MY-0 As-Built Baseline Monitoring Report

White Mitigation Project
Randolph County, NC

NCDMS Project No. 100112

NC DWR Project No. 2019-0884

Randleman Lake Watershed
12 Digit HUC: 030300030106

Data Collected: March 12, 2021
Report Submitted: March 29, 2021

Prepared for:

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

Prepared by:

HDR Engineering
555 Fayetteville Street, Suite 900
Raleigh, NC 27601-3034

Land Management Group Contributing Staff: Ben Furr, Ryan Smith, Alex DiGeronimo, Chris Smith, Yvette Mariotte, Michael Foster, Kevin Williams

This As-Built Baseline Monitoring Report has been written in conformance with the requirements of the following:

NCAC rule 15A NCAC 02B .0295, effective November 1, 2015 and Nutrients Offset Credit Trading 15A NCAC 02B. 0703, effective April 1, 2020 and DWR – 1998, Methodology and Calculations for determining Nutrient Reductions associated with Riparian Buffer Establishment.

Contents

Figures

Tables

Appendices

1.0 Project Summary

1.1 Location and Background Information

The White Mitigation Project (Site) was selected by the NC Division of Mitigation Services (DMS) to provide Buffer Mitigation Units (BMUs) in the Randleman Lake Watershed (Hydrologic Unit Code 030300030106) (Figure 1). The Randleman Lake Watershed is located within the larger Cape Fear River Basin (Hydrologic Unit Code 03030003). The Site is located within the Southern Outer Piedmont, approximately 2.9 miles southeast of Archdale, NC (Figure 2). The 12.2 acre Site involved restoration and enhancement of 504,075 square feet of riparian buffers along Unnamed Tributary to (UT) Muddy Creek (UT MC) (UT MC, Index #17-9-(1)) and UT 1, UT 2, and UT 5 that were previously active cattle pasture (Table 1 and Figure 3).

Directions to the Site:

From Raleigh-Durham International Airport: I-40 west for 61.6 miles; keep left for I-85 S, go 17.6 miles to exit 113; turn left onto NC-62, go .2 miles; turn right onto Weant Rd, go to end; turn right onto Suits Rd, the project site will be on the left.

The final mitigation plan was submitted and accepted by North Carolina Division of Water Resources in November of 2020. Construction began in December 2020 and finished in March of 2021. Site planting finalized in February of 2021. LMG provided construction oversight services for the Site. LMG completed baseline vegetation monitoring on March 12, 2021.

Completed project activities, reporting history, completion dates, project contacts, and background information is summarized in Tables 2, 3, and 4 of Appendix A.

1.2 Project Goals and Objectives

The following goals and objectives address the primary issues within the watershed and assist DMS in meeting planning goals.

Primary goals for the Site, as detailed in the White Mitigation Project Mitigation Plan (HDR 2020) include:

1. Reduce water quality stressors associated with nutrient, sediment, and pathogen loading.
2. Enhance terrestrial and aquatic habitat.

The following objectives accomplish the goals listed above:

1. Reducing water quality stressors is directly tied to the following:
    a) Reducing non-point source (i.e., cattle accessing the channels, stormwater runoff through pastures and feeding stations) pollution associated with on-site agricultural operations from the installation of exclusionary fencing to remove cattle and machinery from on-site streams and riparian buffers.
    b) Reducing non-point pollution associated with on-site agricultural operations by the restoration and enhancement of riparian vegetative buffers on adjacent floodplains to treat surface water runoff from adjacent pastureland.
    c) Further removal of agricultural equipment and cattle by providing and improving culverted agricultural crossings.
    d) Treatment of pollution associated with off-site agricultural, institutional, and residential properties by the restoration and enhancement of riparian vegetative buffers on-site to attenuate nutrient and sediment laden floodwaters.

2. Enhancement of terrestrial and aquatic habitat is directly tied to
   a) Restoration of native vegetation to the previously maintained and highly impacted riparian corridors in order to diversify flora and created a protected habitat corridor that provides an abundance of available foraging and cover habitat for a multitude of mammals and birds. Additionally, establishment of woody vegetation in the riparian corridor provides direct inputs of woody debris to adjacent conveyances that assist in increasing biomass and cover habitat for aquatic species.

2.0 Success Criteria

The Site will be evaluated based upon the density and growth of characteristic forest species. Upon project closeout, the Site must demonstrate an average stem density of 260 stems per acre. No one, individual species may account for greater than 50 percent of recorded stems. A minimum of four native hardwood tree species must be present. Native and desirable hardwood volunteer species may be included to meet the final performance standard of 260 stems per acre upon DWR approval (Title 15A NCAC 02B .0295).

Should an abundance of any non-planted exotic, invasive or nuisance species be identified during visual assessments, it will be noted in the Annual Monitoring Report. If exotic, invasive or nuisance species appear to be hindering survival of planted stems, a Plan of Corrective Action will be determined in concurrence with NCDMS and NCDWR, as detailed in Section 4.2.

3.0 As-Built State

This section documents the as-built/baseline condition. Table 6 details specific vegetative data in relation to the as-built conditions (Appendix B). As-built/baseline drawings and planted stem quantities are included in Appendix C.

In December 2020, approximately 1,830 feet of vertical, eroding stream bank was stabilized by grading the bank at a 2.5:1 slope, spreading of seed and straw over the disturbed area, and installation of coir fiber matting (As-Built Plansheets 2 through 5). In addition to bank stabilization, approximately 1,256 feet of channel bank within the conservation easement was cleared and treated for Chinese privet (*Ligustrum sinense*) and multiflora rose (*Rosa multiflora*). Stumps were treated with an herbicide application to deter future colonization. Root masses were left intact to maintain structure and stability within the channel banks. In February of 2021, livestakes and streamside assemblage bare root species were planted on 4-foot spacings throughout the bank stabilization and invasive species removal areas.

Three crossings were installed during the course of construction to maintain agricultural operations on lands adjacent to the conservation easement. The downstream crossing on UT 2 was upfitted with a 30 inch diameter corrugated plastic pipe (As-Built Plansheet 4). A 36 inch diameter corrugated plastic pipe crossing was installed on UT MC to maintain access to the pasture south of UT MC (As-Built Plansheet 5). Lastly, a ford crossing was installed at the upstream extent of UT 1 to maintain access to the pasture immediately north of Highway 311 (As-Built Plansheet 2). Two crossings were removed during construction, one at the upstream extent of UT 2 and one along UT MC. Stream banks were graded at each location to match channel dimensions upstream and downstream of the old crossings. Newly graded banks were stabilized with seed, straw, and coir fiber mat. Livestakes and bare roots were then planted to provide permanent stabilization. Exclusionary cattle fencing was installed in March 2021.

Buffer restoration areas were planted with bare root species characteristic of a Piedmont/Low Mountain Alluvial Forest (Schafale and Weakley, 1990). Planting rows were ripped to loosen compacted soils in an effort to enhance planted stem survivability. Ripped rows were sprayed with an herbicide treatment to limit fescue growth around planted stems. Bare roots were planted on an eight foot spacing, corresponding to approximately 680 stems per acre. It is anticipated that other characteristic species will recruit naturally into these areas in upcoming monitoring years.

Buffer restoration and enhancement activities outlined in the Mitigation Plan were conducted successfully. Baseline vegetation monitoring was completed on March 12th, 2021. Table 6 in Appendix B summarizes the planted stem density for each monitoring plot.

3.1 Deviations from Mitigation Plansheets

A ford crossing was installed at the upstream extent of UT 1 in place of the proposed 24 inch corrugated plastic pipe crossing with concrete bag headwall (see As-Built Plansheet 2 in Appendix C). This substitution was made to accommodate a utility pole that was anchored via a guywire in the middle of the proposed crossing. Sixteen-foot (16 ft) gates were installed on each side of the crossing to prevent cattle access to the channel when not in use.

Upon the As-Built survey, two areas that were proposed for buffer restoration in the Mitigation Plan (HDR 2020) have been removed resulting in a reduction of 5,098 square feet of creditable area. After the easement corners were marked and fencing was installed, it was evident that two portions of the easement area extended into the existing wood line and did not qualify for buffer restoration. The boundary of the two areas were delineated and the Asset Map (Figure 3) and Project Credits table (Table 1) were revised per the As-Built condition.

4.0 Monitoring Plan Guidelines and Maintenance

4.1 Annual Monitoring Plan

Monitoring of the parameters listed in Table 5 (Appendix A) will be conducted and reported annually for a total of five (5) years or until success criteria are met. Ten (10) permanent vegetation plots (totaling more than 2 percent of the planted area on Site) within the buffer restoration area will be monitored using the Carolina Vegetation (CVS) protocols. Vegetative problem areas, invasive species, and project boundary encroachments will be mapped and included as part of the annual monitoring reports. Year 1 vegetation survey is anticipated to occur in September 2021.

4.2 Adaptive Management Plan

If the Site's ability to achieve performance standards are jeopardized during the course of monitoring, HDR will notify NCDMS of the need to develop a Plan of Corrective Action. Once the Plan of Corrective Action is prepared and finalized HDR will:

1. Notify NCDMS
2. Revise performance standards, maintenance requirements, and monitoring requirements as necessary and/or required by NCDWR
3. Obtain permits, as necessary
4. Implement the Corrective Action Plan
5. Provide NCDMS and NCDWR with a Record Drawing of Corrective Actions. This document shall depict the extent and nature of the work performed.

5.0 References

HDR Engineering 2020. Mitigation Plan White Mitigation Project. Randolph County, North Carolina. October 29, 2020.

