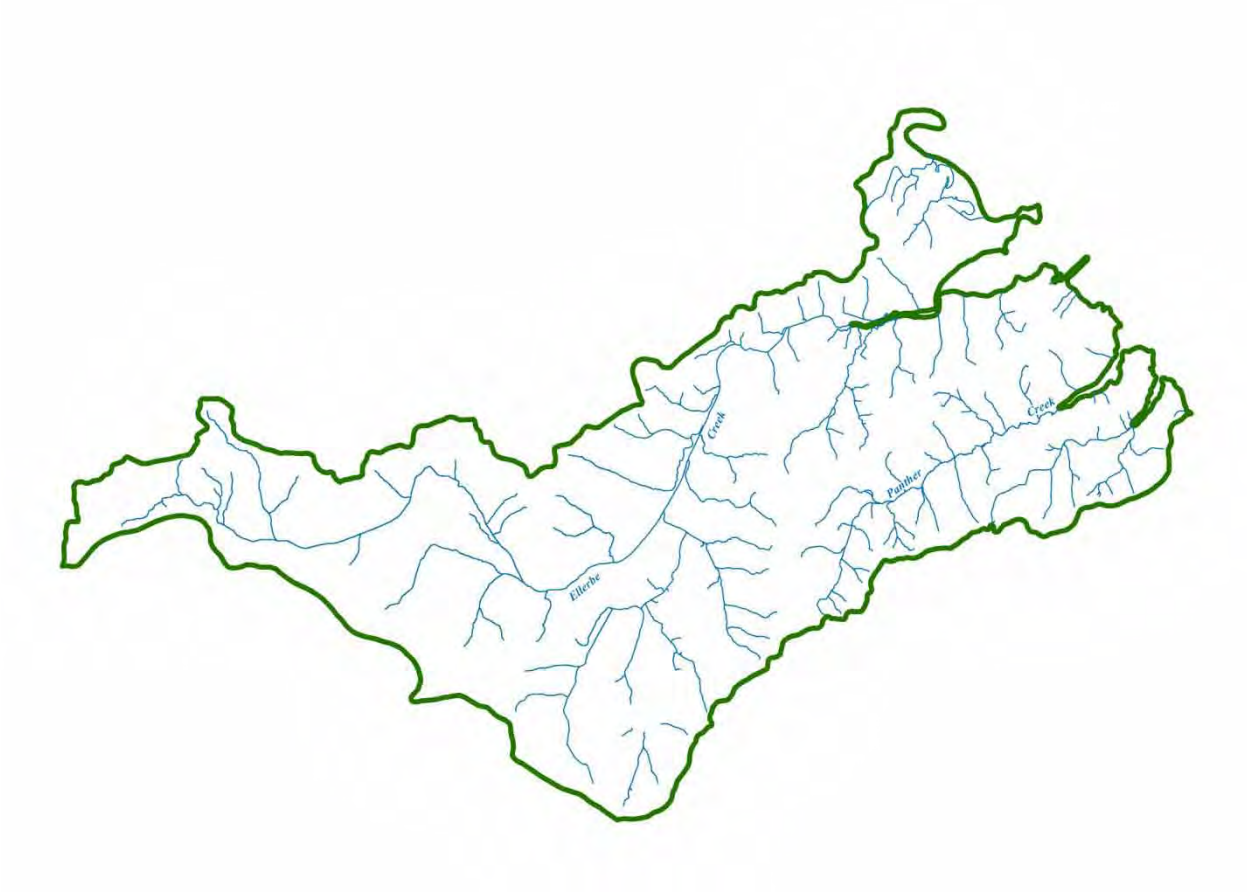
ELLERBE CREEK

HYDROLOGIC UNIT 03020201050010



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2.0 Ellerbe Creek

This chapter of the Atlas documents mitigation opportunities identified in the Ellerbe Creek watershed. The mitigation search undertaken in the Ellerbe Creek watershed was restricted to the 18-square mile area in the northeastern portion of the watershed occurring within unincorporated Durham County. The area of the Ellerbe Creek watershed within the limits of the City of Durham was not considered. The scope of the search was limited because the City of Durham was conducting a similar effort to identify mitigation opportunities within Durham city limits at the time of publication.

Details regarding the number and type of mitigation opportunities identified as well as the specifics of the functional uplift analysis performed are presented in this Chapter. The included mapping and data sheets describe the mitigation opportunities and site characteristics at each Project Site. A general discussion of the watershed's characteristics and water quality issues follows.

2.1 Watershed Overview

The Ellerbe Creek watershed (HU 03020201050010) is approximately 37 square miles in size and located in Durham County, North Carolina. The watershed comprises subwatersheds draining to Ellerbe Creek, Panther Creek, and unnamed tributaries to Falls Lake. Ellerbe Creek is the largest of the named streams, accumulating drainage from 70 percent of the watershed before discharging into Falls Lake.

