Annual Monitoring Report (MY4)

BOSEMAN BUFFER MITIGATION SITE

Edgecombe County, NC
NCDEQ Contract No. 7872
DMS ID No. 100119
DWR Project No. 2019-0800
RFP No. 16-007711

Prepared for:

Mitigation Services
ENVIRONMENTAL QUALITY

NC Department of Environmental Quality
Division of Mitigation Services
1652 Mail Service Center, Raleigh, NC 27699-1652

December 2023

ANNUAL MONITORING REPORT (MY4)

BOSEMAN BUFFER MITIGATION SITE

Edgecombe County, NC
NCDEQ Contract No. 7872
DMS ID No. 100119

Tar-Pamlico River Basin
HUC 03020101

Prepared For:

NC Department of Environmental Quality
Division of Mitigation Services
1652 Mail Service Center, Raleigh, NC 27699-1652

Prepared By:

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This Annual Monitoring Report has been written in conformance with the requirements of the following:

- 15A NCAC 02B.0295 Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers.

These documents govern DMS operations and procedures for the delivery of compensatory mitigation.

Contributing Staff

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1.0 Mitigation Project Summary

The Boseman Buffer Mitigation Site (Site, Project, or Project Site) is a riparian buffer and adjacent riparian areas restoration project located approximately 2.5 miles southeast of the Town of Rocky Mount in Edgecombe County, NC. The Site is approximately 14.91 acres (649,889 ft^2) of a total 276 ac tract situated along two unnamed tributaries to the Tar River. The project is located in a targeted local watershed (TLW) within the Tar-Pamlico River basin hydrologic unit code (HUC) 03020101120030 and Subasin 03-03-02. The unnamed tributaries flow into the Tar River approximately one and half miles downstream of the project. According to the as-built survey and most recent Division of Water Resources (DWR) Buffer Mitigation Calculation Tool V.2 (updated 01/17/20), the Site is expected to generate 617,518.702 riparian buffer mitigation units (BMU) (Appendix 1: Table 2).

1.1 Project Goals

The major goals of the proposed buffer restoration project are to address agricultural runoff, including nutrients and sediment, protect the project site in perpetuity, and restore terrestrial habitat. The Site will help to reduce future sediment and nutrient loading into the unnamed tributaries and downstream Tar River. It will also improve terrestrial habitats along this stream by establishing a riparian corridor and allowing the land to convert to forested communities.

The project goals and objectives are consistent with those of the NC Division of Mitigation Services (DMS), and the specific goals outlined in the 2018 Tar-Pamlico River Basin Restoration Priorities (RBRP) for the 14-digit TLW HUC. As proposed, the Project will further help DMS to meet these goals.

1.2 Existing Site Conditions

The buffer restoration project contains approximately 14.9 acres of former agricultural fields along two unnamed tributaries (hereinafter referred to as UT 1, and UT 2).

UT 1 enters the project site along the western property boundary and flows in an eastward direction. UT 1 meets the definition of at least intermittent per the DWR On-Site Determination for Applicability to the Tar-Pamlico Buffer Rules Letter dated July 9, 2019 (Appendix 1). UT 2 originates within the property boundary as an ephemeral channel (Reach 2a) and transitions to an intermittent channel (Reach 2b) prior to its confluence with UT 1.

The project was successfully planted with appropriate trees and herbaceouse vegetation and is now at the end of the fourth (4th) full growing season and early stages of successful buffer restoration. The project restored forested riparian buffers and adjacent riparian areas to a maximum of approximately 115 feet from the top of bank of the streams and removed rotating crops and fertilizer inputs.

2.0 Regulatory Considerations

Riparian buffer and adjacent riparian area restoration was accomplished in accordance with the Consolidated Buffer Mitigation Rule (15A NCAC 02B .0295) including the alternative mitigation option of restoration activities along ephemeral streams. Restoration was accomplished specifically by:

Buffer Restoration on Ephemeral Channels (15A NCAC 02B .0295(o)(7)):

a.) DWR conducted an on-site stream determination of subject streams and ephemeral channels on the property.
b.) Ephemeral channels are directly connected to intermittent or perennial stream channels.
c.) Total mitigation area of ephemeral channels is less than 25% of the total buffer mitigation area (Table 2, Appendix 1).

All areas within 115 ft of the top of bank of subject streams as measured from the top of bank landward will be devoted to generating riparian buffer mitigation credits. Total mitigation area on ephemeral channels is 12.7% of total buffer mitigation area. Mitigation credits generated are found in Table 2 in Appendix 1 and are based upon the most recent DWR Buffer Mitigation Calculation Tool v2 (Updated 1/17/20) (Appendix 1).

3.0 Project Construction Summary

The project construction was completed in early March 2020, following mitigation plan approval. Eco Terra and supporting team members successfully planted and restored the proposed areas dedicated for riparian buffer and adjacent riparian area restoration with high quality native trees, shrubs, and herbaceous vegetation.

3.1 Riparian Area Restoration Activities

Restoration of the riparian areas involved planting bare root one to two-year-old trees and shrubs in designated planting zones based on soil wetness and in accordance with the mitigation plan. Approximately 11,800 stems (791 stems/ac) were planted initially within the riparian areas designated for restoration.

4.0 Annual Monitoring and Performance Criteria

The Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers (15A NCAC 02B .0295) and RFP 16-007711 set forth specific performance criteria for the successful development and close-out of the Boseman Buffer Mitigation Site. Performance criteria monitoring includes standardized vegetation plot establishment and annual monitoring for planted stems including individual plot photo documentation, overall site photo documentation, biannual visual assessments for project status and easement integrity including herbaceous and/or invasive species competition, stem mortality, stand health, incidental damage from agricultural equipment, and stem loss or damage from natural causes such as fire, disease, or animal predation. Figure 1 (Appendix 1) illustrates the location of project easement, permanent vegetation plots/photo points, as well as overall site photo points.

4.1 Vegetation

Twelve permanent vegetation plots were established according to the most recent Carolina Vegetation Survey (CVS) protocol within the restored buffer area. Representative vegetation plots were established at a minimum density of 2% of the planted area. Specifically, vegetation monitoring was obtained for all plots according to Level 1 protocols from the CVS-EEP Protocol for Recording Vegetation V4.2 (2008) manual. Monitoring year four (MY4) vegetation stem data is included in Appendix 3, Table 3. All vegetation plots meet criteria for stem densities and overall site density is 873 stems/ac. Overall tree height averaged 151 cm and overall tree vigor averaged 3.8 across the site – adequate metrics for fourth (4^{th}) year survival and project success.

4.2 Photo Reference Stations

Individual plot photos taken at the southwest corner (origin) of each plot are included in this annual monitoring report. Additional Site reference photos were taken at designated points along the conservation easement boundary providing an overall view of the project success (Appendix 1: Figure 1). All photo points were located by survey and georeferenced for map production to provide a consistent means for photo replication annually and in the event a plot or photo location must be reestablished during the monitoirng period. Photo orientation (direction and bearing) were recorded as well as approximate vertical position for consistency in photo logging.

4.3 Visual Assessments

Additional observations of site conditions and vegetation conditions were made outside of monitoring plots. This biannual effort was made in order to appropriately monitor changing site conditions and address any issues to ensure Site success and performance criteria are met after the monitoring period. Any future Site problems will be noted and discussed in the annual reports and monitored biannually to ensure performance criteria are met following any remedial action.

The landowner mowed into the conservation area immediately prior to the vegetation monitoring. The incursion is noted in the Appendix 2; Site Photos. Additional t-posts and conservation markers were placed along the perimeter at the three areas noted. In addition, the landowner was notified verbally of his incursion. No trees were mowed or otherwise injured by this incursion.