Lee, Michael & Peet, Robert & D. Roberts, Steven & Wentworth, Thomas. 2018. *CVS-EEP Protocol for Recording Vegetation All Levels of Plot Sampling, Version 4.2*.

North Carolina Administrative Code (NCAC). Title 15A – Environmental Quality. Chapter 02 – Environmental Management. SubChapter B. 15A NCAC 02B .0295. *Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers.* Accessed on September 20, 2019. http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2002%20-%20environmental%20management/subchapter%20b/15a%20ncac%2002b%20.0295.pdf

Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation, North Carolina Department of Environment, Health, and Natural Resources. Raleigh, North Carolina.

Appendix A – Background Tables and Figures

Table 2. White Farms Buffer Mitigation Site, DMS Project No. 100112, Project Credits

Cape Fear - Randleman	**Project Area**
N/A	**N Credit Conversion Ratio (ft^2/pound)**
N/A	**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	UT to Muddy Creek, UT1, UT2, UT5	450,765	445,035	1	100%	1.00000	Yes	445,035.000	N/A	–	–
Buffer	Rural	Yes	I / P	Restoration	101-200	UT to Muddy Creek, UT1, UT2, UT5	46,268	45,924	1	33%	3.03030	Yes	15,154.935	N/A	–	–
Buffer	Rural	Yes	I / P	Enhancement via Cattle Exclusion	0-100	UT to Muddy Creek, UT5	13,174	13,116	2	100%	2.00000	Yes	6,558.000	N/A	–	–
													–		–	–
													–		–	–
													–		–	–
													–		–	–
													–		–	–
						Totals:	510,207	504,075								

Enter Preservation Credits Below — **Eligible for Preservation (ft^2):** 168,025

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:		0.0%				

TOTAL AREA OF BUFFER MITIGATION (TABM)		
Mitigation Totals	**Square Feet**	**Credits**
Restoration:	490,959	460,189.935
Enhancement:	13,116	6,558.000
Preservation:	0	0.000
Total Riparian Buffer:	504,075	466,747.935
TOTAL NUTRIENT OFFSET MITIGATION		
Mitigation Totals	**Square Feet**	**Credits**
Nutrient Offset: Nitrogen:	0	0.000
Nutrient Offset: 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

Table 2. Project Activity and Reporting History

Activity or Report	Data Collection Complete	Completion or Delivery
Mitigation Plan	August 2019	October 2020
Final Design – Planting and Construction Plans	November 2020	November 2020
Construction and Planting	March 2021	March 2021
Mitigation Plan/As-built (Year 0 Monitoring-Baseline)	March 12, 2021	March 22, 2021
Invasive Species Treatment	--	April 22, 2021
Year 1 Monitoring		
Year 2 Monitoring		
Year 3 Monitoring		
Year 4 Monitoring		
Year 5 Monitoring		

Table 3. Project Contacts Table

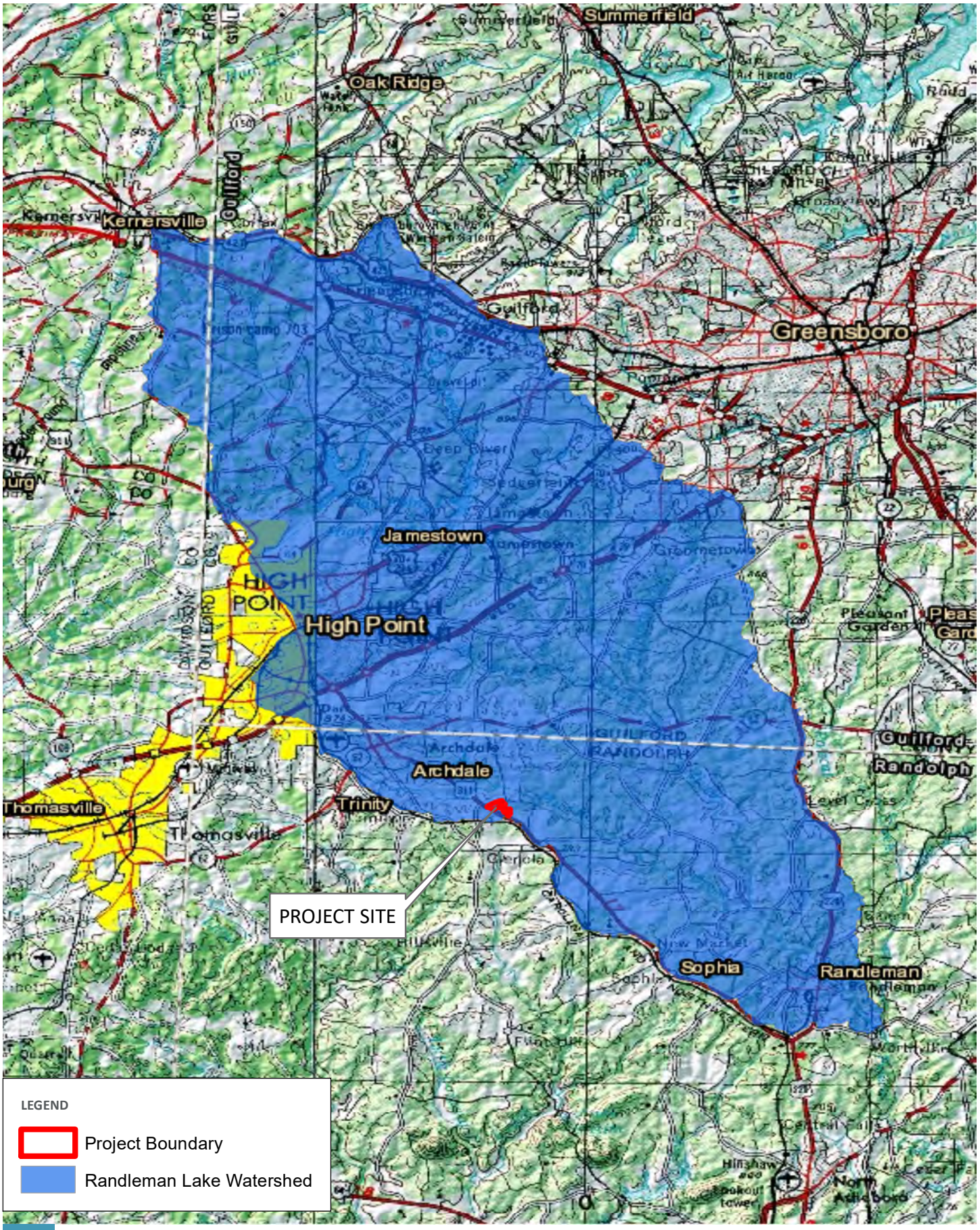
Designer Primary project design POC	HDR Engineering 555 Fayetteville Street, Suite 900 Raleigh, North Carolina 27601-3034 Vickie Miller (919) 232-6600
Construction Contractor Construction Contractor POC	KBS Earthworks, Inc. 5616 Coble Church Rd Julian, NC 27283 Chris Sizemore (336) 362-0289
Planting Contractor Planting Contractor POC	KBS Earthworks, Inc. 5616 Coble Church Rd Julian, NC 27283 Chris Sizemore (336) 362-0289
Monitoring Performers	Land Management Group, Inc 3101 Poplarwood Court Raleigh, North Carolina 27604
Vegetation Monitoring POC	Land Management Group, Inc 3101 Poplarwood Court Raleigh, North Carolina 27604 Alex DiGeronimo (843) 830-1536

Table 4. Project Information

Project Attributes	
Project Name	White Mitigation Project
County	Randolph
Project Area (acres)	12.2
Project Coordinates (latitude and longitude)	35.887369, -79.927081
River Basin	Cape Fear (03030003)
Service Area	Randleman Lake Watershed
14 digit HUC	03030003010060
EPA level IV Ecoregion	Southern Outer Piedmont
BMUs	466,747.935

Table 5. Monitoring Plan Components

Parameter	Monitoring Method	Quantity	Frequency	Notes
Vegetation	CVS Level 2	10 Vegetation plots (10 x 10 meter)	Annual	Vegetation will be monitored using the Carolina Vegetation Survey (CVS) Level 2 protocols. Data to be collected are the following: planted stem density, planted stem height, planted stems ddh or DBH (dependent on height), and planted stem vigor.
Invasive and nuisance vegetation	Visual	---	Semi-annual	Locations of exotic and nuisance vegetation will be mapped and treated, as necessary.
Fescue	Visual	--	Semi-annual	Areas of dense fescue will be mapped and treated. Fescue will be monitored to ensure the survivability of planted stems. Fescue will be spot treated as necessary using herbicide in areas where fescue is outcompeting planted stems.
Project Boundary	Visual	---	Semi-annual	Mapping of fence damage, vegetation damage, boundary encroachments, etc. will be mapped and addressed as necessary



