
As-Built Baseline Monitoring Report
Odell's House Buffer Mitigation Project
Monitoring Year 0
Calendar Year of Data Collection: 2021

NCDEQ DMS Project Identification #100041
NCDEQ DMS Contract # 7420
Neuse River Basin (CU 03020201)
DWR Project # 2018-0200
USACE Action ID Number: SAW-2018-00431
Johnston County, NC
Data Collection Period: March 2021
Submission Date: June 2021



Prepared for:

NC Department of Environmental Quality
Division of Water Resources
512 N. Salisbury Street,
Raleigh, North Carolina 27620



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1 Project Summary

1.1 Project Location and Description

The Odell's House Mitigation Site ("Site") is a riparian buffer mitigation project in conjunction with a North Carolina Department of Environmental Quality (NCDEQ), Division of Mitigation Services (DMS) stream and wetland mitigation project. The Site was planned according to the Consolidated Buffer Mitigation Rule 15A NCAC 02B .0295, which became effective on November 1, 2015.

The Site (35.716526 N, -78.349830 W) is located in Johnston County, North Carolina, between the Town of Wendell and Archer Lodge. The Site boundary is within the 8-digit Hydrologic Unit Code (HUC) 03020201, in the NCDEQ sub-basin 03-04-06 (Warm Water Thermal Regime).

This Site provides riparian buffer mitigation credits for unavoidable impacts due to development in the Neuse River Basin, United States Geologic Survey (USGS) 8-digit HUC 03020201. Nutrient offset credits may be used for stormwater requirements for new and existing development requiring nutrient offsets. The project involves the restoration and preservation of riparian vegetation to reduce non-point source discharge of contaminants into streams and agricultural ditch channels within the Neuse River basin. The project area is comprised of two separate easement locations totaling 15.092 acres, including stream and wetland mitigation areas.

Based on the sealed survey the as-built acres are as follows, the easement area is 15.092 acres, with 10.390 acres being restored for Neuse buffer credit. In general, Neuse buffer widths extend a minimum width of 50 feet from tops of stream and ditch banks, while nutrient offset restoration area widths will extend out to a maximum of 200 feet from the top of the channel or ditch bank. The buffer restoration credit adjacent to coastal headwater stream mitigation is classified as alternative mitigation under Rule 15A NCAC 02B .0295 (o)(2). The buffer preservation credit is classified as alternative mitigation under Rule .0295 (o).

1.2 Project Success Criteria

The success criteria for the Site will follow the approved performance standards and monitoring protocols presented in the approved Mitigation Plan, developed in compliance with the DWR Rule 15A NCAC 02B 0295. Annual vegetation monitoring will occur each year for a minimum of five years and will be conducted during the fall season with the first year occurring at least five months from initial planting. Permanent vegetation monitoring plots will be installed and evaluated within the buffer restoration and nutrient offset areas to measure the survival of the planted trees. Riparian buffer vegetation monitoring will be based on the *Carolina Vegetation Survey-Ecosystem Enhancement Program Protocol for Recording Vegetation: Level 1-2 Plot Sampling Only Version 4.2*.

The measures of vegetative success for the Site will be the survival of at least four native hardwood tree species, where no one species is greater than 50 percent of the established stems, established at a density of at least 260 planted trees per acre at the end of Year 5. Appropriate native volunteer stems of native hardwood tree species may be included to meet the performance standards with DWR approval.

1.2.1 Vegetation

Seven 100 square-meter vegetation monitoring plots were installed for DWR monitoring; covering at least two percent of the 15.092 acres of the riparian restoration area. Plots were randomly placed throughout the planted riparian areas. The location of the plots is shown on Figures 3a. Photos will be taken from all



photo points annually. All planted stems will be marked with flagging tape and a wood stake. In the field, the four corners of each plot were permanently marked with PVC at the origin and rebar at the other corners. Photos of each plot will be taken from the origin each monitoring year. All seven of these plots are joint monitoring plots for 404/401 and there are an additional five 404/USACE plots for a total of 12 vegetation plots. Vegetation monitoring will occur in the fall each required monitoring year, prior to the leaf fall. Plots will be monitored for a minimum of five years. The following data are recorded for all planted trees in the plots: species, common name, height, planting date, and grid location. The total number of volunteer woody stems will also be documented and reported by species. Vegetation plot monitoring follows the CVS-EEP Level 2 Protocol for Recording Vegetation, version 4.2 (Lee et al. 2008) and includes analysis of species composition, density, and height. Data are processed using the NCDMS Shiny App data entry tool.

1.2.2 Performance Standards for Vegetation Adjacent to Single-Thread Streams

The measures of vegetative success for the Project will be the survival of at least four native hardwood tree, where no one species is greater than 50 percent of the established stems, established at a density of at least 260 planted trees per acre at the end of Year 5. Appropriate volunteer stems of native hardwood tree species may be included to meet the performance standards upon DWR approval.

1.2.3 Performance Standards for Vegetation Adjacent to Coastal Headwater Streams

The measures of vegetative success for the Project will be the survival of at least four native hardwood tree species, where no one species is greater than 50 percent of the established stems, established at a density of at least 260 planted trees per acre at the end of Year 5 and 210 hardwood trees per acre at the end of Year 7 for riparian restoration areas adjacent to coastal headwater stream restoration. The seven years of monitoring only applies to the areas receiving credit under Rule 15A NCAC 02B .0295 (o)(2) for buffer mitigation. Appropriate volunteer stems of native hardwood tree species may be included to meet the performance standards upon DWR approval.

1.2.4 Performance Standard for Coastal Headwater Streams

The performance standards for the coastal headwater streams must be met each monitoring year for a minimum of seven years to comply with 15A NCAC 02B .0295 (o)(2) for buffer mitigation (permanent vegetation plots 1 and 6). Confirmation from the USACE that stream performance standards have been met will be provided to DWR prior to issuance of credit releases for riparian buffer credit along the coastal headwater streams. The success criteria for the coastal headwater streams include channel formation within the valley or crenulation that must be documented through identification of field indicators consistent with those listed in the mitigation plan, and continuous surface water flow within the valley or crenulation must be documented to occur every year for at least 30 consecutive days during the prescribed monitoring period.

1.2.5 Visual Assessment

Visual assessments are performed within the site semi-annually during the five-year monitoring period. Problem areas will be noted (e.g. low stem density, vegetation mortality, invasive species or encroachment). Areas of concern will be photographed, mapped, and accompanied by a written description in the annual report. Problem areas will be re-evaluated during each subsequent visual assessment. Should remedial actions be required, recommendations will be provided in the annual monitoring report.



2 Project Mitigation Components

2.1 Project Components

The Odell's House Site includes a combination of stream restoration, enhancement, and preservation activities on 4,313 linear feet of designed streams and 3.890 acres of designed wetland re-establishment, rehabilitation, enhancement, and preservation. Out of 15.09 acres that will be protected with a permanent conservation easement, 10.400 acres (453,057.200 ft²) are proposed to generate riparian buffer credits along coastal headwater restoration, enhancement, and preservation streams.

WLS will maintain one credit ledger for riparian buffer. The total potential riparian buffer that the Site generates are summarized in Table 1.



2.2 Design Approach

Riparian buffer mitigation adjacent to streams and ditches was approved by DWR via letter on October 30, 2020. Odell's House is also a stream and wetland mitigation site for the Division of Mitigation Services (DMS), and restoration of riparian areas will be accomplished through the goals and methods outlined by the Odell's House Mitigation Plan (SAW #2018-00431). All riparian buffer mitigation along channels begins from the top of bank and extends a minimum of 50 feet and a maximum of 200 feet perpendicular to the channel pursuant to 15A NCAC 02B .0295 and 15A NCAC 02B .0240. Land use proposed for buffer restoration was composed of pasture, fields, and woodlands. Wetland mitigation areas are excluded from riparian buffer credit areas.

A riparian headwater valley restoration approach was constructed for R1 and R5. Headwater stream restoration activities included draining the existing farm ponds, excavating a broader floodplain at or slightly above the existing bed elevation and will seek to restore groundwater hydrology and connection of surface flows. Shallow flow paths were connected to allow initial flow of water toward reach R1 and R5, which will gradually transition into a single thread channel that is more well defined. Figures 3a and 3b depict the buffer restoration plan based on actual top of bank conditions. The riparian buffer credits located adjacent to coastal headwater valley restoration are based on the as-built survey centerline of the valley. The area of the buffer credits shall be measured perpendicular to the length of the valley being restored.

The riparian revegetation plan included permanent seeding, bare root trees, live stakes, and controlling invasive species growth. The riparian restoration efforts along the project streams are adjacent to reconstructed stream banks and extend perpendicular from tops of banks 50 feet to 200 feet.

3 As-Built (Baseline) Condition

3.1 As-built (Baseline) Survey

An as-built survey conducted under the responsible charge of a North Carolina Professional Land Surveyor (Marshall Wight, PLS with WithersRavenel), was utilized to document the as-built or baseline condition of the Project post-construction. The Project construction and planting were completed in March and April 2021 and the as-built survey was completed in May 2021. Baseline monitoring activities occurred between March and May 2021. The conservation easement is marked at least every 150 feet with State of North Carolina signs attached to t-posts or to fencing. The as-built survey locates the constructed stream channels, in-stream structures, tree-lines, a longitudinal profile survey for each project reach, and cross-section survey for each reach. For comparison purposes, the site reaches and riparian buffer areas were divided into the same reaches that were established for the project assessment and design: R1, R2, R3, R4, R5, R6, R7 upper, and R7 lower.

3.2 As-Built/ Baseline Assessment

No significant deviations were documented between final construction plans and as-built conditions. Additionally, no major issues or mitigating factors were observed immediately after construction which require consideration or remedial action. Along R1, the channel alignment was adjusted from approximate design station 11+62 to 12+37 due to poor/wet soil conditions in the remnant pond bottom. Upper R6 was also slightly adjusted from approximate station 16+00 to 17+37 to protect existing vegetation and prevent root damage within the dripline. Lastly, upper R7 was realigned from approximate station 12+17



to 14+59 to more closely follow the existing flow paths and floodplain contours. The in-stream structure installation generally followed the proposed design in these locations and additional woody material was installed along R1 and R5 respectively. Lastly, six log riffles were replaced with three log weirs and woody debris along upper R7 to increase bedform diversity and minimize disturbance to existing wetland vegetation. No major issues or mitigating factors were observed immediately after construction which require consideration or remedial action.

3.2.1 Vegetation

Monitoring of the seven permanent vegetation plots was completed during March and April of 2021. Vegetation data can be found in Appendix B with the associated photos located in Appendix C. The MY0 average planted density is 769 stems per acre, which exceeds the interim measure of vegetative success of at least 260 planted stems per acre at the end of the fifth monitoring year (plots 2-5, and 7). Plots 1 and 6 meet the third year interim of 320 stems per acre. Each individual veg plot successfully meets criteria with stem counts between 607 and 1,214 stems per acre. No volunteer species were observed at baseline monitoring. Visual assessment of vegetation throughout the planted area indicates herbaceous vegetation is establishing throughout the project. Table 2 details the average stem density per plot based on the number of years required for monitoring and associated performance criteria.

Table: 2 Stem Density Per Plot Type

Plots	Average Stem Density/Acre	Performance Criteria	Meets Criteria
Headwater (1 and 6)	951	320 stems/acre at Year 3, 260 stems per acre at Year 5, 210 stems/acre at Year 7, and Stream Success	Yes
Riparian Buffer (2-5 and 7)	696	260 stems/acre at Year 5, 210 stems/acre at Year 7	Yes

A large population of golden bamboo (*Phyllostachys aurea*) existed along the left floodplain of R2 prior to construction. Construction activities included bamboo removal in this area by ripping the roots, cut stump herbicide treatments, and foliar spray of small shoots. Herbicide treatments used 50 percent glyphosate for cut/stump and three percent for foliar spray. This area will continue to be monitored closely and any treatments will be documented in future monitoring reports.