4.4 Annual Reporting Performance Criteria

All monitoring reports, including this annual report, will be compiled and submitted to DMS annually in accordance with the Riparian Buffer and Nutrient Offset Buffer Baseline and Annual Monitoring Report Template Ver. 2.0 (May 2017). Annual monitoring will occur for a minum of five years or until performance criteria are met.

4.5 Maintenance and Contingency Plans

Any Site observations identified through vegetation plots or visual assessments, whereby the performance criteria is not met, will be noted and discussed in the annual reports and addressed with a contingency plan as necessary. DMS/DWR will be notified, and if necessary, collaborate with Eco Terra to develop a contingency plan with remedial action steps to correct the performance criteria deficiency. Any contingency plan and remedial actions will occur within an agreed timeframe and monitoring adjusted accordingly, if necessary. Site problem areas will be monitored biannually to ensure performance criteria are met following any remedial action.

5.0 References

15 NCAC 02B .0295 Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers. 2015.

Lee, Michael T. Peet, Robert K., Steven D. Wentworth, Thomas R. 2008. CVS-EEP Protocol for Recording Vegetation Version 4.2. http://cvs.bio.unc.edu/protocol/cvs-eep-protocol-v4.2-lev1-2.pdf

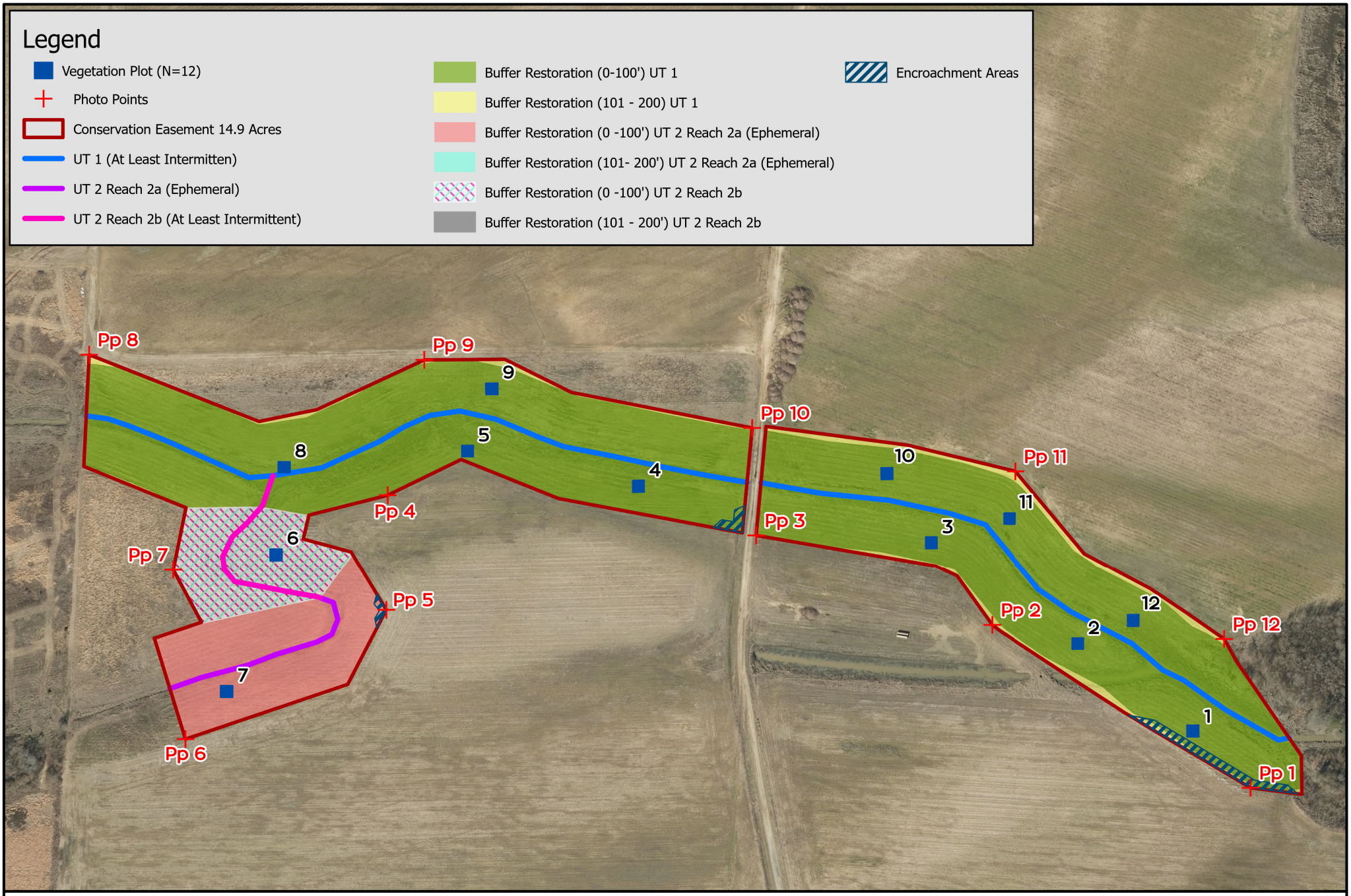
Natural Resources Conservation Service (NRCS). Web Soil Survey of Edgecombe County. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

North Carolina Department of Environmental Quality. Division of Mitigation Services. 2017. Riparian Buffer and Nutrient Offset Buffer Baseline and Annual Monitoring Report Template Version 2.0.

North Carolina Department of Environmental Quality. Division of Mitigation Services. 2018. Tar-Pamlico River Basin Restoration Priorities.

APPENDIX 1

PROJECT DATA



Current Condition Plan View
Boseman Buffer Mitigation Site
Annual Monitoring Report (MY4)
Tar-Pamlico 03020101
Edgecombe County
December 2023

NC Onemap 2021 Aerial Imagery

N

0 250 500 US Feet

Figure 1

Table 1: Buffer Project Attributes
Boseman Buffer Mitigation Site
DMS ID No. 100119
DWR Project No. 2019-0800
Monitoring Year 4 – 2023

Project Name	Boseman Buffer Mitigation Site
Hydrologic Unit Code	03020101
River Basin	Tar-Pamlico
Geographic Location (decimal degrees)	35.96451, -77.705926
Site Protection Instrument (BK, PG)	1707/675
Total Credits (BMU)	617,518.702
Types of Credits	Riparian Buffer
Mitigation Plan Date	January 2020
Initial Planting Date	March 2020
Baseline Report Date	May 2020
MY1 Report Date	December 2020
Supplemental Planting Date	February 2021
MY2 Report Date	December 2021
MY3 Report Date	December 2022
MY 4 Report Date	December 2023
MY 5 Report Date	December 2024
Close out Report Date/Visit	May 2025

Table 2: Buffer Project Components and Assets

Boseman Buffer Mitigation Site

DMS ID No. 100119

DWR Project No. 2019-0800

Monitoring Year 4 – 2023

BOSEMAN BUFFER MITIGATION SITE, PROJECT NO. 2019-0800, 617,518.702 CREDITS

Tar-Pamlico 03020101	**Project Area**
19.16394	**N Credit Conversion Ratio (ft^2/pound)**
297.54099	**P Credit Conversion Ratio (ft^2/pound)**