2.1.1 Land Use/Land Cover

The Ellerbe Creek watershed has its headwaters and approximately half of its drainage area located within Durham's city limits. Within and surrounding the city is a mixture of low to high density residential and commercial development. Ellerbe Creek and its tributaries currently flow through some of the most densely developed parts of Durham. Further, population trends predict that approximately 58,000 people will reside in the watershed by the year 2020. A corresponding increase in impervious cover, from current 22 percent to 27.5 percent is expected by 2025.

As suggested above, land use within the watershed is principally urban. Urban land covers 58 percent of the watershed with the largest single component being low density development, at 39 percent of the watershed area. The majority of urban land is concentrated within Durham city limits – the City of Durham accounts for 77 percent of the total urban area in the watershed.

Yet, despite the large presence of urban land use within the watershed, 39 percent of the watershed is characterized as undisturbed. In fact, 61 percent of the 18-square mile area over which this investigation was conducted is undisturbed. Of particular note are two large natural areas that occur within the watershed: Duke Forest adjacent to the headwaters of Ellerbe Creek and Falls Lake at the mouth of the creek.

2.1.2 Physiography

The Ellerbe Creek watershed occurs in the Piedmont level III ecoregion and the Triassic Basins level IV ecoregion. Slopes vary widely from nearly level to strongly sloping. Elevations range from approximately 498 feet in the headwaters regions to approximately 250 feet closer to Falls Lake.

2.1.3 Soils

More than 60 percent of the watershed is made up of White Store soils, White Store soils in combination with Urban land, or Urban land. White Store soils are upland soils, nearly level to moderately steep. Urban land reflects soils that have been cut, filled, or graded. The next largest soil contingent is Chewacla and Wehadkee soils at nearly 6 percent of the watershed. These soils occur primarily in Piedmont drainages. No other soil map unit makes up more than 5 percent of the watershed. In the watershed, less than 17 percent of the soils are considered at least partially hydric.

Slightly more than 30 percent of the watershed is composed of erosive soils (Kf greater than or equal to 0.32).

2.2 Water Quality

Ellerbe Creek from its source in Durham to Falls Lake has been on North Carolina's 303(d) list since 1998 as impaired for biological integrity. Ellerbe Creek receives permitted discharge from one minor point source discharger (14,000 gallons/day) and one major point source discharger (20,000,000 gallons/day).

The NCDWQ Ambient Monitoring System (AMS) has a single water chemistry monitoring station (J1330000) located on Ellerbe Creek at Glenn Rd (SR 1636) northeast of Durham. The major issues recorded at this AMS station for the period 9-01-2000 to 8-31-2005 were fecal coliform counts exceeding the reference level (25% of samples) and zinc exceeding the action level (28% of samples). Copper, manganese, and turbidity each have exceeded state standards on several occasions (< 10% of samples). High concentrations of phosphorus and nitrite + nitrate nitrogen also are a concern, as Ellerbe Creek is a designated Nutrient Sensitive Water. Phosphorus, nitrite + nitrate nitrogen, and specific conductance continued to remain very elevated at this station. Zinc exceeded the 50 µg/L action level in April 2007.

The City of Durham Stormwater Services (DSS) began monthly ambient water chemistry monitoring in January 2004 and currently has ten ambient monitoring stations on Ellerbe Creek and its tributaries. The most recent reports indicate that fecal coliform counts are a major issue at all stations. Dissolved oxygen, copper, and turbidity also have exceeded state standards.

Biological monitoring data for Ellerbe Creek include two DWQ benthos stations, one DWQ fish monitoring station, and four DSS benthos stations. The DWQ Biological Assessment Unit (BAU) gave Ellerbe Creek a bioclassification of "Poor" for fish in both 1995 and 2005. The suggested causes of this bioclassification were upstream urban impacts and lack of suitable habitat (habitat score in 2005 was only 34 out of a possible 100). Benthic macroinvertebrate sampling by DWQ prior to 2000 resulted in bioclassifications of "Poor"; however, the rating increased to "Fair" in 2000. Benthic macroinvertebrate sampling in Ellerbe Creek by the DSS during the summer of 2006 resulted in bioclassifications of "Fair" at three stations and "Poor" at the forth.

The entire Ellerbe Creek watershed is in the Triassic Basins level IV ecoregion. The Triassic Basins is characterized by the presence of highly erodible soils, inconsistent flow conditions, and a lack of suitable habitat to develop good benthic macroinvertebrate populations. Compounding this condition is the extensiveness of urban development within the watershed. Urban development, through an increase in impervious surface coverage, contributes to flashy streamflows following rainfall events. The outsized volumes of runoff injected into the streams of urbanized watersheds causes severe stream channel scouring, a problem further exacerbated by the naturally erosive soils of Triassic Basins streams. These conditions and, possibly pollution from urban runoff, appear to be the primary underlying causes for depauperate stream biota in Ellerbe Creek.

