*tree*	*FACW*	9.	*Quercus falcata*	*tree*	*FACU-*
2.	*Acer rubrum*	*tree*	*FAC*	10.	*Smilax smallii*	*vine*	*FACU*
3.	*Liquidambar styraciflua*	*tree*	*FAC*	11.	*Quercus phellos*	*tree*	*FACW-*
4.	*Myrica cerifera*	*shrub*	*FAC+*	12.	*Pinus taeda*	*tree*	*planted*
5.	*Smilax rotundifolia*	*vine*	*FAC*	13.			
6.	*Vaccinium stamineum*	*shrub*	*FACU*	14.			
7.	*Osmunda cinnamomea*	*herb*	*FACW+*	15.			
8.	*Chasmanthium laxum*	*herb*	*FACW-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*			*loam, granular, friable, many fine roots*
6-16"	*Btg1*	*2.5 Y 6/1*	*2.5 Y 6/4*	*few-common, medium-coarse, faint*	*fine sandy loam, subangular blocky, firm*
16-24+	*Btg2*	*2.5 Y 6/1*	*2.5 Y 6/8*	*common, medium, distinct*	*silty clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** / No
Is the site significantly disturbed (Atypical Situation)? Yes / **No**
Is this area a potential Problem Area? Yes / **No**
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *L*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acer rubrum*	*tree*	*FAC*	9.	*Pinus taeda*	*tree*	*planted*
2.	*Osmunda regalis*	*herb*	*OBL*	10.			
3.	*Persea borbonia*	*shrub*	*FACW*	11.			
4.	*Smilax rotundifolia*	*vine*	*FAC*	12.			
5.	*Quercus nigra*	*tree*	*FAC*	13.			
6.	*Chasmanthium laxum*	*tree*	*FACW-*	14.			
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.	*Campsis radicans*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators. Oxidation of root channels in Btg1 horizon.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*			*loam, granular, friable, many roots*
6-10"	*Btg1*	*10 YR 5/2*	*10 YR 5/6*	*few-common, fine-medium, faint*	*fine sandy clay loam, slightly firm, medium*
10-24+	*Btg2*	*10 YR 5/1*	*10 YR 6/6*	*common, medium, faint*	*fine sandy clay, sticky, plastic, coarse, firm,*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *small iron concretions present in Btg1 horizon.*
common, fine, distinct (2.5YR 4/8)
Hydeland is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	*BISHOP ROAD MITIGATION SITE*	Date:	*11/28/2001*
Applicant/Owner:	*NCDOT*	County:	*HYDE*
Investigator(s):	*MARTHA BREWSTER, TOM BARRETT*	State:	*NORTH CAROLINA*
Do Normal Circumstances exist on the site?	[Yes] No	Community ID:	*30 year old pine*
Is the site significantly disturbed (Atypical Situation)?	Yes [No]	Transect ID:	*L*
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes [No]	Plot ID:	*4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Arundinaria gigantea*	*herb*	*FACW*
2.	*Acer rubrum*	*tree*	*FAC*	10.	*Chasmanthium laxum*	*herb*	*FACW-*
3.	*Vaccinium stamineum*	*shrub*	*FACU*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Smilax rotundifolia*	*vine*	*FAC*	12.			
5.	*Quercus nigra*	*tree*	*FAC*	13.			
6.	*Quercus phellos*	*tree*	*FACW-*	14.			
7.	*Campsis radicans*	*vine*	*FAC*	15.			
8.	*Osmunda cinnamomea*	*herb*	*FACW+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or tide Gauge
- ____ Aerial Photographs
- ____ Other

__X__ No Recorded Data Available

Field Observations:

- Depth of Surface Water: __N/A__ (in.)
- Depth to Free Water in Pit: __N/A__ (in.)
- Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ____ Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- __X__ Local Soil Survey Data
- __X__ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*			*loam, granular, friable, many roots*
6-14"	*Btg1*	*10 YR 6/1*	*10 YR 5/8*	*common, medium, distinct*	*fine sandy clay loam, slightly firm, medium*
14-24+	*Btg2*	*10 YR 6/1*	*10 YR 6/6*	*common, medium, faint*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** / No
Is the site significantly disturbed (Atypical Situation)? Yes / **No**
Is this area a potential Problem Area? Yes / **No**
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *M*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Vaccinium corymbosum*	*shrub*	*FACW*
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.	*Smilax smallii*	*vine*	*FACU*
3.	*Prunus serotina*	*tree*	*FACU*	11.	*Pinus taeda*	*tree*	*planted*
4.	*Acer rubrum*	*tree*	*FAC*	12.			
5.	*Smilax rotundifolia*	*vine*	*FAC*	13.			
6.	*Smilax bona-nox*	*vine*	*FAC*	14.			
7.	*Liquidambar styraciflua*	*tree*	*FAC*	15.			
8.	*Ilex opaca*	*tree*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators; however, more than two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*A*	*10 YR 3/2*			*fine sandy clay loam, friable*
1-12"	*Btg1*	*10 YR 5/1*	*10 YR 6/8*	*common, coarse, distinct*	*silty clay loam, subangular blocky, medium*
12-24+	*Brg2*	*10 YR 5/1*	*10 YR 6/8*	*common, coarse, distinct*	*sandy clay, subangular blocky, firm*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Oxidized root channels in Btg1 horizon.*
Acredale is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area?	Yes	No
(If needed, explain on reverse)		

Community ID: *30 year old pine*
Transect ID: *M*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Arundinaria gigantea*	*herb*	*FACW*	9.	*Pinus taeda*	*tree*	*planted*
2.	*Persea borbonia*	*shrub*	*FACW*	10.			
3.	*Myrica cerifera*	*shrub*	*FAC+*	11.			
4.	*Liquidambar styraciflua*	*tree*	*FAC*	12.			
5.	*Smilax bona-nox*	*vine*	*FAC*	13.			
6.	*Gelsemium sempervirens*	*vine*	*FAC*	14.			
7.	*Acer rubrum*	*tree*	*FAC*	15.			
8.	*Chasmanthium laxum*	*herb*	*FACW-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *100%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
__X__ Oxidized Root Channels in Upper 12 Inches
__X__ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *Oxidized root channels in Btg1 & Btg2 horizons.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*Oi*				*organic material*
4-5"	*A*	*2.5 Y 4/1*			*silty clay loam, fine, subangular blocky, friable*
5-12"	*Btg1*	*10 YR 5/1*	*10 YR 5/8*	*common, medium, distinct*	*fine sandy clay loam, medium, subangular blocky*
12-24"	*Btg2*	*2.5 Y 5/1*	*7.5 YR 5/8*	*common, coarse, distinct*	*sandy clay loam, medium, subangular blocky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Oxidized root channels in Btg1 and Btg2 horizons.*
Acredale is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *15 year old pine*
Transect ID: *M*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.			
2.	*Gelsemium sempervirens*	*vine*	*FAC*	10.			
3.	*Liquidambar styraciflua*	*tree*	*FAC*	11.			
4.	*Persea borbonia*	*shrub*	*FACW*	12.			
5.	*Vaccinium corymbosum*	*shrub*	*FACW*	13.			
6.	*Smilax rotundifolia*	*vine*	*FAC*	14.			
7.	*Pinus taeda*	*tree*	*planted*	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *100%*

Remarks: *dense young pine shading out most species. Cover without pine is approximately 25%.*

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup) *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10"	*A*	*2.5 Y 3/1*			*fine sandy loam, friable, medium, subangular blocky*
10-18"	*Btg1*	*2.5 Y 4/1*			*fine sandy loam, medium, subangular blocky*
18-28+	*Btg2*	*10 YR 6/1*	*10 YR 5/6*	*few, medium, faint*	*silty clay, medium-coarse, angular blocky, firm*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- X Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *slightly sulfidic odor in Btg. Few oxidized root channels in Btg. Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *15 year old pine*
Transect ID: *M*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.			
2.	*Pluchea rosea*	*herb*	*FACW*	10.			
3.	*Juncus effusus*	*herb*	*FACW+*	11.			
4.	*Campsis radicans*	*vine*	*FAC*	12.			
5.	*Acer rubrum*	*tree*	*FAC*	13.			
6.	*Pinus taeda*	*tree*	*planted*	14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *100%*

Remarks: *Dense canopy of pine shading other vegetation.*

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10"	*A*	*2.5 Y 3/1*			*silt loam, subangular blocky, fine, friable*
10-16"	*Btg1*	*10 YR 5/1*	*10 YR 5/6*	*few, fine, faint*	*silty clay loam, subangular blocky, medium, slightly firm*
16-24+	*Btg2*	*10 YR 5/1*	*10 YR 6/6*	*few, fine, faint*	*silty clay , subangular blocky, medium-coarse,*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*
Oxidized root channels in Btg2 horizon below 16"

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No
Wetland Hydrology Present? [Yes] No
Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area?	[ ] Yes	[X] No
(If needed, explain on reverse)		

Community ID: *30 year old pine*
Transect ID: *N*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Arundinaria gigantea*	*herb*	*FACW*	9.			
2.	*Smilax rotundifolia*	*vine*	*FAC*	10.			
3.	*Persea borbonia*	*shrub*	*FACW*	11.			
4.	*Liquidambar styraciflua*	*tree*	*FAC*	12.			
5.	*Gelsemium sempervirens*	*vine*	*FAC*	13.			
6.	*Myrica cerifera*	*shrub*	*FAC+*	14.			
7.	*Smilax smallii*	*vine*	*FACU*	15.			
8.	*Pinus taeda*	*tree*	*planted*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *No obvious surface hydrology; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*Oi*				
2-12"	*A*	*7.5 YR 2.5/1*			*silty loam, many fine roots*
12-22"	*Bt*	*10 YR 7/3*	*10 YR 5/4*	*few, fine, faint*	*subangular blocky, friable silty clay loam, subangular*
22-24+	*Btg*	*7.5 YR 7/2*	*7.5 YR 6/8*	*common, medium, distinct*	*blocky, slightly firm*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- [X] Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- [X] Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [X] Yes [ ] No
Is the site significantly disturbed (Atypical Situation)? [ ] Yes [X] No
Is this area a potential Problem Area? [ ] Yes [X] No
(If needed, explain on reverse)

Community ID: *5 year old pine*
Transect ID: *N*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Ilex opaca*	*shrub*	*FAC-*	9.	*Pinus taeda*	*tree*	*planted*
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.			
3.	*Myrica cerifera*	*shrub*	*FAC+*	11.			
4.	*Persea borbonia*	*shrub*	*FACW*	12.			
5.	*Smilax rotundifolia*	*vine*	*FAC*	13.			
6.	*Vitis rotundifolia*	*vine*	*FAC*	14.			
7.	*Vaccinium stamineum*	*shrub*	*FACU*	15.			
8.	*Liquidambar styraciflua*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks: *Vegetation thin due to 80% canopy cover by Pinus taeda.*

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[X] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No obvious surface hydrology; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup) *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9"	*A1*	*7.5 YR 3/1*			*fine sandy loam, subangular blocky, friable, medium*
9-17"	*A2*	*7.5 YR 4/2*			*fine sandy loam, subangular blocking, medium, friable*
17-24+	*Btg*	*7.5 YR 7/3*	*10 YR 7/6*	*few, medium, distinct*	*fine sandy clay loam, subangular blocky,medium,*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- [X] Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- [X] Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *5 year old pine*
Transect ID: *N*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.	*Campsis radicans*	*vine*	*FAC*
2.	*Smilax bona-nox*	*vine*	*FAC*	10.	*Pinus taeda*	*tree*	*planted*
3.	*Juncus effusus*	*herb*	*FACW+*	11.			
4.	*Pluchea rosea*	*herb*	*FACW+*	12.			
5.	*Solidago ordova*	*herb*	*N/1 (UPL)*	13.			
6.	*Quercus nigra*	*tree*	*FAC*	14.			
7.	*Juniperus virginiana*	*shrub*	*FACU-*	15.			
8.	*Solidago tenuifolia*	*herb*	*N/1 (UPL)*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12"	*A*	*5 YR 4/1*			*silty clay loam, subangular blocky, friable*
12-24+	*B*	*10 YR 6/2*	*10 YR 6/6*	*common, coarse, distinct*	*silty clay , subangular blocky, coarse, firm*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *30 year old pine plantation*
Transect ID: *P*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Quercus nigra*	*shrub*	*FAC*	9.			
2.	*Persea borbonia*	*shrub*	*FACW*	10.			
3.	*Chasmanthium laxum*	*herb*	*FACW-*	11.			
4.	*Vaccinium arboreum*	*shrub*	*FACU*	12.			
5.	*Aronia arbutifolia*	*tree*	*FACW*	13.			
6.	*Smilax rotundifolia*	*vine*	*FAC*	14.			
7.				15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrology observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*Oi*				
1-7"	*A*	*7.5 YR 2.5/1*			*silt loam*
7-19"	*Btg1*	*5 YR 5/4*	*2.5 YR 8/3*	*coarse, few, distinct*	*fine sandy clay loam*
			7.5 YR 7/8	*fine, few, distinct*	
19-24+	*Btg2*	*2.5 Yr 6/1*	*7.5 YR 7/8*	*common, distinct, medium*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Albic inclusions appear below 20"*
Hydeland is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No
Wetland Hydrology Present? [Yes] No
Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *30 year old pine plantation*
Transect ID: *P*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.			
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.			
3.	*Smilax rotundifolia*	*vine*	*FAC*	11.			
4.	*Liquidambar styraciflua*	*tree*	*FAC*	12.			
5.	*Gordonia lasianthus*	*tree*	*FACW*	13.			
6.	*Ilex opaca*	*shrub*	*FAC-*	14.			
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*Oi*				
1-7"	*A*	*7.5 YR 2.5/1*			*silt loam*
7-20"	*Btg1*	*5 YR 5/4*	*2.5 YR 8/3*	*coarse, few, distinct*	*fine sandy clay loam*
			7.5 YR 7/8	*fine, few, distinct*	
20-24+	*Btg2*	*2.5 YR 6/1*	*7.5 YR 7/8*	*common, medium, distinct*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [X] Aquic Moisture Regime
- ___ Reducing Conditions
- [X] Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- [X] Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/28/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area?	[ ] Yes	[X] No
(If needed, explain on reverse)		

Community ID: *30 year old pine*
Transect ID: *P*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Arundinaria gigantea*	*herb*	*FACW*	9.	*Hydrocotyle sp.*	*herb*	*FACW*
2.	*Smilax rotundifolia*	*vine*	*FAC*	10.	*Liquidambar styraciflua*	*shrub*	*FAC*
3.	*Mikania scandens*	*vine*	*FACW*	11.			
4.	*Myrica cerifera*	*shrub*	*FAC+*	12.			
5.	*Gelsemium sempervirens*	*vine*	*FAC*	13.			
6.	*Pteridium aquilinum*	*herb*	*FACU*	14.			
7.	*Ilex opaca*	*shrub*	*FAC-*	15.			
8.	*Quercus nigra*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: 15 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks:
No obvious hydrology observed; however, two secondary indicators exist.

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very Poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*Oi*				*organic*
4-20"	*A*	*7.5 YR 2.5/1*			*silty loam*
20-24+	*Btg*	*2.5 YR 5/1*	*2.5 YR 8/2*		*silt loam, friable, non-sticky*
			7.5 YR 6/8		*sandy clay loam, friable*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Saturation at 15". Clay lens perching water between A and B horizon. Albic mottles appear to be inclusions. Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *30 year old pine*
Transect ID: *Q*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Ilex glabra*	*shrub*	*FACW*
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.	*Vaccinium corymbosum*	*shrub*	*FACW*
3.	*Quercus nigra*	*tree*	*FAC*	11.	*Smilax rotundifolia*	*vine*	*FAC*
4.	*Myrica cerifera*	*shrub*	*FAC+*	12.	*Pinus taeda*	*tree*	*planted*
5.	*Gelsemium sempervirens*	*vine*	*FAC*	13.			
6.	*Ilex opaca*	*shrub*	*FAC-*	14.			
7.	*Quercus phellos*	*tree*	*FACW-*	15.			
8.	*Liquidambar styraciflua*	*tree*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 20 (in.)
Depth to Saturated Soil: 8 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
x Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *some standing water and some water stained leaves*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3"	*Oi*				*organic*
3-8"	*A*	*7.5 YR 2.5/1*			*silty loam, organic*
8-24+	*Btg*	*10 YR 7/2*	*7.5 YR 7/6*	*many, fine-medium, faint*	*silty clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Saturation at 8", water at 20"*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *30 YR OLD PINE*
Transect ID: *Q*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.	*Persea borbonia*	*tree*	*FACW*
2.	*Smilax bona-nox*	*vine*	*FAC*	10.	*Vaccinium corymbosum*	*shrub*	*FACW*
3.	*Gelsemium sempervirens*	*vine*	*FAC*	11.	*Ilex opaca*	*shrub*	*FAC-*
4.	*Arundinaria gigantea*	*shrub*	*FACW*	12.	*Pinus taeda*	*tree*	*planted*
5.	*Smilax smallii*	*vine*	*FACU*	13.			
6.	*Quercus phellos*	*tree*	*FACW-*	14.			
7.	*Quercus nigra*	*tree*	*FAC*	15.			
8.	*Acer rubrum*	*tree*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [X] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks: *Some water-stained leaves in low rut areas*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*Oi*				*organic*
2-7"	*A*	*7.5 YR 3/1*			*histic, loam, many fine roots*
7-15"	*Btg1*	*10 YR 7/2*			*subangular blocky, friable, silty loam*
15-24+"	*Btg2*	*10YR 6/1*	*10 YR 7/8*	*common, med, distinct*	*coarse subangular blocky, silty clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Mucky layer present at ~1" below surface*
Hydeland is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *30 yr old pine*
Transect ID: *Q*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Myrica cerifera*	*shrub*	*FAC+*	9.	*Pinus taeda*	*shrub*	*planted*
2.	*Smilax rotundifolia*	*vine*	*FAC*	10.	*Chasmanthium laxum*	*herb*	*FACW-*
3.	*Persea borbonia*	*tree*	*FACW*	11.			
4.	*Arundinaria gigantea*	*shrub*	*FACW*	12.			
5.	*Smilax glauca*	*vine*	*FACU*	13.			
6.	*Quercus phellos*	*tree*	*FACW-*	14.			
7.	*Quercus nigra*	*tree*	*FAC*	15.			
8.	*Acer rubrum*	*tree*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *> 75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *Small puddles of standing water*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*Oi*				
1-5"	*A*	*7.5 YR 3/2*			*many fine roots, silt loam*
5-18"	*Btg1*	*2.5 Y 6/3*	*2.5 Y 6/6*	*few, fine faint*	*silty clay loam*
18-24+"	*Btg2*	*2.5 Y 6/2*	*10 YR 6/8*	*many, medium, distinct*	*fine sandy clay loam*
			5 Y 6/1	*few, fine faint*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *5*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Solidago altissima*	*herb.*	*FACU+*	9.			
2.	*Juncus effesus*	*herb.*	*FACW+*	10.			
3.	*Baccharis halimifolia*	*shrub*	*FAC*	11.			
4.	*Typha latifolia*	*herb.*	*OBL*	12.			
5.	*Myrica cerifera*	*shrub*	*FAC+*	13.			
6.	*Dichanthelium*	*herb.*	*FAC*	14.			
7.	*Pinus taeda*	*shrub*	*FAC*	15.			
8.	*Arundinaria gigantea*	*herb.*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: 20 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*Oi*				
1-8"	*A*	*7.5 YR 3/1*			*silt loam*
8-20"	*Bt*	*5 YR 6/3*	*7.5 YR 6/8*	*common, medium, distinct*	*silty clay loam, friable, subangular blocky*
			2.5 YR 8/2	*few, coarse, distinct*	
20-24"	*Btg*	*2.5 YR 6/2*	*10YR 8/4*	*many, medium, faint*	*silty clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *soil saturated below 20"*
Acredale is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *6*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Juncus effesus*	*herb*	*FACW+*	9.	*Panicum virgatum*	*herb*	*FACW*
2.	*Rhycospera inexpansa*	*herb*	*FACW*	10.	*Pinus taeda*	*shrub*	*FAC*
3.	*Solidago altissima*	*herb*	*FACU+*	11.	*Eleocharis tuberculosa*	*herb*	*FACW+*
4.	*Solidago microcephala*	*herb*	*UPL*	12.	*Baccharis halimifolia*	*shrub*	*FACW*
5.	*Rhexia spp.*		*FACW+*	13.	*Hydrocotyle*	*herb*	*FACW*
6.	*Dichanthelium consanguineum*	*herb*	*FAC*	14.	*Carex spp.*	*herb*	*FAC*
7.	*Solidago rugosa*	*herb*	*FAC*	15.			
8.	*Typha latifolia*	*herb*	*OBL*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Field Observations

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7"	*A*	*7.5 YR 3/1*		*Fe accumulation common-med., many, distinct*	*fine sandy clay loam, oxidized rhizospheres*
7-24+"	*Btg*	*10YR 6/1*	*10 YR 6/8*		*fine sandy clay, firm, sticky, oxidized rhizospheres*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- X Other (Explain in Remarks)

Remarks: *Fe accumulations in A horizon*
Hydeland is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *7*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Solidago altissima*	*herb*	*FACU+*	9.	*Acer rubrum*	*shrub*	*FAC*
2.	*Arundinaria gigantea*	*herb*	*FACW*	10.	*Pinus taeda*	*shrub*	*FAC*
3.	*Persea borbonia*	*herb*	*FACW*	11.	*Eupatorium capillifolium*	*herb*	*FACU*
4.	*Liquidambar styraciflua*	*shrub*	*FAC*	12.	*Andropogon virginicus*	*herb*	*FAC-*
5.	*Rhycospera inexpansa*	*herb*	*FACW*	13.			
6.	*Baccharis halimifolia*	*shrub*	*FAC*	14.			
7.	*Panicum verrucosum*	*herb*	*FACW*	15.			
8.	*Solidago rugosa*	*herb*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
__X__ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology features.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*7.5 YR 2.5/1*			*silty clay loam, sticky*
6-12"	*Btg1*	*2.5 Y 7/1*	*2.5 Y 6/8*	*common, med., distinct*	*sandy clay loam, oxidized rhizospheres*
12-24"	*Btg2*	*2.5 Y 6/1*	*2.5 Y 6/8*	*common, coarse, distinct*	*fine sandy clay, sitcky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- X Other (Explain in Remarks)