Credit Type	Location	Subject? (enter NO if ephemeral or ditch [1])	Feature Type	Mitigation Activity	Min-Max Buffer Width (ft)	Feature Name	Total Area (ft^2)	Total (Creditable) Area of Buffer Mitigation (ft^2)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Convertible to Riparian Buffer?	Riparian Buffer Credits	Convertible to Nutrient Offset?	Delivered Nutrient Offset: N (lbs)	Delivered Nutrient Offset: P (lbs)
Buffer	Rural	Yes	I / P	Restoration	0-100	UT1	484,072	484,072	1	100%	1.00000	Yes	484,072.000	N/A	0.000	0.000
Buffer	Rural	Yes	I / P	Restoration	101-200	UT1	6,496	6,496	1	33%	3.03030	Yes	2,143.682	N/A	0.000	0.000
Buffer	Rural	No	Ephemeral	Restoration	0-100	UT2 (Reach 2a)	78,631	78,631	1	100%	1.00000	Yes	78,631.000	N/A	0.000	0.000
Buffer	Rural	No	Ephemeral	Restoration	101-200	UT2 (Reach 2a)	82	82	1	33%	3.03030	Yes	27.060	N/A	0.000	0.000
Buffer	Rural	Yes	I / P	Restoration	0-100	UT2 (Reach 2b)	52,641	52,641	1	100%	1.00000	Yes	52,641.000	N/A	0.000	0.000
Buffer	Rural	Yes	I / P	Restoration	101-200	UT2 (Reach 2b)	12	12	1	33%	3.03030	Yes	3.960	N/A	0.000	0.000
						Totals:	621,934	621,934								

Enter Preservation Credits Below

Eligible for Preservation (ft^2): 207,311

Credit Type	Location	Subject?	Feature Type	Mitigation Activity	Min-Max Buffer Width (ft)	Feature Name	Total Area (sf)	Total (Creditable) Area for Buffer Mitigation (ft^2)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Riparian Buffer Credits
Buffer				Preservation								–
												–

Preservation Area Subtotal (ft^2):	0
Preservation as % Total Area of Buffer Mitigation:	0.0%
Ephemeral Reaches as % Total Area of Buffer Mitigation:	12.7%

TOTAL AREA OF BUFFER MITIGATION (TABM)		
Mitigation Totals	**Square Feet**	**Credits**
Restoration:	621,934	617,518.702
Enhancement:	0	0.000
Preservation:	0	0.000
Total Riparian Buffer:	621,934	617,518.702
TOTAL NUTRIENT OFFSET MITIGATION		
Mitigation Totals	**Square Feet**	**Credits**
Nutrient Offset: **Nitrogen:**	0	0.000
Phosphorus:		0.000

1. The Randleman Lake buffer rules allow some ditches to be classified as subject according to 15A NCAC 02B .0250 (5)(a).

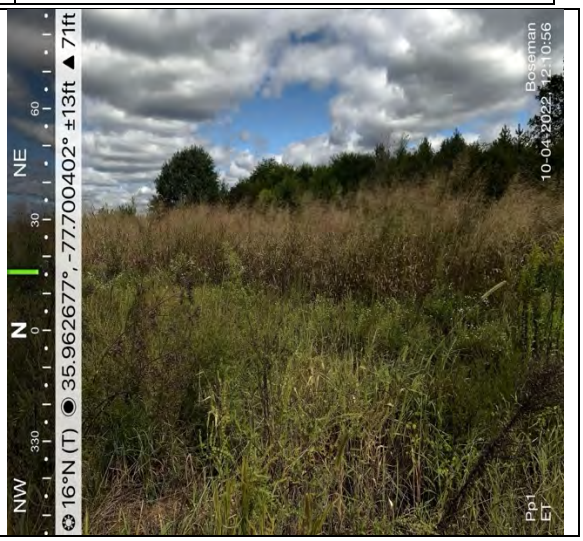
last updated 01/17/2020

APPENDIX 2

SITE PHOTO-POINTS

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PHOTO STATION PHOTOS

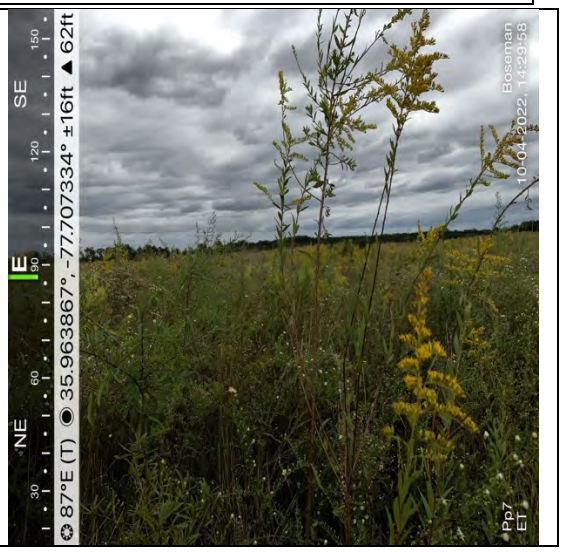
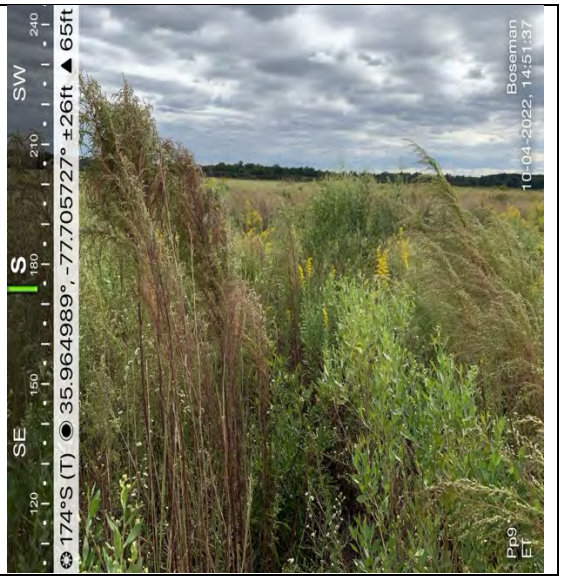
	MY4 10/2023	MY3 10/2022
Photo #1 Date: 10/23/2023 Feature: Photo Station 1 Direction: Northeast		
Photo #2 Date: 10/23/2023 Feature: Photo Station 2 Direction: North		
Photo #3 Date: 10/23/2023 Feature: Photo Station 3 Direction: North		

MY4 MONITORING PHOTO STATION PHOTOS

	MY4 10/2023	MY3 10/2022
Photo #4 Date: 10/23/2023 Feature: Photo Station 4 Direction: Northwest		
Photo #5 Date: 10/23/2023 Feature: Photo Station 5 Direction: West		
Photo #6 Date: 10/23/2023 Feature: Photo Station 6 Direction: Northeast		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PHOTO STATION PHOTOS

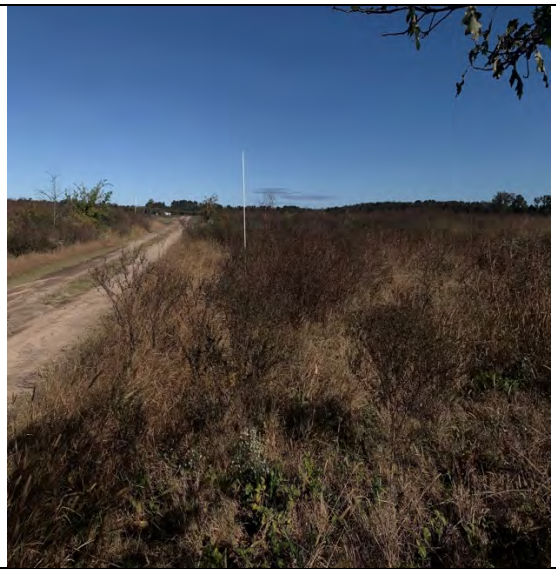
	MY4 10/2023	MY3 10/2022
Photo #7 Date: 10/23/2023 Feature: Photo Station 7 Direction: East		
Photo #8 Date: 10/23/2023 Feature: Photo Station 8 Direction: Southeast		
Photo #9 Date: 10/23/2023 Feature: Photo Station 9 Direction: South		