2.3 Mitigation Opportunities

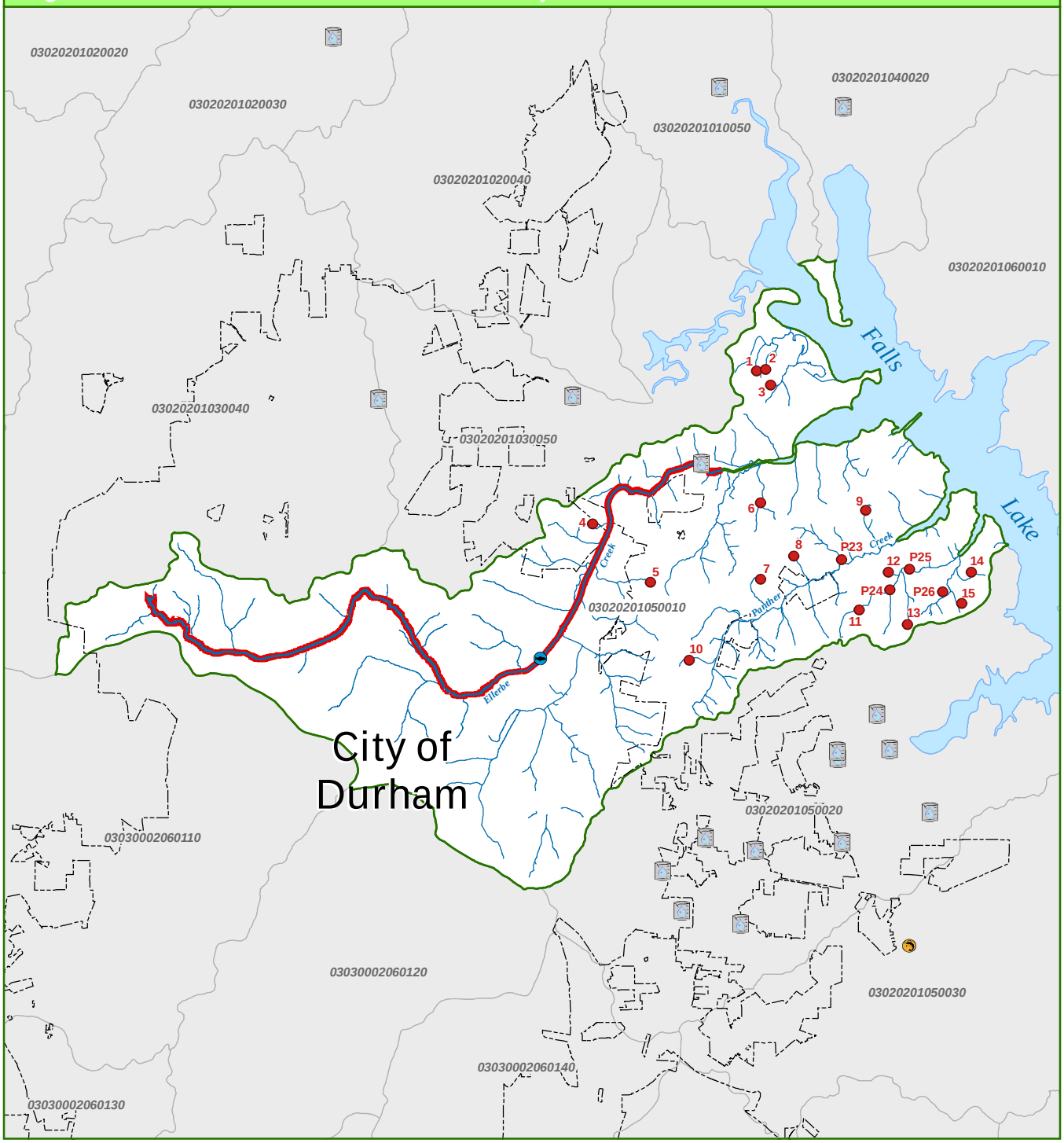
A total of 19 Project Sites were identified in the 18-square mile Ellerbe Creek watershed area examined for this effort. The distribution of the 19 Project Sites across the watershed is depicted in Figure 2-1. Table 2-1 categorizes the Project Sites based on the mitigation opportunity present. In some cases, more than one type of mitigation opportunity is available at a Project Site. Mitigation opportunity was confirmed for 15 Project Sites through field visits; the preservation Project Sites – P22, P23, P25, and P26 – were not visited during field investigations. Field investigations took place in October 2008.