0 4 8

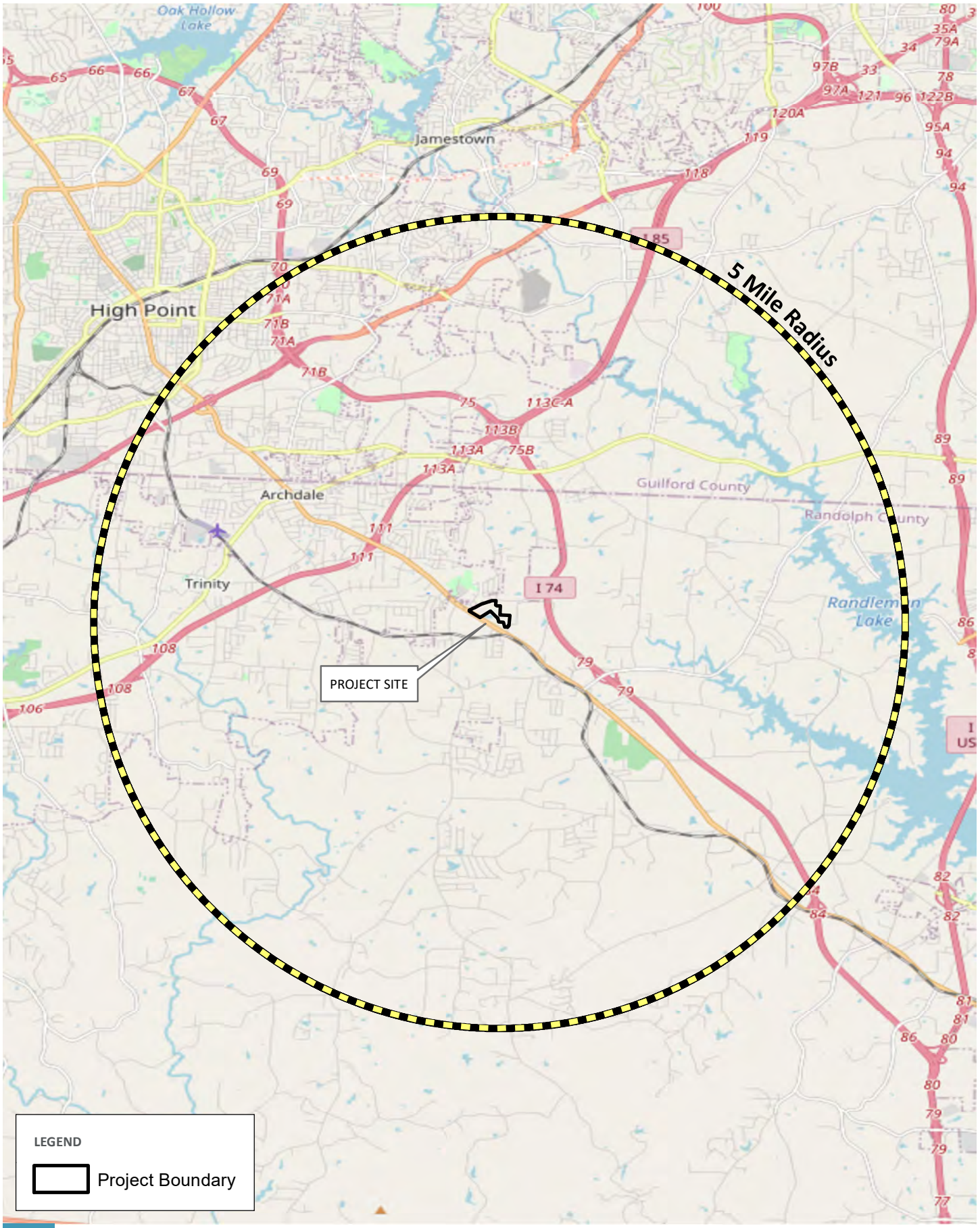
Miles

SERVICE AREA MAP

WHITE MITIGATION PROJECT

RANDOLPH COUNTY, NORTH CAROLINA

FIGURE 1



VICINITY MAP
WHITE MITIGATION PROJECT
RANDOLPH COUNTY, NORTH CAROLINA
FIGURE 2

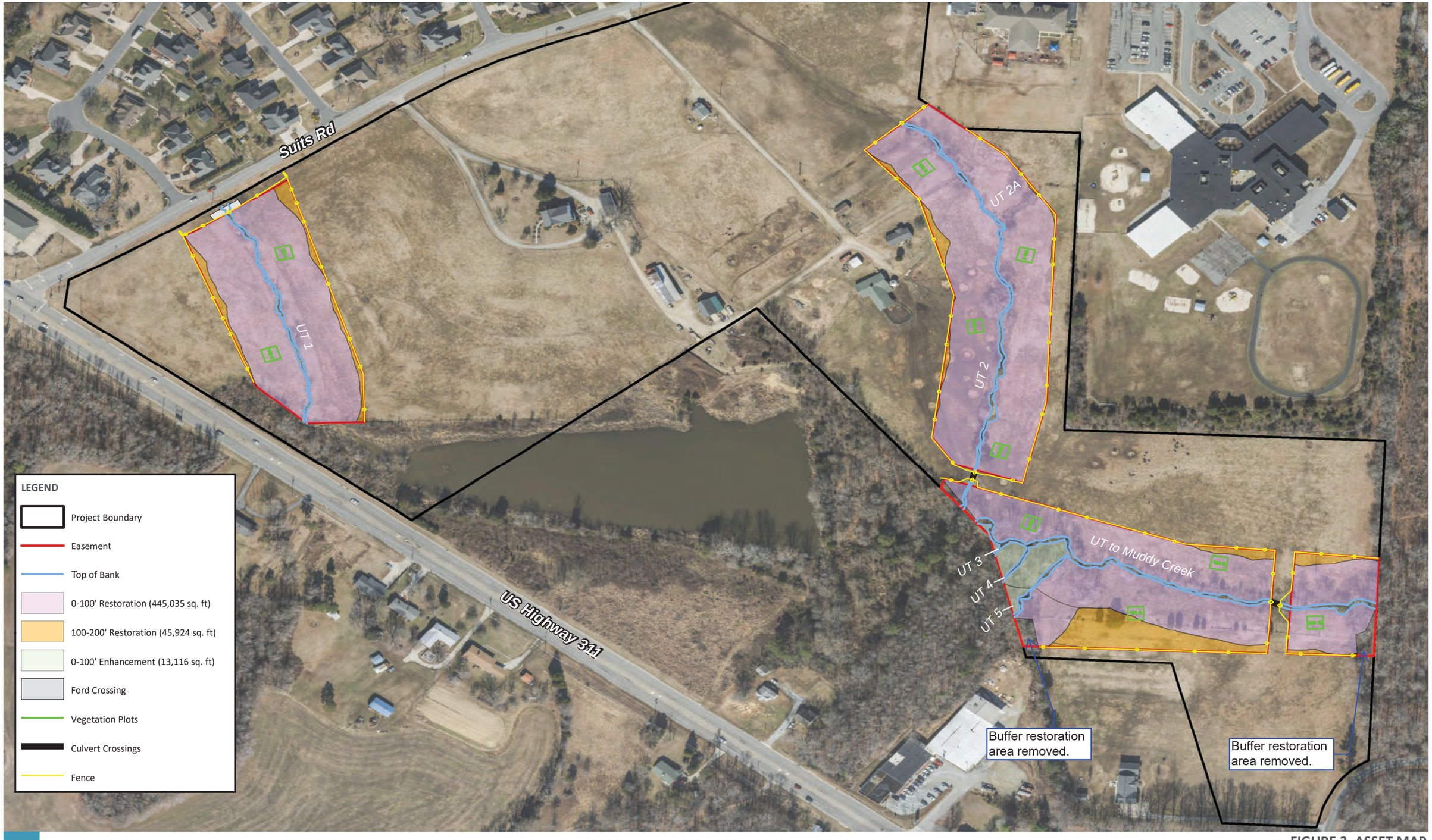


FIGURE 3. ASSET MAP
WHITE MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA

Appendix B – Vegetation Plot Data and Site Photographs

Table 6: Baseline Vegetation Data
EEP Project Code 20.003. Project Name: White Buffer

			Current Plot Data (MY0 2021)																												Annual Means		
			20.003-01-0001			20.003-01-0002			20.003-01-0003			20.003-01-0004			20.003-01-0005			20.003-01-0006			20.003-01-0007			20.003-01-0008			20.003-01-0009			20.003-01-0010			MY0 (2021)		
Scientific Name	Common Name	Species Type	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Betula nigra	river birch	Tree	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	2	2	2	1	1	1	14	14	14
Carpinus caroliniana	American hornbeam	Tree	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	13	13	13
Carya cordiformis	bitternut hickory	Tree	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	13	13	13
Carya ovata	shagbark hickory	Tree	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	11	11	11
Cornus florida	flowering dogwood	Tree	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12
Fraxinus pennsylvanica	green ash	Tree	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	3	3	3	1	1	1	1	1	1	14	14	14
Liriodendron tulipifera	tuliptree	Tree	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	12	12	12
Platanus occidentalis	American sycamore	Tree	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	14	14	14
Quercus nigra	water oak	Tree	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1				2	2	2				10	10	10
Quercus phellos	willow oak	Tree	1	1	1	1	1	1	1	1	1				2	2	2	2	2	2				1	1	1	2	2	2				10	10	10
Salix nigra	black willow	Tree										1	1	1							1	1	1										2	2	2
Ulmus americana	American elm	Tree	3	3	3	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	15	15	15
		Stem count	13	13	13	12	12	12	16	16	16	13	13	13	13	13	13	15	15	15	14	14	14	15	15	15	16	16	16	13	13	13	140	140	140
		size (ares)	1			1			1			1			1			1			1			1			1			1			10		
		size (ACRES)	0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.25		
		Species count	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	11	11	11	9	9	9	12	12	12
		Stems per ACRE	526.1	526.1	526.1	485.6	485.6	485.6	647.5	647.5	647.5	526.1	526.1	526.1	526.1	526.1	526.1	607	607	607	566.6	566.6	566.6	607	607	607	647.5	647.5	647.5	526.1	526.1	526.1	566.6	566.6	566.6

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%

Figures 4.1 - 4.14 Vegetation Plots and Site Photographs

Figure 4.1 Vegetation Plot 1 (2/16/2021)

