

Roanoke Island Visitor Center/ Rest Area Mitigation Plan
Final Approved Version

Roanoke Island Visitor Center and Rest Area on US 64-264 between the Croatan Sound and the
US 64/NC 345 intersection, Dare County
TIP No. K-4003
Permit Modification to TIP No. R-2551



North Carolina Department of Transportation
Division of Highways
Project Development and Environmental Analysis Branch
Natural Systems Unit

May 2001
(Revised July 2001)

Note:

This mitigation plan replaces the previous mitigation plans for this project.

1.0 Introduction

The North Carolina Department of Transportation (NCDOT) proposes to construct the Roanoke Island Visitor Center/Rest Area along the new location portion of US 64-264 (Manteo Bypass) currently under construction as TIP No. R-2551 between the Croatan Sound and the US 64/NC 345 intersection in Dare County. The proposed right-of-way will be approximately 9.2 ac.

1.1 Wetland Resources

Wetlands were delineated by Environmental Professionals using the "Corps of Engineers Wetlands Delineation Manual" (1987). The delineation was verified by Tom Walker with the U.S. Army Corps of Engineers on June 1, 1999.

Impacts to jurisdictional wetlands as a result of construction of the Roanoke Island Visitor Center/Rest Area consist of a total of 1.15 acres of permanent wetland impacts which consist of 0.82 acres of fill, 0.18 ac of isolated wetlands, and 0.15 acres due to mechanized clearing. There will also be 0.01 acres of fill in surface waters. There will be 145.5 linear feet of impacts to a previously dredged channel located within the project area.

1.2 Summary of Mitigation

Avoidance and minimization measures taken during the project planning, review, and design phases are described in the permit modification for TIP No. R-2551 dated February 23, 2001.

Wetland compensation for the Visitor Center/ Rest Area will be accomplished by restoration, creation, and preservation onsite. NCDOT plans to mitigate for 1.15 ac. of wetland impacts through on-site restoration of 0.11 ac (1:1) and creation of 1.66 ac. (1:1) by removal of the portions of the associated fill from the borrow pit that was once onsite and vegetating with species matching the target wetland community. NCDOT requests a 1:1 ratio for creation due to the high probability of success for extending adjacent wetland boundaries. NCDOT will preserve 1.29 ac. (5:1) of estuarine fringe on the Visitor Center/ Rest Area property.

Additionally, NCDOT will debit 1.36 ac (5:1) of forested wetland preservation from the Mashoes Road Mitigation site in Dare County. Per conversations with resources agencies, 1,003.9 ft of riparian buffers along the stream located within the project area will be re-vegetated with the vegetation mix used for the wetland communities as compensatory mitigation for impacts to Waters of the U.S. classified as SA Waters. The buffers will range from various widths that extend to NCDOT property limits.

2.0 Roanoke Island Visitor Center/Rest Area Mitigation Site

The purpose of this report is to document the existing site conditions at the location of the proposed Visitor Center/Rest Area, to describe the wetland restoration, creation, preservation, and to establish the monitoring for the Roanoke Island Visitor Center/Rest Area Mitigation Plan. This plan includes on-site wetland restoration and creation associated with the borrow pit / spoil basin that previously existed onsite. As described earlier, the 0.11 ac.(South Tract) of on-site wetland restoration and 1.66 ac (North Tract 0.89 ac, South Tract 0.77 ac) of creation is proposed as a portion of the required mitigation for Visitor Center/Rest Area. As requested by regulatory agencies, 1,003.9 ft of riparian buffers along the stream located within the project area will be re-vegetated.

2.1 Site Descriptions

Two tracts compose the onsite mitigation offered as compensation for impacts resulting from the construction of the proposed Roanoke Island Visitor Center/ Rest Area. The South Tract is the same property as the proposed Roanoke Island Visitor Center/ Rest Area will be constructed. This tract is located south of the new location portion of US 64-264 (Manteo Bypass) currently under construction between the Croatan Sound and the US 64/NC 345 intersection. The North Tract is located approximately 600 ft. north of the proposed Roanoke Island Visitor Center/ Rest Area (see Figure 1)

South Tract

The existing site is approximately 9.2 ac in size. The majority of the property was used as a borrow pit and spoil basin. Since that time, the basin walls have been pushed in and the spoil material has been mixed with material from the berm that once enclosed the basin. The change in slope across the site is from 1.5 feet above mean sea level (msl) to 5.0 feet above msl.