Table 2-1: Ellerbe Creek Project Site Inventory

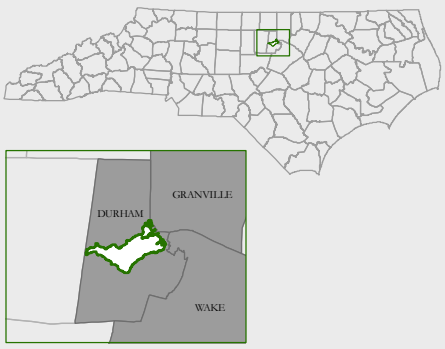
	Stream Mitigation			Wetland Mitigation			Buffer Restoration		
Project Site	Restoration	Enhancement	Preservation	Restoration	Enhancement	Preservation	Riparian	Nutrient Offset	Stormwater Retrofit
1								X	
2				X		X		X	
3								X	
4								X	
5								X	X
6			X				X	X	
7								X	
8								X	
9								X	
10			X				X	X	
11								X	
12								X	
13			X				X	X	
14								X	
15								X	
P23			X			X			
P24			X						
P25			X						
P26			X						

The synopsis presented in Table 2-1 indicates the majority of identified mitigation opportunities fall into the nutrient offset buffer restoration category. Similar results were observed for the Lake Rogers/Ledge Creek watershed. Also similar to the Lake Rogers/Ledge Creek watershed, the large number of nutrient offset buffer restoration opportunities and relative lack of stream and wetland restoration opportunities is likely due to the undisturbed nature of the Ellerbe Creek watershed outside of the City of Durham. As previously stated, undisturbed land uses constitute 61 percent of this area. Moreover, urban development remains at a low density in the area – there was only 2 percent watershed impervious surface coverage as of 2001. The landscape disturbance that has occurred has encroached upon the riparian corridor, as evidenced by the number of nutrient offset buffer restoration opportunities, but the resulting disturbance has not degraded the streams and wetlands of the watershed to the degree that restoration is warranted.

Figure 2-1: Ellerbe Creek Watershed Project Sites



- Project Site
- Ellerbe Creek Watershed (14-Digit Hydrologic Unit)
- 14-Digit Hydrologic Unit
- Durham City Limits
- Stream
- 303(d) List Stream
- Ambient Water Quality Monitoring Site
- Fish Community Monitoring Site
- Macrobenthos Monitoring Site



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0 1 2 Miles

Scale: 1" = 2 miles

HUC: 3020201050010

2.4 Functional Uplift Analysis

A functional uplift analysis was conducted to qualitatively assess the potential hydrology, water quality, and habitat benefits provided by each Project Site identified in Ellerbe Creek watershed. The analysis was performed in accordance to the procedure presented in the Introduction.

To begin, the 19 Ellerbe Creek Project Sites were segregated into the 6 groups presented in Table 2-2. The watershed area encompassing each group of Project Sites was delineated so as to capture the upstream- and downstream-most Project Sites. The resulting watersheds define the functional analysis areas considered in the analysis. Figure 2-2 depicts the functional analysis areas delineated for the Ellerbe Creek Project Sites.

Table 2-2: Ellerbe Creek Project Sites within each Functional Analysis Area

Functional Analysis Area	Project Sites
1	1, 2, 3
2	6, P22
3	4, 5
4	8, 9, P23
5	7, 10
6	11, 12, 13, 14, 15, P25, P26