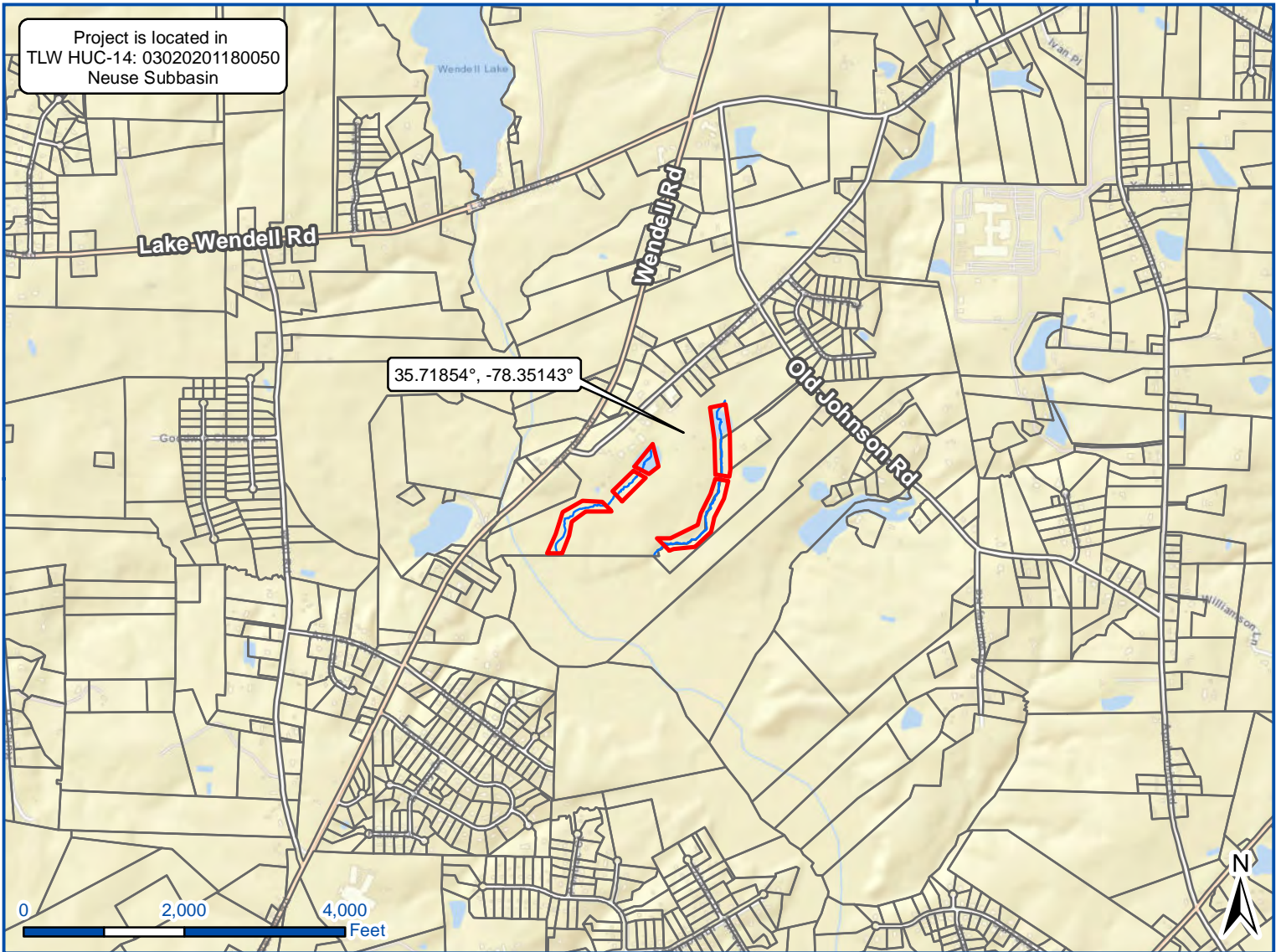
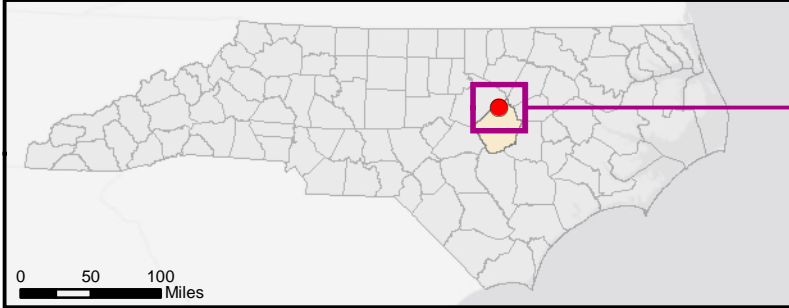
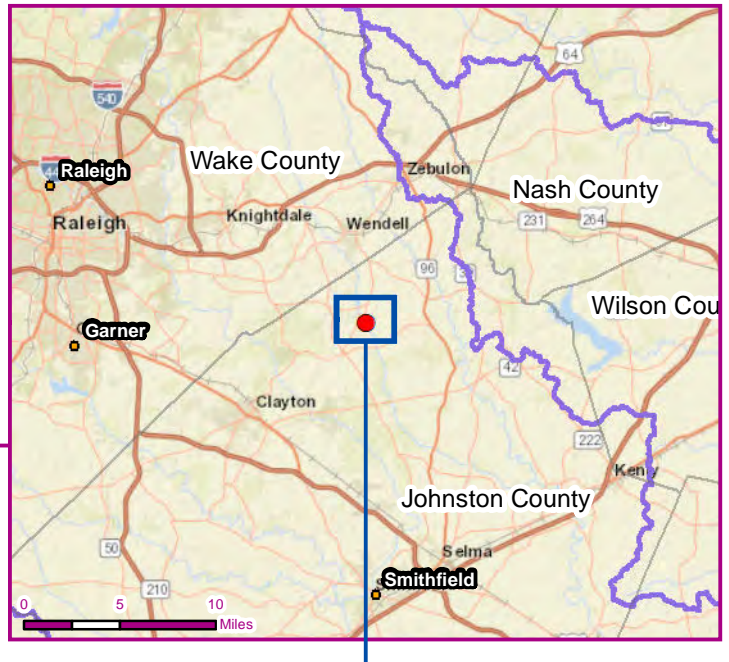


Appendix A:


Background Tables and Figures

Legend

- Conservation Easement
- Project Location
- Stream
- HUC-8
- Johnston Co Parcels
- NC Counties
- NC Cities
- Johnston County



Project is located in
TLW HUC-14: 03020201180050
Neuse Subbasin

 WATER & LAND™ SOLUTIONS	Odells House Mitigation Project Neuse 03020201 Johnston County, NC	Project Location Map	Figure 1
	Map Projection: NAD 83 2011 State Plane North Carolina FIPS 3200 FT US	Date: 6/15/2021	

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



NOTES

1. THE PURPOSE OF THIS PLAT IS TO SHOW THE AS-BUILT AREAS FOR THE RIPARIAN MITIGATION BUFFER CREDITS WITHIN THE CONSERVATION EASEMENT. THIS PLAT IS NOT A BOUNDARY SURVEY. THE LAND PARCELS AND THEIR BOUNDARIES ARE NOT CHANGED BY THIS PLAT.
2. BOUNDARY INFORMATION AND CONSERVATION EASEMENT BOUNDARY RECORDED IN PLAT BOOK 94 PAGE 153-154 IN THE JOHNSTON COUNTY REGISTER OF DEEDS. SURVEYED BOUNDARY LINES ARE SHOWN AS SOLID LINES.
3. AREAS COMPUTED BY COORDINATE METHOD.
4. BASIS OF BEARING NAD 83(2011), VERTICAL NAVD 88.
5. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED. ALL AREAS ARE BASED ON GIS OR DEEDS.
6. IRON PIPES WITH CAPS SET AT CORNERS - PB 94 PG 153-154.
7. SUBJECT TO ALL EASEMENT, RIGHT OF WAYS, AND/OR ENCUMBRANCES THAT MAY AFFECT THE PROPERTY(S).
8. THIS PROPERTY IS PARTIALLY LOCATED IN A DESIGNATED FEMA FLOOD PLAIN AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 372017800J PANEL 1790, EFFECTIVE DATE DECEMBER 2, 2005.
9. THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CONTROL POINT NAIL #1 WITH STATE PLANE GRID COORDINATES OF N: 716,741.50 E: 2,192,250.66 AND TIED TO CONTROL POINT NAIL #2 WITH STATE PLANE GRID COORDINATES OF N: 716,915.64 E: 2,192,587.05 (FT). THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GRID TO GROUND) IS 0.99989841. THE GRID GROUND POINT LOCALIZED AND SCALED FROM IS CONTROL POINT NAIL #2. THE HORIZONTAL DISTANCE FROM NAIL#1 TO "CONTROL NAIL #2" (SEE MAP) IS N 61°10'20" W 361.15' (GROUND).
10. ALL TOPO INFORMATION OBTAINED FROM THE USE OF UNMANNED AIRCRAFT SYSTEMS (UAS) EQUIPPED WITH LIDAR AND POSITIONED WITH GPS RESOLVED FROM DOUBLE OCCUPIED VRS AVERAGED GPS GROUND CONTROL NAILS IN NAD83(2011) STATE PLANE COORDINATES. FLIGHT DATA OBTAINED AT 180 FT OF ALTITUDE. UAS DATA CHECKED TO CONTROL AND GROUND GPS CHECK POINTS SPREAD THROUGH THE SITE.
11. THIS MAPPING WILL SERVE AS THE SURVEY REPORT FOR THE DIGITAL DELIVERABLE.