MY4 MONITORING PHOTO STATION PHOTOS

	MY4 10/2023	MY3 10/2022
Photo #12 Date: 10/23/2023 Feature: Photo Station 10 Direction: Southwest		
Photo #11 Date: 10/23/2023 Feature: Photo Station 11 Direction: South		
Photo #12 Date: 10/23/2023 Feature: Photo Station 12 Direction: Northwest		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PHOTO STATIONS

	MY2 11/2021	MY1 12/2020
Photo #1 Date: 10/23/2023 Feature: Photo Station 1 Direction: Northeast		
Photo #2 Date: 10/23/2023 Feature: Photo Station 2 Direction: North		
Photo #3 Date: 10/23/2023 Feature: Photo Station 3 Direction: East		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PHOTO STATIONS

	MY2 11/2021	MY1 12/2020
Photo #4 Date: 10/23/2023 Feature: Photo Station 4 Direction: Northwest		
Photo #5 Date: 10/23/2023 Feature: Photo Station 5 Direction: West		
Photo #6 Date: 10/23/2023 Feature: Photo Station 6 Direction: North		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

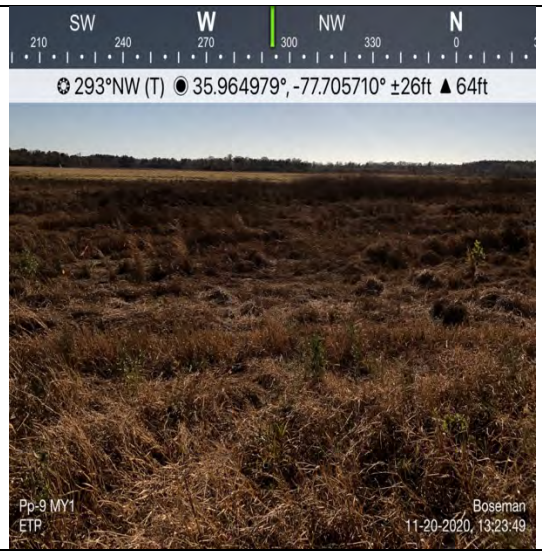
MY4 MONITORING PHOTO STATIONS

MY2 11/2021	MY1 12/2020

Photo #7
Date: 10/23/2023
Feature: Photo Station 7
Direction: East

Photo #8
Date: 10/23/2023
Feature: Photo Station 8
Direction: Southeast

Photo #9
Date: 10/23/2023
Feature: Photo Station 9
Direction: West



MY4 MONITORING PHOTO STATIONS

	MY2 11/2021	MY1 12/2020
Photo #12 Date: 10/23/2023 Feature: Photo Station 10 Direction: South		
Photo #11 Date: 10/23/2023 Feature: Photo Station 11 Direction: Southwest		
Photo #12 Date: 10/23/2023 Feature: Photo Station 12 Direction: West		

MY4 MONITORING PHOTO STATIONS

MY0 **05/2020**	

Photo #1		The Following Are Intentionally Left Blank
Date: 10/23/2023		
Feature: Photo Station 1		
Direction: Northeast		

Photo #2		
Date: 10/23/2023		
Feature: Photo Station 2		
Direction: North		

Photo #3		
Date: 10/23/2023		
Feature: Photo Station 3		
Direction: North		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

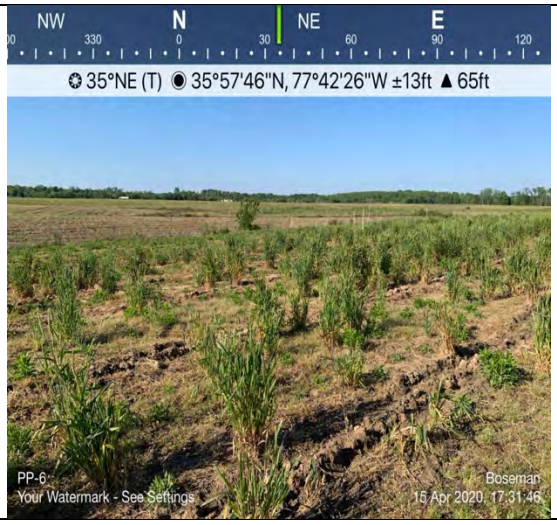
MY4 MONITORING PHOTO STATIONS

MY0 **05/2020**	

Photo #4
Date: 10/23/2023
Feature: Photo Station 4
Direction: North

Photo #5
Date: 10/23/2023
Feature: Photo Station 5
Direction: West

Photo #6
Date: 10/23/2023
Feature: Photo Station 6
Direction: Northeast



MY4 MONITORING PHOTO STATIONS

MY0 **05/2020**	

Photo #7		
Date: 10/23/2023		
Feature: Photo Station 7		
Direction: East		

Photo #8		
Date: 10/23/2023		
Feature: Photo Station 8		
Direction: Southeast		

Photo #9		
Date: 10/23/2023		
Feature: Photo Station 9		
Direction: South		

MY4 MONITORING PHOTO STATIONS

MY0 **05/2020**	

Photo #12
Date: 10/23/2023
Feature: Photo Station 10
Direction: South

Photo #11
Date: 10/23/2023
Feature: Photo Station 11
Direction: South

Photo #12
Date: 10/23/2023
Feature: Photo Station 12
Direction: West

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 ENCROACHMENT AREA PHOTOS

	MY4 Encroachment	MY4 Updated Marking
Photo #1 Date: 10/27/2023 Feature: Near PP 1 Direction: North, East		
Photo #2 Date: 10/27/2023 Feature: Near PP 1 Direction: West, East		
Photo #3 Date: 10/27/2023 Feature: at PP3 Direction: North		

MY4 ENCROACHMENT AREA PHOTOS

	MY4 Encroachment	MY4 Updated Marking
Photo #4 Date: 10/27/2023 Feature: at PP5 Direction: North	Image Unavailable	

APPENDIX 3

VEGETATION PLOT DATA
VEGETATION PLOT PHOTOGRAPHS

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PLOT PHOTOS

	MY4 10/2023	MY3 10/2022
Photo #1 Date: 10/23/2023 Feature: Plot 1 Direction: Northeast		
Photo #2 Date: 10/23/2023 Feature: Plot 2 Direction: Northeast		
Photo #3 Date: 10/23/2023 Feature: Plot 3 Direction: Northeast		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PLOT PHOTOS

	MY4 10/2023	MY3 10/2022
Photo #4 Date: 10/23/2023 Feature: Plot 4 Direction: Northeast		
Photo #5 Date: 10/23/2023 Feature: Plot 5 Direction: Northeast		
Photo #6 Date: 10/23/2023 Feature: Plot 6 Direction: Northeast		

MY4 MONITORING PLOT PHOTOS

MY4 10/2023	MY3 10/2022

Photo #7
Date: 10/23/2023
Feature: Plot 7
Direction: Northeast

Photo #8
Date: 10/23/2023
Feature: Plot 8
Direction: Northeast

Photo #9
Date: 10/23/2023
Feature: Plot 9
Direction: Northeast

MY4 MONITORING PLOT PHOTOS

	MY4 10/2023	MY3 10/2022
Photo #12 Date: 10/23/2023 Feature: Plot 10 Direction: Northeast		
Photo #11 Date: 10/23/2023 Feature: Plot 11 Direction: Northeast		
Photo #12 Date: 10/23/2023 Feature: Plot 12 Direction: Northeast		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PLOT PHOTOS

