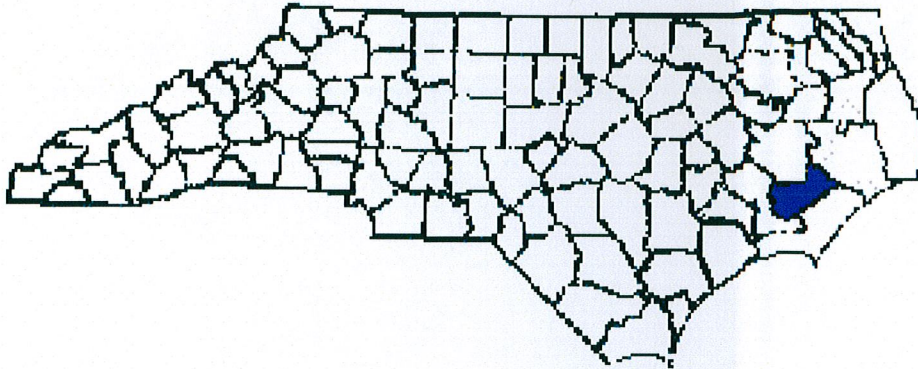


ANNUAL REPORT FOR 2012



Three Swamp Mitigation Sites

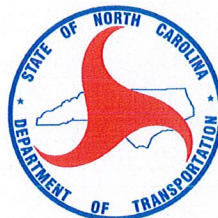
Pamlico County

TIP No. R-2539A&B

COE Action ID: 199303531

DWQ Project #: 021232

CAMA Permit #: 55-03



Prepared by:
Natural Environment Section & Roadside Environmental Unit
North Carolina Department of Transportation
September 2012

TABLE OF CONTENTS

SUMMARY	1
1.0 INTRODUCTION.....	2
1.1 PROJECT DESCRIPTION	2
1.2 PURPOSE.....	2
1.3 PROJECT HISTORY.....	2
1.4 DEBIT LEDGER.....	3
2.0 VEGETATION.....	5
2.1 SUCCESS CRITERIA	5
2.2 DESCRIPTION OF SPECIES	5
2.3 RESULTS OF VEGETATION MONITORING	6
2.4 CONCLUSIONS	6
3.0 OVERALL CONCLUSIONS/RECOMMENDATIONS	6

LIST OF FIGURES

Figure 1. Site Location Map.....	4
----------------------------------	---

LIST OF TABLES

Table 1. Three Swamp Mitigation Sites Debit Ledger.....	3
Table 2. Vegetative Monitoring Results	6

APPENDICES

APPENDIX A PHOTO AND VEGETATION PLOT LOCATIONS, SITE PHOTOS

SUMMARY

The following summarizes the monitoring activities that have occurred in the past year at the Three Swamp Mitigation Sites. The three sites are located at the Upper Broad, Deep Run and Goose Creek stream crossings and are adjacent to NC 55 in Pamlico County. The sites were constructed to provide compensatory mitigation to offset impacts for T.I.P.'s R-2539A and R-2539B. The 2012-year represents the sixth year of monitoring following construction. The sites must demonstrate hydrologic and vegetation success for a minimum of five years or until deemed successful.

The wetland restoration area was monitored for vegetation only during the 2012 monitoring year. Prior to the annual monitoring review meeting in 2011 it was determined that a significant amount of the Upper Broad site, and portions of both the Deep Run and Goose Creek sites had been mowed by an NCDOT contractor.

During the annual meeting, it was agreed that NCDOT would replant the disturbed area and continue vegetation monitoring for at least one additional year; hydrologic monitoring would no longer be required due to the success of the previous five years of monitoring. During the 2012 evaluation, it was noted that in the areas that were disturbed and replanted much of the affected hardwood vegetation had re-sprouted.

The 2012 vegetation monitoring of the sites revealed an average tree density of 675 trees per acre. This average is well above the minimum success criteria of 260 trees per acre.

Based on the results from the sixth year of monitoring, NCDOT proposes to discontinue all monitoring activities at the Three Swamp Mitigation Sites.

1.0 INTRODUCTION

1.1 Project Description

The Three Swamp Mitigation Sites consists of approximately 4.23 acres of riverine wetland restoration and 11.99 acres of riverine wetland enhancement. These sites were constructed to provide compensatory mitigation to offset wetland impacts for T.I.P. projects R-2539A and R-2539B. The sites are located immediately adjacent to the roadway project at the Upper Broad Creek, Deep Run Creek and Goose Creek crossings in Pamlico County.