LEGEND (UNLESS OTHERWISE NOTED)

- IPF - IRON PIPE FOUND
- ISF - IRON STAKE FOUND
- PKNF - PK NAIL FOUND
- CONSERVATION EASEMENT REBAR AND CAP
- R/W - RIGHT OF WAY
- WITHERSRAVENEL CONTROL

LINE TYPE LEGEND

- ADJOINER
- BOUNDARY
- CONSERVATION EASEMENT CE
- R/W
- CENTERLINE OF ROAD
- CP&L POWER LINE EASEMENT
- 1% FEMA FLOODLINE
- FENCE
- TREE LINE

AS-BUILT AREA LEGEND:

CE	TOTAL CONSERVATION AREA	15.092 ACRES/657,356.87 SF
CE	WETLAND CREDIT AREA	2.968 ACRES/129,269.38 SF

RIPARIAN BUFFER CREDIT:

HEADWATER RESTORATION BUFFER (0'-100') OFFSET FROM CENTERLINE- AREA CALCULATED BY VALLEY LENGTH	1.476 ACRE/64,301.58 SF
HEADWATER RESTORATION BUFFER CREDIT AREA (101'-200') OFFSET FROM CENTERLINE- AREA CALCULATED BY VALLEY LENGTH	0.435 ACRES/18,949.11 SF
RESTORATION BUFFER (0'-100') OFFSET FROM TOP OF BANK	3.655 ACRES/159,226.89 SF
RESTORATION BUFFER (101'-200') OFFSET FROM TOP OF BANK	0.145 ACRES/63,19.87 SF
ENHANCEMENT BUFFER (0'-100') OFFSET FROM TOP OF BANK	1.247 ACRES/54,324.94 SF
ENHANCEMENT (CATTLE EXCLUSION) BUFFER (0'-100') OFFSET FROM TOP OF BANK	1.072 ACRES/46,712.5 SF
PRESERVATION BUFFER (0'-100') OFFSET FROM TOP OF BANK	2.370 ACRES/103,222.31 SF

CONSERVATION EASEMENT PLAT REFERENCE PB 94 PG 153-154

WENDELL ROAD

SALEM CHURCH ROAD

SHEET 3

SHEET 2

SHEET 4

SHEET 5

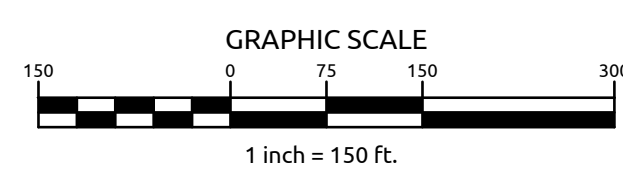
SHEET 1

TOPOGRAPHIC CERTIFICATE OF SURVEY & ACCURACY

I, MARSHALL G. WIGHT, CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95 PERCENT CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS AA AND VERTICAL ACCURACY WHEN APPLICABLE TO THE CLASS C STANDARD; AND THAT THE ORIGINAL DATA WAS OBTAINED ON MARCH 19TH, 2021; THAT THE SURVEY WAS COMPLETED ON MAY 19TH, 2021; THAT CONTOURS SHOWN AS (BROKEN LINES) MAY NOT MEET THE STATED STANDARD; AND ALL COORDINATES ARE BASED ON NAD 83(2011) AND ALL ELEVATIONS ARE BASED ON NAVD 88. THAT THE GLOBAL POSITIONING SYSTEM (GPS) SURVEY AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE GPS (GNSS) SURVEY:

CLASS OF SURVEY: A
 POSITIONAL ACCURACY AT 95% CONFIDENCE LEVEL: HORIZONTAL <0.07' USFT, VERTICAL <0.07' USFT
 TYPE OF GPS FIELD PROCEDURE: REDUNDANT VRS OBSERVATIONS
 DATE OF SURVEY- ORIGINAL: 8-1-2019 AS-BUILT: 3-18-2021
 DATUM/EPOCH: NAD 83(2011)
 PUBLISHED FIXED-CONTROL USE: VRS NETWORK
 GEOID MODEL: GEOID12B
 COMBINED GRID FACTOR: 0.99989841 AT POINT 2 (SEE NOTES)
 UNITS: US SURVEY FEET

THAT THIS MAP MEETS THE REQUIREMENT OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600); WITNESS MY ORIGINAL SIGNATURE AND SEAL THIS 19TH DAY OF JULY, A.D., 2021.



7/19/2021

DocuSigned by: Marshall Wight

MARSHALL G. WIGHT, PROFESSIONAL LAND SURVEYOR L-5034

REVISIONS:	DATE: 5/23/2021
	SCALE: 1" = 150'
	SURVEYED BY:
	DRAWN BY: MGW
	CHECK BY CLOSURE BY: MGW
	CAD FILE: Odell house as-built.dwg
	PROJECT NO: 05180219.0

AS-BUILT RIPARIAN BUFFER SURVEY FOR THE STATE OF NORTH CAROLINA, NCDEQ: DIVISION OF MITIGATION SERVICES "ODELL'S HOUSE MITIGATION PROJECT" SPO FILE NO'S 51-DK, 51-DL DMS SITE ID NO. 100041		
TOWNSHIP: WILDERS	COUNTY: JOHNSTON	STATE: NORTH CAROLINA
P.I.N.: AS SHOWN	ZONING:	SHEET: 1 OF 5

WithersRavenel
 Engineers | Planners | Surveyors
 115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com



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SALEM CHURCH ROAD (SR 1742)
60' PUBLIC R/W

LEGEND (UNLESS OTHERWISE NOTED)

- XS - CROSS-SECTION POINT
- IPF - IRON PIPE FOUND
- ISF - IRON STAKE FOUND
- PKNF - PK NAIL FOUND
- CONSERVATION EASEMENT REBAR AND CAP
- R/W - RIGHT OF WAY
- WITHERSRAVENEL CONTROL

LINETYPE LEGEND

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- BOUNDARY
- CONSERVATION EASEMENT CE
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- 1% FEMA FLOODLINE
- FENCE
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AS-BUILT AREA LEGEND:

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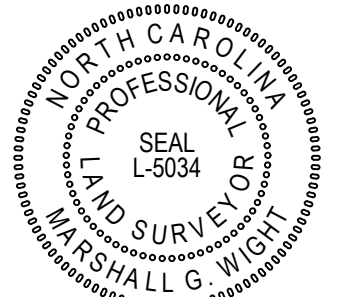
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PUBLISHED/FIXED-CONTROL USE: VRS NETWORK
GEOID MODEL: GEOID12B
COMBINED GRID FACTOR: 0.99988041 AT POINT 2 (SEE NOTES)
UNITS: US SURVEY FEET

THIS MAP MEETS THE REQUIREMENT OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.160); WITNESS MY ORIGINAL SIGNATURE AND SEAL THIS 19TH DAY OF JULY, A.D. 2021.



7/19/2021

DocuSigned by:
Marshall Wight
62C73F441B864C1...

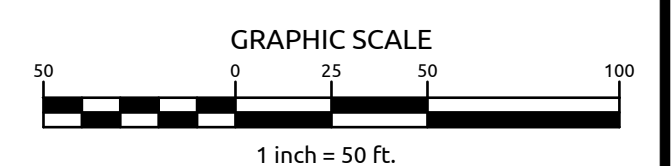
MARSHALL G. WIGHT, PROFESSIONAL LAND SURVEYOR L-5034

REVISIONS:	DATE: 5/23/2021
	SCALE: 1" = 50'
	SURVEYED BY: JS
	DRAWN BY: MGW
	CHECK BY CLOSURE BY: MGW
	CAD FILE: Odell house as-built.dwg
	PROJECT NO: 05180219.0

AS-BUILT RIPARIAN BUFFER SURVEY FOR THE STATE OF NORTH CAROLINA, NCDEQ, DIVISION OF MITIGATION SERVICES "ODELL'S HOUSE MITIGATION PROJECT" SPO FILE NO'S 51-DK, 51-DL DMS SITE ID NO. 100041		
TOWNSHIP: WILDERS	COUNTY: JOHNSTON	STATE: NORTH CAROLINA
P.I.N.: AS SHOWN	ZONING:	SHEET: 2 OF 5

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SHEET 2



K:\Survey\18118-02\1018219.01-Odell's House Mitigation As-Built\Drawings\Odell house as-built.dwg - Monday, July 19, 2021, 8:27:06 AM - WIGHT, MARSHALL



NOTES

1. THE PURPOSE OF THIS PLAT IS TO SHOW THE AS-BUILT AREAS FOR THE RIPARIAN MITIGATION BUFFER CREDITS WITHIN THE CONSERVATION EASEMENT. THIS PLAT IS NOT A BOUNDARY SURVEY. THE LAND PARCELS AND THEIR BOUNDARIES ARE NOT CHANGED BY THIS PLAT.
2. BOUNDARY INFORMATION AND CONSERVATION EASEMENT BOUNDARY RECORDED IN PLAT BOOK 94 PAGE 153-154 IN THE JOHNSTON COUNTY REGISTER OF DEEDS. SURVEYED BOUNDARY LINES ARE SHOWN AS SOLID LINES.
3. AREAS COMPUTED BY COORDINATE METHOD.
4. BASIS OF BEARING NAD 83(2011), VERTICAL NAVD 88.
5. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED. ALL AREAS ARE BASED ON GIS OR DEEDS.
6. IRON PIPES WITH CAPS SET AT CORNERS - PB 94 PG 153-154.
7. SUBJECT TO ALL EASEMENT, RIGHT OF WAYS, AND/OR ENCUMBRANCES THAT MAY AFFECT THE PROPERTY(S).
8. THIS PROPERTY IS PARTIALLY LOCATED IN A DESIGNATED FEMA FLOOD PLAIN AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 372017800J PANEL 1790, EFFECTIVE DATE DECEMBER 2, 2005.
9. THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CONTROL POINT #1 WITH STATE PLANE GRID COORDINATES OF N: 716,741.50 E: 2,192,250.66 AND TIED TO CONTROL POINT #2 WITH STATE PLANE GRID COORDINATES OF N: 716,915.64 E: 2,192,287.05 (FT). THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GRID TO GROUND) IS 0.99989841. THE GRID GROUND POINT LOCALIZED AND SCALED FROM IS CONTROL POINT #2. THE HORIZONTAL DISTANCE FROM NAIL#1 TO "CONTROL NAIL #2" (SEE MAP) IS N 61°10'20" W 361.15' (GROUND).
10. ALL TOPO INFORMATION OBTAINED FROM THE USE OF UNMANNED AIRCRAFT SYSTEMS (UAS) EQUIPPED WITH LIDAR AND POSITIONED WITH GPS RESOLVED FROM DOUBLE OCCUPIED VRS AVERAGED GPS GROUND CONTROL NAIS IN NAD83(2011) STATE PLANE COORDINATES. FLIGHT DATA OBTAINED AT 180 FT OF ALTITUDE. UAS DATA CHECKED TO CONTROL AND GROUND GPS CHECK POINTS SPREAD THROUGH THE SITE.
11. THIS MAPPING WILL SERVE AS THE SURVEY REPORT FOR THE DIGITAL DELIVERABLE.

LEGEND (UNLESS OTHERWISE NOTED)

- XS - CROSS-SECTION POINT
 - IPF - IRON PIPE FOUND
 - ISF - IRON STAKE FOUND
 - PKNF - PK NAIL FOUND
 - CONSERVATION EASEMENT REBAR AND CAP
 - R/W - RIGHT OF WAY
 - WITHERSRAVENEL CONTROL
- LINETYPE LEGEND**
- ADJOINER
 - BOUNDARY
 - CONSERVATION EASEMENT CE
 - R/W
 - CENTERLINE OF ROAD
 - CP&L POWER LINE EASEMENT
 - 1% FEMA FLOODLINE
 - FENCE
 - TREE LINE

AS-BUILT AREA LEGEND:

- CE TOTAL CONSERVATION AREA 15,092 ACRES/657,356.87 SF
 - WETLAND CREDIT AREA 3,909 ACRES/170,294.49 SF
- RIPARIAN BUFFER CREDIT:**
- HEADWATER RESTORATION BUFFER (0'-100') OFFSET FROM CENTERLINE-AREA CALCULATED BY VALLEY LENGTH 1.476 ACRE/64,301.58 SF
 - HEADWATER RESTORATION BUFFER CREDIT AREA (100'-200') OFFSET FROM CENTERLINE-AREA CALCULATED BY VALLEY LENGTH 0.435 ACRES/18,949.11 SF
 - RESTORATION BUFFER (0'-100') OFFSET FROM TOP OF BANK 3.655 ACRES/159,226.89 SF
 - RESTORATION BUFFER (101'-200') OFFSET FROM TOP OF BANK 0.145 ACRES/63,19.87 SF
 - ENHANCEMENT BUFFER (0'-100') OFFSET FROM TOP OF BANK 1.247 ACRES/54,324.94 SF
 - ENHANCEMENT (CATTLE EXCLUSION) BUFFER (0'-100') OFFSET FROM TOP OF BANK 1.072 ACRES/46,712.5 SF
 - PRESERVATION BUFFER (0'-100') OFFSET FROM TOP OF BANK 2.370 ACRES/103,222.31 SF