	MY2 11/2021	MY1 12/2020
Photo #1 Date: 10/23/2023 Feature: Plot 1 Direction: Northeast		
Photo #2 Date: 10/23/2023 Feature: Plot 2 Direction: Northeast		
Photo #3 Date: 10/23/2023 Feature: Plot 3 Direction: Northeast		

MY4 MONITORING PLOT PHOTOS

	MY2 11/2021	MY1 12/2020
Photo #4 Date: 10/23/2023 Feature: Plot 4 Direction: Northeast		
Photo #5 Date: 10/23/2023 Feature: Plot 5 Direction: Northeast		
Photo #6 Date: 10/23/2023 Feature: Plot 6 Direction: Northeast		

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PLOT PHOTOS

MY2 11/2021	MY1 12/2020

Photo #7
Date: 10/23/2023
Feature: Plot 7
Direction: Northeast

Photo #8
Date: 10/23/2023
Feature: Plot 8
Direction: Northeast

Photo #9
Date: 10/23/2023
Feature: Plot 9
Direction: Northeast

BOSEMAN BUFFER MITIGATION
DMS ID# 100119
DWR Project # 2019-0800

MY4 MONITORING PLOT PHOTOS

	MY2 11/2021	MY1 12/2020
Photo #12 Date: 10/23/2023 Feature: Plot 10 Direction: Northeast		
Photo #11 Date: 10/23/2023 Feature: Plot 11 Direction: Northeast		
Photo #12 Date: 10/23/2023 Feature: Plot 12 Direction: Northeast		

MY4 MONITORING PLOT PHOTOS

MY0 05/2020	

Photo #1
Date: 10/23/2023
Feature: Plot 1
Direction: Northeast

Photo #2
Date: 10/23/2023
Feature: Plot 2
Direction: Northeast

Photo #3
Date: 10/23/2023
Feature: Plot 3
Direction: Northeast

MY4 MONITORING PLOT PHOTOS

MY0 **05/2020**	

Photo #4
Date: 10/23/2023
Feature: Plot 4
Direction: Northeast

Photo #5
Date: 10/23/2023
Feature: Plot 5
Direction: Northeast

Photo #6
Date: 10/23/2023
Feature: Plot 6
Direction: Northeast

MY4 MONITORING PLOT PHOTOS

MY0 **05/2020**	

Photo #7
Date: 10/23/2023
Feature: Plot 7
Direction: Northeast

Photo #8
Date: 10/23/2023
Feature: Plot 8
Direction: Northeast

Photo #9
Date: 10/23/2023
Feature: Plot 9
Direction: Northeast

MY4 MONITORING PLOT PHOTOS

MY0 **05/2020**	

Photo #12
Date: 10/23/2023
Feature: Plot 10
Direction: Northeast

Photo #11
Date: 10/23/2023
Feature: Plot 11
Direction: Northeast

Photo #12
Date: 10/23/2023
Feature: Plot 12
Direction: Northeast

Table 3: Planted and Total Stems
Boseman Buffer Mitigation Site
DMS ID No. 100119
DWR Project No. 2019-0800
Monitoring Year 4 - 2023

YEARLY MONITORING SUMMARY - BOSEMAN

	Current Plot Data (MY4-2023)												Annual Summary				
	MP1	MP2	MP3	MP4	MP5	MP6	MP7	MP8	MP9	MP10	MP11	MP12	MY4	MY3	MY2	MY1	MY0
Stem Count	10	28	31	22	14	25	25	28	11	19	22	27	262	196	245	160	191
size (ares)	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	12
Size (acres)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.3	0.3	0.3	0.3	0.3
Species Count	7	8	8	7	4	7	4	8	7	6	7	6	13	13	14	9	7
Vigor	4.0	2.9	4.0	4.0	4.0	3.6	3.5	3.9	4.0	3.9	4.0	4.0	3.8	3.8	3.6	2.8	3.8
Height (cm)	143	139	145	205	179	67	57	155	220	174	174	159	151	58.7	74.1	42.1	47
Stems / ac	400	1120	1240	880	560	1000	1000	1120	440	760	880	1080	873	661	826	540	644

Color for Density

Exceeds requirements by 10%
Exceeds requirements, but by less than 10%
Fails to meet requirements, by less than 10%
Fails to meet requirements by more than 10%

Plot Size (ares/ac): 1 / 0.025

BOSEMAN BUFFER MITIGATION SITE MONITORING YEAR 4

PLOT 1

Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
35.96299694	-77.70075033	Shumard Oak (Quercus shumardii)	140	4	1
35.96298518	-77.7007273	Water Oak (Quercus nigra	90	4	1
35.96297709	-77.70071128	Overcup Oak (Quercus lyrata)	75	4	1
35.96297135	-77.70069912	Water Oak (Quercus nigra	200	4	1
35.96300167	-77.70069505	River Birch (Betula nigra)	240	4	1
35.9630454	-77.7007381	Water Oak (Quercus nigra	125	4	1
35.96304832	-77.70072678	Sycamore (Platanus occidentalis)	175	4	1
35.96300243	-77.70064039	Water Oak (Quercus nigra	155	4	1
35.96304023	-77.70065429	Persimmon (Diospyros virginiana)	105	4	1
35.96304676	-77.70066566	Willow Oak (Quercus phellos)	125	4	1
		TREES PER AC	**400**		
		# of Individuals	10		
		# of Species	7		
		Min Ht	75		
		Max Ht	240		
		Avg Ht. - Avg Vigor	143	4.0	

PLOT 2

Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
35.96342987	-77.70147263	Overcup Oak (Quercus lyrata)	280	4	2
35.96344331	-77.70145969	Overcup Oak (Quercus lyrata)	165	4	2
35.96344043	-77.70145368	Water Oak (Quercus nigra	210	4	2
35.96345085	-77.7014116	Water Oak (Quercus nigra	105	4	2
35.96345619	-77.70138641	Swamp tupelo (Nyssa biflora)	65	4	2
35.96346255	-77.70139744	Overcup Oak (Quercus lyrata)	40	4	2
35.96346615	-77.70140383	River Birch (Betula nigra)	280	4	2
35.96346031	-77.70142678	Willow Oak (Quercus phellos)	150	4	2
35.9634632	-77.70143257	Shumard Oak (Quercus shumardii)	150	4	2
35.96347157	-77.70144909	Water Oak (Quercus nigra	155	4	2
35.96347705	-77.70145412	Overcup Oak (Quercus lyrata)	115	4	2
35.9634822	-77.70146592	Willow Oak (Quercus phellos)	215	4	2
35.96348898	-77.7014747	River Birch (Betula nigra)	240	4	2
35.96349383	-77.70148329	Water Oak (Quercus nigra	135	4	2
35.96350358	-77.70150314	Water Oak (Quercus nigra	165	4	2
35.96351101	-77.7014718	Overcup Oak (Quercus lyrata)	60	4	2
35.96349949	-77.70145399	River Birch (Betula nigra)	150	4	2
35.9635067	-77.70144878	River Birch (Betula nigra)	210	4	2
35.96349413	-77.70144675	Silky Dogwood (Cornus Amomum)	65	4	2
35.96348612	-77.70143706	Sycamore (Platanus occidentalis)	185	4	2
35.96348424	-77.70142516	Swamp tupelo (Nyssa biflora)	70	4	2
35.96347617	-77.70141988	Sycamore (Platanus occidentalis)	235	4	2
35.96348417	-77.7014003	Overcup Oak (Quercus lyrata)	70	4	2
35.96349002	-77.70141011	Shumard Oak (Quercus shumardii)	135	4	2
35.96351579	-77.70143224	Silky Dogwood (Cornus Amomum)	70	4	2
35.9634992	-77.70142456	Overcup Oak (Quercus lyrata)	40	4	2
35.96351004	-77.70141098	Silky Dogwood (Cornus Amomum)	85	3	2
35.96350141	-77.70138857	Silky Dogwood (Cornus Amomum)	60	3	2
		TREES PER AC	**1120**		
		# of Individuals	28		
		# of Species	8		
		Min Ht	40		
		Max Ht	280		
		Avg Ht. - Avg Vigor	139	3.9	