The wetland area east of the borrow pit is characterized as an estuarine fringe forest community. Dominant vegetation present in this community includes loblolly pine (*Pinus taeda*), red bay (*Persea borbonia*), wax myrtle (*Myrica cerifera*), red maple (*Acer rubrum*), greenbrier (*Smilax* sp.), and American holly (*Ilex opaca*). The wetland area west of the borrow pit has the same vegetation as the east side, with the exception of less loblolly pine and silverling (*Baccharis halimifolia*) is the dominant vegetation.

The soils in this area are mapped by the Soil Survey of Dare County (NRCS, 1992) as the Baymeade-Icaria-Johns association. However, Urban fill is the dominant soil type in the study area, primarily associated with the borrow pit. Baymeade fine sand, Leon fine sand, and Belhaven muck are also located within the project study area.

Approximately 1200 ft of a tributary to the Croatan Sound runs along the eastern and southern boundaries of the NCDOT property line. This stream has been channelized and riparian buffer vegetation is sparse and in some areas nonexistent.

North Tract

The existing site is 1.02 ac in size. The majority of the property was used as a borrow pit and spoil basin. Since that time, the basin walls have been pushed in and the spoil material has been mixed with material from the berm that once enclosed the basin. The change in slope across the site is from 1.5 feet above mean sea level (msl) to 4.0 feet above msl.

A portion of the remaining borrow pit/ spoil basin located west of the North Tract has been proposed for wetland mitigation by Dare County for impacts resulting from the construction of the proposed Dare County Justice Facility. The wetland area east of the North Tract is characterized as an estuarine fringe shrub community that quickly grades into a tidal marsh community. Dominant vegetation present in the estuarine fringe community includes silverling (*Baccharis halimifolia*) loblolly pine (*Pinus taeda*), red bay (*Persea borbonia*), wax myrtle (*Myrica cerifera*), red maple (*Acer rubrum*), greenbrier (*Smilax* sp.), American holly (*Ilex opaca*), and sweet gum (*Liquidambar styraciflua*). Dominant vegetation present in the tidal marsh community includes black needlerush (*Juncus roemerianus*), saltmeadow cordgrass (*Spartina patens*), and cattails (*Typha angustifolia*)

The soils in this area are mapped by the Soil Survey of Dare County (NRCS, 1992) as the Baymeade-Icaria-Johns association. However, Urban fill is the dominant soil type in the study area, primarily associated with the borrow pit. Baymeade fine sand, Leon fine sand, Belhaven muck, and Hobonny muck are also located within the project study area.

2.2 Methodology

The goal of the mitigation plan is to establish a wetland community classified as Estuarine Fringe. The proposed Visitor Center/ Rest Area Mitigation Sites (North and South Tracts) will provide 1.77 ac of on-site wetland restoration/creation by removal of the existing fill associated with the borrow pit/spoil basins that were previously onsite. Proposed onsite wetland mitigation for the South Tract is shown in Figure 2. Stream stabilization in riparian buffers is illustrated by Figure 3. Figure 4 provides proposed onsite wetland mitigation for the North Tract.

Approximately 1.0-3.0 ft. of fill material will be graded down to the elevation of the adjacent jurisdictional wetlands. The area will be disked and ripped as necessary to reduce compaction. The communities will be planted with species typical of the target community in a random mix based on availability (see Table 1). The planting will occur on 8 foot centers with a density of 680 stems per acre. The planting ratio will be approximately 70% shrub and 30% tree species.

Stream stabilization will be accomplished through re-vegetating riparian buffers along 1,003.9ft of the stream located within NCDOT property limits. The buffer widths will vary from

approximately 9 ft to 65 ft and will be planted with the same species mix, density, and planting ratio of those to be planted in the wetland community.