CONSERVATION EASEMENT PLAT REFERENCE PB 94 PG 153-154

PRESERVATION BUFFER 0-100' 0.616 ACRES/26,838.79 SF

PRESERVATION BUFFER 0-100' 0.355 ACRES/15,483.96 SF

RESTORATION BUFFER 0-100' 0.060 ACRES/2,617.87 SF

RESTORATION BUFFER 0-100' 0.044 ACRES/1,921.82 SF

CP&L POWER LINE EASEMENT D.B. 1047 PG. 505 RW A-7255

W. ODELL EDWARDS IRREVOCABLE TRUST D.B. 3343, PG. 381 P.I.N.: 179100-16-8552

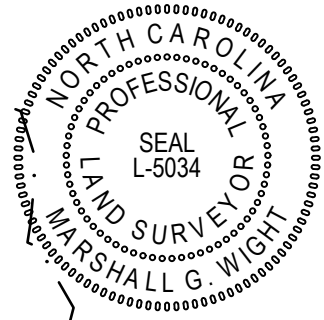
JAMES THURMAN & MARGARET PAINTER DAVIS REVOCABLE LIVING TRUST D.B. 2154, PG. 874 P.I.N.: 179100-25-2288

TOPOGRAPHIC CERTIFICATE OF SURVEY & ACCURACY

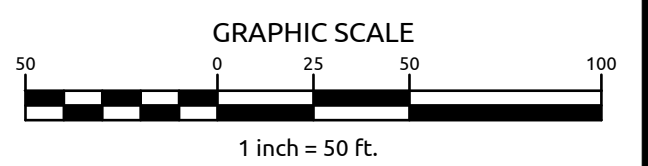
I, MARSHALL G. WIGHT, CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95 PERCENT CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS AA AND VERTICAL ACCURACY WHEN APPLICABLE TO THE CLASS C STANDARD; AND THAT THE ORIGINAL DATA WAS OBTAINED ON MARCH 19TH, 2021; THAT THE SURVEY WAS COMPLETED ON MAY 10TH, 2021; THAT CONTOURS SHOWN AS (BROKEN LINES) MAY NOT MEET THE STATED STANDARD; AND ALL COORDINATES ARE BASED ON NAD 83(2011) AND ALL ELEVATIONS ARE BASED ON NAVD 88; THAT THE GLOBAL POSITIONING SYSTEM (GPS) SURVEY AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE GPS (GNSS) SURVEY:

CLASS OF SURVEY: A
 POSITIONAL ACCURACY AT 95% CONFIDENCE LEVEL: HORIZONTAL <0.07' USFT, VERTICAL <0.07' USFT
 TYPE OF GPS FIELD PROCEDURE: REDUNDANT VRS OBSERVATIONS
 DATE OF SURVEY: ORIGINAL: 8-1-2019 AS-BUILT: 3-18-2021
 DATUM/EPOCH: NAD 83(2011)
 PUBLISHED FIXED-CONTROL USE: VRS NETWORK
 GEOID MODEL: GEOID12B
 COMBINED GRID FACTOR: 0.99989841 AT POINT 2 (SEE NOTES)
 UNITS: US SURVEY FEET

THAT THIS MAP MEETS THE REQUIREMENT OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 58.1600); WITNESS MY ORIGINAL SIGNATURE AND SEAL THIS 19TH DAY OF JULY, A.D. 2021.



SHEET 3



7/19/2021

DocuSigned by:
Marshall Wight

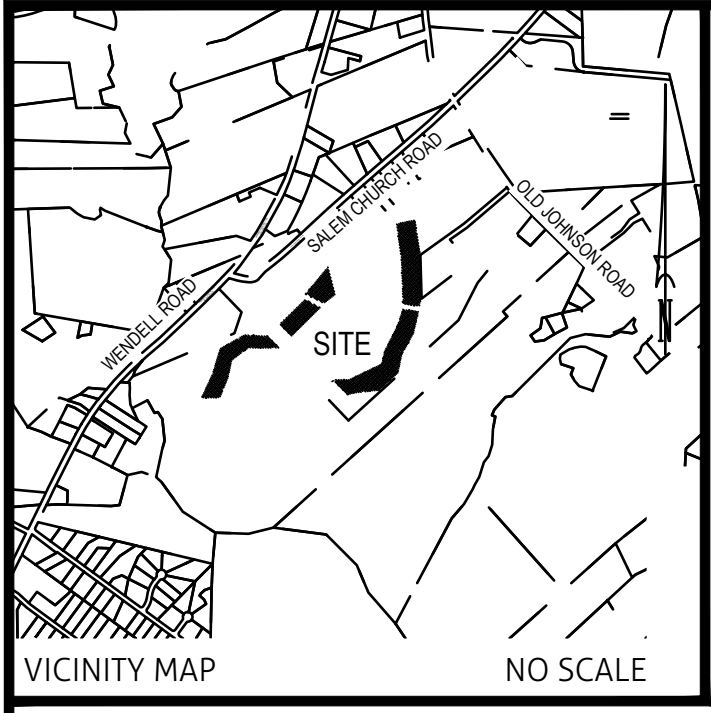
MARSHALL G. WIGHT, PROFESSIONAL LAND SURVEYOR L-6034

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REVISIONS:	DATE: 5/23/2021
	SCALE: 1" = 50'
	SURVEYED BY: JS
	DRAWN BY: MGW
	CHECK BY CLOSURE BY: MGW
	CAD FILE: Odell house as-built.dwg
	PROJECT NO: 05180219.0

AS-BUILT RIPARIAN BUFFER SURVEY FOR THE STATE OF NORTH CAROLINA, NCDEQ: DIVISION OF MITIGATION SERVICES "ODELL'S HOUSE MITIGATION PROJECT" SPO FILE NO'S 51-DK, 51-DL. DMS SITE ID NO. 100041		
TOWNSHIP: WILDERS	COUNTY: JOHNSTON	STATE: NORTH CAROLINA
P.I.N.: AS SHOWN	ZONING:	SHEET: 3 OF 5

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- NOTES**
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 11. THIS MAPPING WILL SERVE AS THE SURVEY REPORT FOR THE DIGITAL DELIVERABLE.

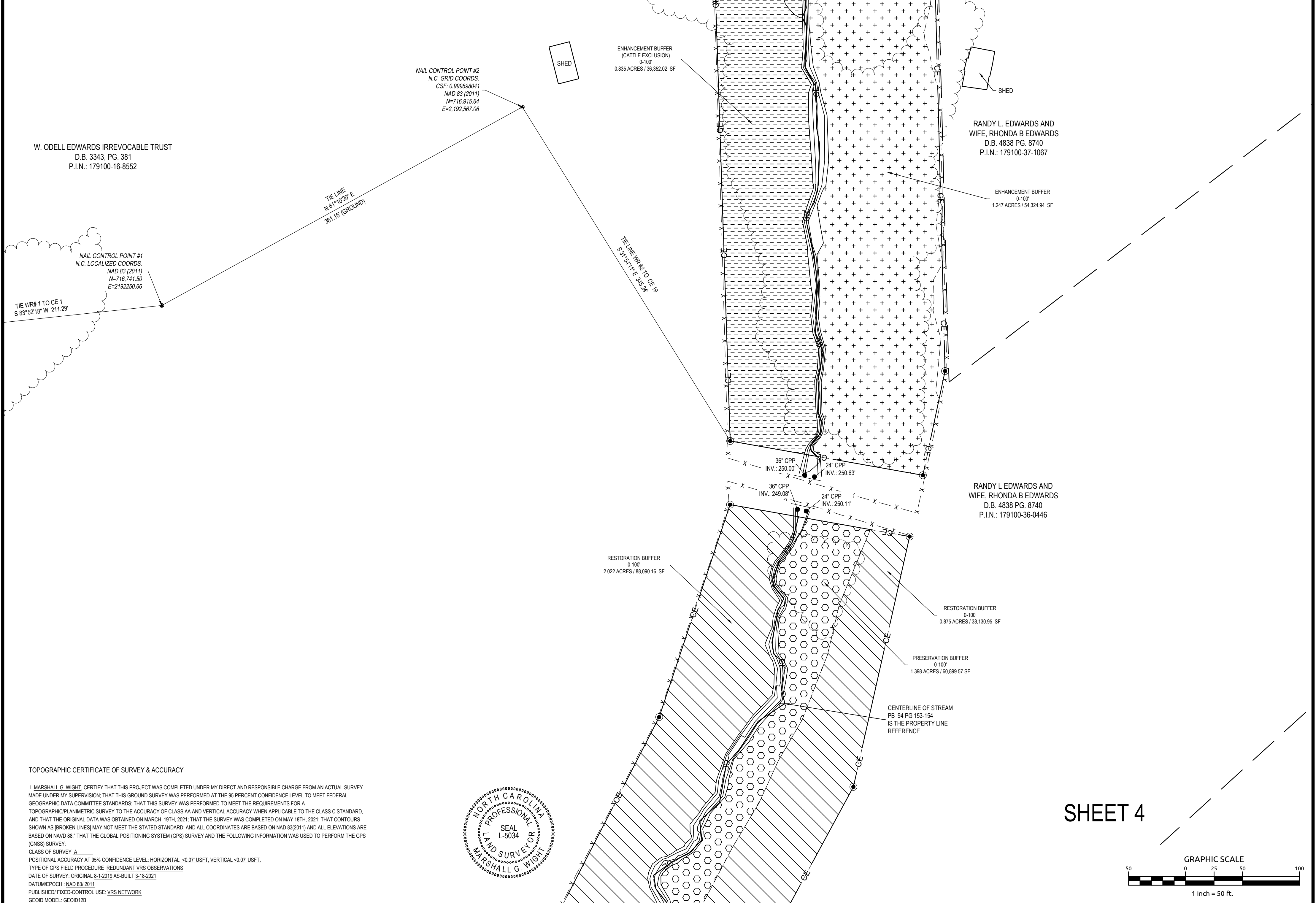
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**CONSERVATION EASEMENT PLAT
REFERENCE
PB 94 PG 153-154**



W. ODELL EDWARDS IRREVOCABLE TRUST
D.B. 3343, PG. 381
P.I.N.: 179100-16-8552

W. ODELL EDWARDS IRREVOCABLE TRUST
D.B. 3343, PG. 381
P.I.N.: 179100-16-8552

RANDY L. EDWARDS AND WIFE, RHONDA B EDWARDS
D.B. 4838 PG. 8740
P.I.N.: 179100-37-1067

RANDY L. EDWARDS AND WIFE, RHONDA B EDWARDS
D.B. 4838 PG. 8740
P.I.N.: 179100-36-0446

TOPOGRAPHIC CERTIFICATE OF SURVEY & ACCURACY

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- DATUM/EPOCH: NAD 83(2011)
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- GEOID MODEL: GEOID12B
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7/19/2021

MARSHALL G. WIGHT, PROFESSIONAL LAND SURVEYOR L-6034



REVISIONS:	DATE: 5/23/2021	AS-BUILT RIPARIAN BUFFER SURVEY FOR THE STATE OF NORTH CAROLINA, NCDEQ, DIVISION OF MITIGATION SERVICES "ODELL'S HOUSE MITIGATION PROJECT" SPO FILE NO'S 51-DK, 51-DL. DMS SITE ID NO. 100041		
	SCALE: 1" = 50'	TOWNSHIP: WILDERS	COUNTY: JOHNSTON	STATE: NORTH CAROLINA
	SURVEYED BY: JS	P.I.N.: AS SHOWN	ZONING:	SHEET: 4 OF 5
	DRAWN BY: MGW			
	CHECK BY CLOSURE BY: MGW			
	CAD FILE: Odell house as-built.dwg			
	PROJECT NO: 05180219.0			