Remarks: *Oxidized rhizospheres in upper 12"*
Hydeland is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	*BISHOP ROAD MITIGATION SITE*	Date:	
Applicant/Owner:	*NCDOT*	County:	*HYDE*
Investigator(s):	*CINDY CARR, TOM BARRETT*	State:	*NORTH CAROLINA*
Do Normal Circumstances exist on the site?	[Yes] No	Community ID:	*Pine cutover*
Is the site significantly disturbed (Atypical Situation)?	Yes [No]	Transect ID:	*Q*
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes [No]	Plot ID:	*8*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Dichanthelium consanguineum*	*herb*	*FAC*
2.	*Cyrilla racemiflora*	*shrub*	*FACW*	10.	*Smilax smallii*	*Vine*	*FACU*
3.	*Liquidambar styraciflua*	*shrub*	*FAC*	11.	*Rubus spp.*	*Vine*	*FAC*
4.	*Erianthus giganteus*	*herb*	*FACW*	12.	*Quercus nigra*	*shrub*	*FAC*
5.	*Solidago altissima*	*herb*	*FACU+*	13.			
6.	*Eupatorium capillifolium*	*herb*	*FACU*	14.			
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.	*Panicum verrucosum*	*herb*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
- ____ Stream, Lake, or tide Gauge
- ____ Aerial Photographs
- ____ Other

__X__ No Recorded Data Available

Field Observations:

- Depth of Surface Water: __N/A__ (in.)
- Depth to Free Water in Pit: __24__ (in.)
- Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ____ Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- __X__ Local Soil Survey Data
- __X__ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: *FAC Neutral Test applies*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	*A*	*10 YR 2/1*			*Silty clay loam*
5-14"	*Btg1*	*2.5 Y 6/2*	*2.5 Y 6/8*	*common, med., distinct*	*silty clay*
14-24"	*Btg2*	*2.5 Y 7/2*			*silty clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Water in hole at 24"*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** / No
Is the site significantly disturbed (Atypical Situation)? Yes / **No**
Is this area a potential Problem Area? Yes / **No**
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *9*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Erianthus gigantea*	*herb*	*FACW*	9.	*Pinus taeda*	*shrub*	*FAC*
2.	*Persea borbonia*	*shrub*	*FACW*	10.	*Smilax smallii*	*vine*	*FACU*
3.	*Andropogon virginicus*	*herb*	*FAC-*	11.	*Gelsemium sempervirens*	*vine*	*FAC*
4.	*Dichanthelium consanguineum*	*herb*	*FAC*	12.			
5.	*Eleocharis tuberculosa*	*herb*	*FACW+*	13.			
6.	*Solidago altissima*	*herb*	*FACU+*	14.			
7.	*Panicum verrucosum*	*herb*	*FACW*	15.			
8.	*Arundinaria gigantea*	*herb*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	*A*	*10 YR 2/1*			*silty clay loam, sticky, fine roots*
8-12"	*B/E*	*10 YR 5/1*	*10 YR 6/6*	*few, med., faint*	*sandy loam, sticky*
			10 YR 7/1	*sandy inclusions*	
12-24"	*Btg*	*10 YR 5/1*	*10 YR 6/6*	*common, med., faint- distinct*	*sandy clay, sandy inclusions*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Albic sandy inclusions in B horizons are not mottles*
Hydeland is a Hydric A soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *10*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Rhexia mariana*	*herb*	*FACW+*	9.	*Ilex opaca*	*shrub*	*FAC-*
2.	*Magnolia virginiana*	*shrub*	*FACW+*	10.	*Acer rubrum*	*shrub*	*FAC*
3.	*Solidago altissima*	*herb*	*FACU+*	11.			
4.	*Andropogon virginicus*	*herb*	*FAC-*	12.			
5.	*Panicum verrucosum*	*herb*	*FACW*	13.			
6.	*Eupatorium capillifolium*	*herb*	*FACU*	14.			
7.	*Rhyncospora inexpansa*	*herb*	*FACW*	15.			
8.	*Liquidambar styraciflua*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface hydrologic indicators*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	*A*	*10 YR 2/1*			*silty clay loam*
8-16"	*B/E*	*2.5 Y 7/2*			*sandy loam*
16-24+"	*Btg*	*2.5 Y 7/2*	*2.5 Y 6/6*	*common, coarse, distinct*	*sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR,TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *11*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Eleocharis tuberculosa*	*herb*	*FACW+*	9.	*Acer rubrum*	*shrub*	*FAC*
2.	*Panicum verrucosum*	*herb*	*FACW*	10.			
3.	*Erianthus giganteus*	*herb*	*FACW*	11.			
4.	*Andropogon virginicus*	*herb*	*FAC-*	12.			
5.	*Persea borbonia*	*shrub*	*FACW*	13.			
6.	*Solidago altissima*	*herb*	*FACU*	14.			
7.	*Eupatorium capillifolium*	*herb*	*FACU*	15.			
8.	*Liquidambar styraciflua*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: ___ (in.)

Depth to Free Water in Pit: 9 (in.)

Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Stockade mucky sandy loam*

Drainage Class: *Very poorly*

Field Observations

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9"	*A*	*10 YR 2/1*			*mucky sandy loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Stockade is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area?	Yes	No
(If needed, explain on reverse)		

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *12*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Panicum verrucosum*	*herb*	*FACW*	9.	*Pinus taeda*	*shrub*	*FAC*
2.	*Solidago altissima*	*herb*	*FACU+*	10.			
3.	*Andropogon virginicus*	*herb*	*FAC-*	11.			
4.	*Persea borbonia*	*shrub*	*FACW*	12.			
5.	*Rhycospera inexpansa*	*herb*	*FACW*	13.			
6.	*Baccharis halimifolia*	*shrub*	*FAC*	14.			
7.	*Erianthus giganteus*	*herb*	*FACW*	15.			
8.	*Rhexia mariana*	*herb*	*FACW+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __12__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__x__ Local Soil Survey Data
__x__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrologic indicators were observed; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Stockade fine sandy loam*

Drainage Class: *Very poorly*

Field Observations

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*A*	*10 YR 3/1*			*silty clay loam*
4-8"	*BA*	*10 YR 3/1*	*10 YR 5/2*	*few, medium, faint*	*fine sandy clay loam, sticky*
8-12"	*Btg*	*7.5 YR 3/1*	*7.5 YR 6/6*	*sandy inclusions*	*silty clay loam, sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Fine sand inclusions in B horizon, just above water table at 12"*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *Q*
Plot ID: *13*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Juncus effesus*	*herb*	*FACW+*	9.	*Panicum verrucosum*	*herb*	*FAC+*
2.	*Eleocharis sp.*	*herb*	*FACW+*	10.			
3.	*Dichanthelium consanguieum*	*herb*	*FAC*	11.			
4.	*Solidago altissima*	*herb*	*FACU+*	12.			
5.	*Eupatorium capillifolium*	*herb*	*FACU*	13.			
6.	*Persea borbonia*	*shrub*	*FACW*	14.			
7.	*Acer rubrum*	*shrub*	*FAC*	15.			
8.	*Arundinaria gigantea*	*herb*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
x Local Soil Survey Data
x FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Stockade fine sandy loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 2/1*			*silt loam*
6-16"	*Btg1*	*10 YR 7/1*	*10 YR 5/6*	*common, coarse, distinct*	*sandy loam*
16-24+"	*Btg2*	*10 YR 6/1*	*10 YR 5/8*	*common, coarse, distinct*	*sandy clay loam*
				oxidized rhizospheres	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Stockade is a Hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Rhexia marianna*	*herb*	*FACW+*
2.	*Rhycospera inexpansa*	*herb*	*FACW*	10.			
3.	*Solidago altissima*	*herb*	*FACU*	11.			
4.	*Panicum verrucosum*	*herb*	*FAC+*	12.			
5.	*Acer rubrum*	*shrub*	*FAC*	13.			
6.	*Eupatorium capillifolium*	*herb*	*FACU*	14.			
7.	*Solidago microcephala*	*herb*	*UPL*	15.			
8.	*Andropogon virginicus*	*herb*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators.*

SOILS

Map Unit Name (Series and Phase): *Fork fine sandy loam*

Drainage Class: *Somewhat poorly*

Taxonomy (Subgroup): *Aeric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*			*fine sandy loam*
6-8"	*BA*	*10 YR 4/2*		*oxidized rhizospheres*	*fine sandy loam*
8-16"	*Bt*	*2.5 Y 6/4*	*10 YR 5/8*	*common, coarse, distinct*	*sandy clay loam, sticky*
16-24+"	*Btg*	*10 YR 6/1*	*10 YR 6/8*	*common, coarse, distinct*	*sandy clay loam, sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Fork is a hydric B soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, MARTHA BREWSTER, HAROLD BRADY, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Eupatorium capillifolium*	*herb*	*FACU*	9.	*Cyperus sp.*	*herb*	*OBL*
2.	*Andropogon virginicus*	*herb*	*FAC-*	10.			
3.	*Solidago microcephala*	*herb*	*UPL*	11.			
4.	*Rhynchospora inexpansa*	*herb*	*FACW*	12.			
5.	*Hydrocotyle sp.*	*herb*	*FACW*	13.			
6.	*Solidago rugosa*	*herb*	*FAC*	14.			
7.	*Pinus taeda*	*shrub*	*FAC*	15.			
8.	*Myrica cerifera*	*shrub*	*FAC+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 21 (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *Somewhat poorly*

Taxonomy (Subgroup): *Aeric Endoaquults*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*	*5 YR 3/4*	*Fe layers*	*Sandy loam*
6-16"	*Bt*	*2.5 Y 7/3*			*sandy loam*
16-24+"	*Btg*	*2.5 Y 7/1*	*10 YR 6/8*	*common, coarse, distinct*	*sandy clay loam*
					oxidized rhizospheres

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Chapanoke is a Hydric B soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[Yes]	No
Is the site significantly disturbed (Atypical Situation)?	Yes	[No]
Is this area a potential Problem Area?	Yes	[No]
(If needed, explain on reverse)		

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Acer rubrum*	*shrub*	*FAC*	9.	*Solidago altissima*	*herb*	*FACU+*
2.	*Persea borbonia*	*shrub*	*FACW*	10.	*Panicum verrocosum*	*herb*	*FACW*
3.	*Liquidambar styraciflua*	*shrub*	*FAC*	11.	*Rhynchospora inexpansa*	*herb*	*FACW*
4.	*Baccharis halimifolia*	*shrub*	*FAC*	12.			
5.	*Myrica cerifera*	*shrub*	*FAC+*	13.			
6.	*Smilax smallii*	*vine*	*FACU*	14.			
7.	*Quercus nigra*	*shrub*	*FAC*	15.			
8.	*Rubus spp.*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
__X__ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface indicators; however, more than two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *TypicEndoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	*A*	*7.5 YR 3/1*			*silt loam*
4-8"	*BA*	*10 YR 6/3*	*5 YR 3/4*	*common, med., distinct Fe concentrations*	*sandy loam*
			7.5 YR 7/8	*oxidized rhizospheres*	
8-24+"	*Bt*	*2.5 Y 7/6*	*10 YR 5/8*	*few,med, faint*	*sandy loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- X Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil*
Oxidized root channels in upper 12"

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Liquidambar styraciflua*	*shrub*	*FAC*	9.	*Rubus spp.*	*shrub*	*FAC*
2.	*Myrica cerifera*	*shrub*	*FAC+*	10.			
3.	*Arundinaria gigantea*	*herb*	*FACW*	11.			
4.	*Rhyncospora inexpansa*	*herb*	*FACW*	12.			
5.	*Eupatorium capillifolium*	*herb*	*FACU*	13.			
6.	*Andropogon virginiana*	*herb*	*FAC-*	14.			
7.	*Solidago altissima*	*herb*	*FACU+*	15.			
8.	*Smilax laurifolia*	*vine*	*FACW+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __N/A__ (in.)
Depth to Saturated Soil: __N/A__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious surface indicators*

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *Somewhat poorly*

Taxonomy (Subgroup): *Aeric Endoaquults*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	*A*	*10 YR 2/1*			*Silt loam*
2-4"	*BA*	*10 YR 4/2*	*5 YR 3/4*	*Fe conc. Common, medium distinct*	*Silty clay loam*
4-15"	*B*	*2.5 Y 7/4*			*Sandy loam*
15-24"	*Bt*	*2.5 Y 6/8*	*2.5 Y 6/1*	*common, coarse, distinct*	*Sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- [x] Aquic Moisture Regime
- ___ Reducing Conditions
- [x] Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Chapanoke is a Hydric B soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *5*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Eupatorium capillifolium*	*herb*	*FACU*	9.	*Panicum sp.*	*herb*	*FACW*
2.	*Solidago altissima*	*herb*	*FACU+*	10.	*Persea borbonia*	*shrub*	*FACW*
3.	*Andropogon virginiana*	*herb*	*FAC-*	11.	*Rhyncospora inexpansa*	*herb*	*FACW*
4.	*Baccharis halimifolia*	*herb*	*FAC*	12.			
5.	*Quercus rubra*	*shrub*	*FAC*	13.			
6.	*Myrica cerifera*	*herb*	*FACU*	14.			
7.	*Pteridium aquilinium*	*herb*	*FACU*	15.			
8.	*Rubus spp.*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	*A*	*10 YR 3/1*	*7.5 YR 4/8*	*common, med., distinct Fe conc.*	*Silt loam*
6-12"	*B*	*2.5 Y 7/6*	*2.5 Y 5/6*	*few, medium, faint*	*Sandy loam*
12-24+	*Btg*	*2.5 Y 6/1*	*10 YR 5/8*	*common, coarse, distinct*	*Sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a hydric A soil*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *6*

Do Normal Circumstances exist on the site?	**Yes**	No
Is the site significantly disturbed (Atypical Situation)?	Yes	**No**
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	**No**

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Panicum verrucosum*	*herb*	*FACW*	9.	*Rhexia sp.*	*herb*	*FACW*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.			
3.	*Solidago altissima*	*herb*	*FACU+*	11.			
4.	*Eupatorium capillifolium*	*herb*	*FACU*	12.			
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.			
6.	*Rhyncospora fascicularis*	*herb*	*FACW+*	14.			
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Eleocharis sp.*	*herb*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks)
- ___ Stream, Lake, or tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)

Depth to Free Water in Pit: **N/A** (in.)

Depth to Saturated Soil: **15** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- **X** Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- **X** Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: *Some oxidized root channels in Btg1.*

SOILS

Map Unit Name (Series and Phase): *Hydeland silt loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	*OA*				*Organic*
1-7"	*A*	*7.5 YR 3/1*			*Organic silty loam*
7-15"	*Btg1*	*7.5 YR 5/1*	*10 YR 4/3*	*common, fine, distinct*	*Fine sandy clay loam*
15-24+	*Btg2*	*7.5 YR 7/1*	*7.5 YR 7/8*	*common, medium, distinct*	*Fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Hydeland is a Hydric A soil. Saturated at 15 inches.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *R*
Plot ID: *7*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Panicum verrucosum*	*herb*	*FACW*	9.	*Chasmanthium laxum*	*herb*	*FACW-*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Myrica cerifera*	*shrub*	*FAC+*
3.	*Solidago altissima*	*herb*	*FACU+*	11.	*Smilax bona-nox*	*vine*	*FAC*
4.	*Eupatorium capillifolium*	*herb*	*FACU*	12.	*Pinus taeda*	*shrub*	*FAC*
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.	*Eleocharis sp.*	*herb*	*FACW*
6.	*Juncus effusus*	*herb*	*FACW+*	14.			
7.	*Erechtites hieracifolia*	*herb*	*FAC-*	15.			
8.	*Pteridium aquilinum*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 20 (in.)
Depth to Saturated Soil: 13 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *Some oxidized root channels in Btg1.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	*OA*				*Organic*
1-7"	*A*	*2.5 YR 4/1*			*Fine sandy loam*
7-13"	*Btg1*	*10 YR 7/3*	*10 YR 6/8*	*few, faint, fine*	*Fine sandy clay loam*
13-24+	*Btg2*	*10 YR 7/2*	*7.5 YR 7/8*	*common, coarse, distinct*	*Fine sandy clay*
			7.5 YR 6/1	*common, coarse, distinct*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil. Saturated at 15 inches.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *Pine cutover*
Transect ID: *S*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Panicum verrucosum*	*herb*	*FACW*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Pinus taeda*	*shrub*	*FAC*
3.	*Hydrocotyle sp.*	*herb*	*FACW*	11.			
4.	*Eupatorium capillifolium*	*herb*	*FACU*	12.			
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.			
6.	*Cladium jamaicense*	*herb*	*OBL*	14.			
7.	*Polygonum sp.*	*herb*	*FAC*	15.			
8.	*Rubus spp.*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 20 (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [X] Other (Explain in Remarks)

Remarks: *Very close proximity to marsh.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup) *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*			*silt loam*
6-12"	*B*	*2.5 Y 7/3*			*sandy loam*
12-24+	*Btg*	*10 YR 6/1*	*10 YR 5/8*	*common, med., distinct*	*Fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- x Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

Community ID: *Pine cutover*
Transect ID: *S*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Pinus taeda*	*shrub*	*FAC*
3.	*Hydrocotyle sp.*	*herb*	*FACW*	11.	*Chasmanthium laxum*	*herb*	*FACW-*
4.	*Eupatorium capillifolium*	*herb*	*FACU*	12.	*Arundinaria gigantea*	*herb*	*FACW*
5.	*Liquidambar styraciflua*	*shrub*	*FAC*	13.	*Carex sp.*	*herb*	*FAC*
6.	*Acer rubrum*	*shrub*	*FAC*	14.	*Smilax sp.*	*herb*	*FAC*
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.	*Solidago altissima*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 20 (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[X] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[X] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 4/1*			*fine sandy loam*
6-9"	*B/A*	*2.5 Y 6/4*	*1 G 5/10 Y*	*common, coarse, distinct*	*sandy loam*
9-16"	*B*	*2.5 Y 6/3*	*2.5 Y 6/6*	*few, coarse, faint*	*sandy loam*
16-24+	*Btg*	*2.5 Y 6/2*	*2.5 Y 6/8*	*common, medium, distinct*	*sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- x Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Acredale is a Hydric A soil. Oxidized rhizospheres and sulfur smell noted.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *S*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Panicum verrucosum*	*herb*	*FACW*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Liquidambar styraciflua*	*tree*	*FAC*
3.	*Solidago altissima*	*herb*	*FACU*	11.			
4.	*Arundinaria gigantea*	*herb*	*FACW*	12.			
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.			
6.	*Myrica cerifera*	*shrub*	*FAC+*	14.			
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Eupatorium capillifolium*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
____ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators*

SOILS

Map Unit Name (Series and Phase): *Chapanoke silt loam*

Drainage Class: *Somewhat poorly*

Field Observations

Taxonomy (Subgroup): *Aeric Endoaquults*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				*organic*
1-5"	*A*	*5 YR 4/1*			*fine sandy loam*
5-13"	*B1*	*10 YR 7/4*	*7.5 YR 7/6*	*common, med., faint*	*silty loam*
13-24+	*B2*	*2.5 Y 7/6*	*7.5 YR 7/1*	*coarse, common, distinct*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Chapanoke is a hydric B soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *Pine cutover*
Transect ID: *S*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Persea borbonia*	*shrub*	*FACW*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Pinus taeda*	*shrub*	*FAC*
3.	*Ilex glabra*	*shrub*	*FACW*	11.	*Ilex opaca*	*shrub*	*FAC*
4.	*Quercus phellos*	*shrub*	*FACW*	12.			
5.	*Liquidambar styraciflua*	*shrub*	*FAC*	13.			
6.	*Smilax laurifolia*	*vine*	*FACW*	14.			
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.	*Smilax smallii*	*vine*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 17 (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Fork fine sandy loam*

Drainage Class: *Somewhat poorly*

Field Observations

Taxonomy (Subgroup): *Aeric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 2/1*			*mucky sandy loam*
6-12"	*Btg1*	*2.5 Y 6/3*			*Organic streaking, sandy clay loam*
12-24+	*Btg2*	*2.5 Y 6/8*	*2.5 Y 6/2*	*common, medium, distinct*	*sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- x Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Fork fine sandy loam is classified as a Hydric B soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *Pine cutover*
Transect ID: *T*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Ilex glabra*	*shrub*	*FACW*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Quercus stellata*	*shrub*	*FACU*	10.	*Liquidambar styraciflua*	*tree*	*FAC*
3.	*Solidago altissima*	*herb*	*FACU*	11.	*Acer rubrum*	*shrub*	*FAC*
4.	*Arundinaria gigantea*	*herb*	*FACW*	12.	*Rhexia sp.*	*herb*	*FACW*
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.	*Smilax rotundifolia*	*vine*	*FAC*
6.	*Myrica cerifera*	*shrub*	*FAC+*	14.	*Rhyncospora fascicularis*	*herb*	*FACW+*
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Eupatorium capillifolium*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: 18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Acredale silt loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				*organic*
1-10"	*A*	*7.5 YR 5/2*			*many fine roots, silty loam*
10-18"	*Btg1*	*10 YR 7/4*	*2.5 Y 7/2*	*few, med., faint*	*silty clay loam*
18-30+	*Btg2*	*10 YR 7/3*	*2.5 Y 7/1*	*common, coarse, distinct*	*silty clay*
			7.5 YR 6/8	*common, medium*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Oxidized rhizospheres in the A horizon. Acredale silt loam is classified as a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, TOM BARRETT*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *Pine cutover*
Transect ID: *T*
Plot ID: *2*

Do Normal Circumstances exist on the site?	**Yes**	No
Is the site significantly disturbed (Atypical Situation)?	Yes	**No**
Is this area a potential Problem Area?	Yes	**No**
(If needed, explain on reverse)		

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Carex sp.*	*herb*	*FACW*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Scirpus sp.*	*herb*	*FACW*	10.	*Pinus taeda*	*shrub*	*FAC*
3.	*Solidago altissima*	*herb*	*FACU*	11.	*Acer rubrum*	*shrub*	*FAC*
4.	*Panicum verrucosum*	*herb*	*FACW*	12.	*Juncus sp.*	*herb*	*FACW*
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.			
6.	*Myrica cerifera*	*shrub*	*FAC+*	14.			
7.	*Chasmanthium laxum*	*herb*	*FACW-*	15.			
8.	*Baccharis halimifolia*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No obvious hydrological indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Yonges loam*