TABLE 1: Species Proposed for the Estuarine Fringe community

Common Name	Scientific Name	Southeast Region Indicator
red bay	<i>Persea borbonia</i>	FACW
wax myrtle	<i>Myrica cerifera</i>	FAC+
gallberry	<i>Ilex glabra</i>	FACW
marsh elder	<i>Iva frutescens</i>	FACW+
loblolly bay	<i>Gordonia lasianthus</i>	FACW
bald cypress	<i>Taxodium distichum</i>	OBL
swamp tupelo	<i>Nyssa sylvatica var. biflora</i>	OBL

2.3 Monitoring

South Tract

Hydrologic monitoring will occur throughout the growing season in the wetland areas by using 40-inch groundwater gauges. Two groundwater gauges will be placed in the restored Estuarine Fringe area and groundwater gauges will be placed in the creation Estuarine Fringe area. Four groundwater gauges will be placed in the existing Estuarine Fringe community as reference gauges. Hydrologic success criteria will be based on the establishment of hydrologic conditions similar in frequency, duration and depth to those documented in the existing reference wetlands adjacent to the areas being restored. Similar hydrologic frequency, duration and depth shall be determined as being within 20% of the respective reference wetlands established on the eastern and western side of the Roanoke Island Visitor Center and Rest Area.

Vegetation monitoring will consist of two plot(s) for the Estuarine Fringe community. Stem count and species composition will be recorded annually at the end of the growing season. Success will be based on survival of 320 stems per acre in year three with a target survival of 260 stems per year in year five. Visual observation of plant establishment will be recorded using photo reference points.

North Tract

Hydrologic monitoring will occur throughout the growing season in the wetland areas by using 40-inch groundwater gauges. Two groundwater gauges will be placed in the creation Estuarine Fringe area. One groundwater gauge will be placed in the existing Estuarine Fringe community as a reference gauge. Hydrologic success criteria will be based on the establishment of hydrologic conditions similar in frequency, duration and depth to those documented in the existing reference wetlands adjacent to the areas being restored. Similar hydrologic frequency, duration and depth shall be determined as being within 20% of the respective reference wetland established on the eastern side of the North Tract.

Vegetation monitoring will consist of two plot(s) for the Estuarine Fringe community. Stem count and species composition will be recorded annually at the end of the growing season. Success will be based on survival of 320 stems per acre in year three with a target survival of 260 stems per year in year five. Visual observation of plant establishment will be recorded using photo reference points.

Riparian Buffers

Vegetation that is not planted in wetland restoration or creation areas will be monitored pictorially and photos will be provided at annual monitoring meetings.