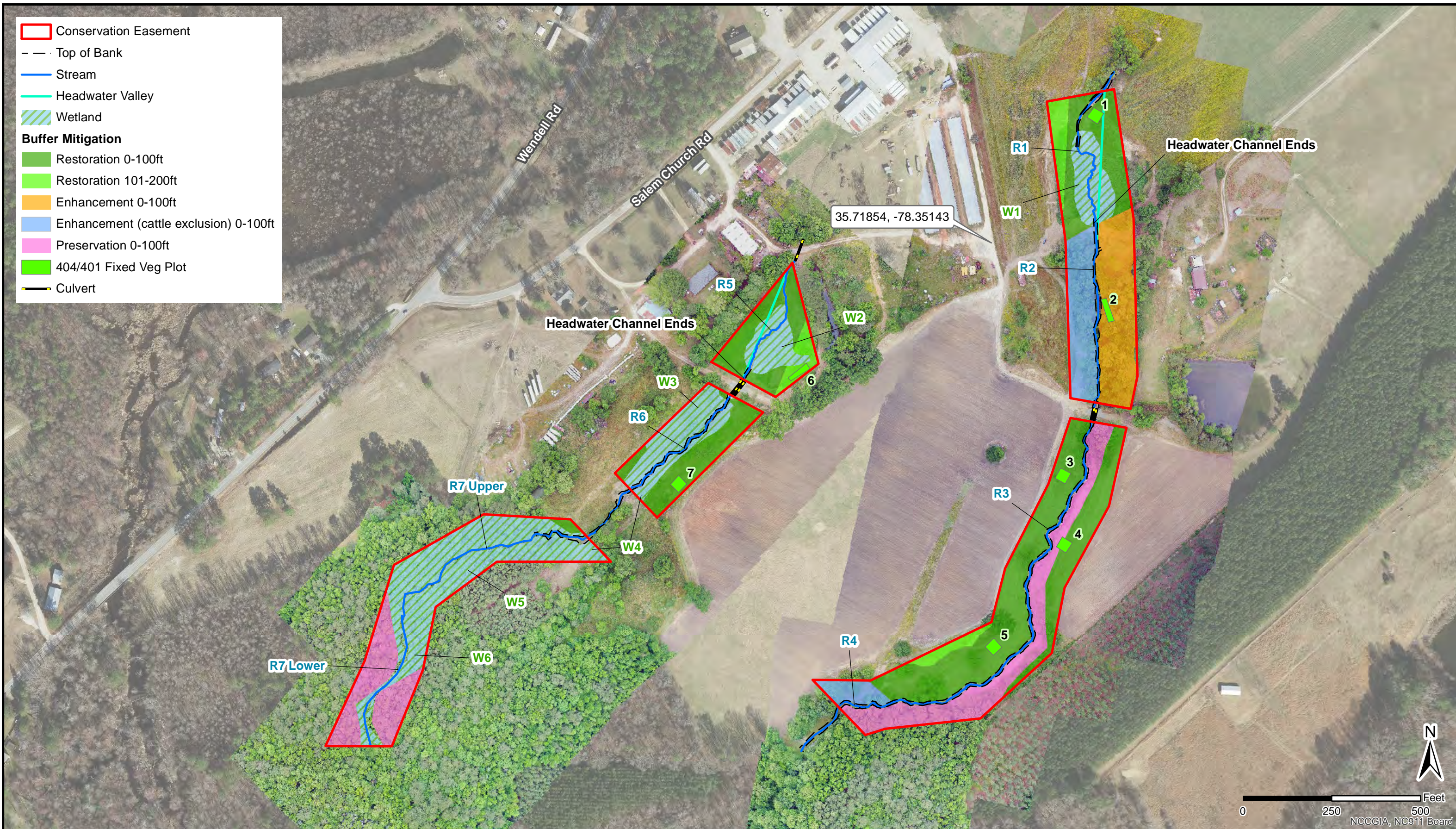
SHEET 4

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

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115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

K:\Survey\18118-02\1018219.01-0001- House Mitigation As-Built\Geomatch\Survey\Area-Comp\Drawings\Odell house as-built.dwg - Monday, July 19, 2021, 8:57:26 AM - WIGHT, MARSHALL

- Conservation Easement
- Top of Bank
- Stream
- Headwater Valley
- Wetland
- Buffer Mitigation**
- Restoration 0-100ft
- Restoration 101-200ft
- Enhancement 0-100ft
- Enhancement (cattle exclusion) 0-100ft
- Preservation 0-100ft
- 404/401 Fixed Veg Plot
- Culvert



Appendix B:

Vegetation Assessment Data

**Odell's House Mitigation Project
Red-line Planting List**

Species	Common Name	Stems	% Planted	Mitigation Plan %
<i>Fraxinus pennsylvanica</i>	Green Ash	228	3.00%	3%
<i>Betula nigra</i>	River birch	608	8.00%	12%
<i>Quercus michauxii</i>	Swamp chestnut oak	608	8.00%	10%
<i>Quercus pagoda</i>	Cherrybark oak	532	7.00%	10%
<i>Platanus occidentalis</i>	American sycamore	684	9.00%	12%
<i>Quercus nigra</i>	Water Oak	532	7.00%	10%
<i>Liriodendron tulipifera</i>	Tulip Poplar	684	9.00%	12%
<i>Quercus phellos</i>	Willow Oak	532	7.00%	10%
<i>Diospyros virginiana</i>	Persimmon	456	6.00%	4%
<i>Carpinus caroliniana</i>	Ironwood	456	6.00%	3%
<i>Hamamelis virginiana</i>	Witch Hazel	456	6.00%	3%
<i>Asimina triloba</i>	Pawpaw	456	6.00%	4%
<i>Lindera benzoin</i>	Spicebush	456	6.00%	4%
<i>Alnus serulatta</i>	Tag Alder	456	6.00%	0%
<i>Corylus americana</i>	Hazelnut	456	6.00%	3%
Total		7,600	100%	

* changes from mitigation plan in red

*Tag Alder was not planted within potential Nutrient Buffer Areas

Vegetation Plot Summary Table												
	Veg Plot 1 F				Veg Plot 2 F				Veg Plot 3 F			
	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives
Monitoring Year 7												
Monitoring Year 5												
Monitoring Year 3												
Monitoring Year 2												
Monitoring Year 1												
Monitoring Year 0	688	2	9	0	648	2	9	0	607	2	8	0
	Veg Plot 4 F				Veg Plot 5 F				Veg Plot 6 F			
	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives
Monitoring Year 7												
Monitoring Year 5												
Monitoring Year 3												
Monitoring Year 2												
Monitoring Year 1												
Monitoring Year 0	769	2	9	0	607	2	8	0	1214	2	9	0
	Veg Plot 7 F											
	Stems/Ac.	Av. Ht. (ft)	# Species	% Invasives								
Monitoring Year 7												
Monitoring Year 5												
Monitoring Year 3												
Monitoring Year 2												
Monitoring Year 1												
Monitoring Year 0	850	2	8	0								

*Each monitoring year represents a different plot for the random vegetation plot "groups". Random plots are denoted with an R, and fixed plots with an F.

Vegetation Plot Counts and Densities Table

Planted Acreage	11.17
Date of Initial Plant	2021-03-01
Date(s) of Supplemental Plant(s)	#N/A
Date(s) Mowing	#N/A
Date of Current Survey	2021-03-23
Plot size (ACRES)	0.0247

	Scientific Name	Common Name	Tree/ Shrub	Indicator Status	Veg Plot 1 F		Veg Plot 2 F		Veg Plot 3 F		Veg Plot 4 F		Veg Plot 5 F		Veg Plot 6 F		Veg Plot 7 F		
					Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	
Species Included in Approved Mitigation Plan	<i>Asimina triloba</i>	pawpaw	Tree	FAC			1	1	1	1	2	2	1	1					
	<i>Betula nigra</i>	river birch	Tree	FACW	1	1	2	2	1	1	1	1			8	8	2	2	
	<i>Carpinus caroliniana</i>	American hornbeam	Tree	FAC	2	2					3	3					1	1	
	<i>Corylus americana</i>	American hazelnut	Shrub	FACU			1	1							1	1	1	1	
	<i>Diospyros virginiana</i>	common persimmon	Tree	FAC									1	1	1	1			
	<i>Fraxinus pennsylvanica</i>	green ash	Tree	FACW	1	1									4	4			
	<i>Hamamelis virginiana</i>	American witchhazel	Tree	FACU	1	1	2	2	1	1	1	1							
	<i>Lindera benzoin</i>	northern spicebush	Tree	FACW			1	1					1	1				1	
	<i>Liriodendron tulipifera</i>	tuliptree	Tree	FACU	4	4	2	2	4	4	4	4	7	7				5	5
	<i>Platanus occidentalis</i>	American sycamore	Tree	FACW	4	4	2	2	4	4	3	3	2	2	5	5	6	6	
	<i>Quercus michauxii</i>	swamp chestnut oak	Tree	FACW	2	2	2	2					1	1	3	3			
	<i>Quercus nigra</i>	water oak	Tree	FAC	1	1			1	1	1	1	1	1	3	3			
<i>Quercus pagoda</i>	cherrybark oak	Tree	FACW			3	3	1	1	2	2	2	2	2	2	1	1		
<i>Quercus phellos</i>	willow oak	Tree	FACW	1	1			2	2	2	2	1	1	3	3	4	4		
Sum	Performance Standard				17	17	16	16	15	15	19	19	15	15	30	30	21	21	
Mitigation Plan Performance Standard	Current Year Stem Count				17		16		15		19		15		30		21		
	Stems/Acre				688		648		607		769		607		1214		850		
	Species Count				9		9		8		9		8		9		8		
	Dominant Species Composition (%)				24		19		27		21		47		27		29		
	Average Plot Height				2		2		2		2		2		2		2		
% Invasives				0		0		0		0		0		0		0			
Post Mitigation Plan Performance Standard	Current Year Stem Count				17		16		15		19		15		30		21		
	Stems/Acre				688		648		607		769		607		1214		850		
	Species Count				9		9		8		9		8		9		8		
	Dominant Species Composition (%)				24		19		27		21		47		27		29		
	Average Plot Height				2		2		2		2		2		2		2		
% Invasives				0		0		0		0		0		0		0			

- 1). Bolded species are proposed for the current monitoring year, italicized species are not approved, and a regular font indicates that the species has been approved.
- 2). The "Species Included in Approved Mitigation Plan" section contains only those species that were included in the original approved mitigation plan. The "Post Mitigation Plan Species" section includes species that are being proposed through a mitigation plan addendum for the current monitoring year (bolded) , species that have been approved in prior monitoring years through a mitigation plan addendum (regular font), and species that are not approved (italicized).
- 3). The "Mitigation Plan Performance Standard" section is derived only from stems included in the original mitigation plan, whereas the "Post Mitigation Plan Performance Standard" includes data from mitigation plan approved, post mitigation plan approved, and proposed stems.