PLOT 3

Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
35.96397996	-77.70242573	Overcup Oak (Quercus lyrata)	270	4	3
35.96399888	-77.70241998	Willow Oak (Quercus phellos)	240	4	3
35.96400082	-77.70242193	Overcup Oak (Quercus lyrata)	165	4	3
35.96399785	-77.70241205	Sycamore (Platanus occidentalis)	120	4	3
35.96399556	-77.70239909	Sycamore (Platanus occidentalis)	175	4	3
35.9639945	-77.70239515	Willow Oak (Quercus phellos)	190	4	3
35.96399229	-77.70238654	River Birch (Betula nigra)	195	4	3
35.96398741	-77.70236031	River Birch (Betula nigra)	125	4	3
35.96400344	-77.70233221	Water Oak (Quercus nigra	60	4	3
35.96400787	-77.70234658	Sycamore (Platanus occidentalis)	180	4	3
35.96400967	-77.70235836	Persimmon (Diospyros virginiana)	110	4	3
35.96401116	-77.7023607	Willow Oak (Quercus phellos)	165	4	3
35.96401385	-77.70237123	Shumard Oak (Quercus shumardii)	145	4	3
35.96401634	-77.70238175	River Birch (Betula nigra)	190	4	3
35.96402116	-77.70240252	Persimmon (Diospyros virginiana)	85	4	3
35.96402383	-77.70241507	Sycamore (Platanus occidentalis)	140	4	3
35.96402697	-77.70242648	Water Oak (Quercus nigra	30	4	3
35.96402914	-77.70244453	Sycamore (Platanus occidentalis)	155	4	3
35.96403103	-77.70244702	Sycamore (Platanus occidentalis)	130	4	3
35.96405681	-77.70245496	Sycamore (Platanus occidentalis)	170	4	3
35.96406079	-77.70245426	Water Oak (Quercus nigra	90	4	3
35.96405525	-77.70243652	Water Oak (Quercus nigra	100	4	3
35.96405057	-77.70241803	Water Oak (Quercus nigra	45	4	3
35.96404361	-77.70239469	Persimmon (Diospyros virginiana)	165	4	3
35.96404252	-77.70238089	River Birch (Betula nigra)	170	4	3
35.96403679	-77.70235657	Sycamore (Platanus occidentalis)	170	4	3
35.96403561	-77.70234838	Sycamore (Platanus occidentalis)	200	4	3
35.964065	-77.70235438	Overcup Oak (Quercus lyrata)	45	4	3
35.96406623	-77.7023633	Sycamore (Platanus occidentalis)	170	4	3
35.96407027	-77.70239275	Sycamore (Platanus occidentalis)	150	4	3
35.96407044	-77.70240618	Cherrybark Oak (Quercus pagoda)	150	4	3
		TREES PER AC	**1240**		
		# of Individuals	31		
		# of Species	8		
		Min Ht	30		
		Max Ht	270		
		Avg Ht. - Avg Vigor	145	4.0	

PLOT 7

Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
35.96333061	-77.70697381	Silky Dogwood (Cornus Amomum)	50	4	7
35.96332906	-77.7069849	Overcup Oak (Quercus lyrata)	90	3	7
35.96332374	-77.70699808	Silky Dogwood (Cornus Amomum)	30	4	7
35.96332318	-77.70701382	Overcup Oak (Quercus lyrata)	140	4	7
35.9633186	-77.70702306	Silky Dogwood (Cornus Amomum)	30	3	7
35.96331491	-77.70703582	Sycamore (Platanus occidentalis)	55	4	7
35.96330952	-77.7070479	Silky Dogwood (Cornus Amomum)	70	4	7
35.9632924	-77.70703581	Overcup Oak (Quercus lyrata)	80	4	7
35.96329526	-77.70702375	Overcup Oak (Quercus lyrata)	55	4	7
35.96329779	-77.70701303	Willow Oak (Quercus phellos)	75	4	7
35.96330464	-77.7069904	Overcup Oak (Quercus lyrata)	80	4	7
35.96331182	-77.7069673	Willow Oak (Quercus phellos)	90	4	7
35.96328779	-77.70694709	Willow Oak (Quercus phellos)	10	3	7
35.96328141	-77.70696855	Overcup Oak (Quercus lyrata)	75	4	7
35.96327351	-77.70699483	Overcup Oak (Quercus lyrata)	45	4	7
35.96326992	-77.70700605	Silky Dogwood (Cornus Amomum)	5	1	7
35.96326658	-77.70701906	Overcup Oak (Quercus lyrata)	55	4	7
35.96326297	-77.70703299	Overcup Oak (Quercus lyrata)	45	4	7
35.96326012	-77.70704453	Overcup Oak (Quercus lyrata)	60	4	7
35.96323731	-77.70703583	Willow Oak (Quercus phellos)	110	4	7
35.96324429	-77.70700414	Overcup Oak (Quercus lyrata)	40	3	7
35.96324994	-77.70698644	Willow Oak (Quercus phellos)	90	4	7
35.96325162	-77.70697746	Silky Dogwood (Cornus Amomum)	5	1	7
35.96325636	-77.70696466	Overcup Oak (Quercus lyrata)	25	4	7
35.9632605	-77.70694232	Silky Dogwood (Cornus Amomum)	5	1	7
		TREES PER AC	**1000**		
		# of Individuals	25		
		# of Species	4		
		Min Ht	5		
		Max Ht	140		
		Avg Ht. - Avg Vigor	57	3.5	

PLOT 8

Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
35.96441811	-77.7066409	Overcup Oak (Quercus lyrata)	389	4	8
35.96441907	-77.70662277	Sycamore (Platanus occidentalis)	184	4	8
35.96441834	-77.70661639	Bald Cypress (Taxodium distichum)	50	4	8
35.96442009	-77.70660159	Sycamore (Platanus occidentalis)	86	4	8
35.96442223	-77.70659367	Bald Cypress (Taxodium distichum)	30	2	8
35.96442451	-77.70658194	Swamp tupelo (Nyssa biflora)	50	4	8
35.96442564	-77.70657112	Sycamore (Platanus occidentalis)	160	3	8
35.96442481	-77.70656369	Sycamore (Platanus occidentalis)	255	4	8
35.96442585	-77.70655732	Green Ash (Fraxinus pennsylvanica)	135	4	8
35.96443507	-77.70656172	Overcup Oak (Quercus lyrata)	260	4	8
35.96443185	-77.70657738	Overcup Oak (Quercus lyrata)	240	4	8
35.96442728	-77.70662543	Overcup Oak (Quercus lyrata)	185	4	8
35.96442859	-77.70663469	Bald Cypress (Taxodium distichum)	85	4	8
35.96442588	-77.70664762	Overcup Oak (Quercus lyrata)	65	4	8
35.96445443	-77.70664396	Overcup Oak (Quercus lyrata)	55	4	8
35.96445679	-77.70662482	Water Oak (Quercus nigra	175	4	8
35.96445818	-77.70660599	Overcup Oak (Quercus lyrata)	220	4	8
35.96446061	-77.70659009	Willow Oak (Quercus phellos)	270	4	8
35.96445986	-77.70657405	Overcup Oak (Quercus lyrata)	170	4	8
35.96446212	-77.7065581	Overcup Oak (Quercus lyrata)	255	4	8
35.96449003	-77.70654763	Willow Oak (Quercus phellos)	275	4	8
35.96448831	-77.70656436	Sycamore (Platanus occidentalis)	145	4	8
35.96448802	-77.70659544	Shumard Oak (Quercus shumardii)	135	4	8
35.96448736	-77.70660307	Sycamore (Platanus occidentalis)	115	4	8
35.96448543	-77.70661931	Willow Oak (Quercus phellos)	300	4	8
35.96448333	-77.70664456	Green Ash (Fraxinus pennsylvanica)	120	4	8
35.96448454	-77.70663938	Sycamore (Platanus occidentalis)	45	4	8
35.96443399	-77.70664142	Bald Cypress (Taxodium distichum)	110	4	8
		TREES PER AC	**1120**		
		# of Individuals	28		
		# of Species	8		
		Min Ht	30		
		Max Ht	300		
		Avg Ht. - Avg Vigor	155	3.9	