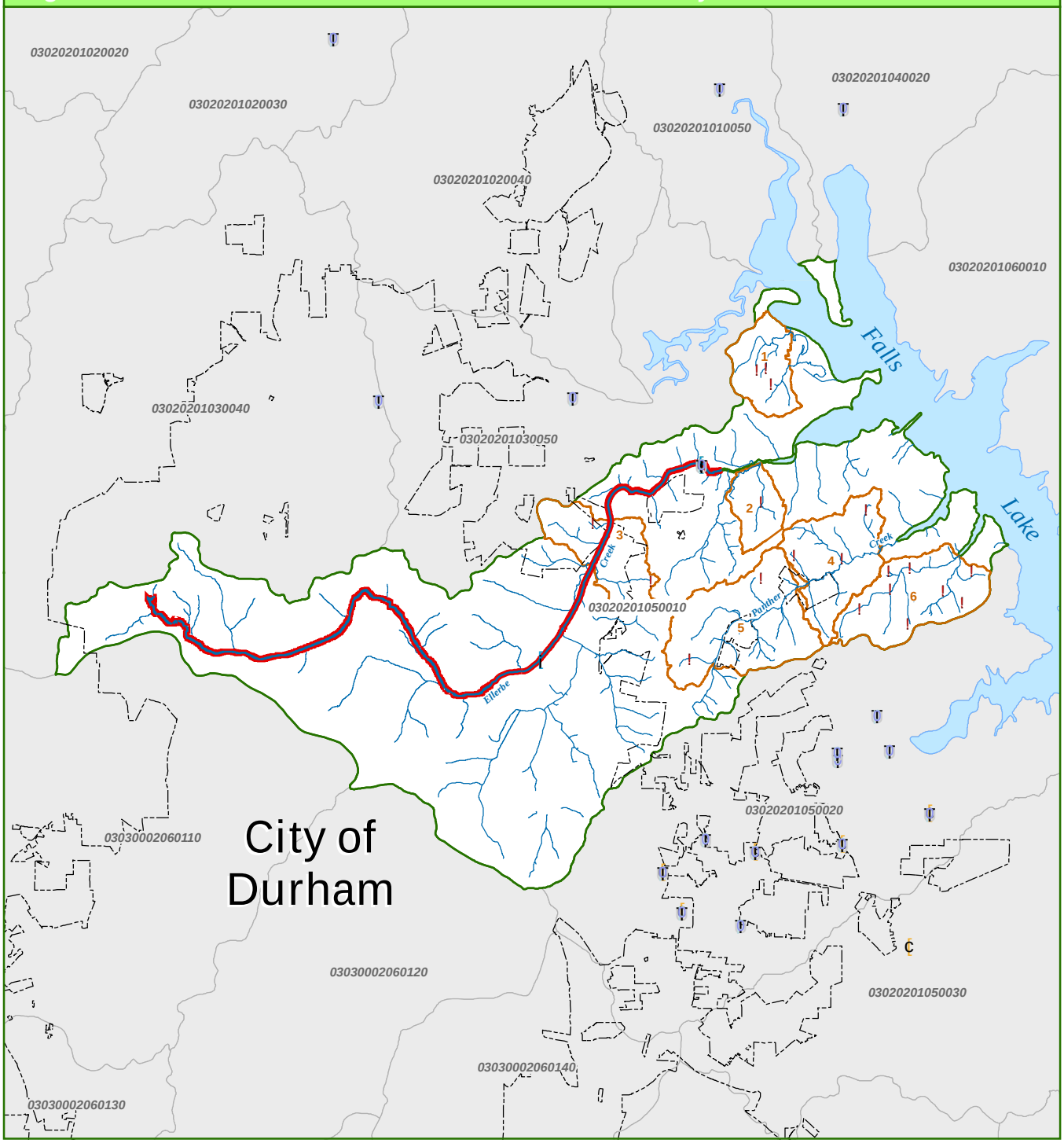
A suite of watershed characteristics were then quantified for each functional analysis area. The watershed characteristics chosen for the analysis provide some measure of the degree to which watershed function within the functional analysis areas may be stressed by both anthropogenic and geomorphic factors. Identifying the watershed stressors provides a context for discussing the water quality benefits of the Project Sites. The watershed characteristics considered included the following:

- land use composition
- zoning composition
- riparian buffer disturbance
- extent impervious cover, watershed slope
- extent of highly and moderately erodible soils
- ecoregion location

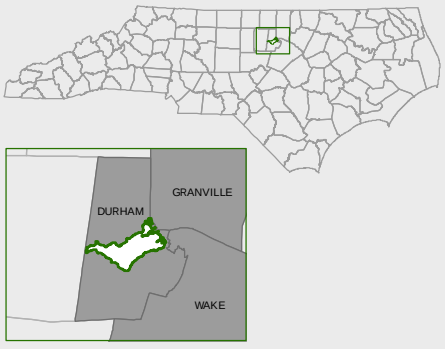
Tables 2-3, 2-4, and 2-5 that follow summarize the measured watershed characteristics. Of note here is that the entirety of the Ellerbe Creek watershed occurs within the Triassic Basins level IV ecoregion as do the six Ellerbe Creek functional analysis areas. Accordingly, ecoregion composition is not reported in the following watershed characteristics tables.

The observations drawn from the watershed stressor characterization are included in the Watershed Stressor section on each Project Site data sheet. It is suggested that the Watershed Stressor discussion be reviewed to gain a general understanding of factors that may be deleteriously affecting the water quality of the Project Site's functional analysis area. The discussion presented in the Functional Uplift section of the data sheets describes the functional contributions provided by the mitigation opportunities present at the Project Sites. The intent is to provide insight into how the mitigation opportunities available at the Project Site may counteract the watershed stressors observed for functional analysis area.

Figure 2-2: Ellerbe Creek Watershed Functional Analysis Areas



- Project Site
- Functional Analysis Area
- Ellerbe Creek Watershed (14-Digit Hydrologic Unit)
- 14-Digit Hydrologic Unit
- Durham City Limits
- Stream
- 303(d) List Stream
- Ambient Water Quality Monitoring Site
- Fish Community Monitoring Site
- Macrobenthos Monitoring Site



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0 1 2 Miles

Scale: 1" = 2 miles

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Table 2-3: Land Use/Land Cover Composition as a Percentage of the Functional Analysis Areas

Functional Analysis Area	Urban	Agricultural Land	Barren Land	Forest Land	Wetland	Rangeland	Water
1	32	17	0	27	20	1	2
2	27	10	0	56	7	0	0
3	40	3	0	46	10	0	1
4	29	9	0	54	5	2	0
5	43	4	0	48	2	1	1
6	32	10	0	55	0	2	1

Table 2-4: Zoning Composition as a Percentage of the Functional Analysis Areas

Functional Analysis Area	Business	Industrial	Medium Density Residential	Low Density Residential	Very Low Density Residential	Rural Residential	Conservation
1	0	0	0	0	0	100	0
2	0	0	0	0	0	100	0
3	0	28	0	5	36	31	0
4	0	0	0	10	8	82	0
5	1	14	0	13	22	50	0
6	0	0	0	0	0	100	0

