

ANNUAL REPORT FOR 2000



**Lake Wheeler Mitigation Site
Wake County
Project No. 8.U401721
TIP No. R-2000 WM**



Prepared By:
Natural Systems Unit & Roadside Environmental Unit
North Carolina Department of Transportation
December 2000

TABLE OF CONTENTS

SUMMARY	1
1.0 INTRODUCTION	2
1.1 Project Description	2
1.2 Purpose	2
1.3 Project History	2
2.0 VEGETATION	4
2.1 Success Criteria	4
2.2 Description of Species	4
2.3 Results of Vegetation Monitoring	5
2.4 Conclusions	6
3.0 OVERALL CONCLUSIONS/ RECOMMENDATIONS	6

FIGURES

FIGURE 1 – SITE LOCATION MAP

APPENDIX

APPENDIX A – SITE PHOTOS

SUMMARY

The following report summarizes the monitoring activities that have occurred in the past year at the Lake Wheeler Mitigation Site. The site was constructed and planted between December, 1996 and March, 1997. Monitoring activities for 2000 include the fourth year of vegetation monitoring for the site.

The mitigation encompasses approximately 114 acres total. The site consists of Bottomland Hardwood Wetland Preservation, Streamside Levee Preservation, and Upland Preservation. No hydrologic monitoring is required by the project; however, vegetation monitoring is required for five years.

NCDOT recommends that vegetation monitoring continue on this project.

1.0 INTRODUCTION: LAKE WHEELER MITIGATION SITE

1.1 Project Description

The Lake Wheeler Mitigation Site is located off US 401 near Garner, NC (Figure 1). The site consists of approximately 114 acres and provides for the following types of mitigation:

56 acres of Bottomland Hardwood Wetland Preservation

37 acres of Streamside Levee Preservation

21 acres of Upland Preservation

1.2 Purpose

The purpose of this report is to detail the vegetation monitoring in 2000 at the Lake Wheeler Mitigation Site. No hydrologic monitoring is required for this particular site.

1.3 Project History

March 1997	Site planted
October 1997	Vegetation Monitoring (1 yr.)
December 1998	Vegetation Monitoring (2 yr.)
November 1999	Vegetation Monitoring (3 yr.)
November 2000	Vegetation Monitoring (4 yr.)

2.0 VEGETATION: LAKE WHEELER MITIGATION SITE

2.1 Success Criteria

NCDOT will monitor the site for five years. A 320 stems per acre survival criterion for planted seedlings will be used to determine success for the first three years. 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). The number of plants of one specie will not exceed 20% of the total number of plants of all species planted.

2.2 Description of Species

The following species were planted in the Wetland Enhancement/Preservation Area:

Zone 1: Clear-cut Wetland Areas (49 Ac.)

- River Birch
- Cherrybark Oak
- Green Ash
- Blackgum
- Overcup Oak
- Swamp Chestnut Oak
- Laurel Oak

Zone 2: Levee Area (17 Ac.)

- River Birch
- Cherrybark Oak
- Water Oak
- Willow Oak
- White Oak
- Northern Red Oak
- Bitternut Hickory

2.3 Results of Vegetation Monitoring

Plot # (Zone 1)	River Birch	Cherrybark Oak	Green Ash	Black Gum	Overcup Oak	Swamp Chestnut Oak	Laurel Oak	Hickory	Willow Oak	Water Oak	White Oak	Total (3 year)	Total (at planting)	Density (Tree/Acre)
2	9	2	10	3		1			3			28	34	560
3	10	1	14	1	2				6			34	34	680
6	2	1	10	2	4							19	34	380
7	4	1	20	4		1						30	34	600
9	2	8	3	3			1		2	5		24	34	480
10	6	5	5	4	4		4	1		2		31	34	620
AVG. DENSITY (MIX 1)													553	

Plot # (Zone 2)	River Birch	Cherrybark Oak	Green Ash	Black Gum	Overcup Oak	Swamp Chestnut Oak	Laurel Oak	Hickory	Willow Oak	Water Oak	White Oak	Total (3 year)	Total (at planting)	Density (Tree/Acre)
1	7	2		2			5		2	16		34	34	680
4	4	1	16			3	1	3	3	1	2	34	34	680
5	17		12					6				35	35	680
8	7	1	1						1	1	1	12	34	240
AVG. DENSITY (MIX 2)													570	
TOTAL AVG. DENSITY													562	