1.2 Purpose

In order to demonstrate successful mitigation, hydrologic and vegetation monitoring must be conducted for a minimum of five consecutive years or until the site is deemed successful. Success criteria are based on federal guidelines for wetland mitigation. These guidelines stipulate criteria for both hydrologic conditions and vegetation survival.

Activities in 2012 reflect the sixth year of monitoring following the restoration efforts. Included in this report are the vegetation monitoring results and site photographs.

1.3 Project History

January 2007	Sites Constructed
February and April 2007	Sites Planted
March – December 2007	Hydrologic Monitoring (Year 1)
July 2007	Vegetation Monitoring (Year 1)
March – December 2008	Hydrologic Monitoring (Year 2)
August 2008	Vegetation Monitoring (Year 2)
March – December 2009	Hydrologic Monitoring (Year 3)
June 2009	Vegetation Monitoring (Year 3)
March - December 2010	Hydrologic Monitoring (Year 4)
June 2010	Vegetation Monitoring (Year 4)
March – December 2011	Hydrologic Monitoring (Year 5)
June 2011	Vegetation Monitoring (Year 5)
April 2012	Disturbed Areas Replanted
July 2012	Vegetation Monitoring (Year 6)

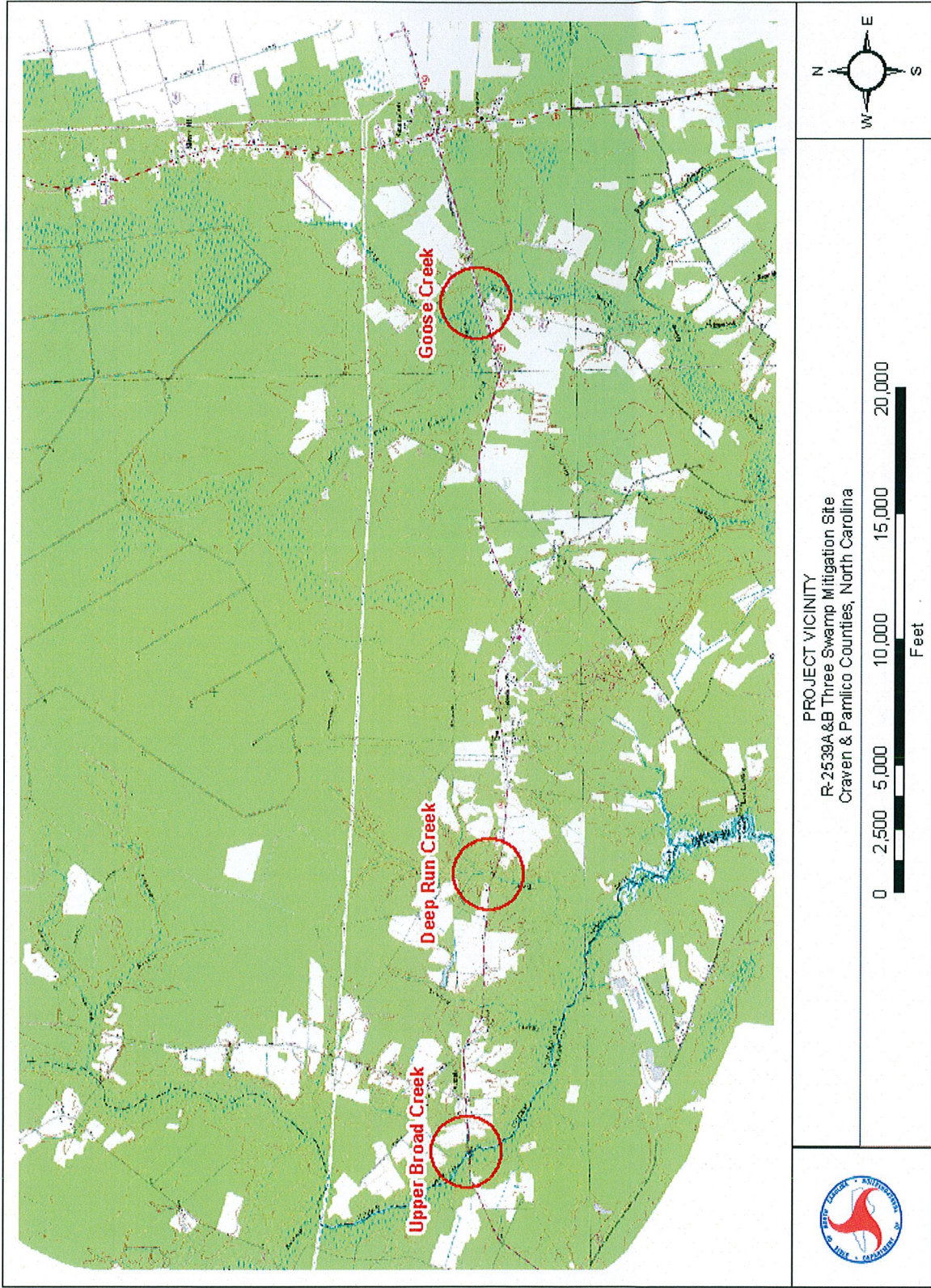
1.4 Debit Ledger

Table 1. Three Swamp Mitigation Sites Debit Ledger

Three Swamp			TIP DEBIT
Wetland Type	As-Built Quantity	Acres Remaining	R-2539B
Riverine Wetland Restoration	4.23	2.84	1.39
Riverine Wetland Enhancement	11.99	11.99	

Note: Debit ledger information up to date as of September 10, 2012.

Figure 1. Site Location Map



2.0 VEGETATION: THREE SWAMP MITIGATION SITES (YEAR 6 MONITORING)

2.1 Success Criteria

Success Criteria states that NCDOT shall plant 680 stems/acre of the approved planting list. Vegetation success shall be measured by survivability over a 5-year monitoring period. Survivability will be based on 320 stems/acre after 3 years and 260 stems after 5 years. A survey of vegetation during the growing season shall be conducted annually over the 5-year monitoring period, and submitted to the Regulatory Agencies. If the surviving vegetation densities are below the required thresholds after the 5-year monitoring period the site may still be declared successful, at the discretion and written approval from the Regulatory Agencies.