Table 2-5: Functional Analysis Area Watershed Stressors

	Anthropogenic Stressors		Geomorphic Stressors		
				Soil Erodibility[4]	
Functional Analysis Area	Buffer Disturbance[1]	Impervious[2]	Slope[3]	High	Moderate
1	42	0.6	4	0	49
2	18	2.9	5	7	91
3	29	2.1	7	8	69
4	30	1.1	7	2	89
5	37	2.8	7	0	93
6	37	0.7	6	0	72

[1]Percentage of the 200-foot buffer measured as disturbed in each functional analysis area.
[2]Impervious cover as a percentage of the functional analysis area.
[3]Average watershed slope.
[4]Highly and moderately erodible soils coverage as a percentage of the functional analysis area.

2.5 Project Site Mapping and Data Sheets

The remainder of this chapter is dedicated to the presentation of the Ellerbe Creek Project Site mapping and data sheets. The mapping depicts the geographical extents of the mitigation opportunities present at each Project Site. The data sheets document the details of the mitigation opportunities and the properties on which the site is located. The Project Site Index (page 2-9) identifies the page at which the documentation for each Ellerbe Creek Project Site can be found.

2.5.1 Mitigation Opportunity Reporting

Mitigation opportunities at each Project Site are presented in terms of systems, both on the Project Site map and data sheet. Systems are geographically discrete areas of mitigation opportunity. The Project Site map and data sheet indicate if multiple systems are present: individual systems are labeled on the Project Site map and mitigation opportunity units are reported by system on the data sheet. A more detailed discussion of these concepts is provided in section 1.6.1.

Parcel information for all parcels containing mitigation opportunity at a given Project Site is provided in the Parcel Attributes table of the Project Site data sheet. Individual parcels in the Parcel Attributes table can be related back to the Project Site map using the parcel map identification number, which appear on the Project Site map as circumscribed numbers.

2.5.2 Project Site Maps

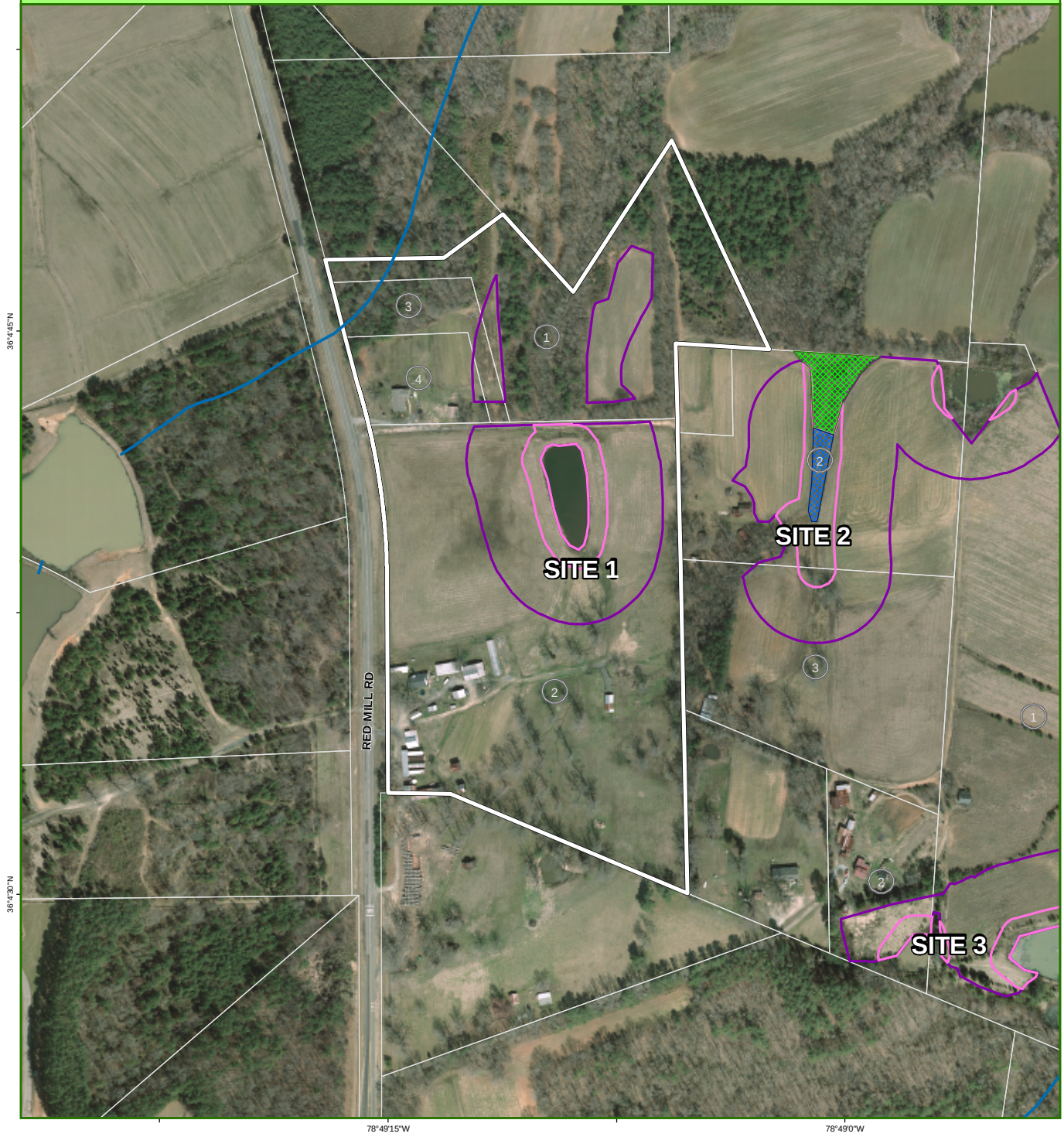
The Ellerbe Creek Project Site maps are presented at a 1:4800 map scale (1 inch equals 400 feet). The map coordinates described along the perimeter of the map are reported in the World Geodetic System 1984 (WGS 84) geographic coordinate system. Map background datasets are listed in Table 2-6.