Figure 4.2 Vegetation Plot 2 (2/16/2021)

Figure 4.3 Vegetation Plot 3 (3/12/2021)

Figure 4.4 Vegetation Plot 4 (3/12/2021)

Figure 4.5 Vegetation Plot 5 (3/12/2021)

Figure 4.6 Vegetation Plot 6 (3/12/2021)

Figures 4.1 - 4.14 Vegetation Plots and Site Photographs

Figure 4.7 Vegetation Plot 7 (3/12/2021)

Figure 4.8 Vegetation Plot 8 (3/12/2021)

Figure 4.9 Vegetation Plot 9 (3/12/2021)

Figure 4.10 Vegetation Plot 10 (3/12/2021)

Figure 4.11 Stabilized Bank Along UT 2 (3/12/2021)

Figure 4.12 Installed Ford Crossing at Upstream Extents of UT 1 (3/12/2021)

Figures 4.1 - 4.14 Vegetation Plots and Site Photographs

Figure 4.13 Installed Crossing Over UT 2 (3/12/2021)

Figure 4.14 Installed Crossing Over UT MC (3/12/2021)

Appendix C – As-Built Plansheets

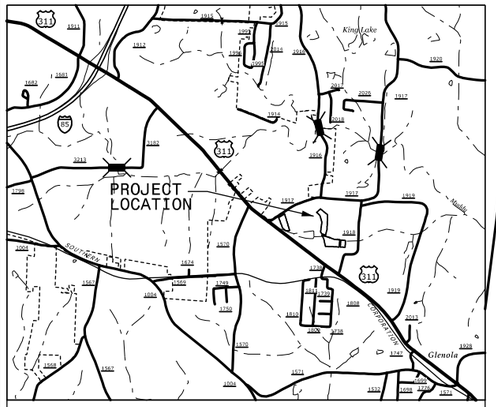
STATE		SHEET NO.
N.C.	WHITE MITIGATION SITE	1

WHITE MITIGATION SITE

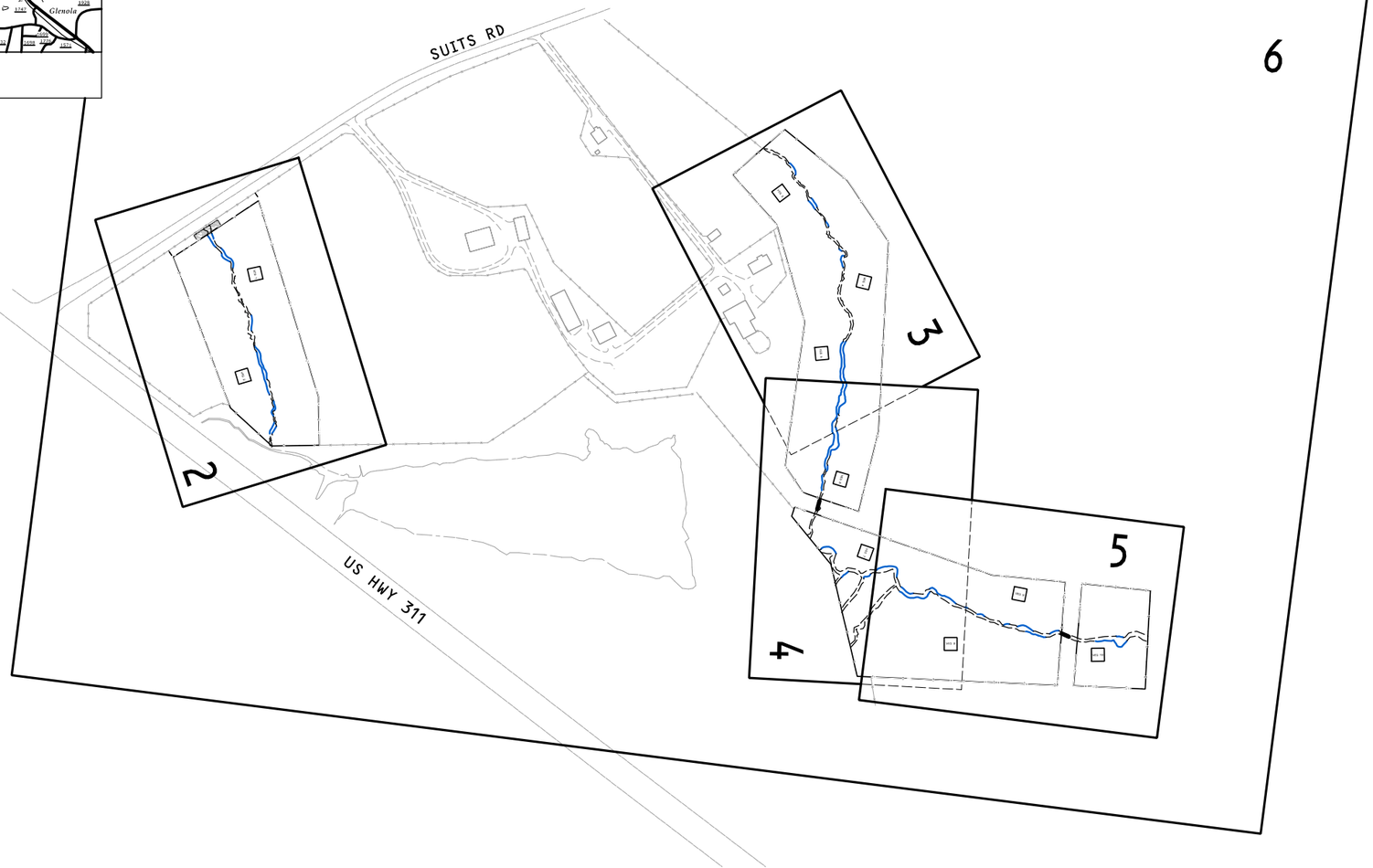
LOCATION: RANDOLPH COUNTY, NORTH CAROLINA

LAT: 35°53' 18" **LONG: -79° 55' 35"**

TYPE OF WORK: AS-BUILT PLANS



VICINITY MAP



LEGEND

- EXISTING FENCE
- EXISTING TOP OF BANK
- EASEMENT — E —
- WOVEN WIRE FENCE
- BARBED WIRE FENCE
- BANK STABILIZATION TOP OF BANK
- 0'-100' BUFFER - RESTORATION
- 100'-200' BUFFER - RESTORATION
- 0'-100' BUFFER - ENHANCEMENT
- 10M X 10M VEG PLOT

CONTRACT: WHITE MITIGATION SITE

GRAPHIC SCALES

PLANS: 25 0 25 50

PROFILE (HORIZONTAL): 10 5 0 10 20

PROFILE (VERTICAL): 20 10 0 20 40

NCDMS PROJECT NO. 100112
NCDWR PROJECT NO. 2019-0884

INDEX OF SHEETS

NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEX D. DIGERONIMO

3/9/2021

ALEX D. DIGERONIMO
PROJECT DESIGNER / ENGINEER
DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared on behalf of:

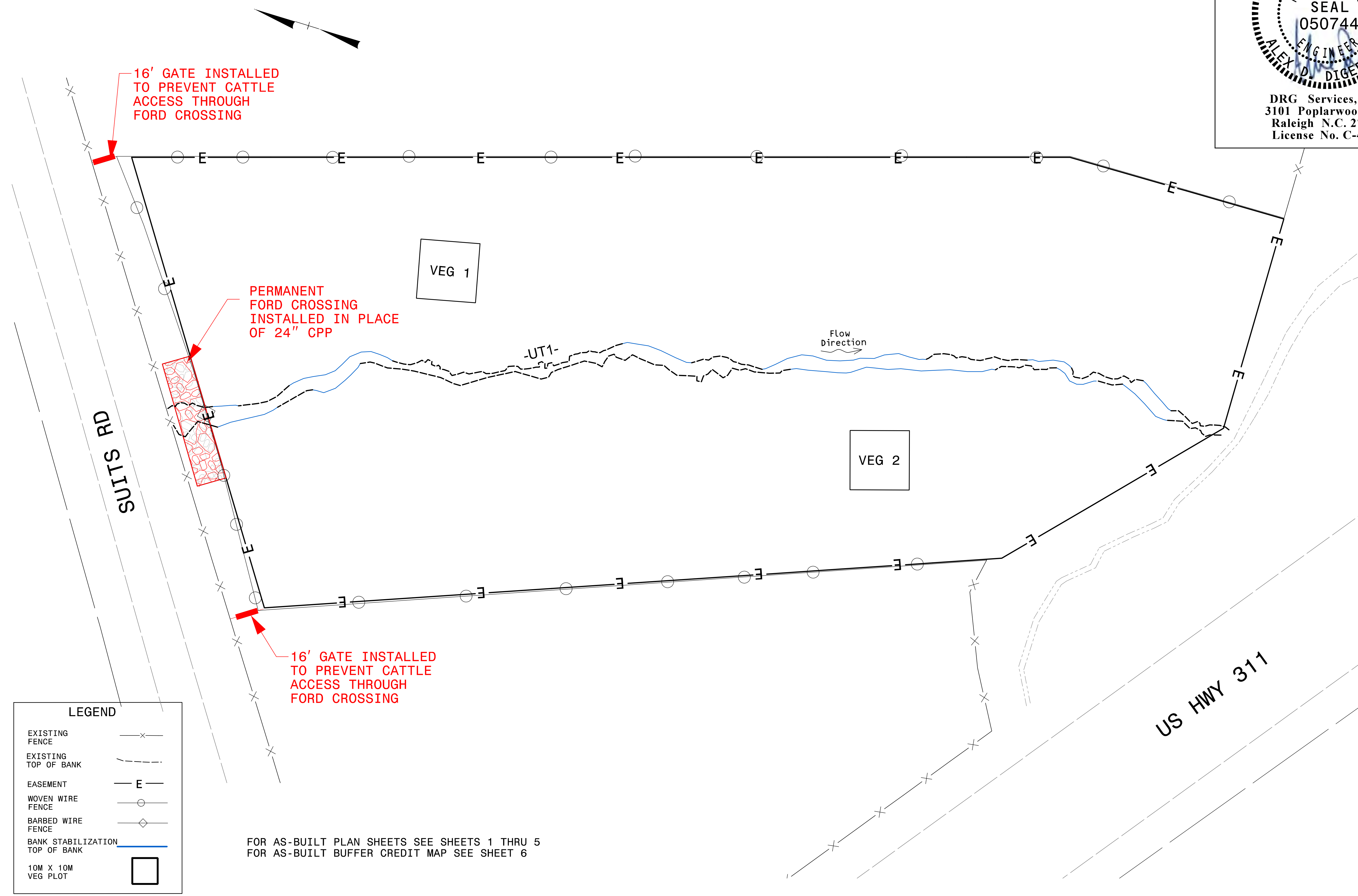
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