2.4 Mitigation Credit Ratios

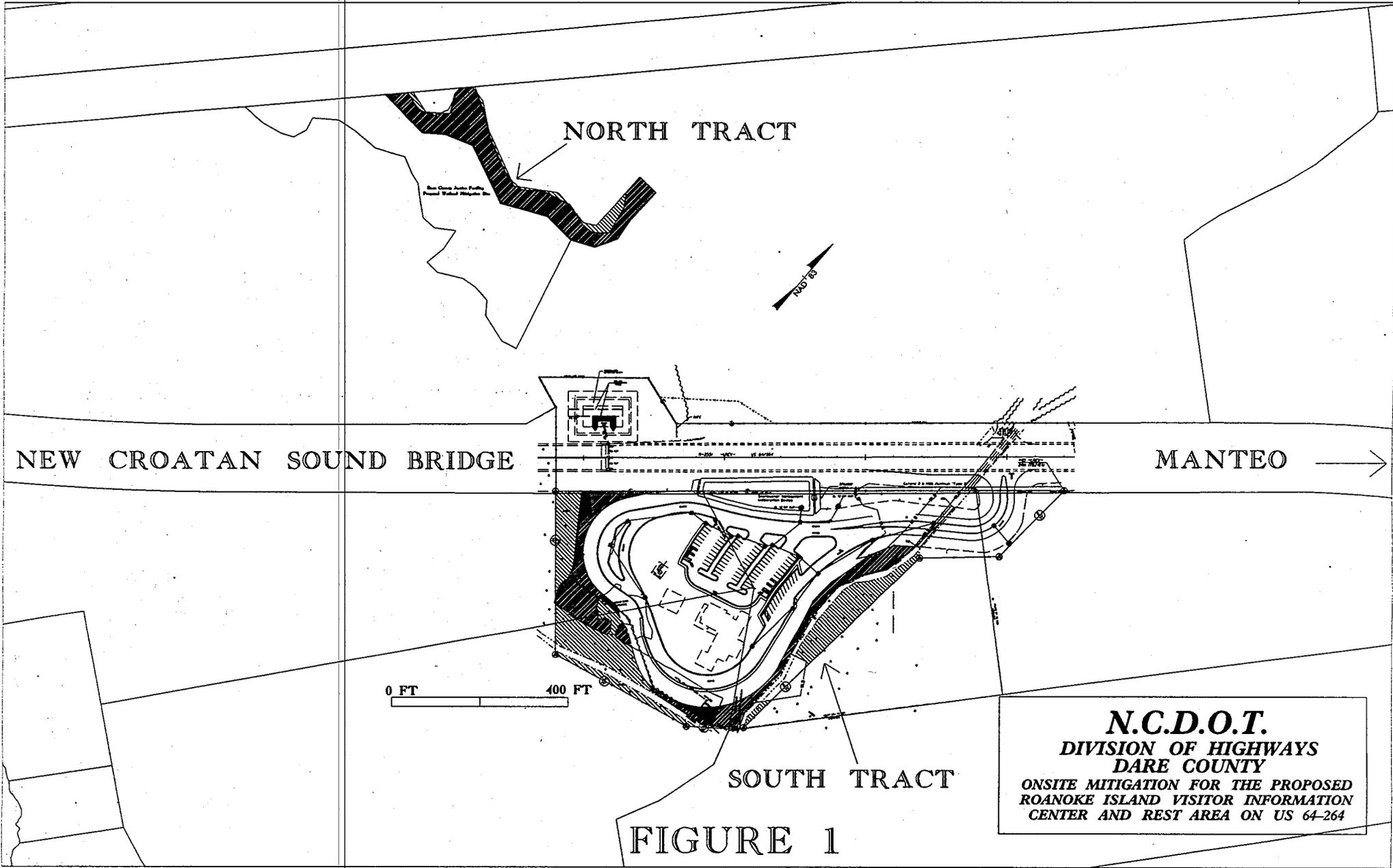
The following table outlines the credit ratios and calculations used for wetland mitigation due to impacts resulting from construction of the Roanoke Island Visitor Center/Rest Area.