Table 2-6: Ellerbe Creek Map Background Datasets

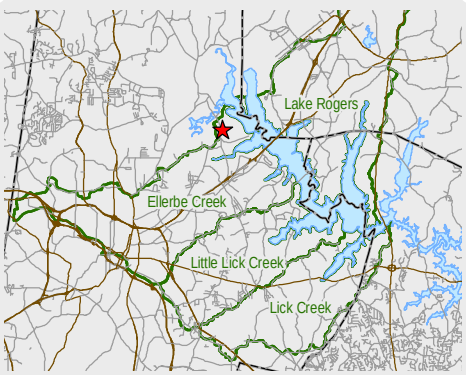
Dataset	Source
2005 Durham County, NC aerial photography	Durham County GIS Department
Durham County, NC parcel boundaries	Durham County GIS Department
NCDWQ water quality monitoring stations	NCDWQ Watershed Assessment Team
303(d) streams	NCDWQ (http://h2o.enr.state.nc.us/tmdl/General_303d.htm)
NHD subregion 0302 streams	National Hydrography Dataset (http://nhd.usgs.gov/data.html)
Road names	Integrated Statewide Road Network (ISRN) (http://www.nconemap.com/)

PROJECT SITE INDEX

Ellerbe Creek Watershed: Site 1



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 1 *HUC 3020201050010*

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	6.3*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 6.3 acres of nutrient offset buffer restoration opportunity through the conversion of agricultural land to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to a pond and associated outfall channel.

Location:

The Project Site is located 300 feet east of Red Mill Road (SR 1632) at a point 2200 feet north along Red Mill Road from its intersection with Hamlin Road (SR 1633) in unincorporated Durham County, NC. Access to the Project Site is from Red Mill Road to the west.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☒Y	☐N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 1 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 1 watershed. Anthropogenic activities have resulted in the conversion of 50 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 42 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (4 percent), the presence of moderately erodible soils (49 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from agricultural land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