Drainage Class: *Poorly*

Field Observations

Taxonomy (Subgroup): *Typic endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*A*	*10 YR 3/2*			*silt loam*
2-12"	*Bt*	*2.5 Y 6/3*	*2.5 Y 6/8*	*common, medium, distinct*	*Oxidized rhizo., sandy clay loam*
12-24+	*Btg1*	*2.5 Y 6/1*	*10 YR 6/8*	*common, coarse, distinct*	*fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Oxidized rhizospheres in the A horizon. Yonges loam is classified as a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *UNPLANTED*
Transect ID: *U*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.	*Smilax smallii*	*vine*	*FACU*
2.	*Myrica cerifera*	*shrub*	*FAC+*	10.	*Smilax bona-nox*	*vine*	*FAC*
3.	*Pinus taeda*	*tree*	*FAC*	11.	*Liquidambar styraciflua*	*shrub*	*FAC*
4.	*Solidago altissima*	*herb*	*FACU*	12.	*Acer rubrum*	*shrub*	*FAC*
5.	*Aristida virgata*	*herb*	*FACW-*	13.	*Andropogon virginicus*	*herb*	*FACU*
6.	*Chasmanthium laxum*	*herb*	*FACW+*	14.	*Solidago tenuifolia*	*herb*	*NA*
7.	*Solidago microcephala*	*herb*	*NA*	15.			
8.	*Gelsemium sempervirens*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology indicators.*

SOILS

Map Unit Name (Series and Phase): *Fork fine sandy loam*

Drainage Class: *Somewhat poorly drained*

Taxonomy (Subgroup): *Aeric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				
1-6"	*A*	*5 YR 4/1*			*silty loam*
6-20"	*B1*	*10 YR 6/4*	*7.5 YR 6/8; 7.5 YR 7/2*	*many, med, dist; few, crs, dist*	*silty clay loam*
20-24"+	*B2*	*7.5 YR 6/1*	*10 YR 6/8*	*common, coarse, prominent;*	*silty clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Fork is a hydric B soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? Yes [No]

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, HAROLD BRADY*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *UNPLANTED*
Transect ID: *U*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Baccharis halimifolia*	*shrub*	*FAC*	9.	*Juncus coriaceus*	*herb*	*FACW*
2.	*Pinus taeda*	*shrub*	*FAC*	10.	*Panicum anceps*	*herb*	*FAC-*
3.	*Solidago altissima*	*herb*	*FACU*	11.	*Chasmanthium laxum*	*herb*	*FACW-*
4.	*Andropogon virginicus*	*herb*	*FACU*	12.	*Mikania scandens*	*vine*	*FACW*
5.	*Rhynchospora inexpansa*	*herb*	*FACW*	13.	*Rubus sp.*	*shrub*	*NA*
6.	*Juncus effusus*	*herb*	*FACW-*	14.			
7.	*Smilax bona-nox*	*vine*	*FAC*	15.			
8.	*Acer rubrum*	*shrub*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 20 (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *Some water stained leaves in low depressions.*

SOILS

Map Unit Name (Series and Phase): *Yonges loam*

Drainage Class: *Poorly drained*

Field Observations

Taxonomy (Subgroup): *Typic Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				
1-7"	*A*	*7.5 YR 3/1*			*sandy loam*
7-15"	*Bg*	*10 YR 6/2*	*10 YR 7/8*	*few, fine, faint*	*sandy loam*
15-24"+	*Bt*	*10 YR 7/3*	*10 YR 6/1*	*common, coarse, distinct;*	*sandy clay*
			2.5 Y 6/8	*common, coarse, prominent*	

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Yonges is listed as a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *2 YEAR OLD PINE*
Transect ID: *V*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Solidago tenuifolia*	*herb*	*UPL*	9.	*Aster dumosa*	*herb*	*FAC*
2.	*Juncus effusus*	*herb*	*FACW-*	10.	*Panicum verrucosum*	*herb*	*FACW*
3.	*Solidago fistulosa*	*herb*	*FAC+*	11.			
4.	*Eupatorium capillifolium*	*herb*	*FACU*	12.			
5.	*Baccharis halimifolia*	*shrub*	*FAC*	13.			
6.	*Lonicera japonica*	*vine*	*FAC*	14.	*Pinus taeda*	*planted*	
7.	*Dichanthelium consanguineu*	*herb*	*FAC*	15.			
8.	*Rubus sp*	*shrub*	*NA*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology indicators.*

SOILS

Map Unit Name (Series and Phase): *Stockade mucky sandy loam*

Drainage Class: *Very poorly drained*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12"	*A*	*10 YR 3/1*			*fine silty clay loam*
12-28"	*Btg*	*10 YR 5/1*	*10 YR 5/3*	*few, fine, faint*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Stockade is listed as a Hydric A soil. Few oxidized root channels in the upper portion of the Btg horizon.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *2 YEAR OLD PINE*
Transect ID: *V*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Eupatorium capillifolium*	*herb*	*FACU*	9.	*Smilax glauca*	*herb*	*FAC*
2.	*Solidago fistulosa*	*herb*	*FAC+*	10.	*Ambrosia artemisiifolia*	*herb*	*FACU*
3.	*Solidago microcephala*	*herb*	*UPL*	11.	*Setaria sp.*	*herb*	*FACU*
4.	*Dichanthelium consanguineu.*	*herb*	*FAC*	12.			
5.	*Andropogon virginicus*	*herb*	*FAC-*	13.			
6.	*Erianthus gigantea*	*herb*	*FACW*	14.	*Pinus taeda*	*planted*	
7.	*Panicum verrucosum*	*herb*	*FACW*	15.			
8.	*Lonicera japonica*	*vine*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology indicators.*

SOILS

Map Unit Name (Series and Phase): *Stockade mucky sandy loam*

Drainage Class: *Very poorly drained*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*7.5 YR 3/1*			*fine sandy clay loam*
6-12"	*Bt*	*10 YR 5/1*	*7.5 YR 6/8*	*few, medium distinct*	*fine sandy clay loam*
12-24+	*Btg*	*10 YR 5/1*	*7.5 YR 6/8*	*many, coarse, prominent*	*fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Stockade is listed as a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *2 YEAR OLD PINE*
Transect ID: *W*
Plot ID: *1*

Do Normal Circumstances exist on the site?	**Yes**	No
Is the site significantly disturbed (Atypical Situation)?	Yes	**No**
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	**No**

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Solidago fistulosa*	*herb*	*FAC+*	9.	*Juncus sp.*	*herb*	*FAC*
2.	*Juncus effusus*	*herb*	*FACW-*	10.	*Panicum anceps*	*herb*	*FAC-*
3.	*Dichanthelium consanguineu.*	*herb*	*FAC*	11.	*Eupatorium capillifolium*	*herb*	*FACU*
4.	*Panicum verrucosum*	*herb*	*FACW*	12.			
5.	*Baccharis halimifolia*	*shrub*	*FAC*	13.			
6.	*Erianthus gigantea*	*herb*	*FACW*	14.	*Pinus taeda*	*planted*	
7.	*Solidago microcephala*	*herb*	*NA*	15.			
8.	*Polygonum sp.*	*herb*	*FAC*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *Standing water in the bottoms of low furrows.*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly drained*

Field Observations

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Confirm Mapped Type? **Yes** No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12"	*A*	*10 YR 3/1*			*silty clay loam*
12-20"	*Btg1*	*10 YR 4/1*			*fine sandy clay loam*
20-24+	*Btg2*	*10 YR 4/1*	*10 YR 5/8*	*common, coarse, distinct*	*fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is classified as a Hydric A soil. Few oxidized root channels in Btg1 and Btg2 horizons.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? **Yes** No

Wetland Hydrology Present? **Yes** No

Hydric Soils Present? **Yes** No

Is this Sampling Point Within a Wetland? **Yes** No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [X] Yes [ ] No
Is the site significantly disturbed (Atypical Situation)? [ ] Yes [X] No
Is this area a potential Problem Area? [ ] Yes [X] No
(If needed, explain on reverse)

Community ID: *2 YEAR OLD PINE*
Transect ID: *W*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Juncus effusus*	*herb*	*FACW-*	9.	*Andropogon virginicus*	*herb*	*FAC-*
2.	*Chasmanthium laxum*	*herb*	*FACW-*	10.	*Polygonum sp*	*herb*	*FAC-*
3.	*Eupatorium capillifolium*	*herb*	*FACU*	11.	*Lonicera japonica*	*vine*	*FAC*
4.	*Baccharis halimifolia*	*shrub*	*FAC*	12.			
5.	*Solidago microcephala*	*herb*	*NA*	13.			
6.	*Solidago fistulosa*	*herb*	*FAC+*	14.	*Pinus taeda*	*planted*	
7.	*Dichanthelium consanguineu.*	*herb*	*FAC*	15.			
8.	*Panicum verrucosum*	*herb*	*FACW*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[X] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *Standing water in the bottoms of low furrows.*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly drained*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12"	*A*	*10 YR 3/1*			*silty clay loam*
12-24+"	*Btg*	*7.5 YR 4/1*	*7.5 YR 5/2*	*few, fine, faint*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is classified as a Hydric A soil. Few oxidized root channels in lower Btg horizon.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *2 YEAR OLD PINE*
Transect ID: *W*
Plot ID: *3*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Panicum verrucosum*	*herb*	*FACW*	9.	*Rubus sp.*	*shrub*	*NA*
2.	*Solidago fistulosa*	*herb*	*FAC+*	10.	*Lonicera japonica*	*vine*	*FAC*
3.	*Baccharis halimifolia*	*shrub*	*FAC*	11.	*Solidago altissima*	*herb*	*FACU*
4.	*Dichanthelium consanguineu*	*herb*	*FAC*	12.			
5.	*Panicum anceps*	*herb*	*FAC-*	13.			
6.	*Eupatorium capillifolium*	*herb*	*FACU*	14.	*Pinus taeda*	*planted*	
7.	*Phragmites australis*	*herb*	*FACW*	15.			
8.	*Juncus effusus*	*herb*	*FACW-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology indicators.*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly drained*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	*A*	*7.5YR 2.5/1*			*silt loam; many fine roots*
8-12"	*BA*	*7.5 YR 4/1*	*10 YR 5/6*	*few, medium, distinct*	*silt loam*
12-28+	*Btg*	*2.5 Y 6/1*	*10 YR 8/8*	*common, medium, distinct*	*clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is classified as a Hydric A soil. Few oxidized root channels in BA and Btg horizons.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Do Normal Circumstances exist on the site? [Yes] No
Is the site significantly disturbed (Atypical Situation)? Yes [No]
Is this area a potential Problem Area? Yes [No]
(If needed, explain on reverse)

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *2 YEAR OLD PINE*
Transect ID: *W*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Aster dumosa*	*herb*	*FAC*	9.	*Eleocharis tuberculosa*	*herb*	*FACW+*
2.	*Andropogon virginicus*	*herb*	*FAC-*	10.	*Gelsemium sempervirens*	*herb*	*FAC*
3.	*Eupatorium capillifolium*	*herb*	*FACU*	11.			
4.	*Panicum verrucosum*	*herb*	*FACW*	12.			
5.	*Baccharis halimifolia*	*shrub*	*FAC*	13.			
6.	*Dichanthelium consanguineu.*	*herb*	*FAC*	14.	*Pinus taeda*	*planted*	
7.	*Rubus sp*	*shrub*	*NA*	15.			
8.	*Rhynchospora fascicularis*	*herb*	*FACW+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *No obvious surface hydrology indicators.*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly drained*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6"	*A*	*10 YR 3/1*			*silty clay loam*
6-14"	*Btg1*	*10 YR 4/1*			*fine sandy clay loam*
14-24+	*Btg2*	*7.5 YR 5/1*	*10 YR 5/8*	*common, medium, distinct*	*fine sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is classified as a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? Yes No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *MARTHA BREWSTER, TOM BARRETT*

Do Normal Circumstances exist on the site? **Yes** No
Is the site significantly disturbed (Atypical Situation)? Yes **No**
Is this area a potential Problem Area? Yes **No**
(If needed, explain on reverse)

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *2 YEAR OLD PINE*
Transect ID: *W*
Plot ID: *5*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Erigeron canadensis*	*herb*	*FACW*	9.	*Rubus sp.*	*shrub*	*NA*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Lonicera japonica*	*herb*	*FAC*
3.	*Juncus effusus*	*herb*	*FACW*	11.	*Polygonum sp*	*herb*	*FAC*
4.	*Eupatorium capillifolium*	*herb*	*FACU*	12.	*Panicum verrucosum*	*herb*	*FACW*
5.	*Panicum anceps*	*herb*	*FAC-*	13.			
6.	*Typha sp.*	*herb*	*OBL*	14.	*Pinus taeda*	*planted*	
7.	*Solidago fistulosa*	*herb*	*FAC+*	15.			
8.	*Eleocharis tuberculosa*	*herb*	*FACW+*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks)
___ Stream, Lake, or tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: *Standing water in low portions of row furrows.*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly drained*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	*A*	*10 YR 3/1*			*silt loam;many fine roots*
8-16"	*Btg1*	*10 YR 5/1*	*2.5 Y 6/6*	*few, medium, distint*	*fine sandy clay loam*
16-24+	*Btg2*	*7.5 YR 5/1*	*7.5 YR 5/8*	*common, medium, distinct*	*fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is classified as a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *Pine cutover*
Transect ID: *X*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Dichanthelium consanguineum*	*herb*	*FAC*	9.			
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.			
3.	*Solidago altissima*	*herb*	*FACU+*	11.			
4.	*Osmunda regalis*	*herb*	*OBL*	12.			
5.	*Rubus spp.*	*shrub*	*FAC*	13.			
6.	*Juncus effusus*	*herb*	*FACW+*	14.			
7.	*Lonicera japonica*	*vine*	*FAC*	15.			
8.	*Pteridium aquilinum*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No observed hydrological indicators*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12"	*A*	*7.5 YR 3/1*			*sandy loam*
12-24"	*Btg*	*2.5 YR 6/1*	*7.5 YR 6/8*	*many, medium, distinct*	*sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	[Yes]	No
Is the site significantly disturbed (Atypical Situation)?	Yes	[No]
Is this area a potential Problem Area?	Yes	[No]
(If needed, explain on reverse)		

Community ID: *Pine cutover*
Transect ID: *X*
Plot ID: *2*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Dichanthelium consanguineum*	*herb*	*FAC*	9.	*Eupatorium capillifolium*	*herb*	*FACU*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Andropogon virginicus*	*herb*	*FAC-*
3.	*Solidago altissima*	*herb*	*FACU+*	11.	*Arundinaria gigantea*	*herb*	*FACW*
4.	*Panicum virgatum*	*herb*	*FAC*	12.	*Erianthus gigantea*	*herb*	*FACW*
5.	*Rubus spp.*	*shrub*	*FAC*	13.			
6.	*Juncus effusus*	*herb*	*FACW+*	14.			
7.	*Lonicera japonica*	*vine*	*FAC*	15.			
8.	*Pteridium aquilinum*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: __N/A__ (in.)
Depth to Free Water in Pit: __20__ (in.)
Depth to Saturated Soil: __15__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No observed hydrological indicators*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	*O*				*Organic*
1-12"	*A*	*5 YR 4/1*			*silty loam, friable, many fine roots*
12-24+	*Btg*	*2.5 YR 6/1*	*10 YR 6/8*	*many, medium, distinct*	*silty clay, firm, sticky*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Soil saturated at 15" in Btg horizon*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? Yes [No]

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? Yes [No]

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? [X] Yes [ ] No
Is the site significantly disturbed (Atypical Situation)? [ ] Yes [X] No
Is this area a potential Problem Area? [ ] Yes [X] No
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *X*
Plot ID: *3*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Pinus taeda*	*shrub*	*planted*	9.			
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.			
3.	*Solidago altissima*	*herb*	*FACU+*	11.			
4.	*Panicum virgatum*	*herb*	*FAC*	12.			
5.	*Arundinaria gigantea*	*herb*	*FACW*	13.			
6.	*Eupatorium capillifolium*	*herb*	*FACU*	14.			
7.	*Andropogon virginicus*	*herb*	*FAC-*	15.			
8.				16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
[ ] Stream, Lake, or tide Gauge
[ ] Aerial Photographs
[ ] Other
[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
[ ] Inundated
[ ] Saturated in Upper 12 Inches
[ ] Water Marks
[ ] Drift Lines
[ ] Sediment Deposits
[ ] Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
[ ] Oxidized Root Channels in Upper 12 Inches
[ ] Water-Stained Leaves
[X] Local Soil Survey Data
[X] FAC-Neutral Test
[ ] Other (Explain in Remarks)

Remarks: *No observed hydrological indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Argent loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	*A*	*5 YR 4/1*			*silty loam, many fine roots*
8-24"	*Btg*	*2.5 YR 6/1*	*7.5 YR 6/8*	*many, medium, distinct*	*silty clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Soil saturated at 15" in Btg horizon*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site? **Yes** / No
Is the site significantly disturbed (Atypical Situation)? Yes / **No**
Is this area a potential Problem Area? Yes / **No**
(If needed, explain on reverse)

Community ID: *Pine cutover*
Transect ID: *X*
Plot ID: *4*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Dichanthelium consanguineum*	*herb*	*FAC*	9.	*Eupatorium capillifolium*	*herb*	*FACU*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Smilax rotundifolia*	*vine*	*FAC*
3.	*Solidago altissima*	*herb*	*FACU+*	11.	*Arundinaria gigantea*	*herb*	*FACW*
4.	*Panicum virgatum*	*herb*	*FAC*	12.	*Polygonum spp.*	*herb*	*FAC*
5.	*Rubus spp.*	*shrub*	*FAC*	13.	*Myrica heterophylla*	*shrub*	*FACW*
6.	*Juncus effusus*	*herb*	*FACW+*	14.	*Pinus taeda*	*shrub*	*planted*
7.	*Eleocharis spp.*	*herb*	*FACW*	15.			
8.	*Solidago microchephala*	*herb*	*FACU*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
X No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **15** (in.)
Depth to Saturated Soil: **8** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
X Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
X Local Soil Survey Data
____ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly*

Field Observations

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"	*A*	*5 YR 3/1*			*mucky silt loam, bedded row*
14-24+	*Btg*	*2.5 YR 6/1*	*7.5 YR 6/8*	*many, medium, distinct*	*silty clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- x Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Soil saturated at 8 inches.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/30/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Community ID: *Pine cutover*
Transect ID: *X*
Plot ID: *5*

Do Normal Circumstances exist on the site?	[X] Yes	[ ] No
Is the site significantly disturbed (Atypical Situation)?	[ ] Yes	[X] No
Is this area a potential Problem Area? (If needed, explain on reverse)	[ ] Yes	[X] No

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Carex sp.*	*herb*	*FACW*	9.	*Acer rubrum*	*shrub*	*FAC*
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.	*Chasmanthium laxum*	*herb*	*FACW-*
3.	*Solidago altissima*	*herb*	*FACU+*	11.	*Pinus taeda*	*shrub*	*planted*
4.	*Scirpus cyperinus*	*herb*	*FACW*	12.	*Panicum verrucosum*	*herb*	*FACW*
5.	*Rhyncospora inexpansa*	*herb*	*FACW*	13.			
6.	*Juncus effusus*	*herb*	*FACW+*	14.			
7.	*Myrica cerifera*	*shrub*	*FAC+*	15.			
8.	*Andropogon virginicus*	*herb*	*FAC-*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>75%*

Remarks:

HYDROLOGY

[ ] Recorded Data (Describe in Remarks)
- [ ] Stream, Lake, or tide Gauge
- [ ] Aerial Photographs
- [ ] Other

[X] No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [X] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [X] Local Soil Survey Data
- [X] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): *Yonges loam*

Drainage Class: *Poorly*

Taxonomy (Subgroup): *Typic Endoaqualfs*

Field Observations Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	*A*	*10 YR 3/2*			*silt loam*
2-12"	*Btg1*	*2.5 Y 6/3*	*2.5 Y 6/8*	*common, medium, distinct*	*Oxidized rhizospheres, sandy clay loa*
12-24+	*Btg2*	*2.5 Y 6/1*	*10 YR 6/8*	*common, distinct, coarse*	*fine sandy clay*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Yonges is a hydric A soil. Soil is in oxidized state.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: *BISHOP ROAD MITIGATION SITE*
Applicant/Owner: *NCDOT*
Investigator(s): *CINDY CARR, HAROLD BRADY*

Date: *11/29/2001*
County: *HYDE*
State: *NORTH CAROLINA*

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is this area a potential Problem Area? (If needed, explain on reverse)	Yes	No

Community ID: *Pine cutover*
Transect ID: *Y*
Plot ID: *1*

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	*Typha latifolia*	*herb*	*OBL*	9.			
2.	*Baccharis halimifolia*	*shrub*	*FAC*	10.			
3.	*Solidago altissima*	*herb*	*FACU+*	11.			
4.	*Myrica heterophylla*	*shrub*	*FACW*	12.			
5.	*Cyperus sp.*	*herb*	*FAC*	13.			
6.	*Andropogon virginicus*	*herb*	*FAC-*	14.			
7.	*Distichlis spicata*	*herb*	*FACW*	15.			
8.	*Cladium jamaicense*	*herb*	*OBL*	16.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). *>50%*

Remarks:

HYDROLOGY

____ Recorded Data (Describe in Remarks)
____ Stream, Lake, or tide Gauge
____ Aerial Photographs
____ Other
__X__ No Recorded Data Available

Field Observations:

Depth of Surface Water: **N/A** (in.)
Depth to Free Water in Pit: **N/A** (in.)
Depth to Saturated Soil: **N/A** (in.)

