

ANNUAL REPORT FOR 2001



Manteo Bypass Bridge Mitigation Site
Dare County
Project No. 8.T051403
TIP No. R-2551 A



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

The following report summarizes the monitoring activities that have occurred in the past year at the Manteo Bypass Bridge Restoration Site. The purpose of the site is to restore a brackish marsh system that was impacted in relation to the Manteo Bypass Bridge construction (permit violation). The site was restored in August and September 1999. Monitoring activities for 2001 include the second year of vegetation monitoring for the site.

The mitigation encompasses approximately 0.128 acres total. The site consists of brackish marsh restoration. The restoration effort involves removing spoil deposited by the jetting of piles and monitoring the spoil removal area to ensure that natural regeneration of *Juncus roemerianus* (*blackneedle rush*). No hydrologic monitoring is required for this project; however, vegetation monitoring is required for five years.

Due to the lack of rapidly recovering/regenerating blackneedle rush, the Department planted the entire restoration area in May 2001 in an effort to “jump-start” the vegetation. In August of 2001, the vegetative cover did not meet the success criteria, but is on track for the first year of planting.

1.0 INTRODUCTION: MANTEO BYPASS BRIDGE MITIGATION SITE

1.1 Project Description

The Manteo Bypass Bridge Restoration Site is located immediately adjacent to the western terminus of the new bridge over the Croatan Sound associated with the Manteo Bypass (TIP R-2551A), as is shown in figure 1. The site consists of approximately 0.128 acres and provides for the following types of mitigation:

Brackish Marsh Restoration

1.2 Purpose

The purpose of this report is to detail the vegetation monitoring in 2001 at the Manteo Bypass Bridge Restoration Site. No hydrologic monitoring is required for this particular site.

1.3 Project History

October 2000	Vegetation Monitoring (1 yr.)
May 2001	Site planted
August 2001	Vegetation Monitoring (1 yr. after replant)



Figure 1: Manteo Bypass Bridge Mitigation Site

2.0 VEGETATION: MANTEO BYPASS BRIDGE

2.1 Success Criteria

The success criteria set forth by the permit violation is outlined in Appendix A. However, it is the request of the Department to revise the success criteria for this site to the current marsh mitigation criteria that has evolved in coordination with the US Army Corps of Engineers and the National Marine Fisheries Service. The new success criteria is reflected in the following description

The vegetative marsh success of the wetland site will be determined in accordance with NMFS Guidelines. Monitoring plots found to be located within the open water channel will not be evaluated, and will not count to the final count of plots. The vegetation component of the wetland site will be deemed successful if the following criteria are met.

1. At year five, the average of all plots should have a scale value of 5 (75% vegetative cover) consisting of wetland herbaceous species, not including any invasive species.
2. A minimum of 70% of the plots shall contain the target (planted) species.

Due to the bridge interference with the GPS system, we are unable to GPS to computer generated random plots; therefore, visual monitoring will be utilized for the monitoring of this 0.128 acre site. Success Criteria will remain 75% vegetative cover of wetland herbaceous species, not including any invasive species in the fifth year and 70% of the site shall contain the target (planted) species.

Fifteen, one meter square random plots were evaluated for this monitoring period.

2.2 Description of Species

Juncus roemerianus, Blackneedle Rush, is the primary target marsh grass specie that is to be present in the Wetland Restoration Area.

2.3 Results of Vegetation Monitoring (1 Year)

Plot #	Scale Factor	<i>Juncus roemerianus</i>	Frequency	Comments
1	3.0	✓	✓	Cattail
2	1.0	✓	✓	
3	5.0	✓	✓	
4				Open water
5	1.0	✓	✓	
6	5.0	✓	✓	<i>Juncus</i> sp.
7	5.0	✓	✓	<i>Juncus</i> sp.
8	1.0	✓	✓	
9	4.0	✓	✓	<i>Juncus</i> sp.
10	2.0	✓	✓	
11	1.0	✓	✓	<i>Juncus</i> sp.
12				Open water
13	2.0	✓	✓	<i>Juncus</i> sp.
14	4.0	✓	✓	<i>Juncus</i> sp.
15	2.0	✓	✓	
Frequency (Percentage of Plots with Desired Species)		100%	100%	
Sum Scale Value			36	
Total Number of Plots			13	
Vegetative Cover (Scale Value)			2.8	

2.4 Conclusions

Percent Frequency of Target Species (Black Needle Rush) 100%

Frequency of 70% required.

Vegetative Cover Scale Value 2.8

Required Scale Value after 5 years 5.0

This marsh grass site is approximately 0.128 acres. The frequency requirement meets requirements for this year. The vegetative cover did not meet the requirement but is on track for the first year of planting.

3.0 OVERALL CONCLUSIONS/RECOMENDATIONS

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

APPENDIX A

ORIGINAL MONITORING PLAN SUBMITTED TO USACE



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID MCCOY
SECRETARY

August 11, 1999

U. S. Army Corps of Engineers
Washington Regulatory Field Office
P. O. Box 1000
Washington, NC, 27889-1000

ATTENTION: Michael F. Bell, PWS
Regulatory Project Manager

SUBJECT: Monitoring plan for the disturbed area adjacent to the new bridge
over the Croatan Sound associated with TIP Project R-2551.