Prepared by:

LMG LAND MANAGEMENT GROUP a DAVEY company

4/26/2021
Z:\HDR Projects\White_Buffer_DMS\6.0_CAD\6.5_Proj\6.5.6_Asbuilt Plans\White_psh_asbuilt_01.dgn
-Land Management Group, Raleigh-

AS-BUILT PLANS



FOR AS-BUILT PLAN SHEETS SEE SHEETS 1 THRU 5
FOR AS-BUILT BUFFER CREDIT MAP SEE SHEET 6

NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEX D. DIGERONIMO

[illegible]
3/9/2021

DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared by: LMG LAND MANAGEMENT GROUP a DAVEY company

Prepared on behalf of: HDR
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

WHITE
MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA
-UT1-

GRAPHIC SCALE
25 0 25 50
PLANS

DATE: 03-09-2021

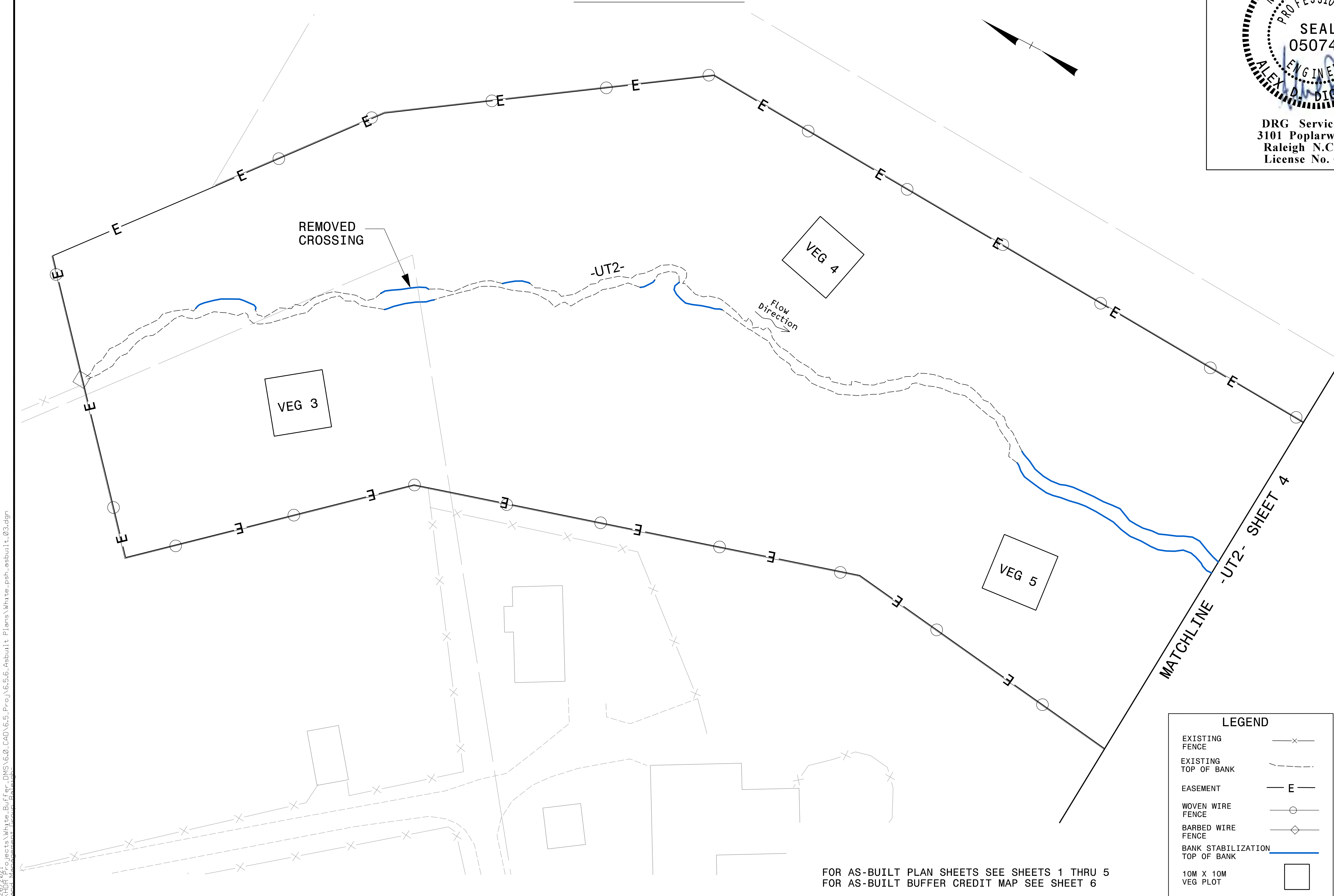
AS-BUILT PLANS

SHEET
2

NCDMS PROJECT NO.
100112

4/26/2021
Z:\HDR Projects\White_Buffer_DMS\6.0_CAD\6.5_Proj\6.5.6_Asbuilt Plans\White_psh_asbuilt_02.dgn
-Land Management Group Raleigh-

AS-BUILT PLANS



FOR AS-BUILT PLAN SHEETS SEE SHEETS 1 THRU 5
FOR AS-BUILT BUFFER CREDIT MAP SEE SHEET 6

NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEX D. DIGERONIMO
3/9/2021

DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared by: LMG LAND MANAGEMENT GROUP a DAVEY company

Prepared on behalf of: HDR Engineering, Inc of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

WHITE MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA
-UT2-

GRAPHIC SCALE 25 0 25 50 PLANS

DATE: 03-09-2021

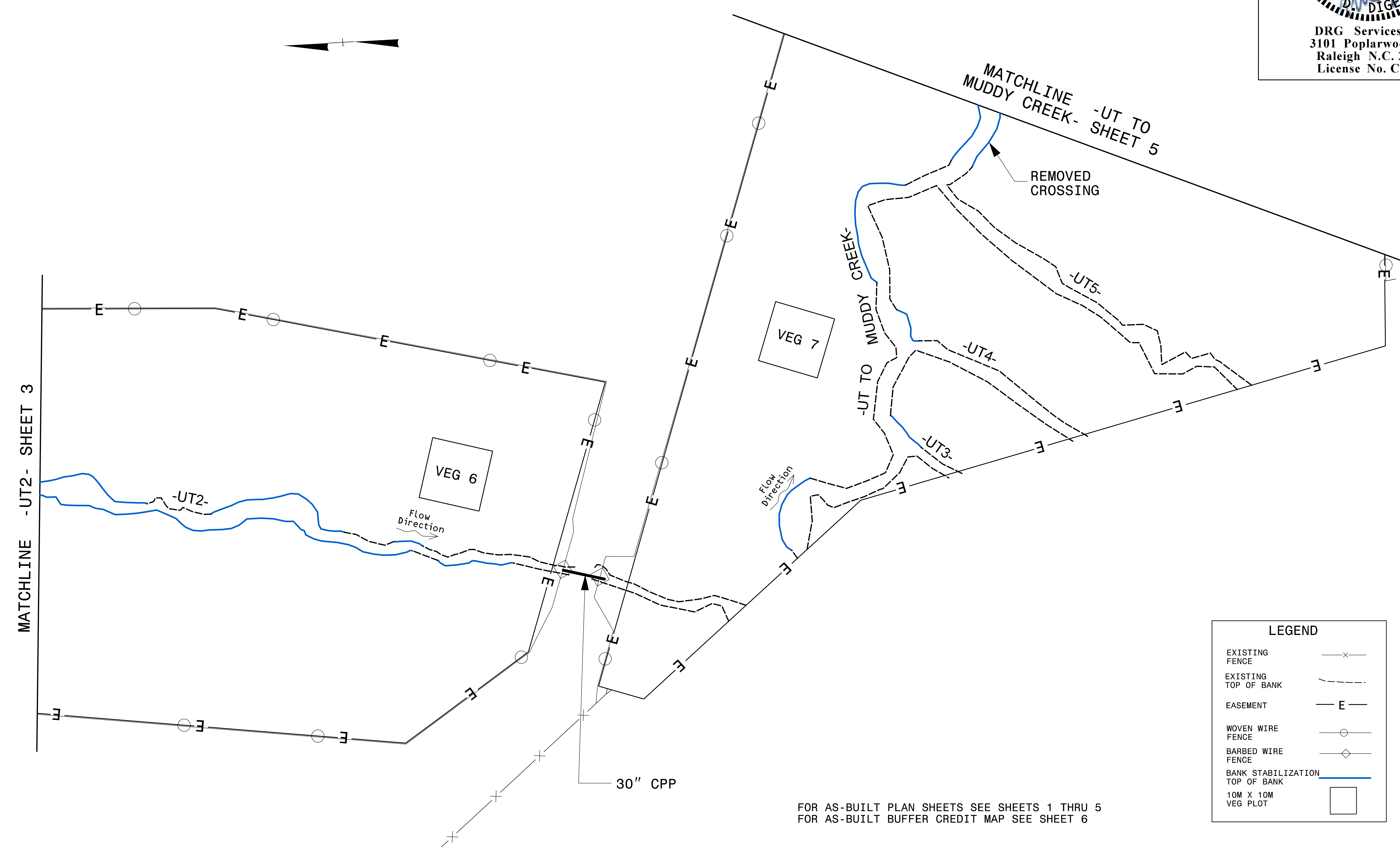
AS-BUILT PLANS

SHEET 3

NCDMS PROJECT NO. 100112

4/26/2021
Z:\HDR Projects\White_Buffer_DMS\6.0_CAD\6.5_Proj\6.5.6_Asbuilt Plans\White_psh_asbuilt_03.dgn