Wetland Hydrology Indicators:
Primary Indicators:
____ Inundated
____ Saturated in Upper 12 Inches
____ Water Marks
____ Drift Lines
____ Sediment Deposits
____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
____ Oxidized Root Channels in Upper 12 Inches
____ Water-Stained Leaves
__X__ Local Soil Survey Data
__X__ FAC-Neutral Test
____ Other (Explain in Remarks)

Remarks: *No observed hydrological indicators; however, two secondary indicators exist.*

SOILS

Map Unit Name (Series and Phase): *Brookman loam*

Drainage Class: *Very poorly*

Taxonomy (Subgroup): *Umbric Endoaqualfs*

Field Observations
Confirm Mapped Type? [Yes] No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14"	*A*	*7.4 YR 3/1*			*sandy loam*
14-24+	*Btg*	*7.5 YR 7/1*	*7.5 YR 7/8*	*many, medium, distinct*	*sandy clay loam*

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- x Aquic Moisture Regime
- ___ Reducing Conditions
- x Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- x Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: *Brookman loam is a Hydric A soil.*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Yes] No

Wetland Hydrology Present? [Yes] No

Hydric Soils Present? [Yes] No

Is this Sampling Point Within a Wetland? [Yes] No

Remarks:

Approved by HQUSACE 3/92

Appendix E

Design Sheets

Appendix E

Design Sheets

NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

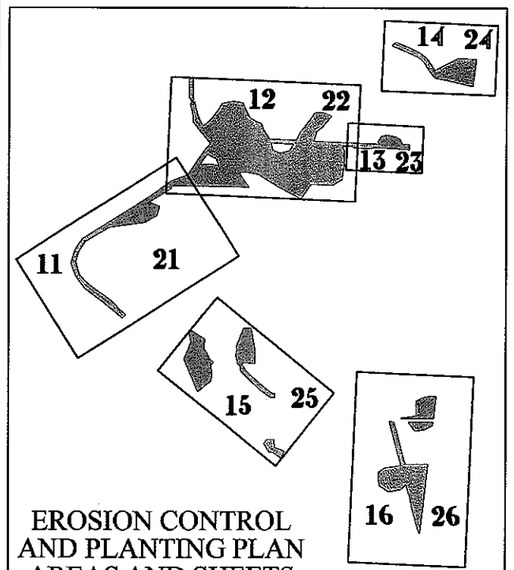
DIVISION OF WATER QUALITY

NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM

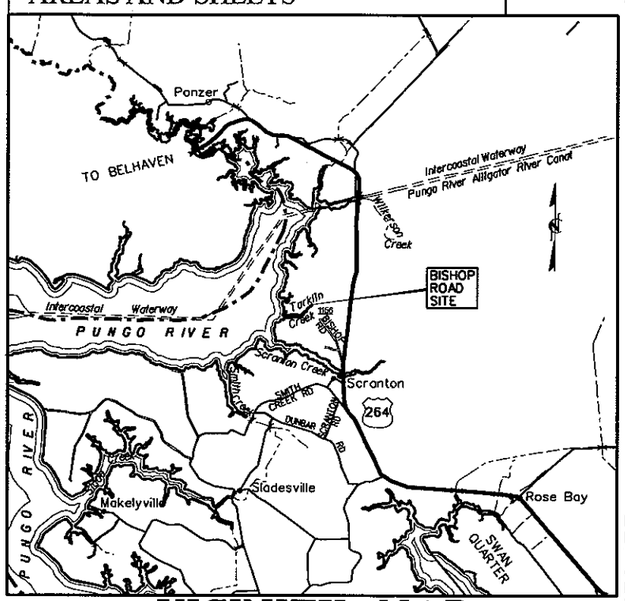
WETLAND RESTORATION

BISHOP ROAD

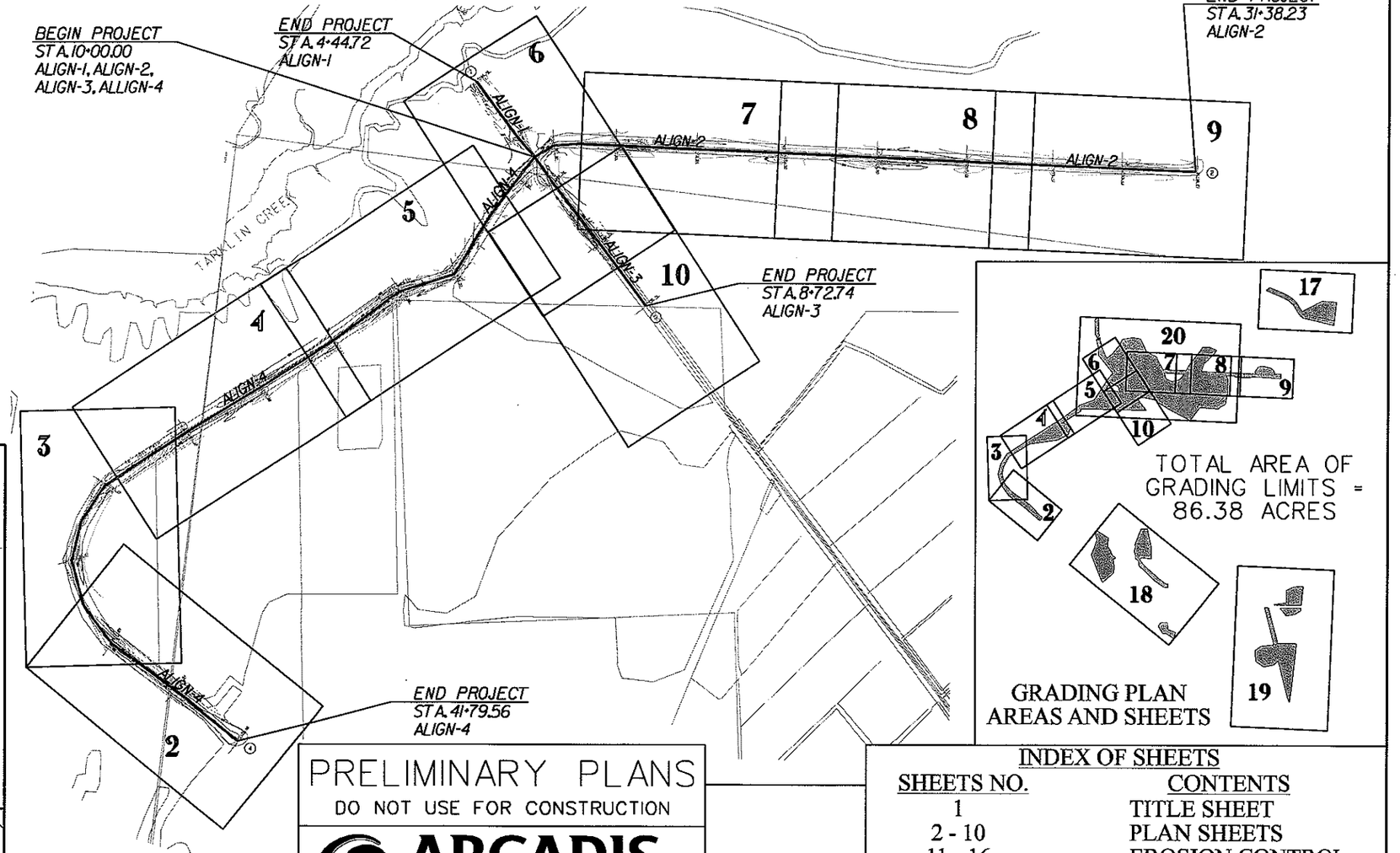
HYDE COUNTY, NORTH CAROLINA



EROSION CONTROL AND PLANTING PLAN AREAS AND SHEETS



VICINITY MAP



TOTAL AREA OF GRADING LIMITS = 86.38 ACRES

GRADING PLAN AREAS AND SHEETS

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

PRELIMINARY PLANS

DO NOT USE FOR CONSTRUCTION

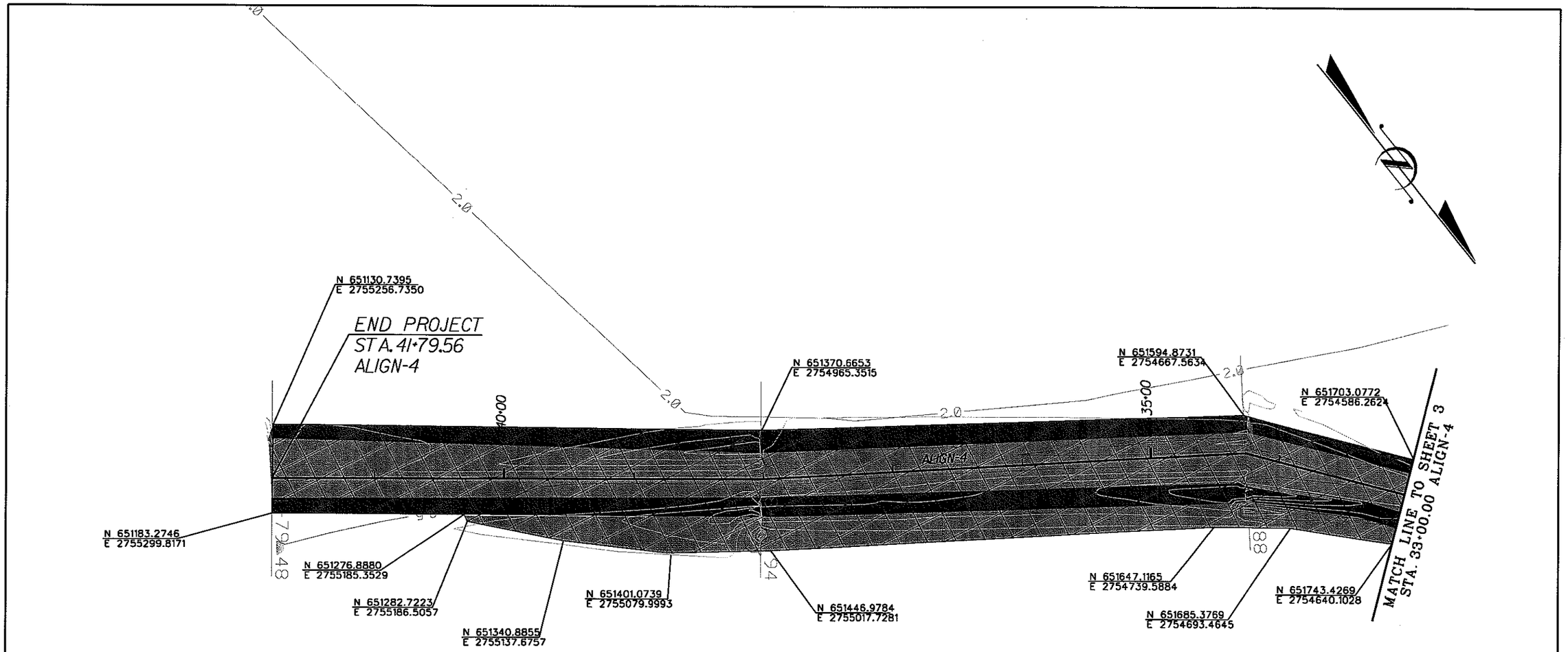
ARCADIS
G & M of North Carolina, Inc.
WWW.ARCADIS-US.COM
801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

DESIGN ENGINEER

INDEX OF SHEETS

SHEETS NO.	CONTENTS
1	TITLE SHEET
2 - 10	PLAN SHEETS
11 - 16	EROSION CONTROL
17 - 20	GRADING PLANS
21 - 26	PLANTING PLANS
27	DETAILS
28 - 32	CROSS SECTIONS

g:\hyd\606002_bishoproad\hydro\Bishop Rd._Title01.dgn
8/15/2006



FILL 20' SECTION OF DITCH

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

ARCADIS
G & M of North Carolina, Inc.
WWW.ARCADIS-US.COM
801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

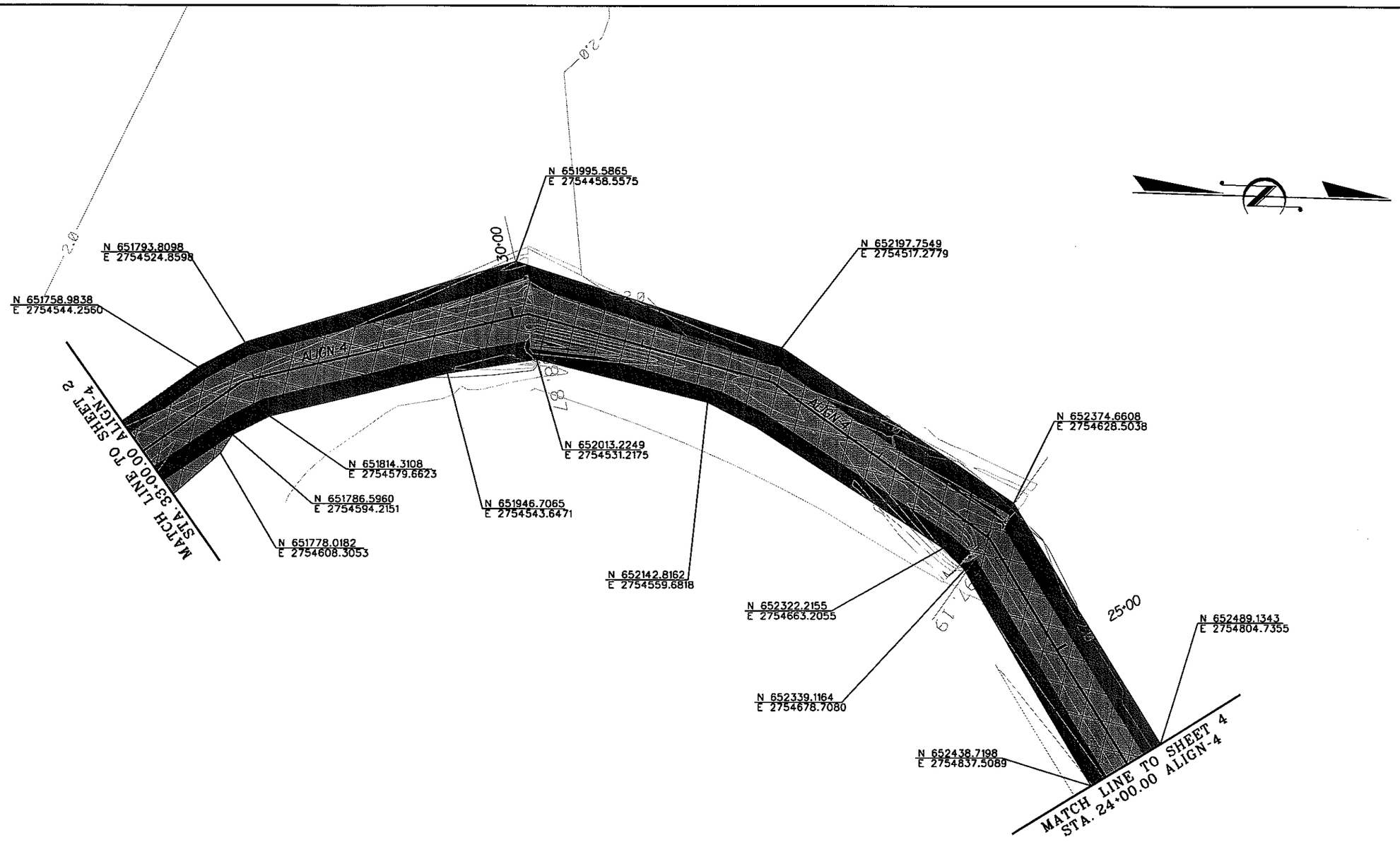
	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 2

Date: 8/15/2006
Filename: g:\tro\6006002_bishoproad\hydro\Bishop Rd_Sheet02.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

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Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 3

Date: 8/14/2006
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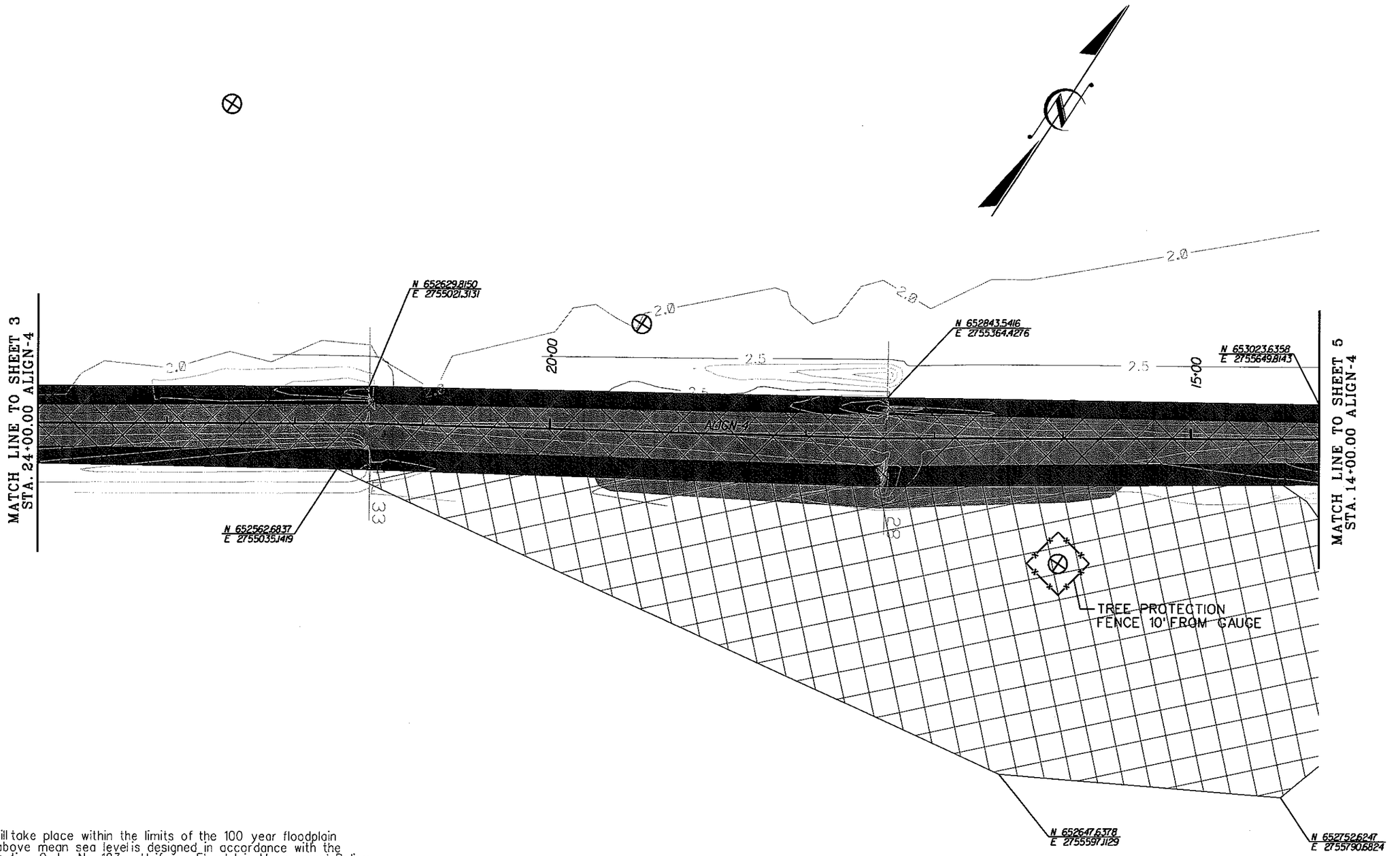

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

ARCADIS
G & M of North Carolina, Inc.
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801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 4

Date: 8/14/2006
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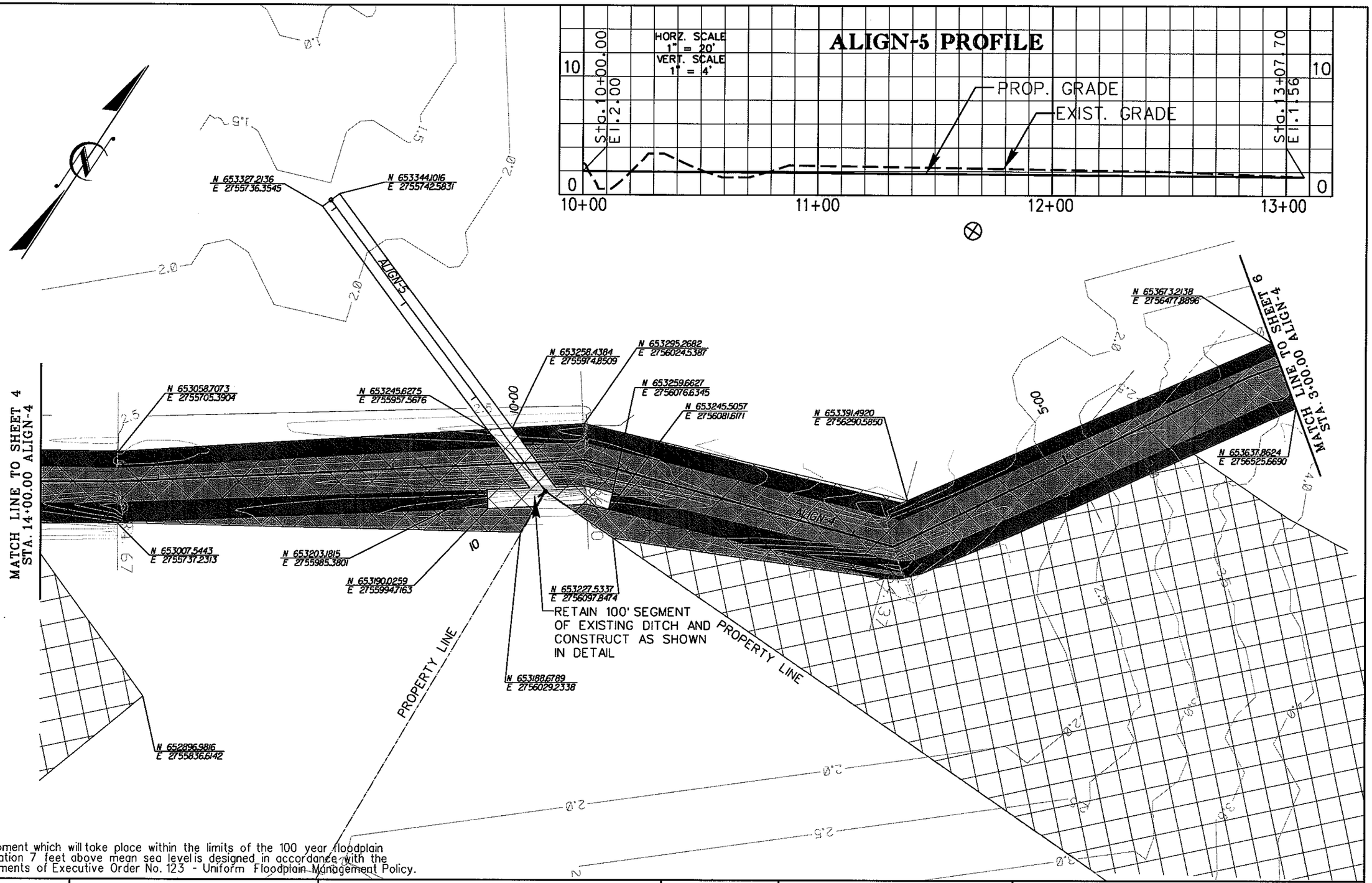

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

ARCADIS
G & M of North Carolina, Inc.
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801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5			
4			
3			
2			
1	REB	2/28/06	DRAFT RESTORATION PLAN
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 5