Dear Sir:

Please find attached the proposed monitoring plan for the recovery of the disturbed black
needle rush marsh adjacent to the new bridge over the Croatan Sound. If you have any
questions please don't hesitate to call me at (252) 482-7977.

Sincerely,

Lindsey Riddick
Division Environmental Officer-Division One

CC: D. R. Conner, P. E.
Randy Midgett, P. E.
Randy K. Wise, P. E.
Frank Jennings, DCM

Monitoring Plan for the recovery of the disturbed marsh area adjacent to the new Croatan Sound Bridge

The plan consists of monitoring the disturbed site to determine the success of vegetative recovery occurring within it. The existing undisturbed marsh, dominated by black needle rush (*Juncus roemerianus*), adjacent to the disturbed site will be evaluated in September, 1999, and will be used as a reference marsh to determine the degree of recovery. Three plots measuring 1 meter by 1 meter will be selected randomly and the percent aerial vegetative coverage will be evaluated and used as a baseline reference.

The disturbed area will be allowed to recover naturally from existing plant material and seed source present. Vegetative monitoring will be conducted annually beginning in September of 1999. The monitoring will consist of randomly selecting 12 plots in the disturbed area, measuring 1 meter by 1 meter, and comparing the level of regeneration to the reference marsh. The area will be evaluated after one full growing season in September of 2000 to determine if replanting with black needle rush will be necessary. If replanting is deemed necessary, NCDOT will prepare a planting plan and submit it to the USACE and the NCDOT for approval. All efforts will be made to utilize a local seed source if plantings are required. If there are any areas where compaction has prevented natural regeneration from occurring, hand labor will be used to scarify the area to remediate the compaction. Areas that require scarification will be planted with black needle rush and monitored accordingly.

As required, there will be a zero tolerance for phragmites (*Phragmites communis*). If the presence of this species is detected, measures will be taken immediately to eradicate this species from the site.

Monitoring reports will be submitted by December 31st of each year for a period of five years. The disturbed area will be considered recovered when aerial vegetative coverage has been determined to meet or exceed 90% of the coverage found in the reference marsh. If after a period of three years, it is determined that recovery efforts are not succeeding, the North Carolina Department of Transportation will consult with the U. S. Army Corps of Engineers and the North Carolina Division of Coastal Management to discuss necessary remedial action.

APPENDIX B

SITE PHOTOS & PHOTO LOCATION MAP

Manteo Bypass Bridge



Photo 1



Photo 2



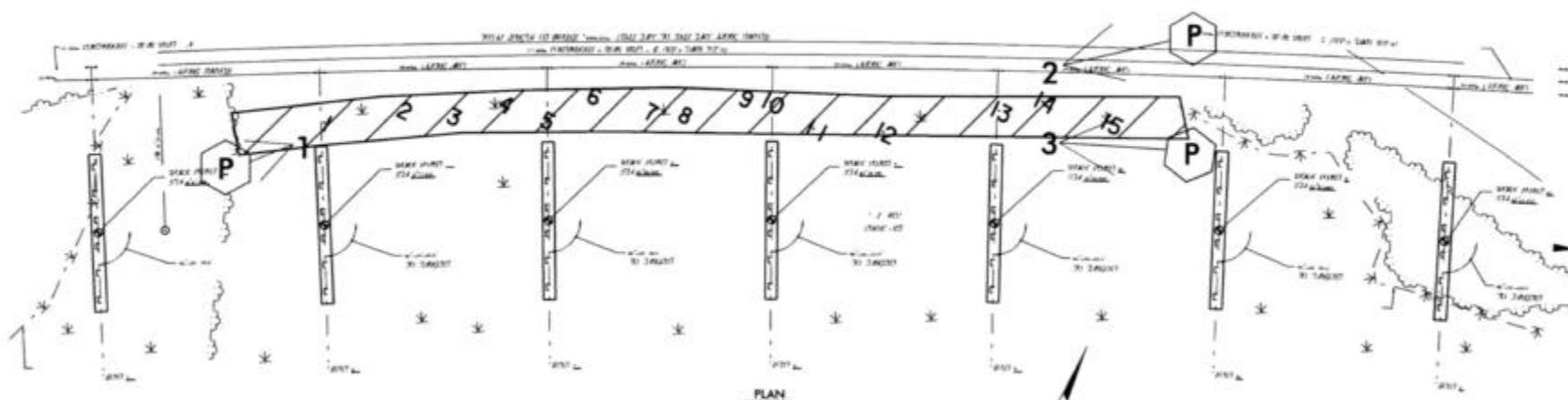
Photo 3

MANTEO BYPASS BRIDGE MARSH PLANTINGS

PHOTO and RANDOM PLOT LOCATIONS
2001 MONITORING

20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10

SPAN 1



 MARSH PLANTINGS

 Photo Locations

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

REVISIONS		SHEET NO.	
NO.	DATE	BY	CHKD.
1			
2			
3			