AS-BUILT PLANS



NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEX D. DIGERONIMO

3/9/2021

DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared by: LMG LAND MANAGEMENT GROUP a DAVEY company

Prepared on behalf of: HDR

HDR Engineering, Inc of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

WHITE MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA
-UT2-, -UT TO MUDDY CREEK-
-UT3-, -UT4- AND -UT5-

GRAPHIC SCALE
50 25 0 25
PLANS

DATE: 03-09-2021

AS-BUILT PLANS

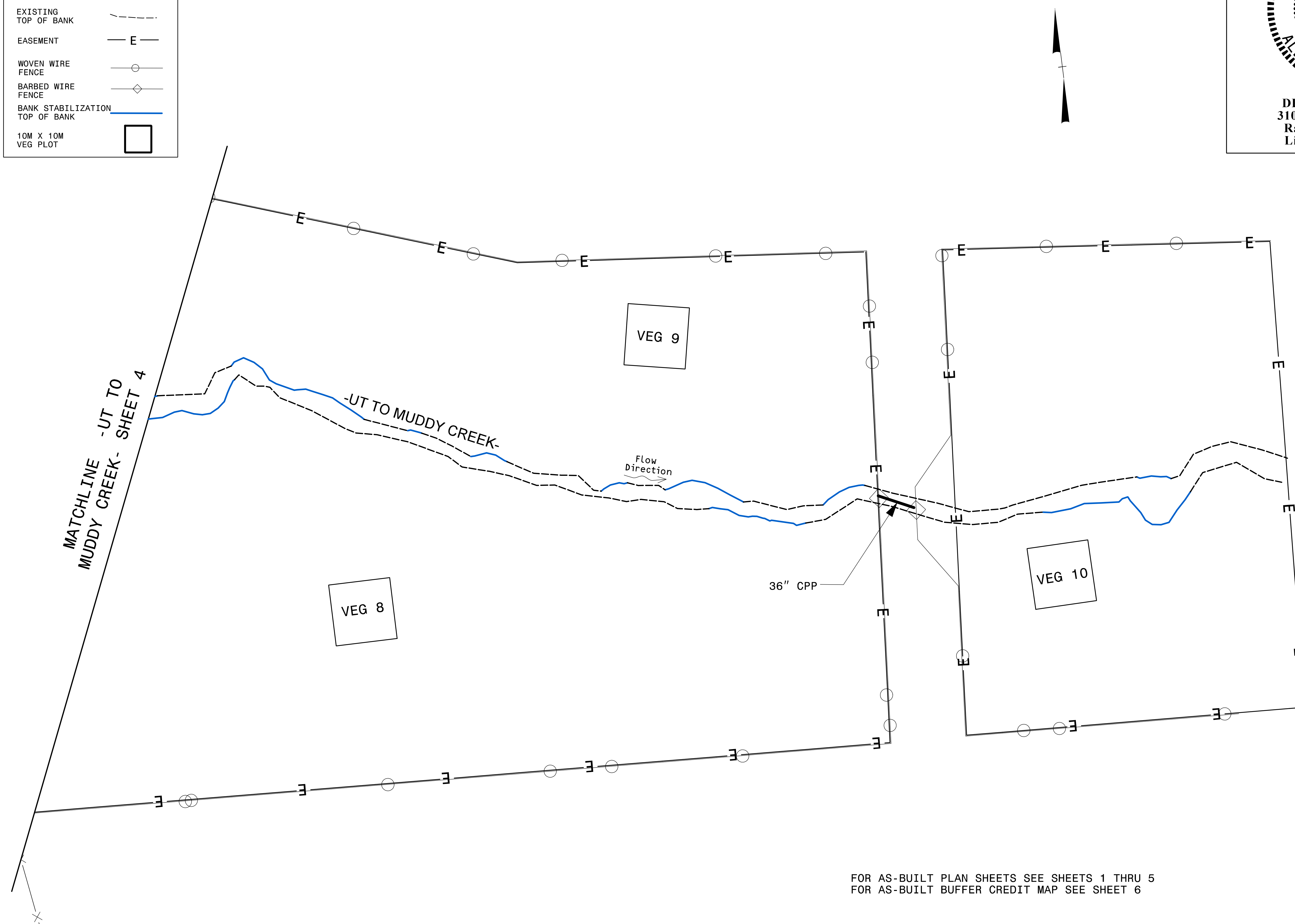
SHEET
4

NCDMS PROJECT NO.
100112

AS-BUILT PLANS

LEGEND

- EXISTING FENCE
- EXISTING TOP OF BANK
- EASEMENT
- WOVEN WIRE FENCE
- BARBED WIRE FENCE
- BANK STABILIZATION TOP OF BANK
- 10M X 10M VEG PLOT



FOR AS-BUILT PLAN SHEETS SEE SHEETS 1 THRU 5
FOR AS-BUILT BUFFER CREDIT MAP SEE SHEET 6

NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEX D. DIGERONIMO

[illegible]

3/9/2021

DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared by: LMG LAND MANAGEMENT GROUP a DAVEY company

Prepared on behalf of: HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

WHITE MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA
-UT TO MUDDY CREEK-

GRAPHIC SCALE 25 0 25 50 PLANS

DATE: 03-09-2021

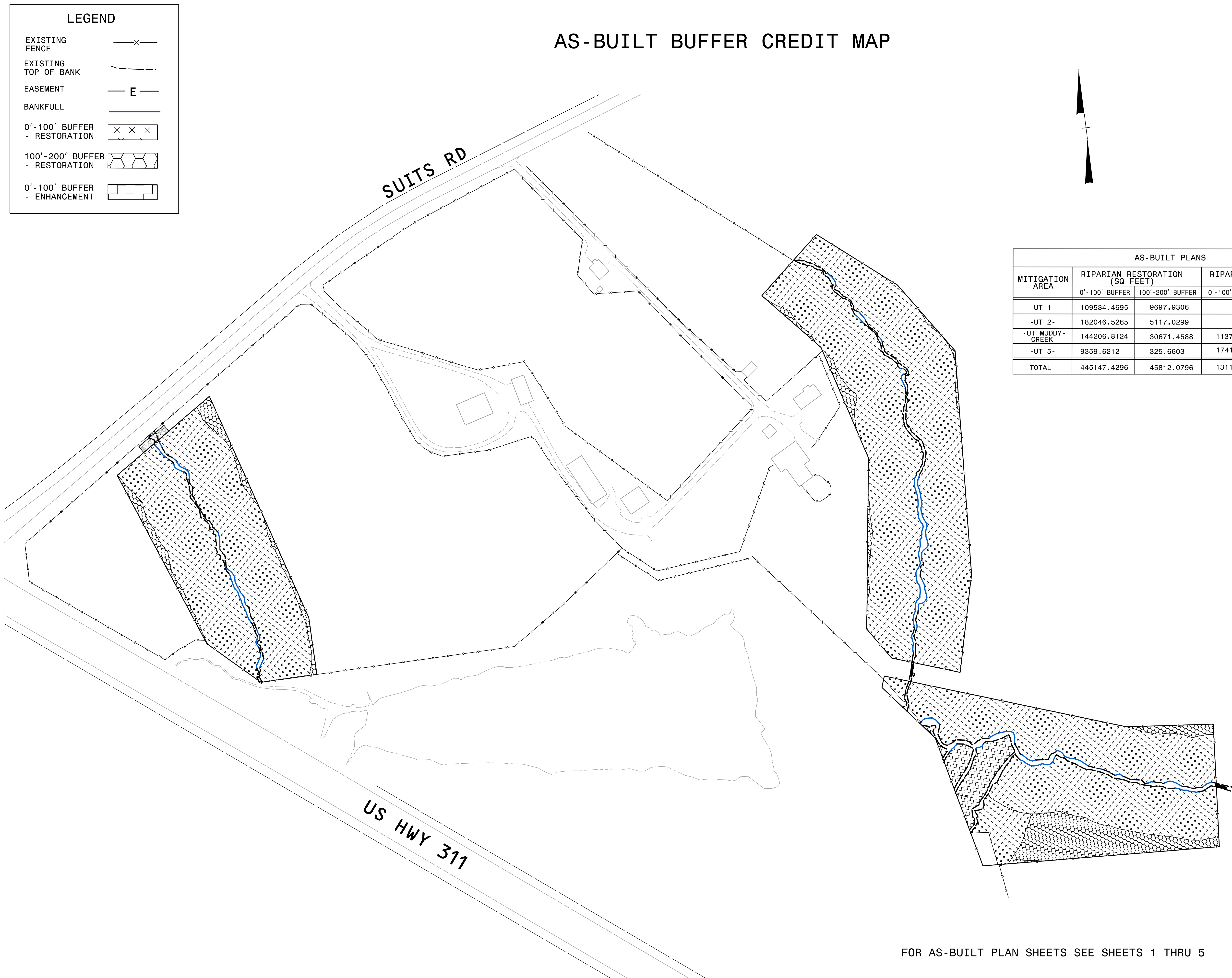
AS-BUILT PLANS

SHEET 5

NCDMS PROJECT NO. 100112

4/26/2021
Z:\HDR Projects\White_Buffer_DMS\6.0_CAD\6.5_Proj\6.5.6_Asbuilt Plans\White_psh_asbuilt_05.dgn
-Land Management Group Raleigh-