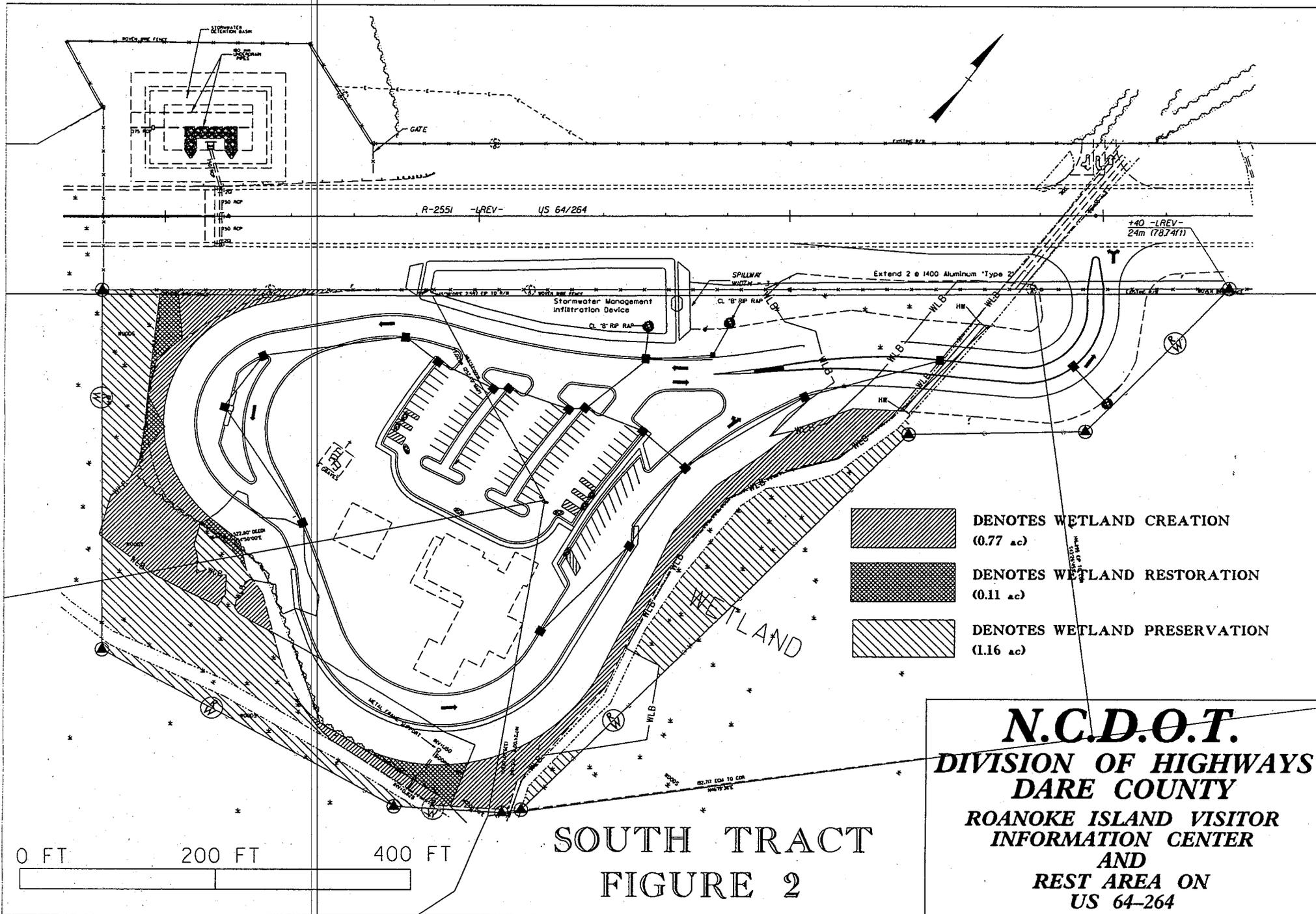
TABLE 2. Mitigation Credits and Debit Sources