Appendix C:
Vegetation Monitoring Plot
Photos



Fixed Veg Plot 1 (MY-00)



Fixed Veg Plot 3 (MY-00)



Fixed Veg Plot 2 (MY-00)



Fixed Veg Plot 4 (MY-00)



Fixed Veg Plot 5 (MY-00)



Fixed Veg Plot 7 (MY-00)



Fixed Veg Plot 6 (MY-00)

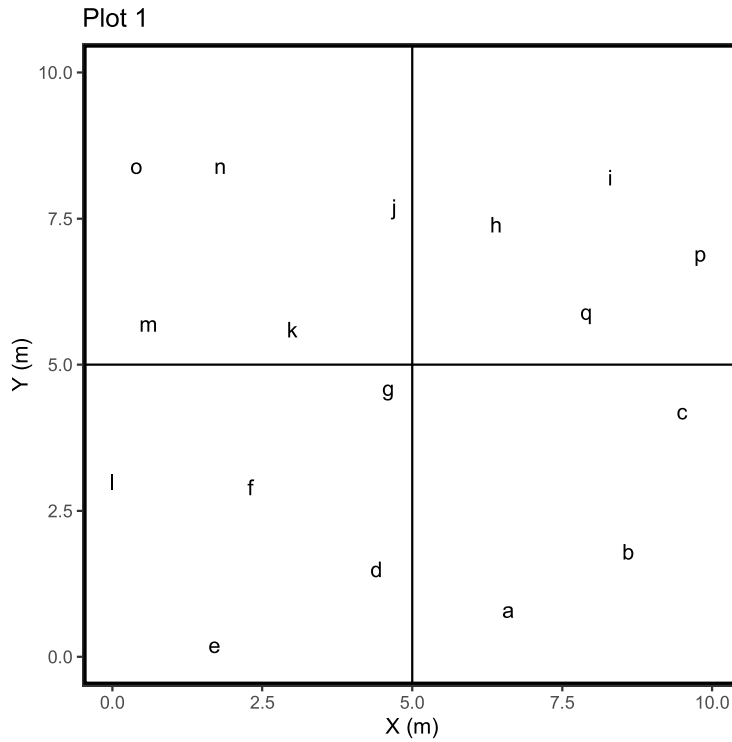
Appendix D:
Vegetation Monitoring Plot
Data Sheets

Vegetation Plot Monitoring Data Sheets

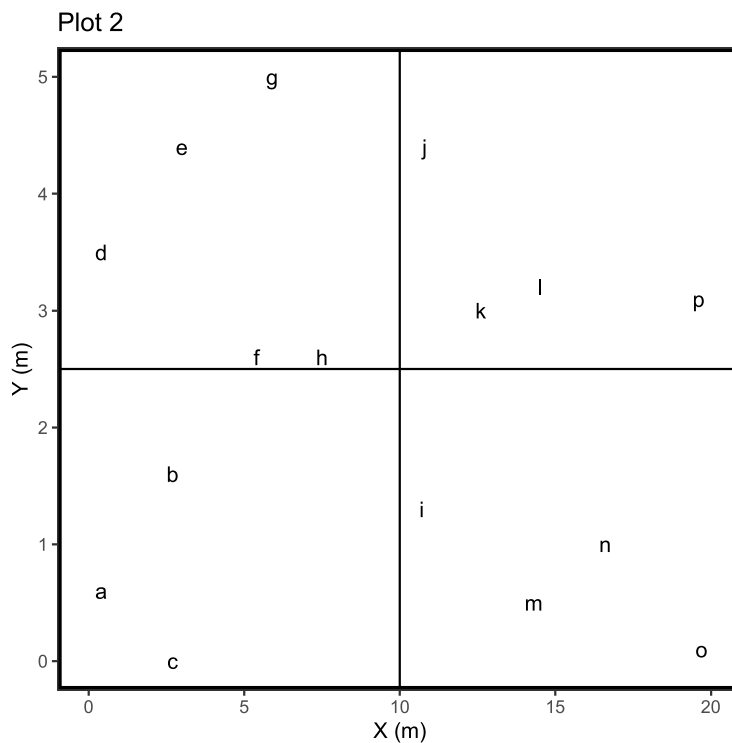
Project Name	Plot ID	MY	Scientific Name	Common Name	Tree or Shrub	Wetland Indicator Status	I	Approval	Planted or Volunteer	Height	X	Y	Fixed or Random	Age	Monitoring Date
Odell's House	1	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	1.8	6.6	0.8	F	0	3/23/2021
Odell's House	1	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	0.4	8.6	1.8	F	0	3/23/2021
Odell's House	1	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	1.6	9.5	4.2	F	0	3/23/2021
Odell's House	1	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.4	4.4	1.5	F	0	3/23/2021
Odell's House	1	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	0.8	1.7	0.2	F	0	3/23/2021
Odell's House	1	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.8	2.3	2.9	F	0	3/23/2021
Odell's House	1	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	3	4.6	4.6	F	0	3/23/2021
Odell's House	1	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	3	6.4	7.4	F	0	3/23/2021
Odell's House	1	0	Carpinus caroliniana	American hornbeam	Tree	FAC	N	Approved Mit Plan	Planted	1.5	8.3	8.2	F	0	3/23/2021
Odell's House	1	0	Hamamelis virginiana	American witchhazel	Tree	FACU	N	Approved Mit Plan	Planted	1	4.7	7.7	F	0	3/23/2021
Odell's House	1	0	Fraxinus pennsylvanica	green ash	Tree	FACW	N	Approved Mit Plan	Planted	1.3	3	5.6	F	0	3/23/2021
Odell's House	1	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2.3	0	3	F	0	3/23/2021
Odell's House	1	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2	0.6	5.7	F	0	3/23/2021
Odell's House	1	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.4	1.8	8.4	F	0	3/23/2021
Odell's House	1	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.6	0.4	8.4	F	0	3/23/2021
Odell's House	1	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.7	9.8	6.9	F	0	3/23/2021
Odell's House	1	0	Carpinus caroliniana	American hornbeam	Tree	FAC	N	Approved Mit Plan	Planted	1.4	7.9	5.9	F	0	3/23/2021
Odell's House	2	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1.7	0.4	0.6	F	0	3/23/2021
Odell's House	2	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1.6	2.7	1.6	F	0	3/23/2021
Odell's House	2	0	Hamamelis virginiana	American witchhazel	Tree	FACU	N	Approved Mit Plan	Planted	0.5	2.7	0	F	0	3/23/2021
Odell's House	2	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	3.2	0.4	3.5	F	0	3/23/2021
Odell's House	2	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1.4	3	4.4	F	0	3/23/2021
Odell's House	2	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	3.3	5.4	2.6	F	0	3/23/2021
Odell's House	2	0	Asimina triloba	pawpaw	Tree	FAC	N	Approved Mit Plan	Planted	2.4	5.9	5	F	0	3/23/2021
Odell's House	2	0	Corylus americana	American hazelnut	Shrub	FACU	N	Approved Mit Plan	Planted	1.4	7.5	2.6	F	0	3/23/2021
Odell's House	2	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.8	10.7	1.3	F	0	3/23/2021
Odell's House	2	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	3.2	10.8	4.4	F	0	3/23/2021
Odell's House	2	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.2	12.6	3	F	0	3/23/2021
Odell's House	2	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2.2	14.5	3.2	F	0	3/23/2021
Odell's House	2	0	Hamamelis virginiana	American witchhazel	Tree	FACU	N	Approved Mit Plan	Planted	0.5	14.3	0.5	F	0	3/23/2021
Odell's House	2	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2.5	16.6	1	F	0	3/23/2021
Odell's House	2	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.5	19.7	0.1	F	0	3/23/2021
Odell's House	2	0	Lindera benzoin	northern spicebush	Tree	FACW	N	Approved Mit Plan	Planted	0.8	19.6	3.1	F	0	3/23/2021
Odell's House	3	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.8	0.1	0	F	0	3/23/2021
Odell's House	3	0	Hamamelis virginiana	American witchhazel	Tree	FACU	N	Approved Mit Plan	Planted	0.6	2	1.5	F	0	3/23/2021
Odell's House	3	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	0.6	1.6	3.8	F	0	3/23/2021
Odell's House	3	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.3	1.5	6.3	F	0	3/23/2021
Odell's House	3	0	Asimina triloba	pawpaw	Tree	FAC	N	Approved Mit Plan	Planted	1.2	1.3	8.8	F	0	3/23/2021
Odell's House	3	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.6	3.2	6.6	F	0	3/23/2021
Odell's House	3	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.7	4.7	8.6	F	0	3/23/2021
Odell's House	3	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1.6	5.3	6.1	F	0	3/23/2021
Odell's House	3	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.5	5.7	3.6	F	0	3/23/2021
Odell's House	3	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.2	6.4	1	F	0	3/23/2021
Odell's House	3	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1	9.7	0.1	F	0	3/23/2021
Odell's House	3	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.4	8.9	2.4	F	0	3/23/2021
Odell's House	3	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	3.3	8.4	4.6	F	0	3/23/2021
Odell's House	3	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.9	8	7.2	F	0	3/23/2021
Odell's House	3	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	2	7.3	9.5	F	0	3/23/2021
Odell's House	4	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.7	1	0.3	F	0	3/23/2021
Odell's House	4	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.2	3.7	0.4	F	0	3/23/2021
Odell's House	4	0	Carpinus caroliniana	American hornbeam	Tree	FAC	N	Approved Mit Plan	Planted	1.3	6.3	0.5	F	0	3/23/2021
Odell's House	4	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	2.5	9.3	0.7	F	0	3/23/2021
Odell's House	4	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1.8	8.9	3.2	F	0	3/23/2021
Odell's House	4	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.6	6.2	3.4	F	0	3/23/2021
Odell's House	4	0	Carpinus caroliniana	American hornbeam	Tree	FAC	N	Approved Mit Plan	Planted	2.5	3.3	3.3	F	0	3/23/2021