To determine tree density, 50' x 50' plots are installed immediately following planting. The actual number of planted trees which occur within the plot are counted. This number is equated to the number within each plot, which represents 680 trees per acre (average). The survival monitoring number is compared to the planted number to obtain survival percentage. This percentage is applied to the 680 trees per acre to obtain an estimated tree per acre for the site. (Density = monitoring count / planted trees x 680)

Site Notes:

Zone 1: Other species noted: elderberry, tulip poplar, juncus, black willow, red maple, false willow, sweet gum, wool grass, carex, holly, swamp dogwood, baccharis, fennel, river birch, green ash, volunteer oaks, giant cane, honey suckle, goldenrod, briars, pine and cattails. Standing water noted in plot 6. Beaver activity noted in plot 6.

Zone 2: Other species noted: volunteer oaks, pine, holly, tulip poplar, fennel, briars, broomsedge, privet, river birch, buckeye, fennel and vines. Standing water noted in plot 5. Beaver activity noted in plot 5. Difficult to find trees in plot 8.

Overall: Few sweetgum and red maple throughout site. Heavy briars throughout site.

2.4 Conclusions

Of the 114 total acres on this site, approximately 66 acres involved tree planting. There were 10 vegetation monitoring plots established throughout the planted areas, encompassing all plant communities. The vegetation monitoring of the site resulted in an average tree density of 562 trees per acre. Both zones are well above the minimum required by the success criteria.

3.0 OVERALL CONCLUSIONS/RECOMENDATIONS

Based on the vegetation data provided in this report, the Department proposes to continue vegetation monitoring for this site for another growing season.

APPENDIX A
SITE PHOTOS

Lake Wheeler

Photos of Site



Photo 1



Photo 2



Photo 3



Photo 4

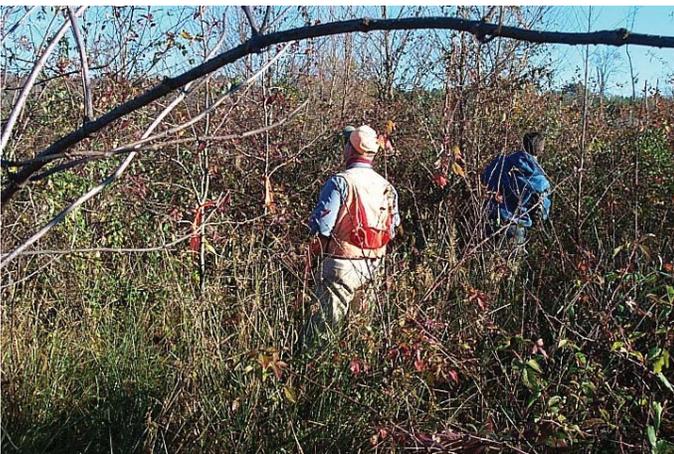


Photo 5



Photo 6

Lake Wheeler



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11

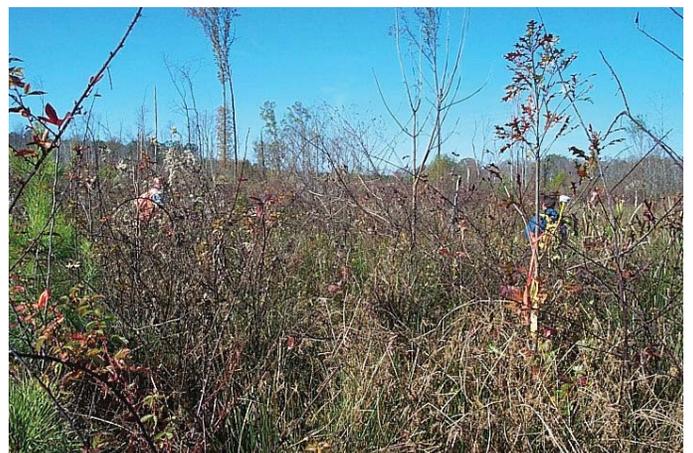


Photo 12