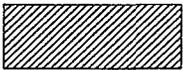
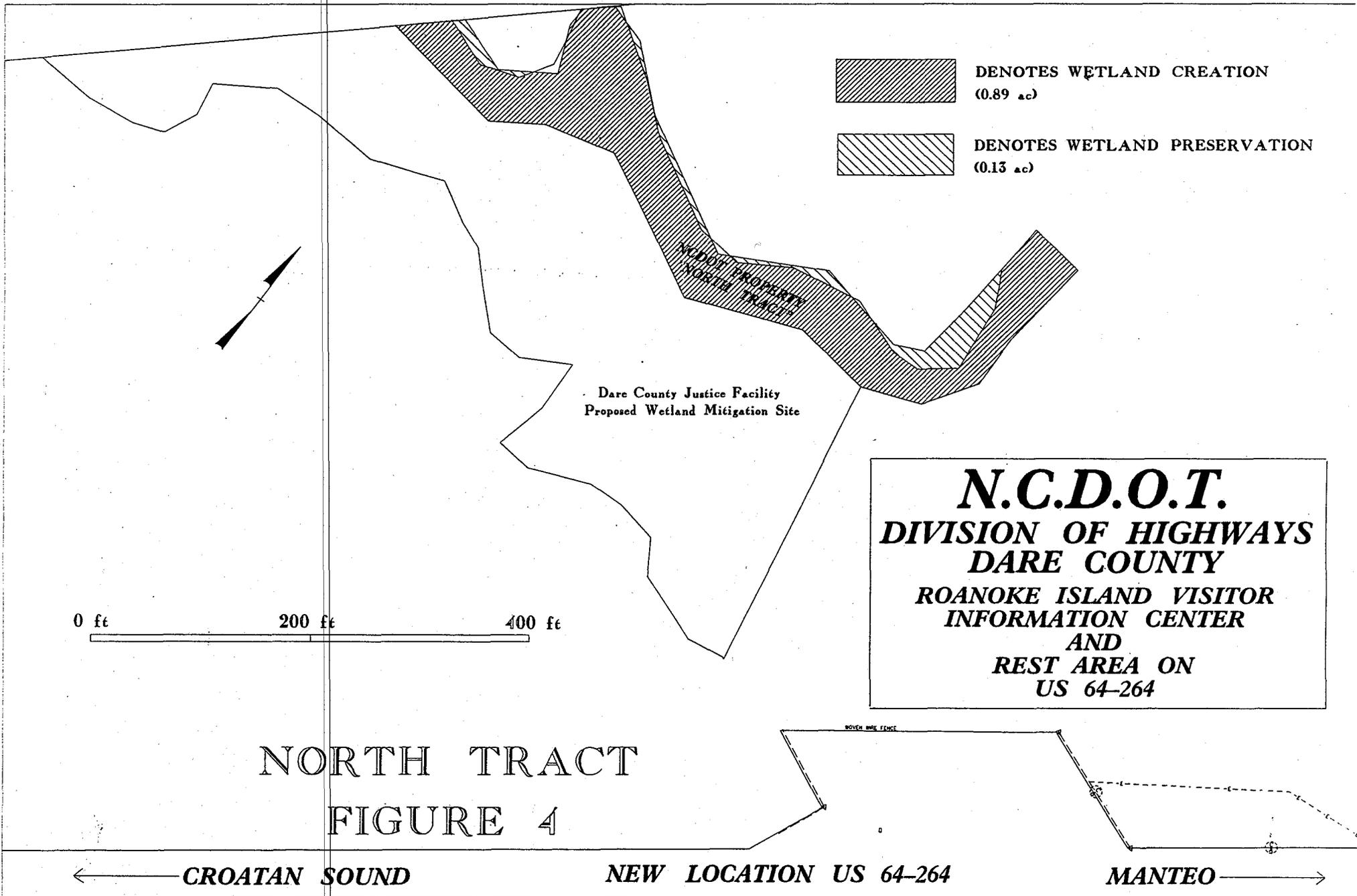
Community Type	Amount	Ratio	Source
Estuarine Fringe Restoration	0.11 ac	1:1	Visitor Center/Rest Area Mitigation Site, South Tract.
Estuarine Fringe Creation	0.77 ac	1:1	Visitor Center/Rest Area Mitigation Site, South Tract.
Estuarine Fringe Preservation	1.16 ac	n/a	Visitor Center/Rest Area Mitigation Site, South Tract.
Estuarine Fringe Creation	0.89 ac	1:1	Visitor Center/Rest Area Mitigation Site, North Tract.
Estuarine Fringe Preservation	0.13 ac	5:1	Visitor Center/Rest Area Mitigation Site, North Tract.
Forested Wetland Preservation	1.36 ac	5:1	Mashoes Rd. Mitigation Site Dare County
Riparian Buffers	1,003.9 ft	6.9:1	Visitor Center/Rest Area Mitigation Site, South Tract.
Total Wetland Mitigation	4.42 ac	3.8:1	

2.5 Final Dispensation of Property

~~NCDOT will retain ownership of the mitigation site until all monitoring requirements are fulfilled and an appropriate recipient is identified. If and when the deed is transferred, restrictions will be placed on the property to ensure protection in perpetuity.~~







DENOTES WETLAND CREATION
(0.89 ac)



DENOTES WETLAND PRESERVATION
(0.13 ac)

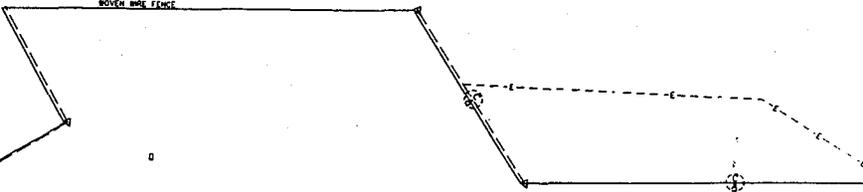
Dare County Justice Facility
Proposed Wetland Mitigation Site

WADOT PROPERTY
NORTH TRACT

N.C.D.O.T.
DIVISION OF HIGHWAYS
DARE COUNTY
ROANOKE ISLAND VISITOR
INFORMATION CENTER
AND
REST AREA ON
US 64-264

0 ft 200 ft 400 ft

NORTH TRACT
 FIGURE 4



← CROATAN SOUND

NEW LOCATION US 64-264

MANTEO →