Vegetation Plot Monitoring Data Sheets															
Project Name	Plot ID	MY	Scientific Name	Common Name	Tree or Shrub	Wetland Indicator Status	I	Approval	Planted or Volunteer	Height	X	Y	Fixed or Random	Age	Monitoring Date
Odell's House	4	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.9	0.8	3.2	F	0	3/23/2021
Odell's House	4	0	Asimina triloba	pawpaw	Tree	FAC	N	Approved Mit Plan	Planted	2.6	0.5	6.4	F	0	3/23/2021
Odell's House	4	0	Asimina triloba	pawpaw	Tree	FAC	N	Approved Mit Plan	Planted	2.3	3	6.5	F	0	3/23/2021
Odell's House	4	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	2.4	5.8	6.7	F	0	3/23/2021
Odell's House	4	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.6	8.1	6.3	F	0	3/23/2021
Odell's House	4	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.8	8.5	9.3	F	0	3/23/2021
Odell's House	4	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.2	6.2	9.7	F	0	3/23/2021
Odell's House	4	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	1.5	5.1	8.5	F	0	3/23/2021
Odell's House	4	0	Carpinus caroliniana	American hornbeam	Tree	FAC	N	Approved Mit Plan	Planted	1.2	3.4	8.6	F	0	3/23/2021
Odell's House	4	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	1.1	0.5	9.2	F	0	3/23/2021
Odell's House	4	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.3	4.2	5.2	F	0	3/23/2021
Odell's House	4	0	Hamamelis virginiana	American witchhazel	Tree	FACU	N	Approved Mit Plan	Planted	1.3	7.1	1.8	F	0	3/23/2021
Odell's House	5	0	Diospyros virginiana	common persimmon	Tree	FAC	N	Approved Mit Plan	Planted	1.6	1.2	0.6	F	0	3/23/2021
Odell's House	5	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	1.6	4	1.4	F	0	3/23/2021
Odell's House	5	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2.4	6.6	0.4	F	0	3/23/2021
Odell's House	5	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.8	9.4	0.8	F	0	3/23/2021
Odell's House	5	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.3	4.2	3.3	F	0	3/23/2021
Odell's House	5	0	Lindera benzoin	northern spicebush	Tree	FACW	N	Approved Mit Plan	Planted	1.2	1.6	2.8	F	0	3/23/2021
Odell's House	5	0	Asimina triloba	pawpaw	Tree	FAC	N	Approved Mit Plan	Planted	2.6	2.1	5.2	F	0	3/23/2021
Odell's House	5	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	1.4	6.1	5.5	F	0	3/23/2021
Odell's House	5	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	1.9	8.7	4.9	F	0	3/23/2021
Odell's House	5	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.7	9.4	8.3	F	0	3/23/2021
Odell's House	5	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.1	6.8	8.6	F	0	3/23/2021
Odell's House	5	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.8	3.9	8	F	0	3/23/2021
Odell's House	5	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.4	1.8	7.3	F	0	3/23/2021
Odell's House	5	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.4	2	9.6	F	0	3/23/2021
Odell's House	6	0	Diospyros virginiana	common persimmon	Tree	FAC	N	Approved Mit Plan	Planted	1.4	0.4	0.1	F	0	3/23/2021
Odell's House	6	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	2.3	0.4	2.1	F	0	3/23/2021
Odell's House	6	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	2	1	4.5	F	0	3/23/2021
Odell's House	6	0	Fraxinus pennsylvanica	green ash	Tree	FACW	N	Approved Mit Plan	Planted	1.5	3.1	3.6	F	0	3/23/2021
Odell's House	6	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1.5	2.3	2.2	F	0	3/23/2021
Odell's House	6	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2	2.1	0.1	F	0	3/23/2021
Odell's House	6	0	Fraxinus pennsylvanica	green ash	Tree	FACW	N	Approved Mit Plan	Planted	1.3	4	0	F	0	3/23/2021
Odell's House	6	0	Corylus americana	American hazelnut	Shrub	FACU	N	Approved Mit Plan	Planted	1.2	4.4	0	F	0	3/23/2021
Odell's House	6	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1	5	4.4	F	0	3/23/2021
Odell's House	6	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	2.9	7.4	3.7	F	0	3/23/2021
Odell's House	6	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	1	6.8	2.8	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.8	5.7	0.3	F	0	3/23/2021
Odell's House	6	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.5	6.6	0.2	F	0	3/23/2021
Odell's House	6	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	0.4	8.5	2.1	F	0	3/23/2021
Odell's House	6	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.9	9.4	3.9	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.4	10.5	2	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	3.1	10.2	0.3	F	0	3/23/2021
Odell's House	6	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2.4	12.2	0.1	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.6	12.6	1.8	F	0	3/23/2021
Odell's House	6	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.6	11.5	3.6	F	0	3/23/2021
Odell's House	6	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.9	13.5	3.4	F	0	3/23/2021
Odell's House	6	0	Quercus nigra	water oak	Tree	FAC	N	Approved Mit Plan	Planted	1.5	15.4	3.3	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.1	14.7	1.8	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	3.6	14.2	0.1	F	0	3/23/2021
Odell's House	6	0	Fraxinus pennsylvanica	green ash	Tree	FACW	N	Approved Mit Plan	Planted	1.6	16.1	0.3	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.1	16.4	1.6	F	0	3/23/2021
Odell's House	6	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2.4	17.3	3.9	F	0	3/23/2021
Odell's House	6	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.7	18.2	2.5	F	0	3/23/2021
Odell's House	6	0	Fraxinus pennsylvanica	green ash	Tree	FACW	N	Approved Mit Plan	Planted	2	18.2	0.5	F	0	3/23/2021

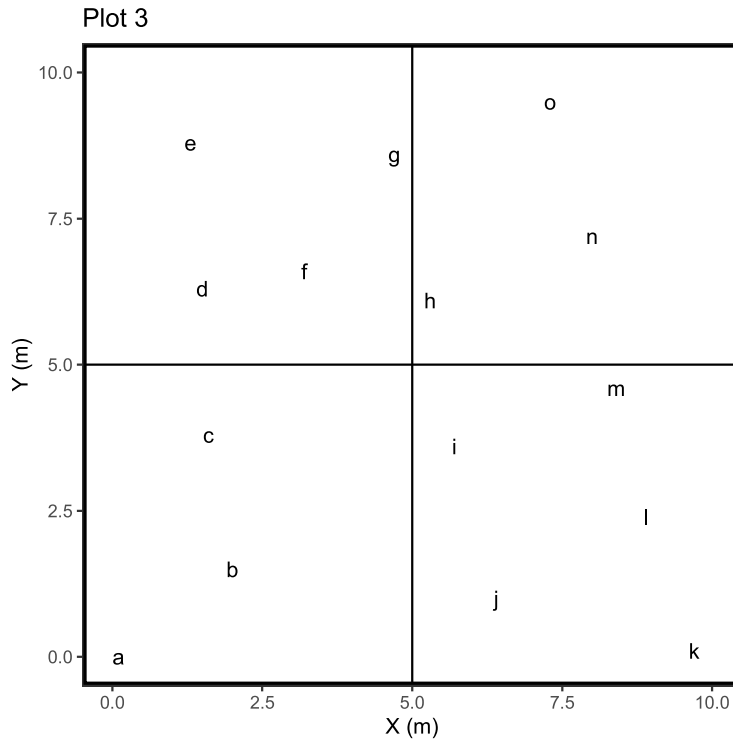
Vegetation Plot Monitoring Data Sheets															
Project Name	Plot ID	MY	Scientific Name	Common Name	Tree or Shrub	Wetland Indicator Status	I	Approval	Planted or Volunteer	Height	X	Y	Fixed or Random	Age	Monitoring Date
Odell's House	6	0	Quercus michauxii	swamp chestnut oak	Tree	FACW	N	Approved Mit Plan	Planted	2	19.9	4.3	F	0	3/23/2021
Odell's House	7	0	Carpinus caroliniana	American hornbeam	Tree	FAC	N	Approved Mit Plan	Planted	1.5	0.5	0.3	F	0	3/23/2021
Odell's House	7	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.9	2.9	0.6	F	0	3/23/2021
Odell's House	7	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	3	6.5	0.7	F	0	3/23/2021
Odell's House	7	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.1	9	0.2	F	0	3/23/2021
Odell's House	7	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.7	7.2	2.2	F	0	3/23/2021
Odell's House	7	0	Betula nigra	river birch	Tree	FACW	N	Approved Mit Plan	Planted	2.4	4.9	2.4	F	0	3/23/2021
Odell's House	7	0	Corylus americana	American hazelnut	Shrub	FACU	N	Approved Mit Plan	Planted	0.9	2.4	2.6	F	0	3/23/2021
Odell's House	7	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.1	0.3	2.7	F	0	3/23/2021
Odell's House	7	0	Lindera benzoin	northern spicebush	Tree	FACW	N	Approved Mit Plan	Planted	0.9	0.9	4.9	F	0	3/23/2021
Odell's House	7	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	3.1	3.3	4.7	F	0	3/23/2021
Odell's House	7	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2	5.7	4.9	F	0	3/23/2021
Odell's House	7	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	2.4	7.6	4.3	F	0	3/23/2021
Odell's House	7	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.6	9.7	6.6	F	0	3/23/2021
Odell's House	7	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.9	7.4	6.7	F	0	3/23/2021
Odell's House	7	0	Platanus occidentalis	American sycamore	Tree	FACW	N	Approved Mit Plan	Planted	1.4	5.5	7.4	F	0	3/23/2021
Odell's House	7	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.5	3.1	7.1	F	0	3/23/2021
Odell's House	7	0	Quercus pagoda	cherrybark oak	Tree	FACW	N	Approved Mit Plan	Planted	1	0.9	7.1	F	0	3/23/2021
Odell's House	7	0	Quercus phellos	willow oak	Tree	FACW	N	Approved Mit Plan	Planted	1.9	0.8	9.4	F	0	3/23/2021
Odell's House	7	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	2.7	3.2	9.2	F	0	3/23/2021
Odell's House	7	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	1.8	5.9	9.4	F	0	3/23/2021
Odell's House	7	0	Liriodendron tulipifera	tuliptree	Tree	FACU	N	Approved Mit Plan	Planted	4	8	8.9	F	0	3/23/2021



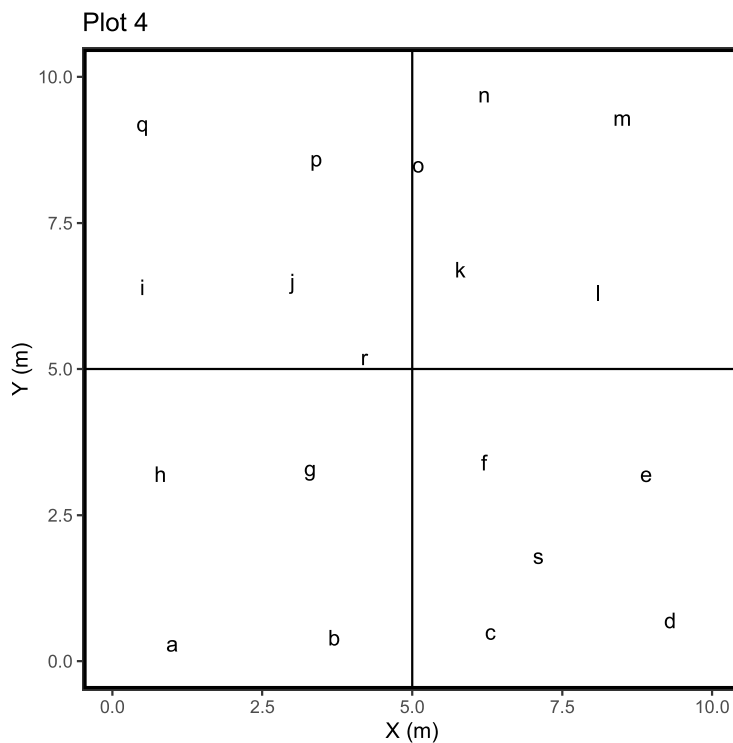
Plot ID	Scientific Name	Common Name	Map ID
1	Liriodendron tulipifera	tuliptree	a
1	Platanus occidentalis	American sycamore	b
1	Liriodendron tulipifera	tuliptree	c
1	Platanus occidentalis	American sycamore	d
1	Quercus nigra	water oak	e
1	Quercus phellos	willow oak	f
1	Liriodendron tulipifera	tuliptree	g
1	Betula nigra	river birch	h
1	Carpinus caroliniana	American hornbeam	i
1	Hamamelis virginiana	American witchhazel	j
1	Fraxinus pennsylvanica	green ash	k
1	Quercus michauxii	swamp chestnut oak	l
1	Quercus michauxii	swamp chestnut oak	m
1	Platanus occidentalis	American sycamore	n
1	Platanus occidentalis	American sycamore	o
1	Liriodendron tulipifera	tuliptree	p
1	Carpinus caroliniana	American hornbeam	q