2.2 Description of Species

The following tree species were planted in the Wetland Restoration Area:

Nyssa sylvatica var. *biflora*, Swamp Blackgum

Taxodium distichum, Baldcypress

Fraxinus pennsylvanica, Green Ash

Nyssa aquatica, Water Tupelo

Liriodendron tulipifera, Tulip Poplar

2.3 Results of Vegetation Monitoring

Table 2. Vegetative Monitoring Results

Plot #	Swamp Blackgum	Baldcypress	Green Ash	Water Tupelo	Tulip Poplar	Total (6 year)	Total (at planting)	Density (Trees/Acre)
Plot 1 (Upper Broad Creek)		13	22	6		41	41	680
Plot 2 (Deep Run Creek)		6	14	16	3	39	39	680
Plot 3 (Goose Creek)	12	20	4	12	1	49	50	666
Average Density (Trees/Acre)								675

Site Notes: Other vegetation noted: *Juncus* sp., baccharis, woolgrass, cattail, red maple, wax myrtle, sweetgum, tear-thumb, black willow, sedge and various grasses. The areas that were disturbed were replanted in April 2012. The planted vegetation in this area that was cut has begun to re-sprout.

2.4 Conclusions

There were three vegetation monitoring plots established throughout the 4.23 acres of riverine wetland restoration. The 2012 vegetation monitoring of the sites revealed an average tree density of 675 trees per acre. This average is well above the minimum success criteria of 260 trees per acre.

NCDOT proposes to discontinue vegetation monitoring at the Three Swamp Mitigation Sites.

3.0 OVERALL CONCLUSIONS/RECOMMENDATIONS

The 2012-year represents the sixth year of monitoring for the Three Swamp Mitigation Sites. The wetland restoration area was monitored for vegetation only during the 2012 monitoring year. The 2012 vegetation monitoring of the sites revealed an average tree density of 675 trees per acre. This average is well above the minimum success criteria of 260 trees per acre.

NCDOT proposes to discontinue all monitoring activities at the Three Swamp Mitigation Sites.