Date: 8/15/2006
Filename: G:\TRA\606002_BishopRoad\Hydro\Bishop Rd_Sheet05.dgn

MATCH LINE TO SHEET 7
STA. 3+00.00 ALIGN-2

N=653,902.16
E=2,756,672.84

BEGIN PROJECT
STA.0+00.00
ALIGN-2

END PROJECT
STA. 4+44.72
ALIGN-1

N 654289.8527
E 2756448.3832

N 654170.1214
E 2756526.3940

BEGIN PROJECT
STA.0+00.00
ALIGN-3

MATCH LINE TO SHEET 10
STA. 6+00.00 ALIGN-3

N 654098.4765
E 2756477.5172

N 654235.6273
E 2756374.1685

BEGIN PROJECT
STA.0+00.00
ALIGN-1

N 653893.4504
E 2756641.0057

BEGIN PROJECT
STA.0+00.00
ALIGN-4

N 653654.8556
E 2756738.8451

N 653536.7454
E 2756774.9344

N 653684.3832
E 2756663.3858

N 653737.8365
E 2756590.2515

N 653637.8624
E 2756525.6690

N 653807.7923
E 2756566.5044

N 653562.9921
E 2756640.4199

N 653673.2138
E 2756477.8896

MATCH LINE TO SHEET 5
STA. 3+00.00 ALIGN-4

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
5			
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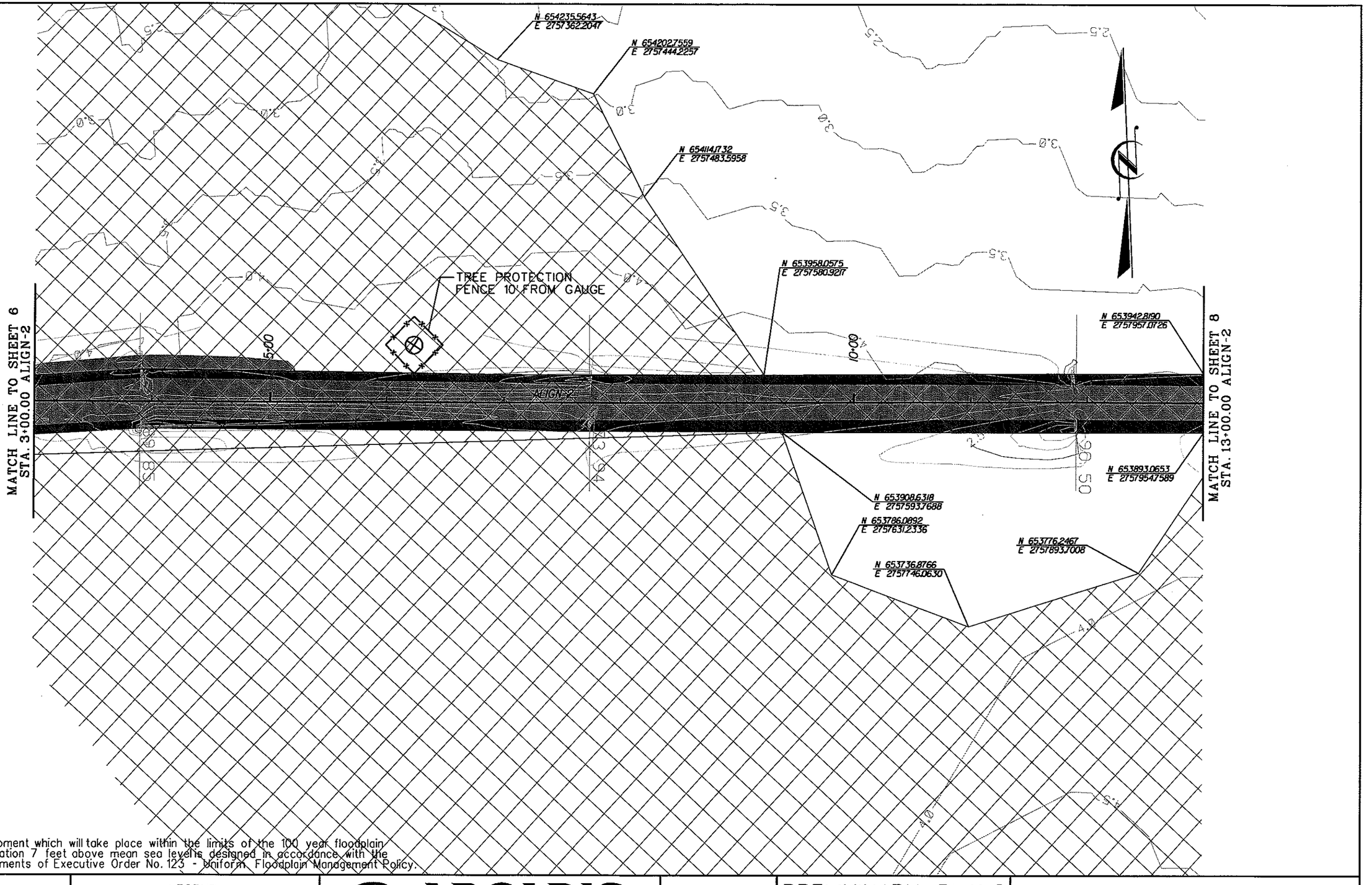
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 6

Date: 8/15/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet06.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
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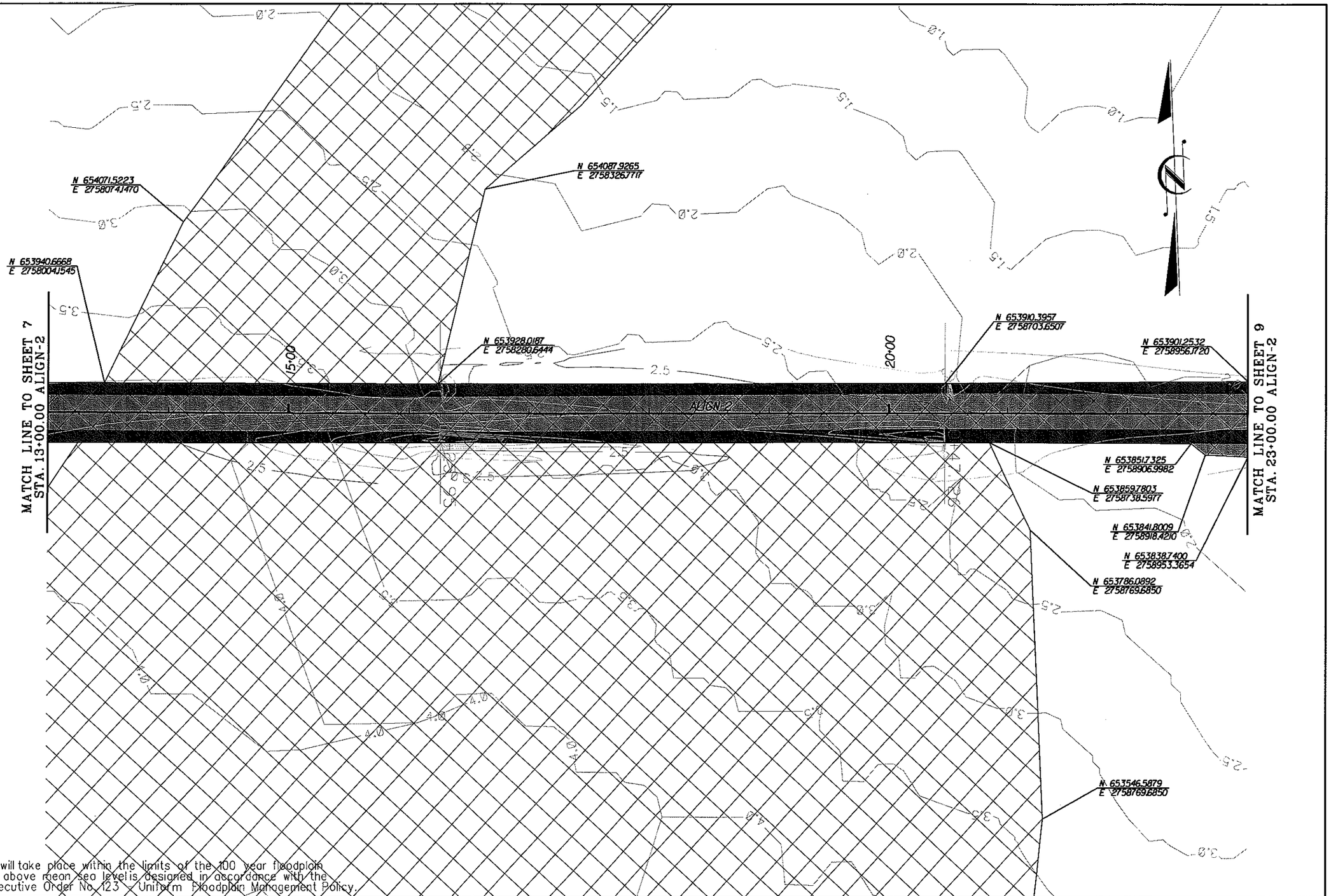
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 7

Date: 8/15/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet07.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
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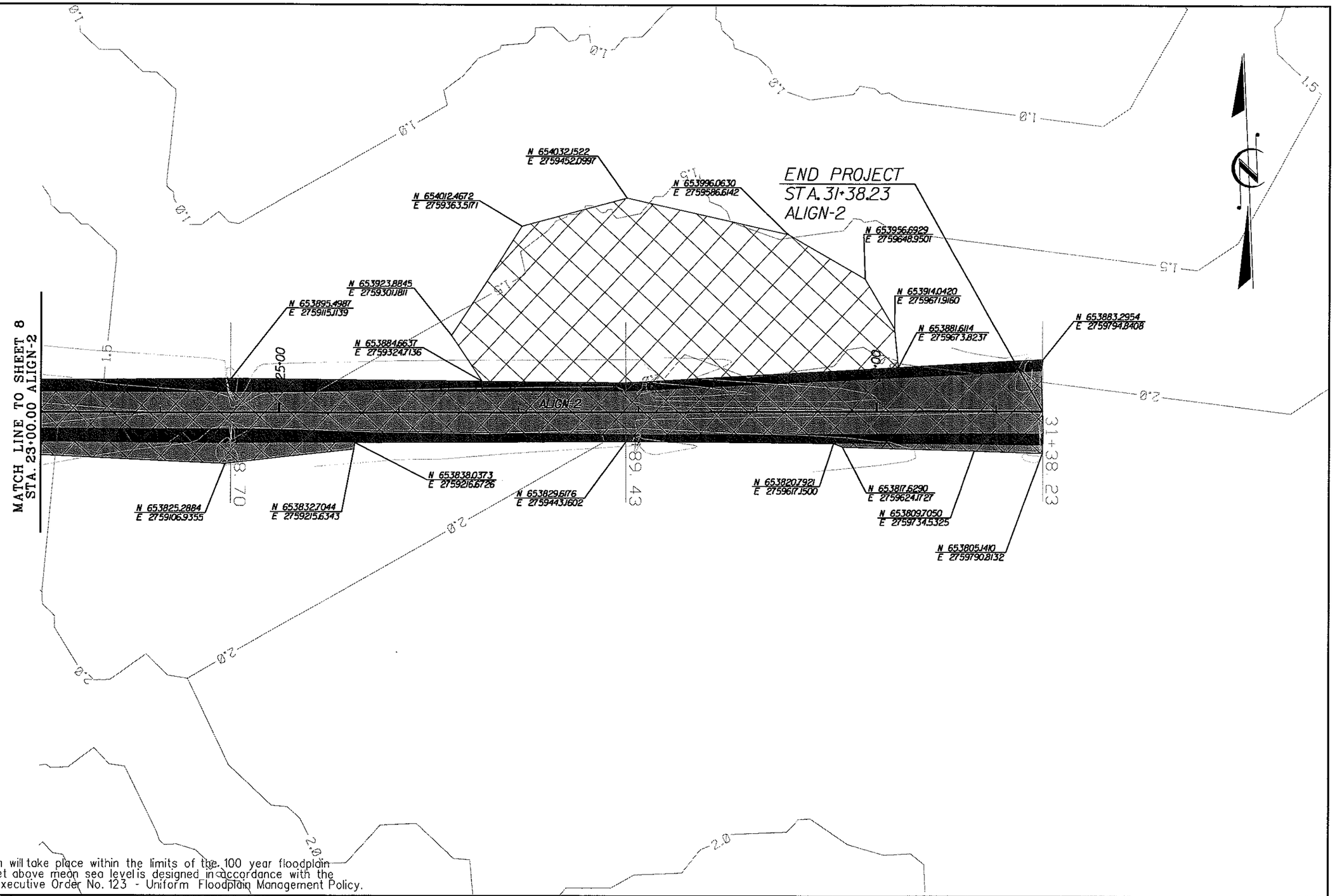
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 8

Date: 8/14/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet08.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

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DESIGN ENGINEER

PRELIMINARY PLANS
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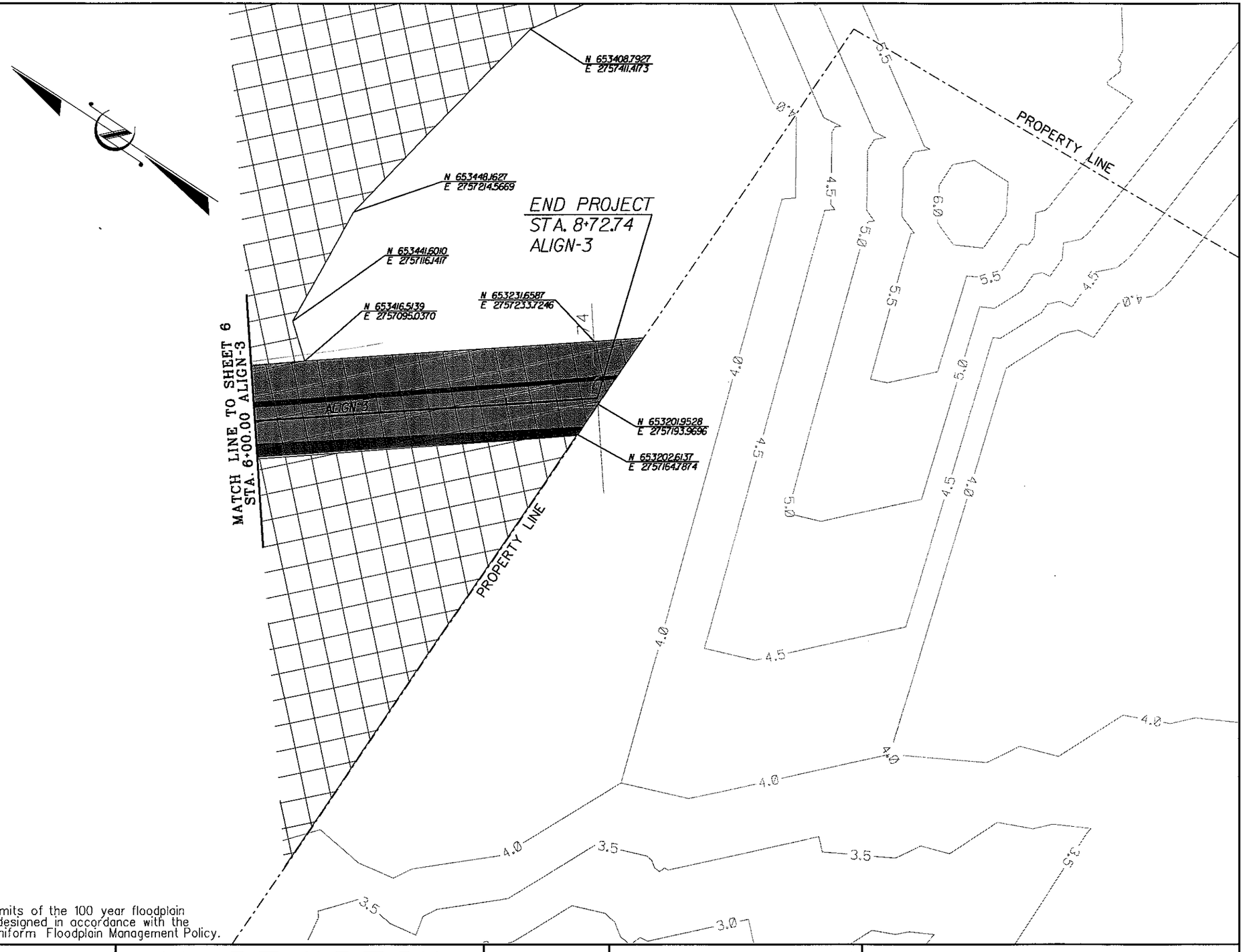
1	REB	2/28/06	DRAFT RESTORATION PLAN
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 9

Date: 8/14/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet09.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

20' 0 40'
SCALE

LEGEND

FILL AREA
CUT AREA
GRADING LIMITS
GAUGE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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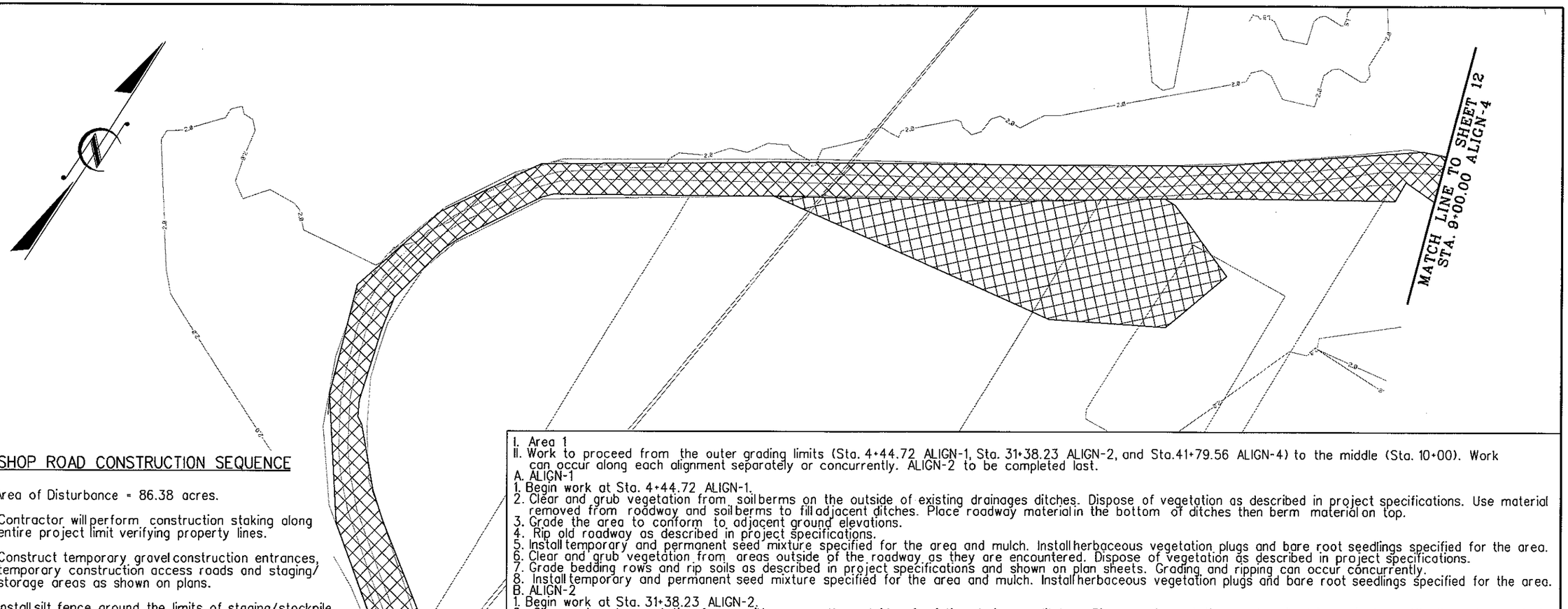
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLAN SHEET NO. 10

Date: 8/14/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet10.dgn



BISHOP ROAD CONSTRUCTION SEQUENCE

1. Area of Disturbance = 86.38 acres.
2. Contractor will perform construction staking along entire project limit verifying property lines.
3. Construct temporary gravel construction entrances, temporary construction access roads and staging/ storage areas as shown on plans.
4. Install silt fence around the limits of staging/stockpile areas.
5. Install tree protection fence as shown on the plans and directed by Designer.

The site is divided into four work areas. Work can begin in any area and can occur concurrently in any or all areas.
Area 1 is comprised of Design Sheets 11-13.
Area 2 is comprised of Design Sheet 14.
Area 3 is comprised of Design Sheet 15.
Area 4 is comprised of Design Sheet 16.

BISHOP ROAD MAINTENANCE PLAN

Check silt fence, erosion control matting, diversion structures, etc. after each rainfall or weekly minimum. Repair damage and remove accumulated sediment immediately.

Temporary Seed Mixture

August 15 - April 15	
Cereal Rye	120 lbs/acre
Orchard Grass	20 lbs/acre
April 15 - August 15	
German Millet	40 lbs/acre
Browntop Millet	30-40 lbs/acre

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

I. Area 1
II. Work to proceed from the outer grading limits (Sta. 4+44.72 ALIGN-1, Sta. 31+38.23 ALIGN-2, and Sta.41+79.56 ALIGN-4) to the middle (Sta. 10+00). Work can occur along each alignment separately or concurrently. ALIGN-2 to be completed last.

A. ALIGN-1
1. Begin work at Sta. 4+44.72 ALIGN-1.
2. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
3. Grade the area to conform to adjacent ground elevations.
4. Rip old roadway as described in project specifications.
5. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
6. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
7. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
8. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.

B. ALIGN-2
1. Begin work at Sta. 31+38.23 ALIGN-2.
2. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
3. Grade the area to conform to adjacent ground elevations.
4. Rip old roadway as described in project specifications.
5. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
6. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
7. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
8. Install temporary and permanent seed mixture and mulch specified for the area. Install herbaceous vegetation plugs and bare root seedlings specified for the area.

C. ALIGN-4
1. Fill 20 foot section of ditch as shown on design plans using material from berm adjacent to ditch. Grade the area to conform to adjacent ground elevations. Install temporary and permanent seed mixture and mulch.
2. Begin at Sta. 41+79.56 and proceed toward Sta. 10+00.
3. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
4. Grade the area to conform to adjacent ground elevations.
5. Rip old roadway as described in project specifications.
6. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
7. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
8. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
9. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
10. Maintain existing ditch at Sta. 9+70 ALIGN-4 and construct ditch as shown on design sheets.
11. Continue grading, ripping and planting as described above.

D. ALIGN-3
1. Begin work at Sta. 10+00 ALIGN-3.
2. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
3. Grade the area to conform to adjacent ground elevations.
4. Rip old roadway as described in project specifications.
5. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
6. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
7. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
8. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.