AS-BUILT BUFFER CREDIT MAP



AS-BUILT PLANS				
MITIGATION AREA	RIPARIAN RESTORATION (SQ FEET)		RIPARIAN ENHANCEMENT (SQ FEET)	
	0'-100' BUFFER	100'-200' BUFFER	0'-100' BUFFER	100'-200' BUFFER
-UT 1-	109534.4695	9697.9306	-	-
-UT 2-	182046.5265	5117.0299	-	-
-UT MUDDY-CREEK	144206.8124	30671.4588	11373.6290	-
-UT 5-	9359.6212	325.6603	1741.8998	-
TOTAL	445147.4296	45812.0796	13115.5288	-

FOR AS-BUILT PLAN SHEETS SEE SHEETS 1 THRU 5

NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEX D. DIGERONIMO
3/9/2021

DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared by: LMG LAND MANAGEMENT GROUP a DAVEY company

Prepared on behalf of: HDR
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

WHITE
MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA

GRAPHIC SCALE
100 0 100 200
PLANS

DATE: 03-09-2021

AS-BUILT PLANS

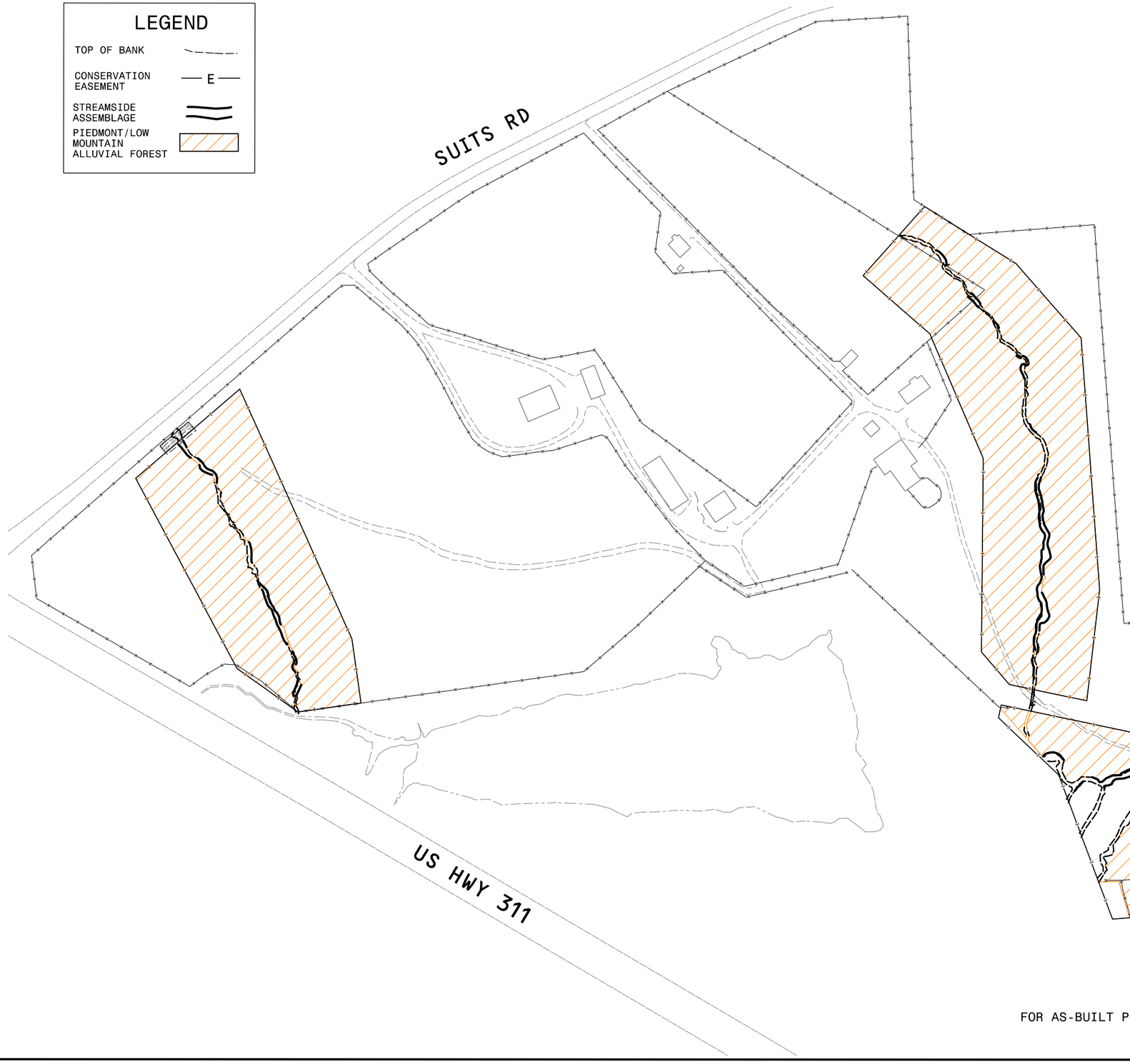
SHEET
6

NCDMS PROJECT NO.
100112

AS-BUILT PLANTING MAP

LEGEND

- TOP OF BANK
- CONSERVATION EASEMENT — E —
- STREAMSIDE ASSEMBLAGE
- PIEDMONT/LOW MOUNTAIN ALLUVIAL FOREST



Zone 1: Streamside Assemblage	Feet of Stream Bank 2,665 ft	Unit Type*	Plant Spacing 4 ft	
Common Name	Scientific Name		% Composition	# Planted
Black willow	*Salix nigra*	L	23.5	157
Ninebark	*Physocarpus opulifolius*	L	23.5	157
Silky dogwood	*Cornus amomum*	L	23.5	157
Green ash	*Fraxinus pennsylvanica*	R	5.0	34
Sycamore	*Plotanus occidentalis*	R	23.5	157
			TOTAL	662

Zone 2: Piedmont/Low Mountain Alluvial Forest	Area 11.28 ac		Plant Spacing 8ft	
Common Name	Scientific Name		% Composition	# Planted
Tulip tree	*Liriodendron tulipifera*	R	11	845
River birch	*Buteia nigra*	R	11	845
American hornbeam	*Carpinus caroliniana*	R	6	460
Water Oak	*Quercus nigra*	R	16	1228
Sycamore	*Plotanus occidentalis*	R	11	845
Green ash	*Fraxinus pennsylvanica*	R	5	384
Shagbark Hickory	*Carya ovata*	R	6	460
American elm	*Ulmus Americana*	R	6	461
Flowering dogwood	*Cornus florida*	R	6	460
Willow oak	*Quercus phellos*	R	11	845
Bitternut hickory	*Carya cordiformis*	R	11	845
			TOTAL	7,678

*Live Stake (L), Bare Root (R)

FOR AS-BUILT PLAN SHEETS SEE SHEETS 1 THRU 5

NORTH CAROLINA PROFESSIONAL SEAL 050744 ENGINEER ALEY D. DIGERONIMO

3/9/2021

DRG Services, P.C.
3101 Poplarwood Ct.
Raleigh N.C. 27604
License No. C-4174

Prepared by: LMG LAND MANAGEMENT GROUP a DAVEY company

Prepared on behalf of: HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S.: License Number: F-0116

WHITE MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA

GRAPHIC SCALE 100 0 100 200 PLANS

DATE: 03-09-2021

AS-BUILT PLANS

SHEET 7

NCDMS PROJECT NO. 100112

4/27/2021
Z:\HDR Projects\White_Buffer_DMS\6.0_CAD\6.5_Proj\6.5.6_Asbuilt Plans\White_psh_asbuilt_07_planting.dgn
Land Management Group Raleigh

Appendix D – Regulatory Considerations

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

November 16, 2020

Division of Mitigation Services
Attn: Jeremiah Dow/Kelly Phillips
(via electronic mail: jeremiah.dow@ncdenr.gov , Kelly.Phillips@ncdenr.gov)

Re: **White Farms Riparian Buffer Mitigation Plan Approval**

Dear Mr. Dow,

The Division of Water Resources (DWR) received a draft Mitigation Plan (Plan) from the Division of Mitigation Services (DMS) for the White Farms site (Site) in 2020. The Plan was submitted to DWR for review and approval under 15A NCAC 02B .0295 to be used as a buffer mitigation project. DWR reviewed the Plan and provided comments and recommendations. DMS submitted a revised Plan that addressed all comments and recommendations provided by DWR. The table below summarizes the timeline of the Plan:

Project Site Name	DWR Project ID #	Initial Mitigation Plan Received	Revised Buffer Plan Received (Final Draft)	Location/HUC
White Farms	2019-0884v1	July 20, 2020	November 10, 2020	Randleman Lake Watershed

By copy of this letter, the Final Draft of the Plan is *approved.* A copy of the final draft can be found online at:
https://edocs.deq.nc.gov/WaterResources/DocView.aspx?id=1349646&dbid=0&repo=WaterResources

Please feel free to call (919) 707-3637 if you have any questions regarding this correspondence.