APPENDIX A

**PHOTO AND VEGETATION PLOT LOCATIONS,
SITE PHOTOS**

R-2539A Upper Broad Creek



Photo 1



Photo 2



Photo 3



Photo 4

July 2012

R-2539B Deep Run Creek



Photo 1



Photo 2



Photo 3



Photo 4

July 2012

R-2539B Goose Creek



Photo 1



Photo 2



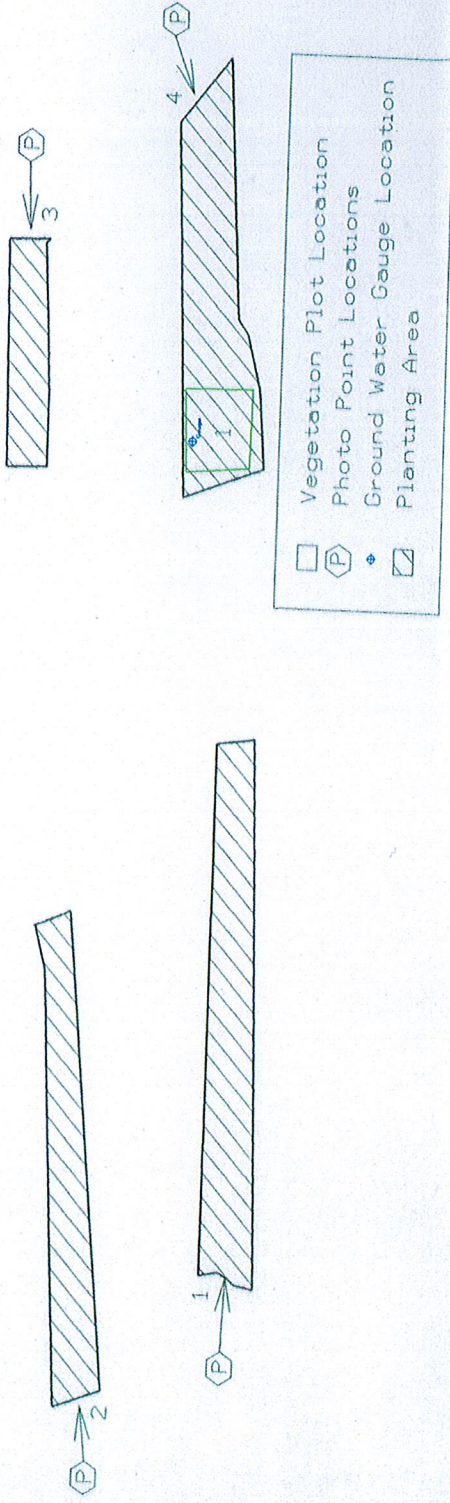
Photo 3



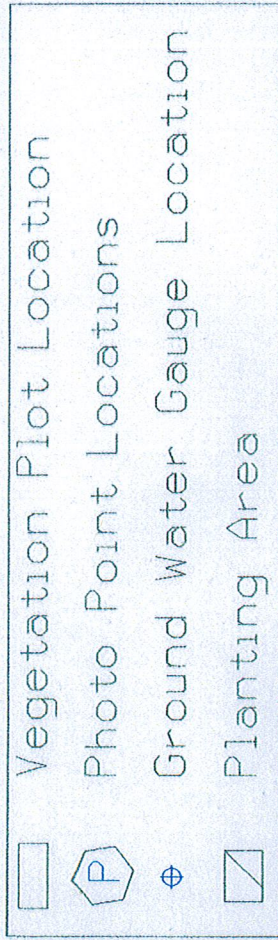
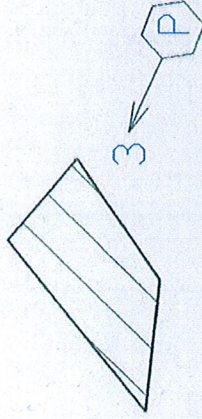
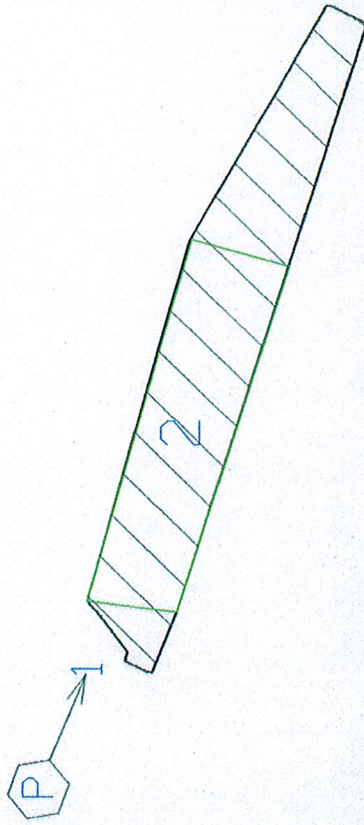
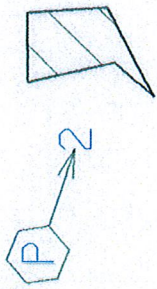
Photo 4

July 2012

NC-2539A - Upper Broad Creek
55 Craven and Pamlico Counties



R-2539B - Deep Run Creek
NC 55 Pamlico County



- Vegetation Plot Location
- Photo Point Locations
- Ground Water Gauge Location
- Planting Area

RC-2539B - Goose Creek
Pamlico County