LEGEND

GRADING LIMITS

50' 0 100'
SCALE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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1	REB	2/28/06	DRAFT RESTORATION PLAN
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

EROSION CONTROL SHEET NO. 11

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet11.dgn

EAST MURIEL ROAD

WEST MURIEL ROAD

BISHOP RD

MATCH LINE TO SHEET 13
STA. 22+00.00 ALIGN-2

MATCH LINE TO SHEET 11
STA. 9+00.00 ALIGN-4

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

LEGEND

GRADING LIMITS

50' 0 100'
SCALE

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet12.dgn

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
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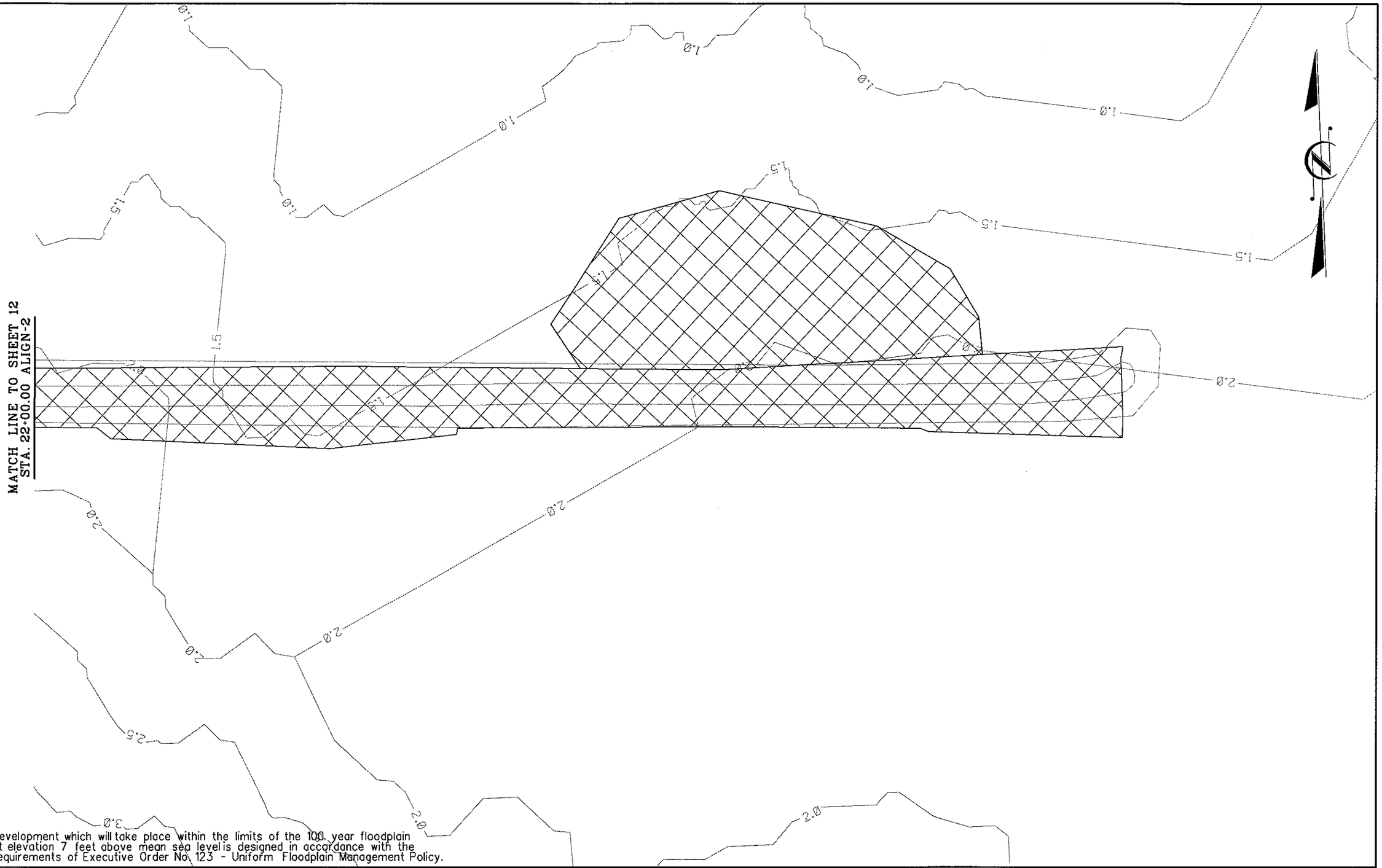
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

EROSION CONTROL SHEET NO. 12



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LEGEND

GRADING LIMITS

20' 0 40'
SCALE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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1	REB	2/28/06	DRAFT RESTORATION PLAN
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

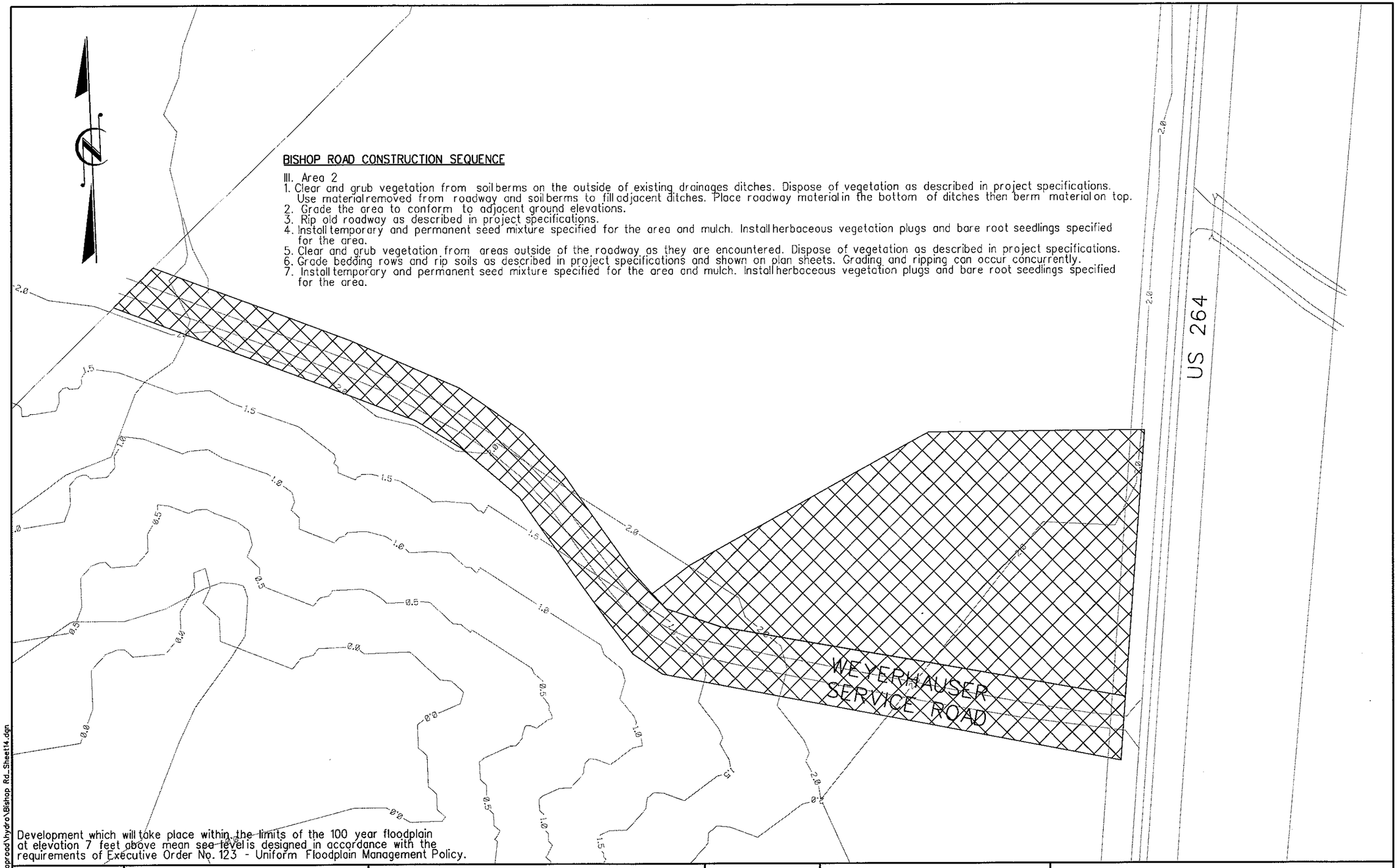
EROSION CONTROL SHEET NO. 13

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet13.dgn

BISHOP ROAD CONSTRUCTION SEQUENCE

III. Area 2

1. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
2. Grade the area to conform to adjacent ground elevations.
3. Rip old roadway as described in project specifications.
4. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
5. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
6. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
7. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.



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LEGEND

GRADING LIMITS

30' 0 60'

SCALE

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DESIGN ENGINEER

PRELIMINARY PLANS
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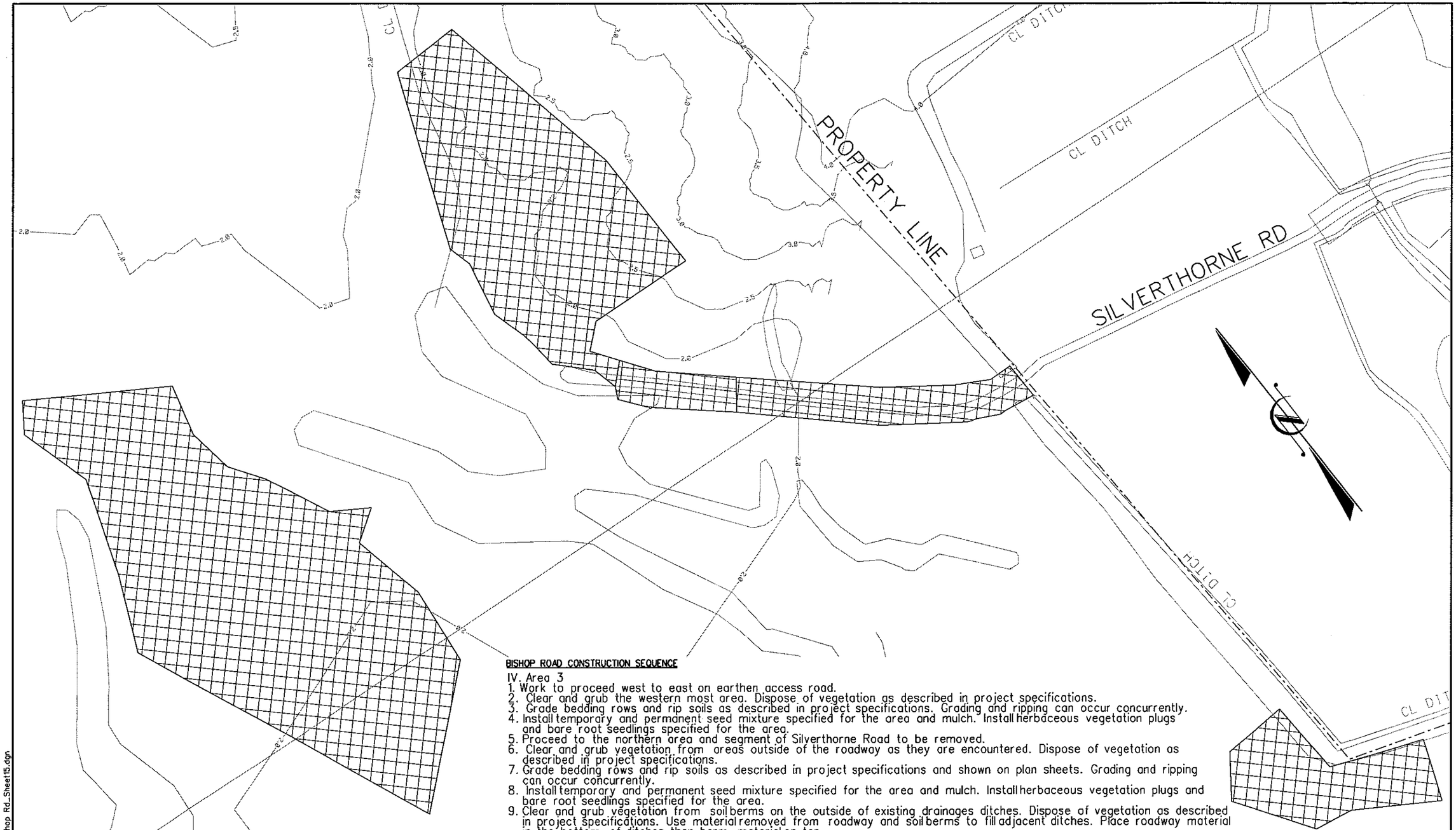
1	REB	2/28/06	DRAFT RESTORATION PLAN
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

EROSION CONTROL SHEET NO. 14

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet14.dgn



BISHOP ROAD CONSTRUCTION SEQUENCE

IV. Area 3
1. Work to proceed west to east on earthen access road.
2. Clear and grub the western most area. Dispose of vegetation as described in project specifications.
3. Grade bedding rows and rip soils as described in project specifications. Grading and ripping can occur concurrently.
4. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
5. Proceed to the northern area and segment of Silverthorne Road to be removed.
6. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
7. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
8. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
9. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
10. Grade the area to conform to adjacent ground elevations.
11. Rip old roadway as described in project specifications.
12. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
13. Proceed to the southern area. Follow same sequence as above.

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

LEGEND

GRADING LIMITS

40' 0 80'
SCALE

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet15.dgn

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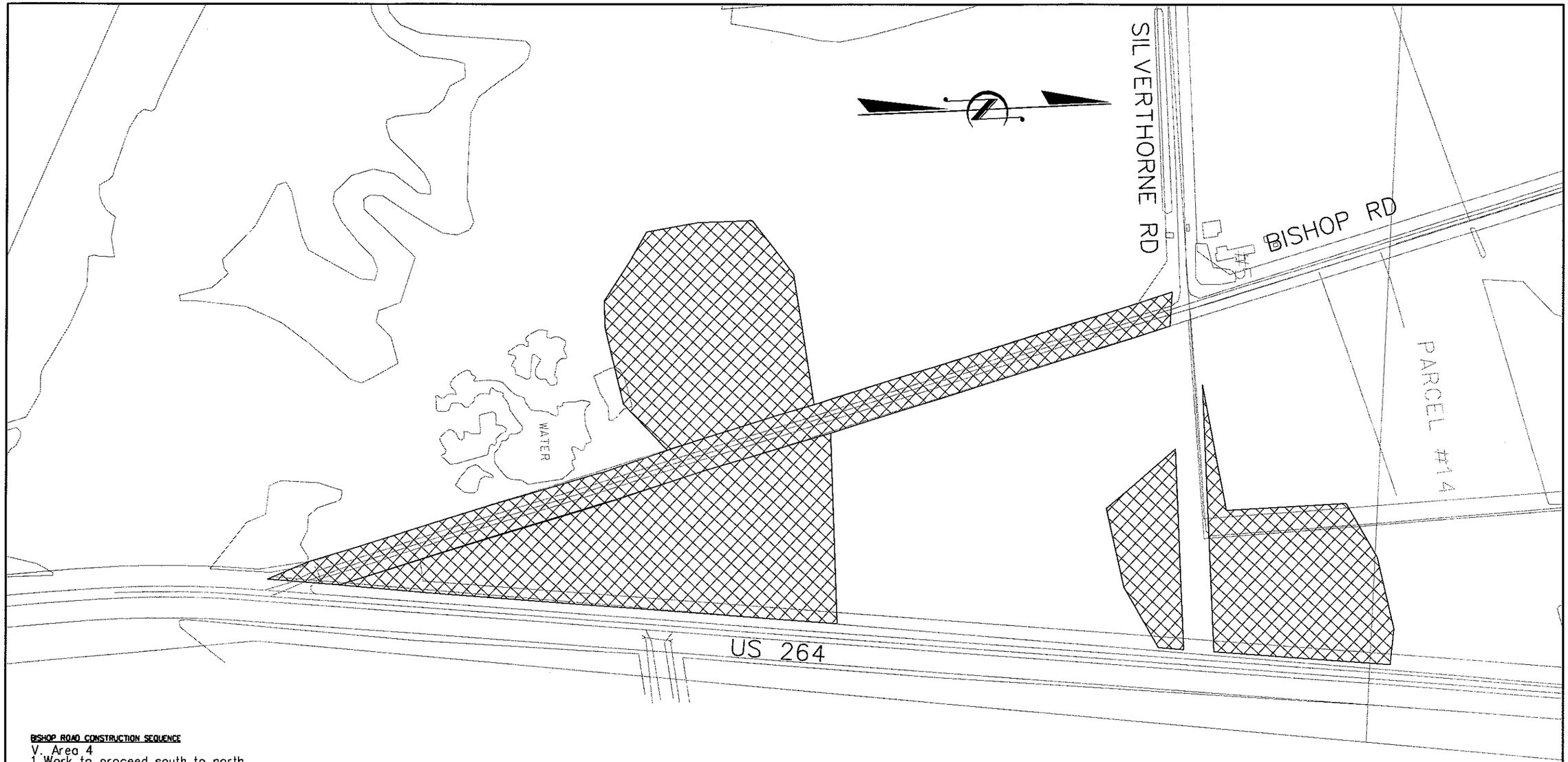
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

EROSION CONTROL SHEET NO. 15



BISHOP ROAD CONSTRUCTION SEQUENCE

V. Area 4
1. Work to proceed south to north.
2. Begin at the southern end of Bishop Road at the intersection with US 264.
3. Clear and grub vegetation from soil berms on the outside of existing drainages ditches. Dispose of vegetation as described in project specifications. Use material removed from roadway and soil berms to fill adjacent ditches. Place roadway material in the bottom of ditches then berm material on top.
4. Grade the area to conform to adjacent ground elevations.
5. Rip old roadway as described in project specifications.
6. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
7. Clear and grub vegetation from areas outside of the roadway as they are encountered. Dispose of vegetation as described in project specifications.
8. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
9. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.
10. Proceed to areas along Silverthorne Road.
11. Clear and grub vegetation from areas. Dispose of vegetation as described in project specifications.
12. Grade bedding rows and rip soils as described in project specifications and shown on plan sheets. Grading and ripping can occur concurrently.
13. Install temporary and permanent seed mixture specified for the area and mulch. Install herbaceous vegetation plugs and bare root seedlings specified for the area.

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

50' 0 100'
SCALE

LEGEND
GRADING LIMITS

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DESIGN ENGINEER

PRELIMINARY PLANS
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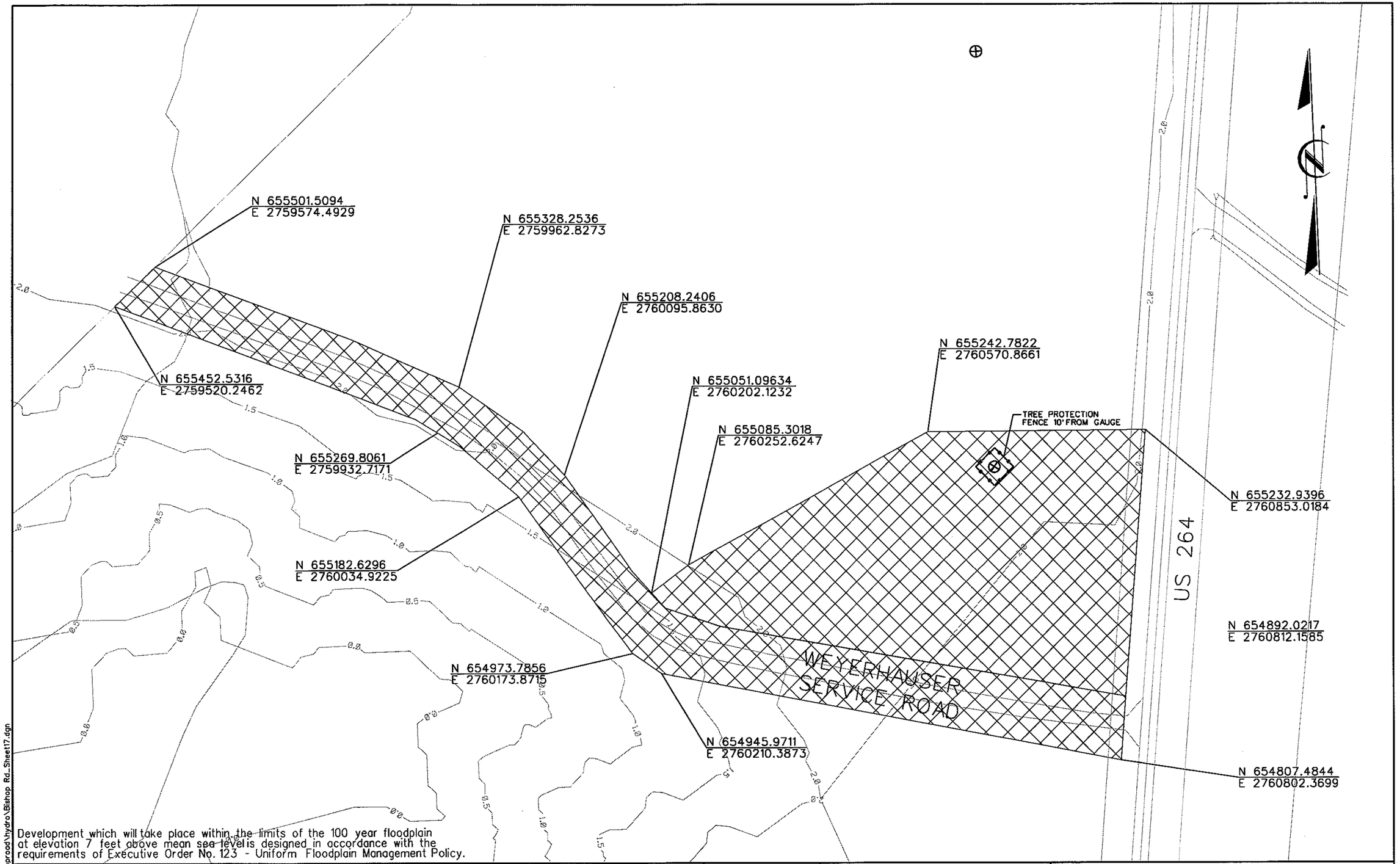
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

EROSION CONTROL SHEET NO. 16

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet16.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