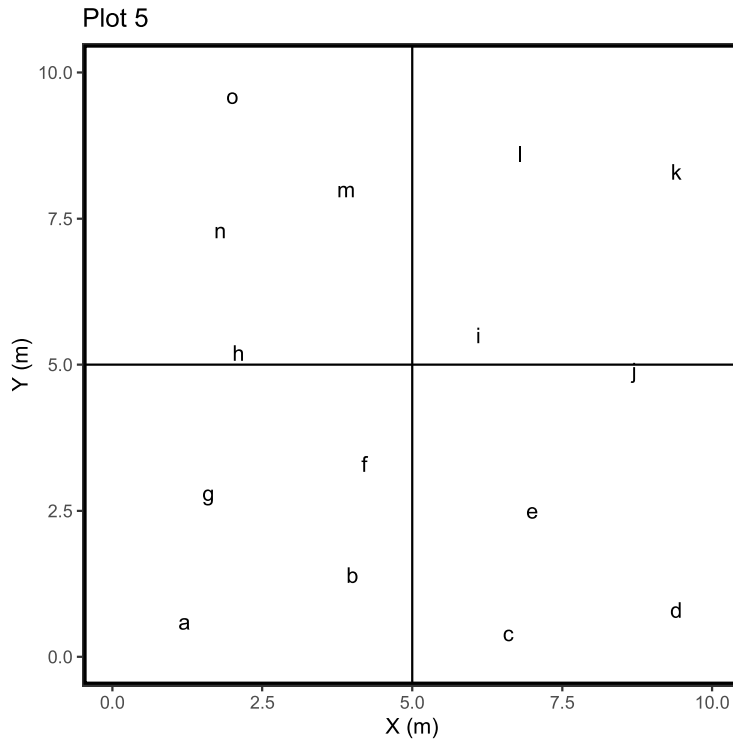
Plot ID	Scientific Name	Common Name	Map ID
2	Quercus pagoda	cherrybark oak	a
2	Quercus pagoda	cherrybark oak	b
2	Hamamelis virginiana	American witchhazel	c
2	Betula nigra	river birch	d
2	Quercus pagoda	cherrybark oak	e
2	Betula nigra	river birch	f
2	Asimina triloba	pawpaw	g
2	Corylus americana	American hazelnut	h
2	Platanus occidentalis	American sycamore	i
2	Liriodendron tulipifera	tuliptree	j
2	Liriodendron tulipifera	tuliptree	k
2	Quercus michauxii	swamp chestnut oak	l
2	Hamamelis virginiana	American witchhazel	m
2	Quercus michauxii	swamp chestnut oak	n
2	Platanus occidentalis	American sycamore	o
2	Lindera benzoin	northern spicebush	p



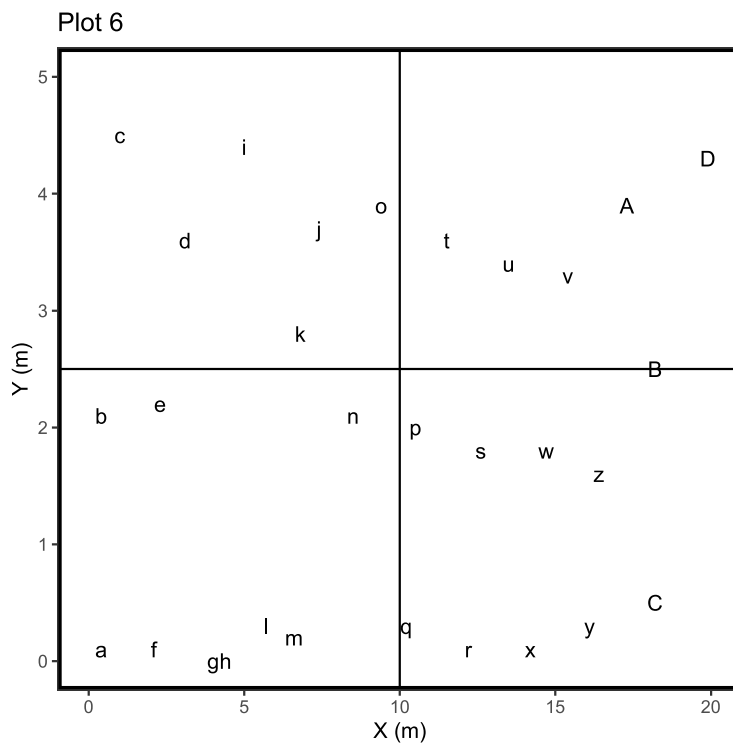
Plot ID	Scientific Name	Common Name	Map ID
3	<i>Platanus occidentalis</i>	American sycamore	a
3	<i>Hamamelis virginiana</i>	American witchhazel	b
3	<i>Quercus phellos</i>	willow oak	c
3	<i>Platanus occidentalis</i>	American sycamore	d
3	<i>Asimina triloba</i>	pawpaw	e
3	<i>Platanus occidentalis</i>	American sycamore	f
3	<i>Liriodendron tulipifera</i>	tuliptree	g
3	<i>Quercus pagoda</i>	cherrybark oak	h
3	<i>Liriodendron tulipifera</i>	tuliptree	i
3	<i>Liriodendron tulipifera</i>	tuliptree	j
3	<i>Quercus phellos</i>	willow oak	k
3	<i>Platanus occidentalis</i>	American sycamore	l
3	<i>Liriodendron tulipifera</i>	tuliptree	m
3	<i>Betula nigra</i>	river birch	n
3	<i>Quercus nigra</i>	water oak	o



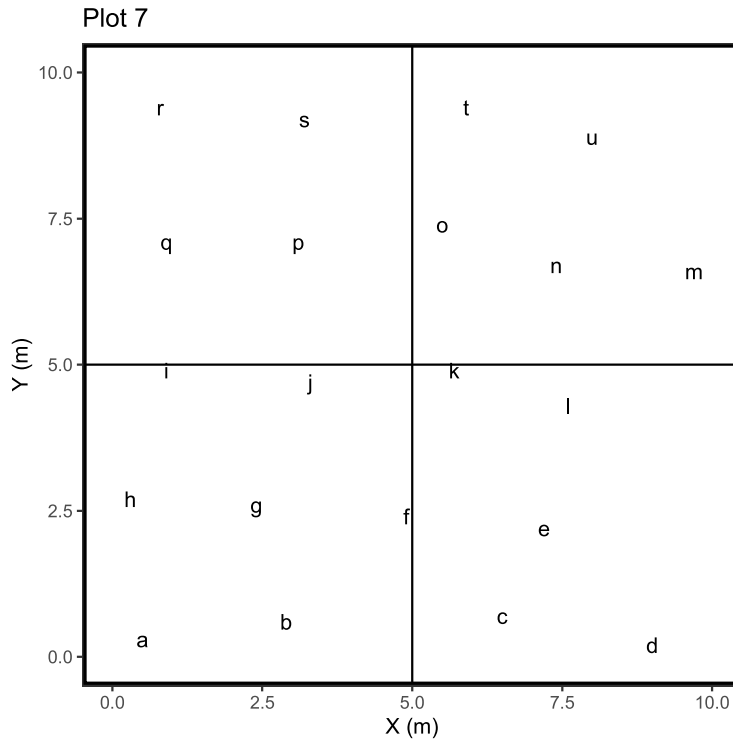
Plot ID	Scientific Name	Common Name	Map ID
4	<i>Quercus phellos</i>	willow oak	a
4	<i>Liriodendron tulipifera</i>	tuliptree	b
4	<i>Carpinus caroliniana</i>	American hornbeam	c
4	<i>Quercus pagoda</i>	cherrybark oak	d
4	<i>Quercus pagoda</i>	cherrybark oak	e
4	<i>Platanus occidentalis</i>	American sycamore	f
4	<i>Carpinus caroliniana</i>	American hornbeam	g
4	<i>Liriodendron tulipifera</i>	tuliptree	h
4	<i>Asimina triloba</i>	pawpaw	i
4	<i>Asimina triloba</i>	pawpaw	j
4	<i>Quercus phellos</i>	willow oak	k
4	<i>Platanus occidentalis</i>	American sycamore	l
4	<i>Liriodendron tulipifera</i>	tuliptree	m
4	<i>Liriodendron tulipifera</i>	tuliptree	n
4	<i>Betula nigra</i>	river birch	o
4	<i>Carpinus caroliniana</i>	American hornbeam	p
4	<i>Quercus nigra</i>	water oak	q
4	<i>Platanus occidentalis</i>	American sycamore	r
4	<i>Hamamelis virginiana</i>	American witchhazel	s



Plot ID	Scientific Name	Common Name	Map ID
5	<i>Diospyros virginiana</i>	common persimmon	a
5	<i>Liriodendron tulipifera</i>	tuliptree	b
5	<i>Quercus michauxii</i>	swamp chestnut oak	c
5	<i>Platanus occidentalis</i>	American sycamore	d
5	<i>Liriodendron tulipifera</i>	tuliptree	e
5	<i>Quercus phellos</i>	willow oak	f
5	<i>Lindera benzoin</i>	northern spicebush	g
5	<i>Asimina triloba</i>	pawpaw	h
5	<i>Liriodendron tulipifera</i>	tuliptree	i
5	<i>Quercus nigra</i>	water oak	j
5	<i>Platanus occidentalis</i>	American sycamore	k
5	<i>Liriodendron tulipifera</i>	tuliptree	l
5	<i>Liriodendron tulipifera</i>	tuliptree	m
5	<i>Liriodendron tulipifera</i>	tuliptree	n
5	<i>Liriodendron tulipifera</i>	tuliptree	o



Plot ID	Scientific Name	Common Name	Map ID
6	<i>Diospyros virginiana</i>	common persimmon	a
6	<i>Quercus phellos</i>	willow oak	b
6	<i>Quercus phellos</i>	willow oak	c
6	<i>Fraxinus pennsylvanica</i>	green ash	d
6	<i>Quercus pagoda</i>	cherrybark oak	e
6	<i>Platanus occidentalis</i>	American sycamore	f
6	<i>Fraxinus pennsylvanica</i>	green ash	g
6	<i>Corylus americana</i>	American hazelnut	h
6	<i>Quercus phellos</i>	willow oak	i
6	<i>Quercus nigra</i>	water oak	j
6	<i>Quercus nigra</i>	water oak	k
6	<i>Betula nigra</i>	river birch	l
6	<i>Platanus occidentalis</i>	American sycamore	m
6	<i>Quercus pagoda</i>	cherrybark oak	n
6	<i>Platanus occidentalis</i>	American sycamore	o
6	<i>Betula nigra</i>	river birch	p
6	<i>Betula nigra</i>	river birch	q
6	<i>Quercus michauxii</i>	swamp chestnut oak	r
6	<i>Betula nigra</i>	river birch	s
6	<i>Platanus occidentalis</i>	American sycamore	t
6	<i>Platanus occidentalis</i>	American sycamore	u
6	<i>Quercus nigra</i>	water oak	v
6	<i>Betula nigra</i>	river birch	w
6	<i>Betula nigra</i>	river birch	x
6	<i>Fraxinus pennsylvanica</i>	green ash	y
6	<i>Betula nigra</i>	river birch	z
6	<i>Quercus michauxii</i>	swamp chestnut oak	A
6	<i>Betula nigra</i>	river birch	B
6	<i>Fraxinus pennsylvanica</i>	green ash	C
6	<i>Quercus michauxii</i>	swamp chestnut oak	D



Plot ID	Scientific Name	Common Name	Map ID
7	<i>Carpinus caroliniana</i>	American hornbeam	a
7	<i>Platanus occidentalis</i>	American sycamore	b
7	<i>Platanus occidentalis</i>	American sycamore	c
7	<i>Betula nigra</i>	river birch	d
7	<i>Quercus phellos</i>	willow oak	e
7	<i>Betula nigra</i>	river birch	f
7	<i>Corylus americana</i>	American hazelnut	g
7	<i>Platanus occidentalis</i>	American sycamore	h
7	<i>Lindera benzoin</i>	northern spicebush	i
7	<i>Liriodendron tulipifera</i>	tuliptree	j
7	<i>Platanus occidentalis</i>	American sycamore	k
7	<i>Platanus occidentalis</i>	American sycamore	l
7	<i>Quercus phellos</i>	willow oak	m
7	<i>Quercus phellos</i>	willow oak	n
7	<i>Platanus occidentalis</i>	American sycamore	o
7	<i>Liriodendron tulipifera</i>	tuliptree	p
7	<i>Quercus pagoda</i>	cherrybark oak	q
7	<i>Quercus phellos</i>	willow oak	r
7	<i>Liriodendron tulipifera</i>	tuliptree	s
7	<i>Liriodendron tulipifera</i>	tuliptree	t
7	<i>Liriodendron tulipifera</i>	tuliptree	u