



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

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October 11, 2005

**Mitigation Plan for the Restoration of the Relict "Ox-bow"  
Wetland Complex on Existing US 64**

The NCDOT will perform on-site mitigation for non-riverine bottomland hardwood swamp near the relict ox-bow channel in Tyrrell County. The NCDOT will remove approximately 1323.0 meters (4,304.5 ft.) of existing US 64. The existing roadway fill is approximately 18.2 meters (60 feet) wide.

The existing roadbed will be removed to match the elevation of the surrounding wetland and then undercut below the wetland elevation to a depth of 1 foot. The exposed clay layer at this elevation will be loosened using the excavating equipment. This will promote better root growth and hydraulic movement through the soil. The area will then be back filled with material having some organics and sand that will result in a soil similar to the surrounding wetland soil, which is a clay loam. This material will primarily come from the shoulder areas along the 4,340 ft. section of the roadway that is being removed. Some material may come from undercut shoulder material on the US 64 project. This back fill will be brought up to the elevation of the surrounding wetland areas. The site will then be planted with an equal mixture, pending availability of the following species: swamp black gum (*Nyssa sylvatica* var. *biflora*), bald cypress (*Taxodium distichum*), tupelo gum (*Nyssa aquatica*), Atlantic white cedar (*Chamaecyparis thyoides*), overcup oak (*Quercus lyrata*), and willow oak (*Quercus phellos*). Planting will be at a rate of 680 stems per acre. Total on-site mitigation at this site will be 2.48 hectares (6.13 acres).

After planting has been completed, an initial evaluation will be performed to verify planting methods and to determine initial species composition and density. 0.05 acre vegetation plots will be established and permanently located within the bottomland hardwood mitigation area.

Success criteria have been established to verify that the mitigation areas support vegetation necessary for a jurisdictional determination and that the restored area exhibits wetland hydrology.

#### Vegetation Monitoring

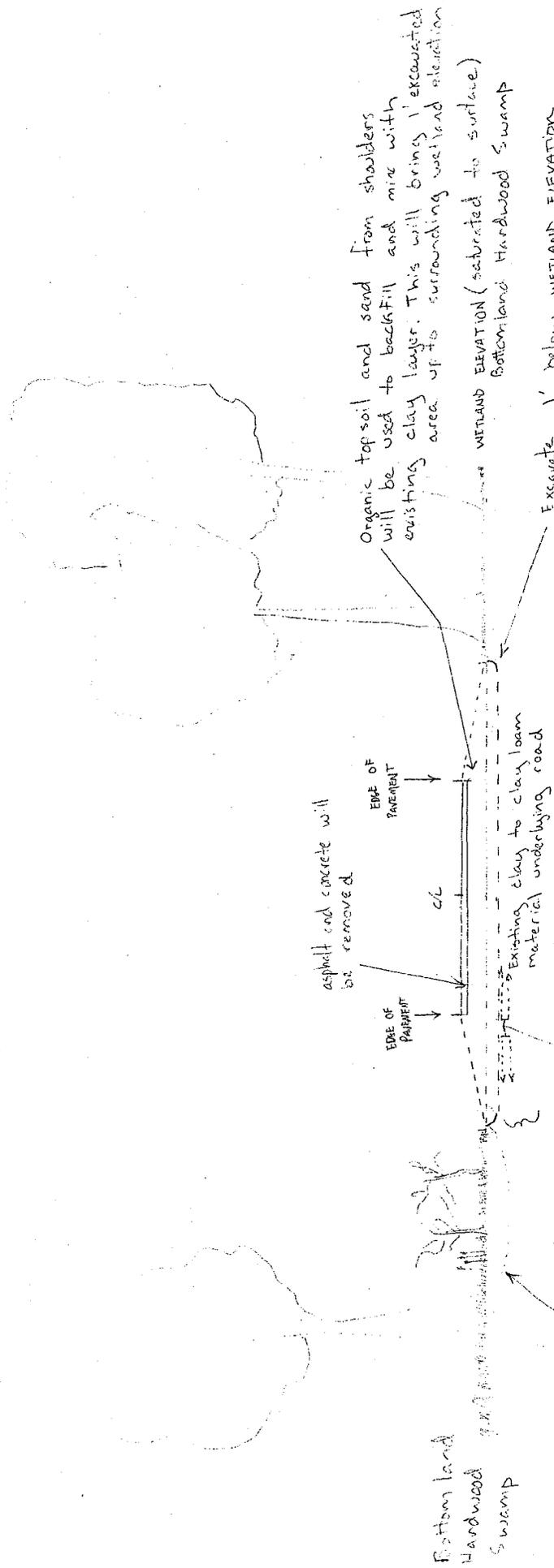
For bottomland hardwood areas, a minimum mean density of 320 trees/acre must be surviving for 3 years after initial planting. The required survival criterion will decrease by 10 % per year after the third year of vegetation monitoring (i.e. for an expected 290 stems per acre for year 4, and 260 stems per acre for year 5).

#### Hydrologic Monitoring

The hydrology of the site will be assessed concurrently with the vegetation monitoring. The site will be evaluated to determine if the restored area exhibits signs of wetland hydrology. The site will be evaluated using the same criteria outlined in the 1987 Wetland Delineation Manual, published by the United States Army Corps of Engineers, for field identification of a jurisdictional wetland. The characteristics of the restoration area will then be compared to the adjacent existing wetland complex. The portion of the existing US 64 to be removed was constructed through a bottomland hardwood swamp

system that has traditionally had at least some amount of standing water throughout most of the growing season. Therefore, it is not unreasonable to expect that the removal of the roadbed and minor site preparation will fully restore the area to wetland status.

# R-2548 Permit Modification



Organic topsoil and sand from shoulders will be used to backfill and mix with existing clay layer. This will bring 1' excavated area up to surrounding wetland elevation.

WETLAND ELEVATION (subrated to surface)  
Bottomland Hardwood Swamp

Excavate 1' below WETLAND ELEVATION

asphalt and concrete will be removed

EDGE OF PAVEMENT

EDGE OF PAVEMENT

Existing clay to clay loam material underlying road

6-12" underlying clay to clay loam layer will be loosened by excavating equipment to promote root growth and increase hydraulic movement (this is 6-12" below 1' of excavation)

old canal that has silted in and become vegetated with herbaceous wetland species and woody shrubs

Bottomland Hardwood Swamp

NCDOT - DIVISION ONE  
R-2548 US 64  
Tyrrell County  
Permit Modification