30' 0 60'
SCALE

LEGEND

GRADING LIMITS

GAUGE

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DESIGN ENGINEER

PRELIMINARY PLANS
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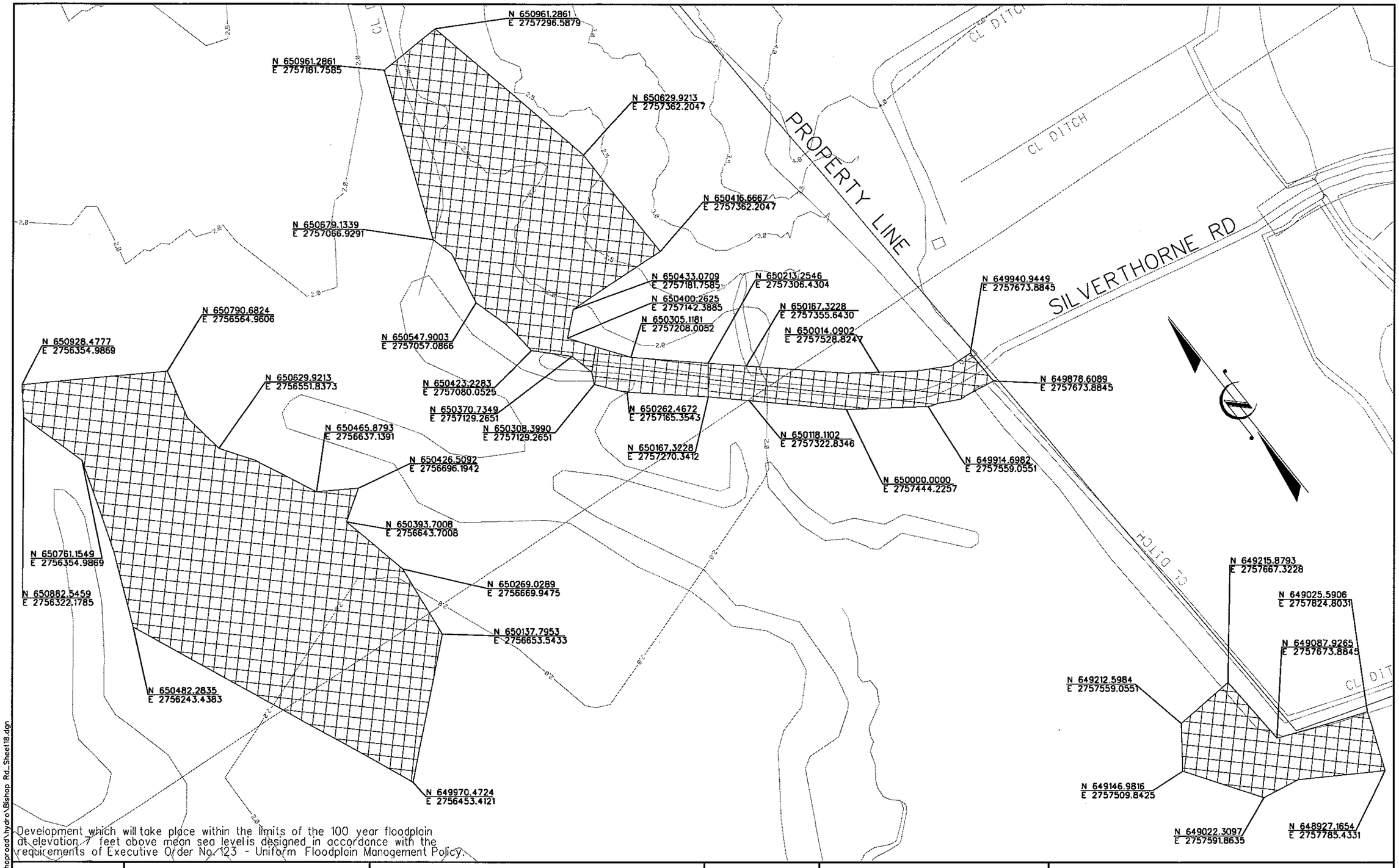
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

GRADING LIMITS SHEET NO. 17

Date: 8/15/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet17.dgn



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50' 0 100'
SCALE

LEGEND

GRADING LIMITS

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DESIGN ENGINEER

PRELIMINARY PLANS
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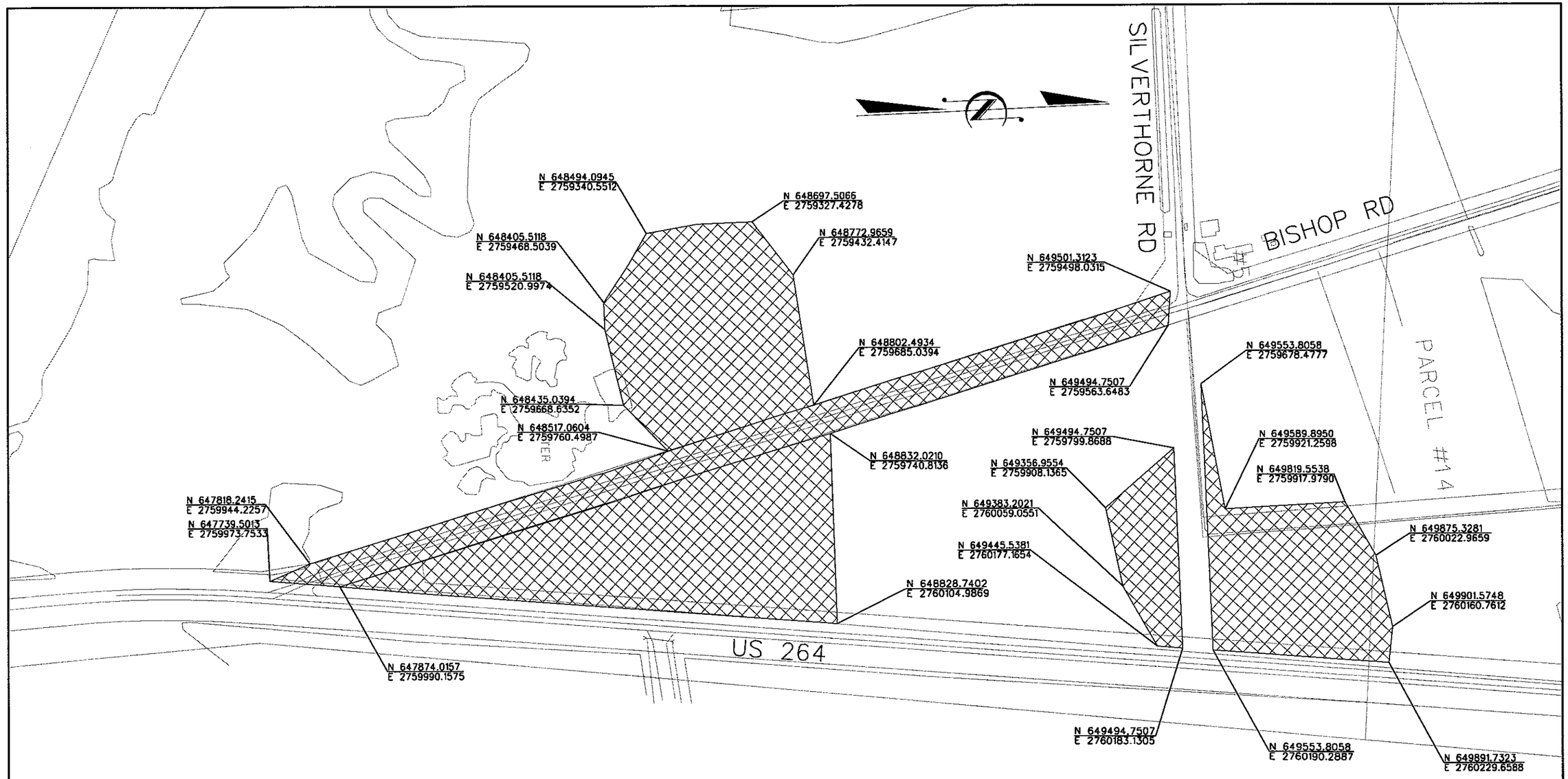
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

GRADING LIMITS SHEET NO. 18

Date: 8/14/2006
Filename: g:\trd\606002_bishoproad\hydro\Bishop Rd_Sheet18.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

50' 0 100'
SCALE

LEGEND

GRADING LIMITS

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801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5			
4			
3			
2			
1	REB	2/28/06	DRAFT RESTORATION PLAN
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

GRADING LIMITS SHEET NO. 19

Date: 8/14/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet19.dgn

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

N 654934.6326
E 2756360.6375

N 654895.5475
E 2756302.0396

N 654594.8794
E 2756377.4381

N 654566.9859
E 2756359.0342

N 654557.0866
E 2757001.3123

N 654530.8399
E 2757148.9501

N 654524.2782
E 2756820.8661

N 654617.6793
E 2756311.3306

N 654566.1232
E 2756340.3427

N 654554.5598
E 2756385.9987

TREE PROTECTION FENCE 10' FROM GAUGE

N 654301.1811
E 2757263.7795

N 654383.2021
E 2758435.0394

N 654327.4278
E 2758556.4304

N 654383.2021
E 2758310.3675

N 654526.7273
E 2756330.5656

N 654370.0787
E 2756430.4462

N 654235.5643
E 2757362.2047

N 654170.1214
E 2756526.3940

N 654202.7559
E 2757444.2257

N 654343.8320
E 2756377.9528

N 654235.5643
E 2758490.8136

N 654071.5223
E 2758074.1470

N 653940.6668
E 2758004.1545

N 654235.6273
E 2756374.1685

N 654114.1732
E 2757483.5958

N 653958.0575
E 2757580.9217

N 654087.9265
E 2758326.7717

N 653908.6318
E 2757593.7688

TREE PROTECTION FENCE 10' FROM GAUGE

N 653786.0892
E 2757631.2336

N 653928.0187
E 2758280.6444

N 654098.4765
E 2756477.5172

N 653736.8766
E 2757746.0630

EAST MURIEL ROAD

N 653892.0317
E 2757979.8531

N 653893.4504
E 2756647.0057

N 653776.2467
E 2757893.7008

N 653859.7803
E 2758738.5977

N 653807.7923
E 2756566.5044

N 653786.0892
E 2758769.6850

N 653546.5879
E 2758769.6850

WEST MURIEL ROAD

BISHOP RD

N 653268.1715
E 2755987.9820

N 653391.4920
E 2756290.5850

TREE PROTECTION FENCE 10' FROM GAUGE

N 653279.9528
E 2756003.8764

N 653448.1627
E 2757214.5669

N 653295.2682
E 2756024.5387

N 653326.7717
E 2758736.8766

N 653416.5139
E 2757095.0370

N 653408.7927
E 2757411.4173

N 653257.8740
E 2758251.3123

N 653231.6587
E 2757233.7246

N 653241.4698
E 2758599.0814

PROPERTY LINE

N 653227.5337
E 2756097.8474

N 653221.7848
E 2757703.4121

N 653215.3672
E 2756630.9279

N 653201.9613
E 2757193.9811

N 653188.6789
E 2756029.2338

N 653024.9344
E 2758077.4278

LEGEND

GRADING LIMITS

GAUGE

50' 0 100'
SCALE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

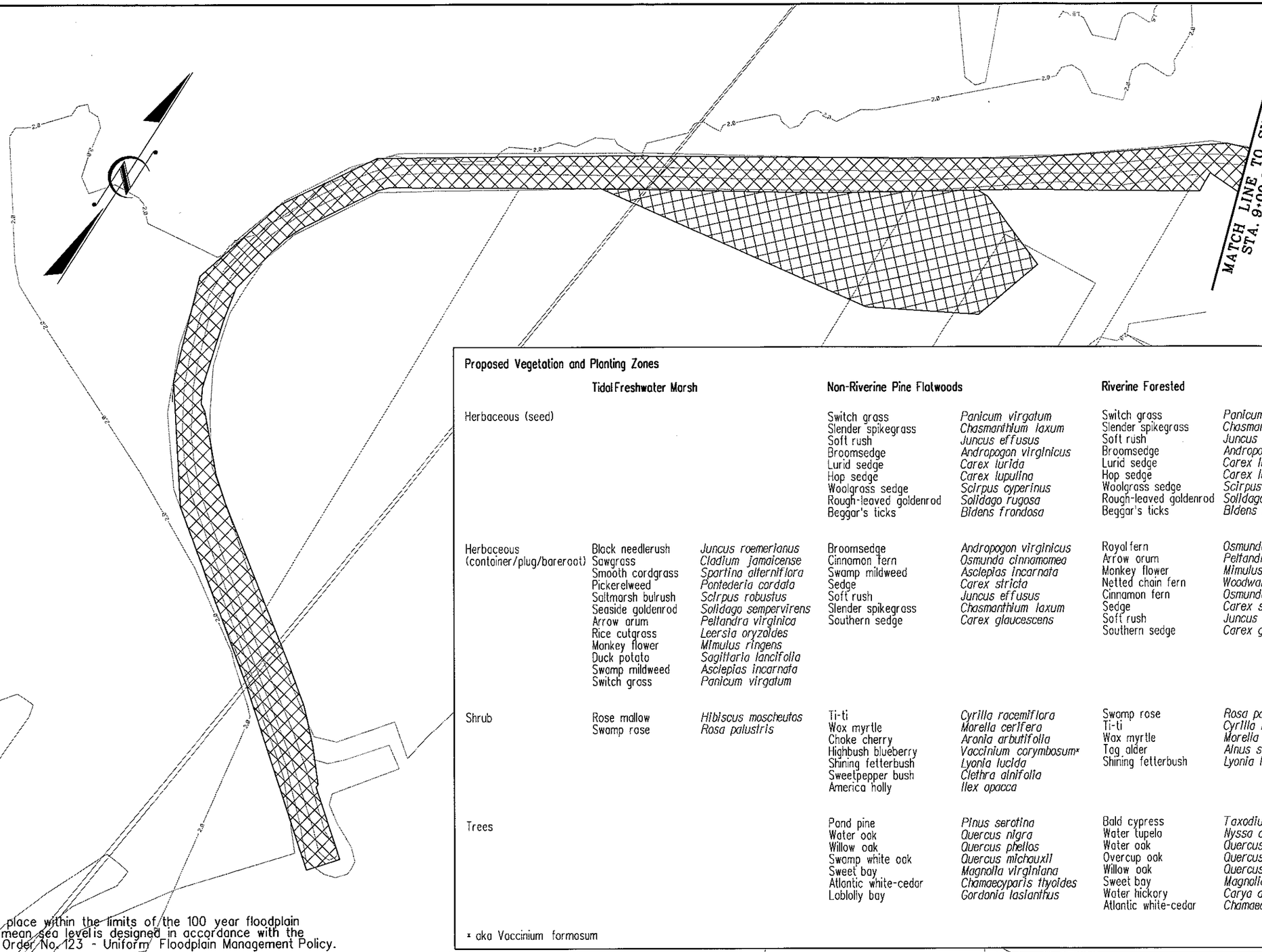
	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

GRADING LIMITS SHEET NO. 20

Date: 8/15/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet20.dgn



Proposed Vegetation and Planting Zones

			Tidal Freshwater Marsh		Non-Riverine Pine Flatwoods		Riverine Forested	
Herbaceous (seed)					Switch grass	*Panicum virgatum*	Switch grass	*Panicum virgatum*
					Slender spikegrass	*Chasmanthium laxum*	Slender spikegrass	*Chasmanthium laxum*
					Soft rush	*Juncus effusus*	Soft rush	*Juncus effusus*
					Broomsedge	*Andropogon virginicus*	Broomsedge	*Andropogon virginicus*
					Lurid sedge	*Carex lurida*	Lurid sedge	*Carex lurida*
					Hop sedge	*Carex lupulina*	Hop sedge	*Carex lupulina*
					Woolgrass sedge	*Scirpus cyperinus*	Woolgrass sedge	*Scirpus cyperinus*
					Rough-leaved goldenrod	*Solidago rugosa*	Rough-leaved goldenrod	*Solidago rugosa*
					Beggar's ticks	*Bidens frondosa*	Beggar's ticks	*Bidens frondosa*
Herbaceous (container/plug/bareroot)	Black needlerush	*Juncus roemerianus*	Broomsedge	*Andropogon virginicus*	Royal fern	*Osmunda regalis*
	Sawgrass	*Cladium jamaicense*	Cinnamon fern	*Osmunda cinnamomea*	Arrow arum	*Peltandra virginica*
	Smooth cordgrass	*Spartina alterniflora*	Swamp mildweed	*Asclepias incarnata*	Monkey flower	*Mimulus ringens*
	Pickerelweed	*Pontederia cordata*	Sedge	*Carex stricta*	Netted chain fern	*Woodwardia areolata*
	Saltmarsh bulrush	*Scirpus robustus*	Soft rush	*Juncus effusus*	Cinnamon fern	*Osmunda cinnamomea*
	Seaside goldenrod	*Solidago sempervirens*	Slender spikegrass	*Chasmanthium laxum*	Sedge	*Carex stricta*
	Arrow arum	*Peltandra virginica*	Southern sedge	*Carex glaucescens*	Soft rush	*Juncus effusus*
	Rice cutgrass	*Leersia oryzoides*			Southern sedge	*Carex glaucescens*
	Monkey flower	*Mimulus ringens*				
	Duck potato	*Sagittaria lancifolia*				
	Swamp mildweed	*Asclepias incarnata*				
	Switch grass	*Panicum virgatum*				
Shrub	Rose mallow	*Hibiscus moscheutos*	Ti-ti	*Cyrilla racemiflora*	Swamp rose	*Rosa palustris*
	Swamp rose	*Rosa palustris*	Wax myrtle	*Morella cerifera*	Ti-ti	*Cyrilla racemiflora*
			Choke cherry	*Aronia arbutifolia*	Wax myrtle	*Morella cerifera*
			Highbush blueberry	*Vaccinium corymbosum**	Tag alder	*Alnus serrulata*
			Shining fetterbush	*Lyonia lucida*	Shining fetterbush	*Lyonia lucida*
			Sweetpepper bush	*Clethra alnifolia*		
			America holly	*Ilex opaca*		
Trees			Pond pine	*Pinus serotina*	Bald cypress	*Taxodium distichum*
			Water oak	*Quercus nigra*	Water tupelo	*Nyssa aquatica*
			Willow oak	*Quercus phellos*	Water oak	*Quercus nigra*
			Swamp white oak	*Quercus michauxii*	Overcup oak	*Quercus lyrata*
			Sweet bay	*Magnolia virginiana*	Willow oak	*Quercus phellos*
			Atlantic white-cedar	*Chamaecyparis thyoides*	Sweet bay	*Magnolia virginiana*
			Loblolly bay	*Gordonia lasianthus*	Water hickory	*Carya aquatica*
					Atlantic white-cedar	*Chamaecyparis thyoides*

* aka Vaccinium formosum

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

LEGEND

Non-Riverine Pine Flatwood Restoration

50' 0 100'
SCALE

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
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1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLANTING PLAN SHEET NO. 21

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet21.dgn

EAST MURIEL ROAD

WEST MURIEL ROAD

BISHOP RD

MATCH LINE TO SHEET 23
STA. 22+00.00 ALIGN-2

MATCH LINE TO SHEET 21
STA. 9+00.00 ALIGN-4

Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

50' 0 100'
SCALE

LEGEND

Tidal Freshwater Marsh Restoration

Non-Riverine Pine Flatwood Restoration

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5			
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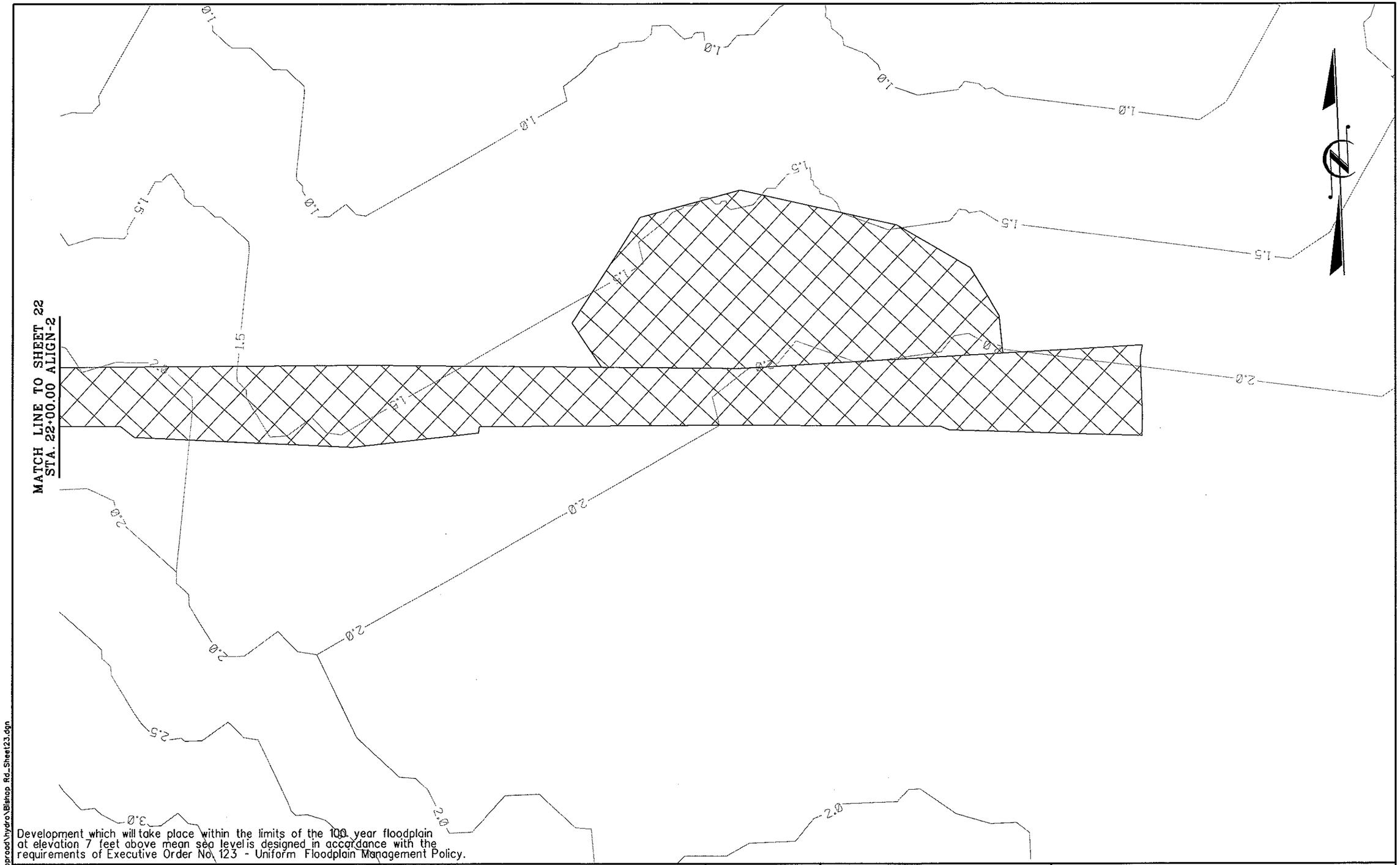
	BY	DATE	DESCRIPTION OF REVISION