Sincerely,

DocuSigned by:
Katie Merritt
A43C72700BD543E...

Katie Merritt
401 & Buffer Permitting Branch

cc: DWR File Copy

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

October 26, 2020

DWR # 20190884 v2
Randolph County

Land Management Group
Attn: Alex DiGeronimo
3101 Poplarwood Ct
Raleigh NC 27604

Subject: APPROVAL of RANDLEMAN LAKE RIPARIAN BUFFER IMPACTS WITH ADDITIONAL CONDITIONS
White Mitigation Project

Dear Mr. DiGeronimo:

You have our approval for the impacts listed below for the purpose described in your application dated and received by the Division of Water Resources (Division) September 29, 2020 with subsequent information on October 21, 2020. These impacts are covered by the Randleman Lake Buffer Rules and the conditions listed below. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

This approval requires you to follow the conditions listed in the enclosed certification(s) or general permit and the following additional conditions:

1. The following impacts are hereby approved provided that all of the Conditions listed below and all of the conditions of the applicable Randleman Lake Buffer Rules are met. No other impacts are approved, including incidental impacts. [15A NCAC 02B .0611(b)(2)]

Type of Impact	Amount Approved (units) Permanent	Amount Approved (units) Temporary
Buffers – Zone 1		
Pipe Removal UT2	267 (square feet)	0 (square feet)
Pipe Removal UT Muddy Creek	267 (square feet)	0 (square feet)
Crossing #1 UT2	500 (square feet)	0 (square feet)
Crossing #2 UT Muddy Creek	500 (square feet)	0 (square feet)
Crossing #3 UT1	500 (square feet)	0 (square feet)
Bank Stabilization UT1	0 (square feet)	2794 (square feet)
Bank Stabilization UT2	0 (square feet)	2773 (square feet)
Bank Stabilization UT Muddy Creek	0 (square feet)	2589 (square feet)

Cattle Exclusion Fencing UT1	702 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT2	774 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT Muddy Creek	741 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT3	111 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT4	204 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT5	204 (square feet)	0 (square feet)
Buffers – Zone 2		
Cattle Exclusion Fencing UT1	180 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT2	435 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT Muddy Creek	252 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT4	60 (square feet)	0 (square feet)
Cattle Exclusion Fencing UT5	69 (square feet)	0 (square feet)

2. This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Authorization. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Authorization and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)].

3. The permittee shall report to the Winston Salem Regional Office any noncompliance with the conditions of this Authorization, or any violation of stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts, and any violation of state regulated riparian buffer rules [15A NCAC 02B .0724]. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the applicant became aware of the circumstances. A written submission shall also be provided within 5 business days of the time the applicant becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its causes; the period of noncompliance, including exact dates and times, if the noncompliance has not been corrected, the anticipated time compliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Division may waive the written submission requirement on a case-by-case basis.

This approval and its conditions are final and binding unless contested. [G.S. 143-215.5]

This Authorization can be contested as provided in General Statute 150B by filing a written petition for an administrative hearing to the Office of Administrative Hearings (hereby known as OAH) **within sixty (60) calendar days**.

A petition form may be obtained from the OAH at http://www.ncoah.com/ or by calling the OAH Clerk's Office at (919) 431-3000 for information. A petition is considered filed when the original and one (1) copy along with any applicable OAH filing fee is received in the OAH during normal office hours (Monday through Friday between 8:00am and 5:00pm, excluding official state holidays).

The petition may be faxed to the OAH at (919) 431-3100, provided the original and one copy of the petition along with any applicable OAH filing fee is received by the OAH within five (5) business days following the faxed transmission.

Mailing address for the OAH:

If sending via US Postal Service:
Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714

If sending via delivery service (UPS, FedEx, etc):
Office of Administrative Hearings
1711 New Hope Church Road
Raleigh, NC 27609-6285

One (1) copy of the petition must also be served to Department of Environmental Quality:

William F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

This letter completes the review of the Division under the Randleman Lake Riparian Buffer Rules as described in 15A NCAC 02B .0724. Please contact Sue Homewood at 336-776-9693 or sue.homewood@ncdenr.gov if you have any questions or concerns.

Sincerely,

DocuSigned by:
Lon T. Snider
145B49E225C94EA...

Lon T. Snider
Regional Supervisor
Water Quality Regional Operations Section
Division of Water Resources, NCDEQ – WSRO

cc: DWR 401 & Buffer Permitting Unit file

Williams, Kevin

From: Furr, Benjamin
Sent: Wednesday, July 24, 2019 10:44 AM
To: Andrew.E.Williams2@usace.army.mil
Cc: 'david.e.bailey2@usace.army.mil'; sue.homewood@ncdenr.gov; Schaffer, Jeff; Schaffer, Jeff; DiGeronimo, Alex
Subject: White Farm Buffer Project

Andy,

I just got off the phone with David Bailey and wanted to send you a quick email to fill you in on our conversation regarding a buffer mitigation project (White Farm) in Randolph County. The property is currently used as cattle pasture. HDR has been contracted by DMS to develop a buffer mitigation site at this property. Development of the buffer site will consist of the following:

1. Establishing a conservation easement and fencing out cattle around several tributaries
2. Planting native hardwoods and treating invasive species within the easement
3. Grading and matting eroding stream banks within the easement
4. Replacing a culvert in place
5. Removing two existing culverts and installing one culvert at a new location

Our plan is to limit stream bank grading to areas above the Ordinary High Water Mark (OHWM). The purpose of the culvert work is to facilitate movement of cattle and equipment across the property after the easement is established. After explaining all of this to David, he said that as long as the property would still be used as cattle pasture following development of the mitigation site, the culvert work would fall under an agricultural exemption and a 404 permit would not be required. He did note that we would still be expected to implement best management practices when conducting the work, which I acknowledged and said we would certainly comply with best management practices on this project. I know you are currently on assignment but if you have any questions please give me a call.

Thank you,

Benjamin N. Furr, PWS
Environmental Scientist

HDR
555 Fayetteville St, Suite 900
Raleigh, NC 27601
D 919.900.1613 **M** 919.630.1680
Benjamin.Furr@hdrinc.com

hdrinc.com/follow-us

DAVEY

Digeronimo, Alex <adigeronimo@lmgroup.net>

White Buffer Mitigation Project (NCDMS Project No. 100112), Randolph County, NC - Land Quality

2 messages

Digeronimo, Alex <adigeronimo@lmgroup.net> Fri, Aug 28, 2020 at 9:59 AM
To: jack.dalton@ncdenr.gov
Cc: Kevin Williams <kevinwilliams@lmgroup.net>, "Miller, Vickie M. (Raleigh)" <vickie.miller@hdrinc.com>, "Dow, Jeremiah J" <jeremiah.dow@ncdenr.gov>

Jack,

Thank you for taking the time to speak with me this morning. I just wanted to follow up on our conversation and document the following items:

- Project construction items include: bank stabilization, 3 crossings, and buffer planting
- All disturbed banks will be stabilized with seed, straw, and coir fiber matting.
- Bank work to take place above OHWM. USACE already consulted and confirmed not 404/401 permit required.
- Best management practices will be used on Site.
- Total disturbed area is approximately 0.25 acres, therefore LMG does not need to secure a Land Quality permit (less than the 1 acre requirement).
- Land Quality has the right to perform an inspection and request a sediment and erosion control plan if there is a complaint filed.

Please do not hesitate to contact me if you have any questions.

Thank you,

Alex DiGeronimo, PE | Associate Consultant

LMG
LAND MANAGEMENT GROUP
a DAVEY company

Cell: 843.830.1536

Email: adigeronimo@lmgroup.net

Land Management Group| Environmental Consultants

Charleston, SC 29412 | www.lmgroup.net

Dalton, Jack <jack.dalton@ncdenr.gov> Fri, Aug 28, 2020 at 11:08 AM
To: "Digeronimo, Alex" <adigeronimo@lmgroup.net>
Cc: Kevin Williams <kevinwilliams@lmgroup.net>, "Miller, Vickie M. (Raleigh)" <vickie.miller@hdrinc.com>, "Dow, Jeremiah J" <jeremiah.dow@ncdenr.gov>

Alex,

Thanks for sending this information my way! I appreciate you taking the time to call and verify that you do not need a permit with us.

Thanks,

Jack Dalton

Assistant Regional Engineer

Division of Energy, Mineral, and Land Resources

Department of Environmental Quality

336-776-9659 (office)

jack.dalton@ncdenr.gov

450 W. Hanes Mill Rd, Suite 300

Winston Salem NC 27105

From: Digeronimo, Alex <adigeronimo@lmgroup.net>
Sent: Friday, August 28, 2020 9:59 AM
To: Dalton, Jack <jack.dalton@ncdenr.gov>
Cc: Kevin Williams <kevinwilliams@lmgroup.net>; Miller, Vickie M. (Raleigh) <vickie.miller@hdrinc.com>; Dow, Jeremiah J <jeremiah.dow@ncdenr.gov>
Subject: [External] White Buffer Mitigation Project (NCDMS Project No. 100112), Randolph County, NC - Land Quality

[Quoted text hidden]