PLOT 9

Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
35.9648782	-77.70518147	Green Ash (Fraxinus pennsylvanica)	290	4	9
35.96488405	-77.70520825	Overcup Oak (Quercus lyrata)	110	4	9
35.96489023	-77.70523473	River Birch (Betula nigra)	310	4	9
35.96489237	-77.70526263	Green Ash (Fraxinus pennsylvanica)	175	4	9
35.96489547	-77.70528712	Water Oak (Quercus nigra	235	4	9
35.96486775	-77.70528422	Water Oak (Quercus nigra	235	4	9
35.96486663	-77.70526615	Sycamore (Platanus occidentalis)	290	4	9
35.96485191	-77.70519118	Shumard Oak (Quercus shumardii)	170	4	9
35.96481895	-77.7051795	Willow Oak (Quercus phellos)	210	4	9
35.96482636	-77.70520104	Water Oak (Quercus nigra	105	4	9
35.96482045	-77.70527404	Overcup Oak (Quercus lyrata)	360	4	9
		TREES PER AC	**440**		
		# of Individuals	11		
		# of Species	7		
		Min Ht	105		
		Max Ht	360		
		Avg Ht. - Avg Vigor	220	4.0	

	Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
PLOT 4	35.96429582	-77.70433846	Overcup Oak (Quercus lyrata)	370	4	4
	35.96432647	-77.70433874	Bald Cypress (Taxodium distichum)	145	4	4
	35.96432479	-77.70432862	Bald Cypress (Taxodium distichum)	165	4	4
	35.96432451	-77.70431936	Willow Oak (Quercus phellos)	170	4	4
	35.96431823	-77.70429686	Willow Oak (Quercus phellos)	225	4	4
	35.96431588	-77.70428289	Shumard Oak (Quercus shumardii)	145	4	4
	35.9643145	-77.70427141	Overcup Oak (Quercus lyrata)	210	4	4
	35.96431174	-77.70426032	Bald Cypress (Taxodium distichum)	140	4	4
	35.96431041	-77.70424901	Overcup Oak (Quercus lyrata)	220	4	4
	35.96433907	-77.70424641	Overcup Oak (Quercus lyrata)	225	4	4
	35.96433887	-77.70426119	Bald Cypress (Taxodium distichum)	95	4	4
	35.96434137	-77.70427053	Overcup Oak (Quercus lyrata)	235	4	4
	35.96434428	-77.704296	Overcup Oak (Quercus lyrata)	185	4	4
	35.96434653	-77.70430898	Swamp tupelo (Nyssa biflora)	85	4	4
	35.96435001	-77.70432203	Overcup Oak (Quercus lyrata)	230	4	4
	35.96435288	-77.70433167	River Birch (Betula nigra)	340	4	4
	35.96437484	-77.70432403	Overcup Oak (Quercus lyrata)	225	4	4
	35.96437305	-77.70431235	River Birch (Betula nigra)	410	4	4
	35.96437005	-77.70430029	Overcup Oak (Quercus lyrata)	250	4	4
	35.964366	-77.70428024	Overcup Oak (Quercus lyrata)	225	4	4
	35.96436037	-77.70425759	Silky Dogwood (Cornus Amomum)	45	4	4
	35.96436198	-77.70423717	Bald Cypress (Taxodium distichum)	180	4	4
			TREES PER AC	**880**		
			# of Individuals	22		
			# of Species	7		
			Min Ht	45		
			Max Ht	410		
			Avg Ht. - Avg Vigor	205	4.0	

	Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
PLOT 5	35.96449248	-77.7054405	Overcup Oak (Quercus lyrata)	275	4	5
	35.96450879	-77.70542369	Overcup Oak (Quercus lyrata)	240	4	5
	35.96450706	-77.70541262	Swamp tupelo (Nyssa biflora)	75	4	5
	35.96450271	-77.70539941	Overcup Oak (Quercus lyrata)	160	4	5
	35.9644991	-77.70538873	River Birch (Betula nigra)	220	3	5
	35.96449135	-77.70537518	Overcup Oak (Quercus lyrata)	240	4	5
	35.96452183	-77.70536837	Overcup Oak (Quercus lyrata)	220	4	5
	35.96451498	-77.70534641	Overcup Oak (Quercus lyrata)	95	4	5
	35.96453311	-77.70540557	Bald Cypress (Taxodium distichum)	180	4	5
	35.96451875	-77.70543194	Bald Cypress (Taxodium distichum)	160	4	5
	35.96457479	-77.70542322	Overcup Oak (Quercus lyrata)	145	4	5
	35.96457102	-77.70536865	River Birch (Betula nigra)	280	4	5
	35.96457039	-77.70535275	Overcup Oak (Quercus lyrata)	85	4	5
	35.96454746	-77.70535513	Bald Cypress (Taxodium distichum)	135	4	5
			TREES PER AC	**560**		
			# of Individuals	14		
			# of Species	4		
			Min Ht	75		
			Max Ht	280		
			Avg Ht. - Avg Vigor	179	3.9	

	Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
PLOT 6	35.96404043	-77.70661767	Willow Oak (Quercus phellos)	215	4	6
	35.9640417	-77.70662906	Overcup Oak (Quercus lyrata)	95	4	6
	35.96404349	-77.70664072	Water Oak (Quercus nigra	35	4	6
	35.96404677	-77.70665386	Overcup Oak (Quercus lyrata)	25	2	6
	35.96404883	-77.70666759	Willow Oak (Quercus phellos)	15	2	6
	35.964031	-77.70670855	Water Oak (Quercus nigra	65	4	6
	35.96402922	-77.70669383	Persimmon (Diospyros virginiana)	25	3	6
	35.96402643	-77.70668309	Overcup Oak (Quercus lyrata)	40	4	6
	35.96402255	-77.70666912	Overcup Oak (Quercus lyrata)	45	4	6
	35.96402088	-77.70665625	Willow Oak (Quercus phellos)	70	4	6
	35.96401779	-77.70664169	River Birch (Betula nigra)	95	4	6
	35.96401669	-77.70663001	Water Oak (Quercus nigra	65	4	6
	35.96398698	-77.70661315	Willow Oak (Quercus phellos)	35	4	6
	35.96398884	-77.70662268	River Birch (Betula nigra)	75	4	6
	35.96399229	-77.70663679	Willow Oak (Quercus phellos)	40	4	6
	35.96399616	-77.70666063	Willow Oak (Quercus phellos)	90	4	6
	35.96399924	-77.70667434	Swamp tupelo (Nyssa biflora)	40	1	6
	35.96400229	-77.70668855	Water Oak (Quercus nigra	85	4	6
	35.96400473	-77.70669947	Sycamore (Platanus occidentalis)	45	3	6
	35.96400681	-77.70671062	Willow Oak (Quercus phellos)	55	4	6
	35.96397859	-77.70670493	Willow Oak (Quercus phellos)	180	4	6
	35.96397551	-77.70669145	Persimmon (Diospyros virginiana)	60	4	6
	35.96397465	-77.70668028	Willow Oak (Quercus phellos)	35	4	6
	35.96397151	-77.70666842	Overcup Oak (Quercus lyrata)	70	4	6
	35.96396863	-77.70665663	Willow Oak (Quercus phellos)	80	4	6
			TREES PER AC	**1000**		
			# of Individuals	25		
			# of Species	7		
			Min Ht	15		
			Max Ht	180		
			Avg Ht. - Avg Vigor	67	3.6	

	Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
PLOT 10	35.96435487	-77.70271472	Overcup Oak (Quercus lyrata)	335	4	10
	35.96437086	-77.70269623	Willow Oak (Quercus phellos)	320	4	10
	35.96436437	-77.70264922	River Birch (Betula nigra)	250	4	10
	35.9643907	-77.702626	Persimmon (Diospyros virginiana)	155	4	10
	35.96439106	-77.702635	Persimmon (Diospyros virginiana)	180	4	10
	35.96439494	-77.70264823	Overcup Oak (Quercus lyrata)	30	3	10
	35.96439584	-77.70265571	Overcup Oak (Quercus lyrata)	135	4	10
	35.9644007	-77.70267793	Sycamore (Platanus occidentalis)	280	4	10
	35.96440032	-77.70269433	Water Oak (Quercus nigra	210	4	10
	35.964403	-77.70270545	Persimmon (Diospyros virginiana)	120	4	10
	35.96440152	-77.70271357	Water Oak (Quercus nigra	220	4	10
	35.96442918	-77.70270942	Overcup Oak (Quercus lyrata)	95	4	10
	35.96442913	-77.70269569	Water Oak (Quercus nigra	65	4	10
	35.96442723	-77.70267401	Willow Oak (Quercus phellos)	290	4	10
	35.96442411	-77.702663	Sycamore (Platanus occidentalis)	45	4	10
	35.96442139	-77.70264962	Overcup Oak (Quercus lyrata)	90	4	10
	35.96442173	-77.70263943	Sycamore (Platanus occidentalis)	160	4	10
	35.96442021	-77.70262519	Willow Oak (Quercus phellos)	280	4	10
	35.96444827	-77.70262379	Overcup Oak (Quercus lyrata)	215	4	10
			TREES PER AC	**760**		
			# of Individuals	19		
			# of Species	6		
			Min Ht	30		
			Max Ht	320		
			Avg Ht. - Avg Vigor	174	3.9	

	Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
PLOT 11	35.96411943	-77.70185991	Persimmon (Diospyros virginiana)	200	4	11
	35.96411016	-77.70189654	Willow Oak (Quercus phellos)	115	4	11
	35.96410255	-77.70190705	Overcup Oak (Quercus lyrata)	350	4	11
	35.96412491	-77.70190949	Water Oak (Quercus nigra	80	4	11
	35.96413144	-77.70191795	River Birch (Betula nigra)	205	4	11
	35.96416572	-77.70190654	Willow Oak (Quercus phellos)	100	4	11
	35.9641739	-77.70191381	Sycamore (Platanus occidentalis)	250	4	11
	35.96418124	-77.70192361	Water Oak (Quercus nigra	210	4	11
	35.9641497	-77.7018905	Willow Oak (Quercus phellos)	135	4	11
	35.96413363	-77.70187618	Water Oak (Quercus nigra	200	4	11
	35.96413835	-77.70183638	River Birch (Betula nigra)	225	4	11
	35.96414406	-77.70184265	Willow Oak (Quercus phellos)	100	4	11
	35.9641562	-77.70185657	Cherrybark Oak (Quercus pagoda)	125	4	11
	35.96416928	-77.70186888	Willow Oak (Quercus phellos)	220	4	11
	35.96417552	-77.70187528	Overcup Oak (Quercus lyrata)	120	4	11
	35.96418132	-77.70188088	Willow Oak (Quercus phellos)	205	4	11
	35.96418969	-77.70188969	Cherrybark Oak (Quercus pagoda)	130	4	11
	35.96419379	-77.70184677	River Birch (Betula nigra)	195	4	11
	35.96417991	-77.70183301	Willow Oak (Quercus phellos)	215	4	11
	35.96417647	-77.70183008	River Birch (Betula nigra)	225	4	11
	35.96417389	-77.70182503	Persimmon (Diospyros virginiana)	120	4	11
	35.96416637	-77.70181944	Water Oak (Quercus nigra	125	4	11
			TREES PER AC	**880**		
			# of Individuals	22		
			# of Species	7		
			Min Ht	80		
			Max Ht	350		
			Avg Ht. - Avg Vigor	174	4.0	

	Latitude	Longitude	Species	MY4 - Tree Height (cm)	Vigor MY4	Plot Num
PLOT 12	35.96356119	-77.70110593	Overcup Oak (Quercus lyrata)	420	4	12
	35.96356449	-77.70107851	Persimmon (Diospyros virginiana)	185	4	12
	35.96356949	-77.70108785	Overcup Oak (Quercus lyrata)	85	4	12
	35.96357927	-77.70110955	Overcup Oak (Quercus lyrata)	110	4	12
	35.9636138	-77.70110651	Willow Oak (Quercus phellos)	110	4	12
	35.96360499	-77.70109482	River Birch (Betula nigra)	210	4	12
	35.96360119	-77.70108752	Willow Oak (Quercus phellos)	170	4	12
	35.96359829	-77.70107707	Overcup Oak (Quercus lyrata)	80	4	12
	35.96359194	-77.70106833	Willow Oak (Quercus phellos)	110	4	12
	35.96358786	-77.70105767	Persimmon (Diospyros virginiana)	115	4	12
	35.96358117	-77.70104634	Willow Oak (Quercus phellos)	180	4	12
	35.96357477	-77.70103707	Overcup Oak (Quercus lyrata)	90	4	12
	35.96357163	-77.70102783	Water Oak (Quercus nigra	210	4	12
	35.96359812	-77.70101454	Sycamore (Platanus occidentalis)	230	4	12
	35.96360179	-77.70102375	Sycamore (Platanus occidentalis)	195	4	12
	35.96360562	-77.70102883	Willow Oak (Quercus phellos)	40	4	12
	35.96360857	-77.70103622	Persimmon (Diospyros virginiana)	165	4	12
	35.96361516	-77.70104916	Willow Oak (Quercus phellos)	175	4	12
	35.96362079	-77.70105773	Persimmon (Diospyros virginiana)	100	4	12
	35.96362349	-77.70106916	Willow Oak (Quercus phellos)	180	4	12
	35.96362921	-77.70107412	Sycamore (Platanus occidentalis)	185	4	12
	35.96363383	-77.70108376	Willow Oak (Quercus phellos)	200	4	12
	35.96363785	-77.7010947	Sycamore (Platanus occidentalis)	140	4	12
	35.96364745	-77.70104697	Sycamore (Platanus occidentalis)	210	4	12
	35.96364237	-77.70103495	Willow Oak (Quercus phellos)	170	4	12
	35.96363906	-77.70102426	Overcup Oak (Quercus lyrata)	55	4	12
	35.963635	-77.7010138	Willow Oak (Quercus phellos)	160	4	12
			TREES PER AC	**1080**		
			# of Individuals	27		
			# of Species	6		
			Min Ht	40		
			Max Ht	230		
			Avg Ht. - Avg Vigor	159	4.0	