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLANTING PLAN SHEET NO. 22

Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet22.dgn


MATCH LINE TO SHEET 22
STA. 22+00.00 ALIGN-2
Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.
LEGEND
Non-Riverine Pine Flatwood Restoration
20' 0 40'
SCALE
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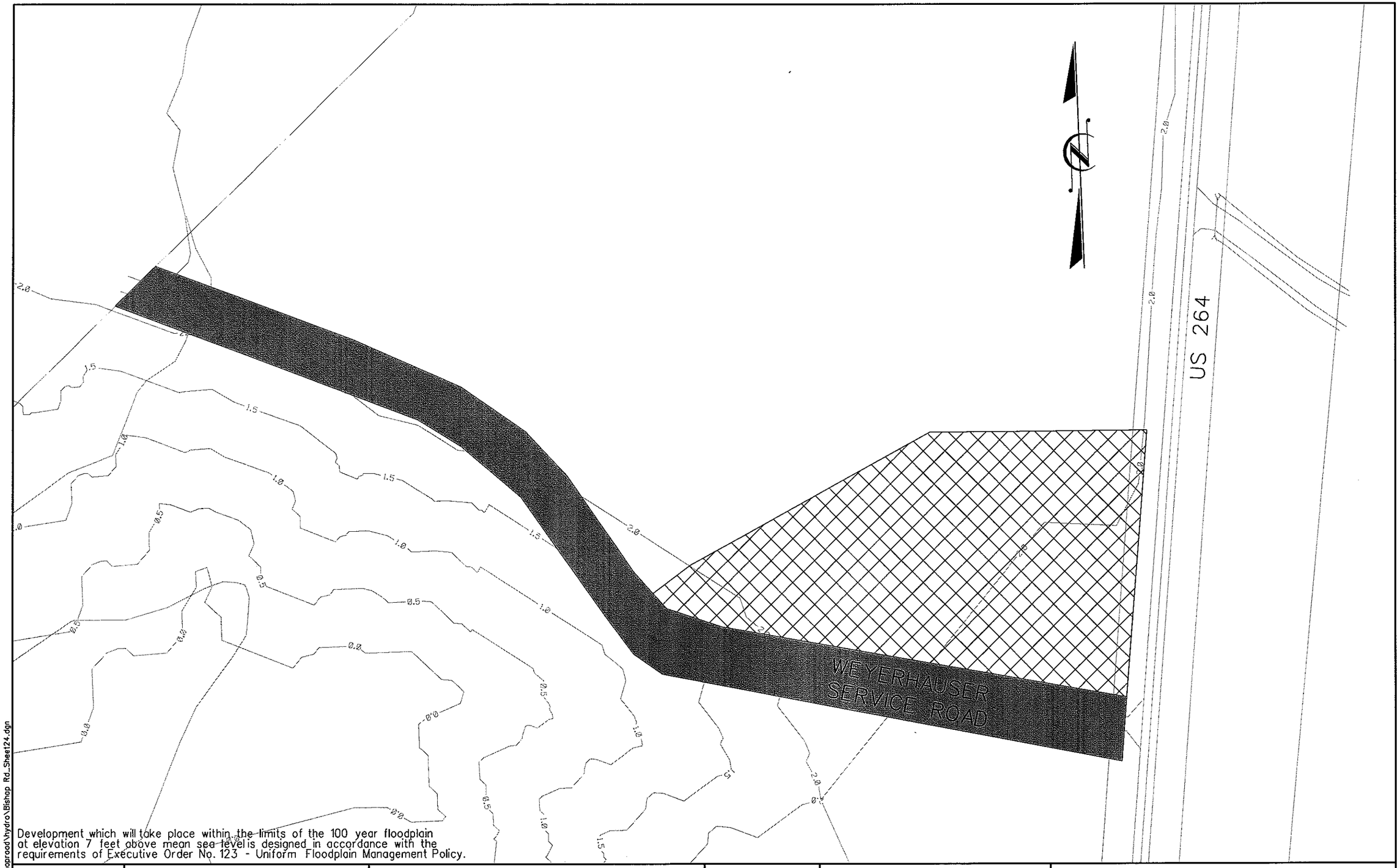
DESIGN ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM
BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA
PLANTING PLAN
SHEET NO. 23
1 REB 2/28/06 DRAFT RESTORATION PLAN
BY DATE DESCRIPTION OF REVISION
Date: 8/15/2006
Filename: g:\tra\606002_bishoproad\hydro\Bishop Rd_Sheet23.dgn



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LEGEND

Riverine Forested Wetland Restoration

Non-Riverine Pine Flatwood Restoration

30' 0 60'
SCALE

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DESIGN ENGINEER

PRELIMINARY PLANS
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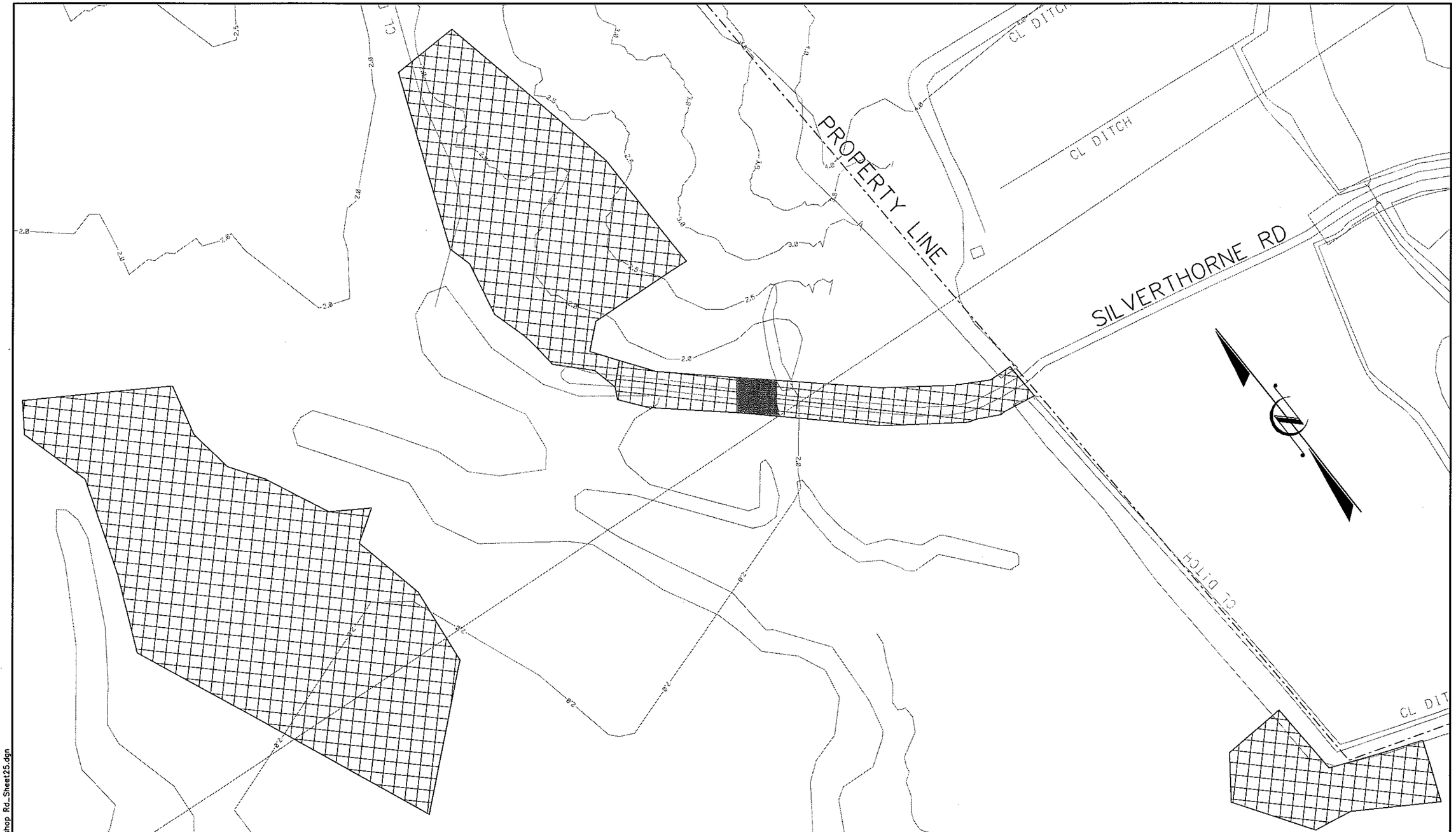
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLANTING PLAN SHEET NO. 24

Date: 8/15/2006
Filename: g:\tro\606002_bishoproad\Hydro\Bishop Rd_Sheet24.dgn



Development which will take place within the limits of the 100 year floodplain at elevation 7 feet above mean sea level is designed in accordance with the requirements of Executive Order No. 123 - Uniform Floodplain Management Policy.

40' 0 80'
SCALE

LEGEND

Tidal Freshwater Marsh Restoration

Non-Riverine Pine Flatwood Restoration

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DESIGN ENGINEER

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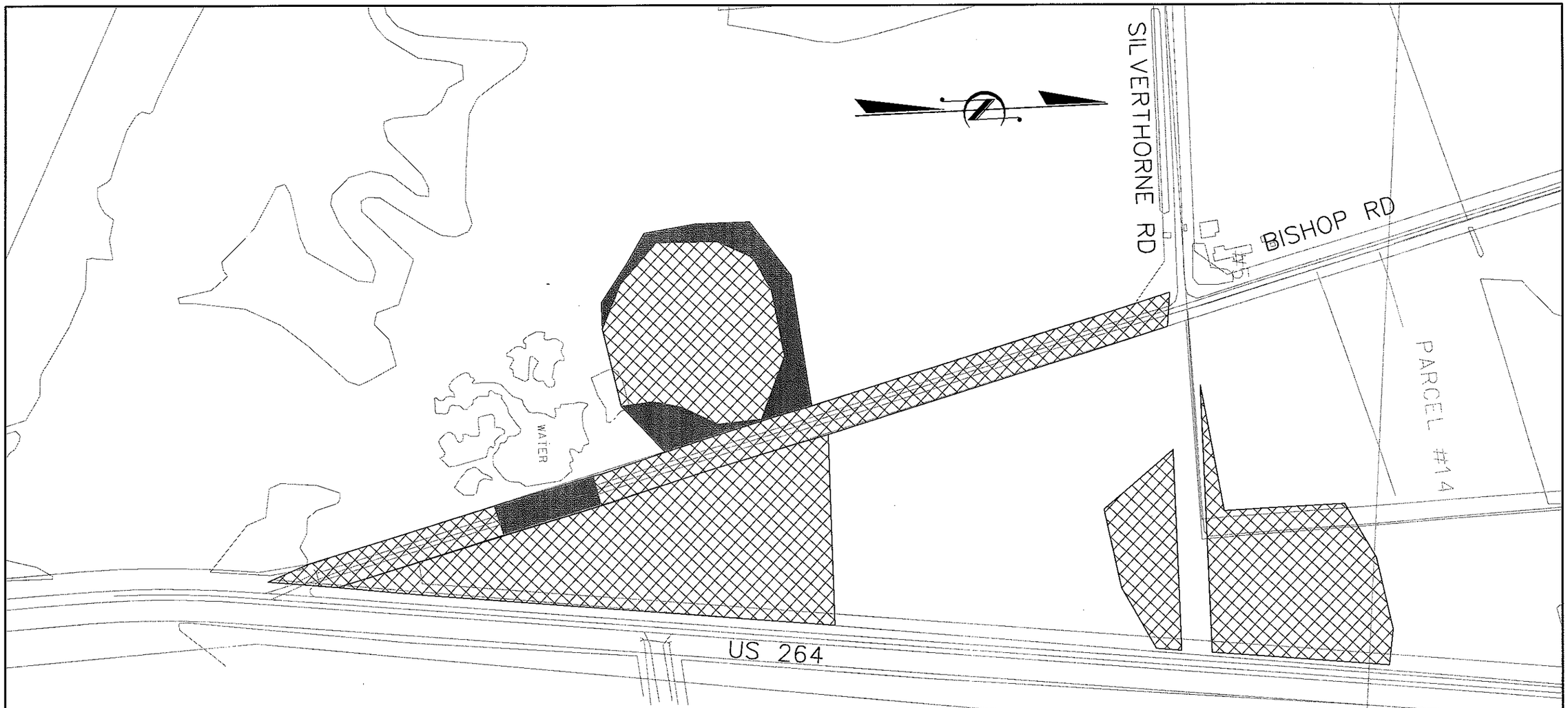
1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLANTING PLAN SHEET NO. 25

Date: 8/14/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet25.dgn



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50' 0 100'
SCALE

LEGEND

Tidal Freshwater Marsh Restoration

Non-Riverine Pine Flatwood Restoration

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DESIGN ENGINEER

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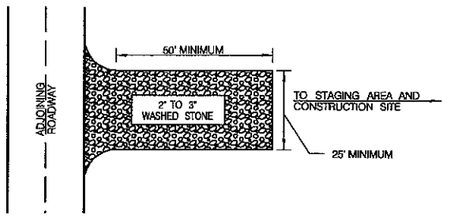
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

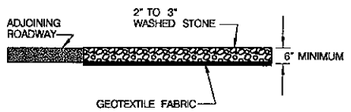
BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

PLANTING PLAN SHEET NO. 26

Date: 8/14/2006
Filename: g:\tro\606002_bishoproad\hydro\Bishop Rd_Sheet26.dgn



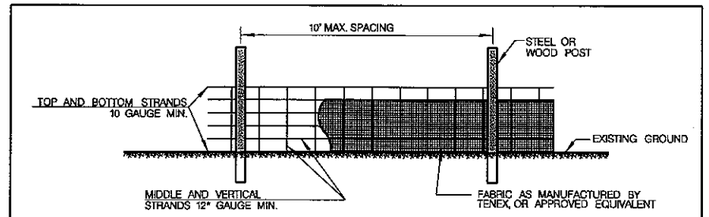
PLAN VIEW



PROFILE VIEW

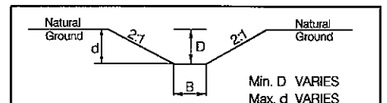
NOTES:
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO DIVERT ALL EQUIPMENT TRAFFIC IN ORDER TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. TURNING RADIUS SUFFICIENT TO ACCOMODATE LARGE TRUCKS IS TO BE PROVIDED.
3. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILIZATION BY ALL CONSTRUCTION VEHICLES.
4. ENTRANCE(S) MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO ADJOINING ROADWAY. PERIODIC TOP DRESSING WITH STONE WILL BE NECESSARY. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY. IF MUD CONTINUES TO BE TRACKED ONTO THE ADJOINING ROADWAY, THE GOVERNING AUTHORITY WILL CLEAN THE AREA AND INVOICE THE FINANCIALLY RESPONSIBLE PERSON AS INDICATED ON THE FINANCIAL RESPONSIBILITY FORM.
5. PLACE CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL THE SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.

GRAVEL CONSTRUCTION ENTRANCE
NTS

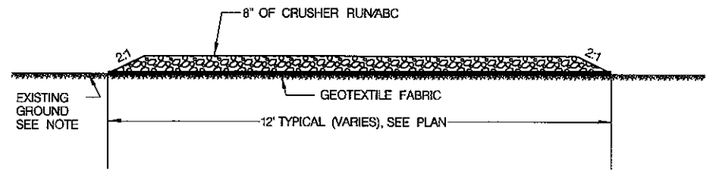


NOTE:
INSTALL FENCING AS SHOWN ON PLANS AND MAINTAIN UNTIL COMPLETION OF CONSTRUCTION OR AS DIRECTED BY DESIGNER

TREE PROTECTION/CONSTRUCTION LIMITS FENCING
NTS



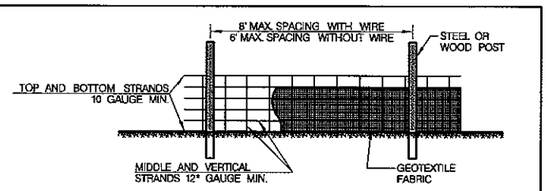
DITCH DETAIL
NTS



CROSS-SECTION VIEW

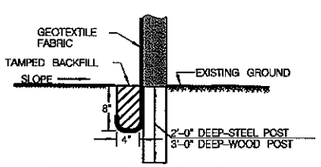
NOTE:
1. UNDERCUT AND REPAIR/COMPACT ANY AREAS WHERE EXISTING GRADE IS SOFT ENOUGH TO PUMP UNDER EXPECTED DUMP TRUCK LOADING.
2. USE ONLY IN LOCATION AS DIRECTED BY ENGINEER.

CONSTRUCTION ACCESS ROAD
NTS



POST SPACING

NOTES:
1. WIRE SHALL BE MINIMUM OF 32" WIDE AND SHALL HAVE A MINIMUM OF 6 STRANDS WITH 12" STAY SPACING.
2. GEOTEXTILE FABRIC SHALL BE MINIMUM OF 36" WIDE AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY DESIGNER.
3. STEEL POSTS SHALL BE 5' HIGH AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. WOOD POSTS SHALL BE 6' HIGH AND 3" IN DIAMETER.



EXTENSION OF FABRIC AND WIRE INTO TRENCH

TEMPORARY SILT FENCE
NTS

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DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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1	REB	2/28/06	DRAFT RESTORATION PLAN

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ECOSYSTEM ENHANCEMENT PROGRAM

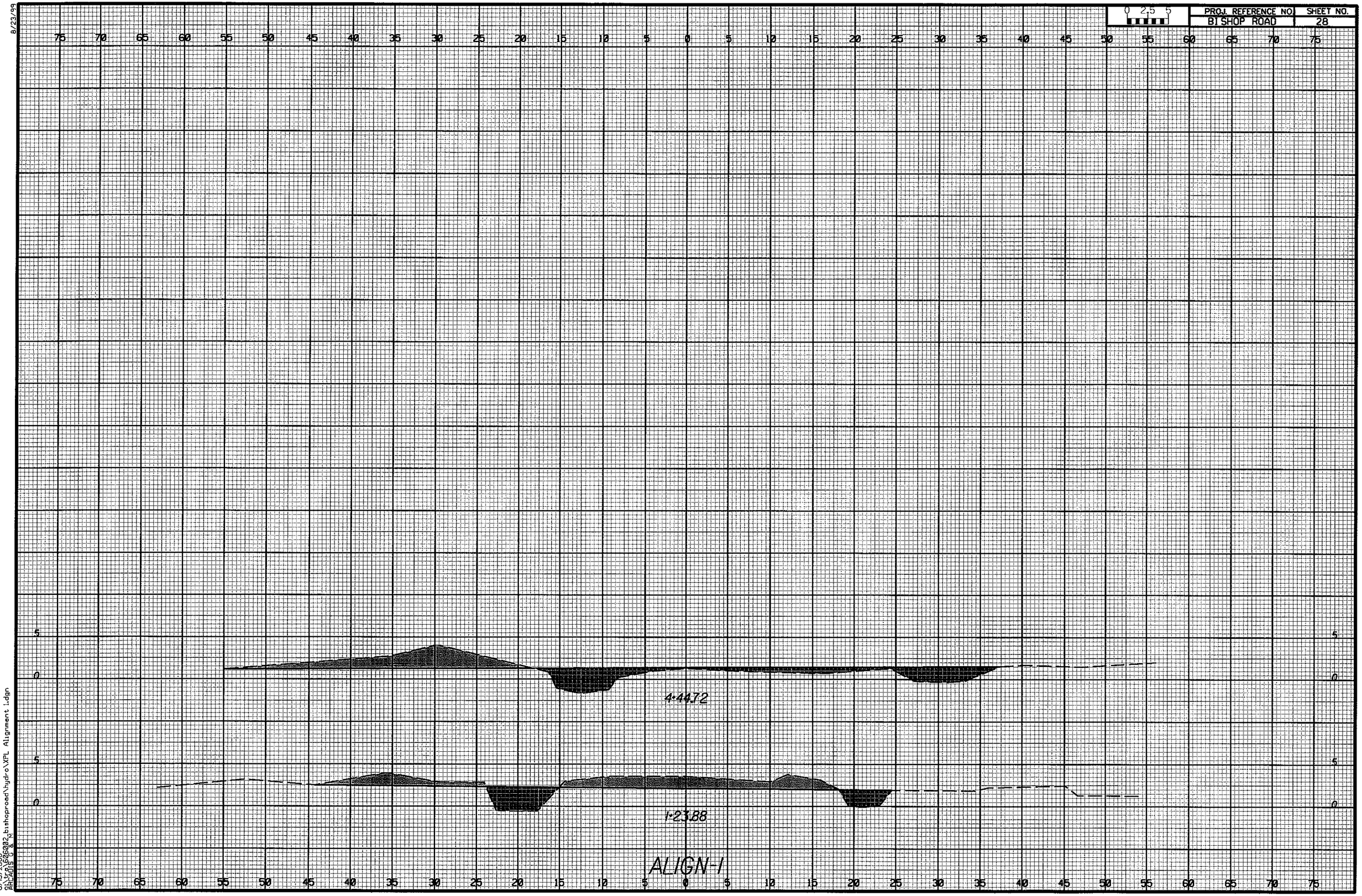
BISHOP ROAD
HYDE COUNTY, NORTH CAROLINA

DETAILS SHEET NO. 27

Date: 8/15/2006
Filename: G:\TRA\606002_BishopRoad\Hydro\Bishop Rd_Details.dgn

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BISHOP ROAD	28



8/15/2006
C:\projects\6092_bishoproad\hydro\XPL Alignment 1.dgn

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BI SHOP ROAD	29

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

5 0 5 0

31+38.23

5 0 5 0

27+89.43

5 0 5 0

24+58.70

5 0 5 0

20+47.26

5 0 5 0

16+25.95

5 0 5 0

11+90.50

5 0 5 0

7+73.94

5 0 5 0

3+89.85

5 0 5 0

1+01.50

ALIGN-2

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

8/15/2006
ANDREW
c:\projects\96002_bishoproad\hydro\XPL Alignment 2.dgn

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BISHOP ROAD	30

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

8+72.74

5+05.76

1+44.72

ALIGN-3

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

8/15/2006
C:\Projects\6082_bishoproad\hydro\XPL Alignment 3.dgn
Bentley Systems, Inc.

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	81 SHOP ROAD	31

29+88.87

25+97.19

21+41.33

17+38.28

13+34.67

9+36.90

6+64.37

1+37.85

ALIGN-4

8/15/2006
C:\RAS\686802_BishopRoad\Hydro\XPL Alignment 4.dgn
Default 8.04

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
BISHOP ROAD	32

0 2.5 5

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

5
0
5
0
5
0

41+79.48

38+01.94

34+26.88

ALIGN-4

8/15/2006
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ARCADIS G & M