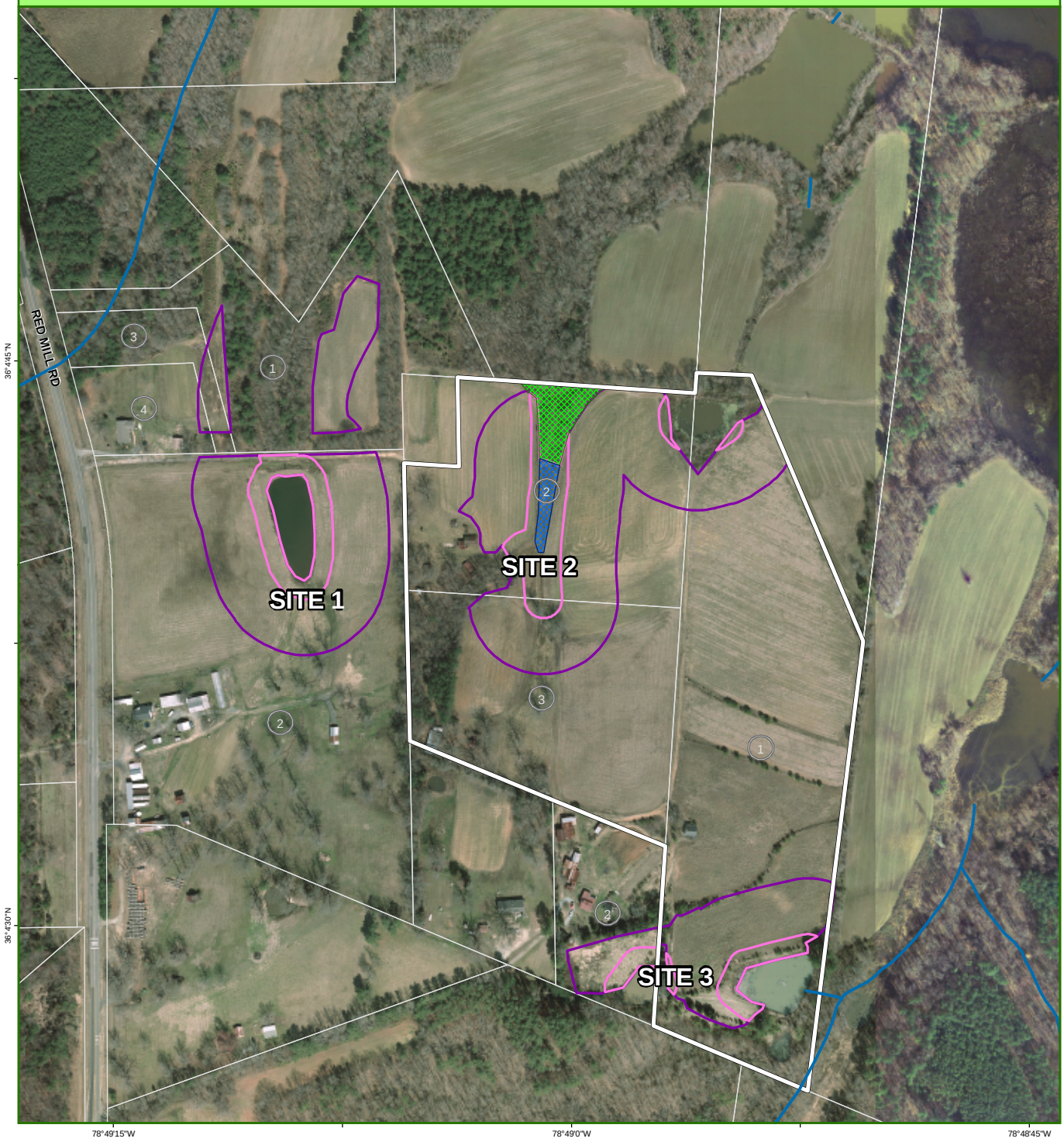
Ellerbe Creek Watershed: Site 1 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0854-01-37-4738	[redacted]	8.15	RD
2	Durham	0854-01-37-3027	[redacted]	20.34	RD
3	Durham	0854-01-27-9883	[redacted]	1.57	RD
4	Durham	0854-01-37-0625	[redacted]	1.82	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 2



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
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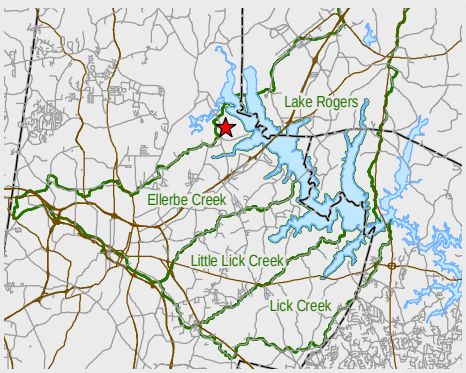
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 2 — HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	RWR	0.2*	HWF	--
1	RWP	0.5*	HWF	--
1	NOB	7.6*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers opportunities for riparian wetland restoration, riparian wetland preservation, and nutrient offset buffer restoration. Riparian wetland restoration opportunity (0.2 acre) exists within a Headwater Forest that has been ditched to drain adjacent agricultural land. Ditch removal and planting of appropriate wetland vegetation are recommended. Riparian wetland preservation opportunity (0.5 acre) exists for the Headwater Forest immediately down slope of the proposed riparian wetland restoration. Nutrient offset buffer restoration opportunities (7.6 acres) exist proximal to a swale within the Headwater Forest and a farm pond. Nutrient offset buffer restoration is achievable through the conversion of agricultural land to natural vegetation.

Location:

The Project Site is located 1100 feet east of Red Mill Road (SR 1632) at a point 2200 feet north along Red Mill Road from its intersection with Hamlin Road (SR 1633) in unincorporated Durham County, NC. Access to the Project Site is from Red Mill Road to the west.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☐W	☒L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 2 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 1 watershed. Anthropogenic activities have resulted in the conversion of 50 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 42 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (4 percent), the presence of moderately erodible soils (49 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Riparian wetland restoration and reestablishing natural vegetation in nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the buffer areas from agricultural land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion. Riparian wetland preservation will ensure the hydrology, water quality and habitat functions provided by the Headwater Forest wetland at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☒Y	☐N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 2 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0854-01-46-7708	[redacted]	17.24	RD
2	Durham	0854-01-47-1414	[redacted]	9.34	RD
3	Durham	0854-01-46-0970	[redacted]	8.60	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

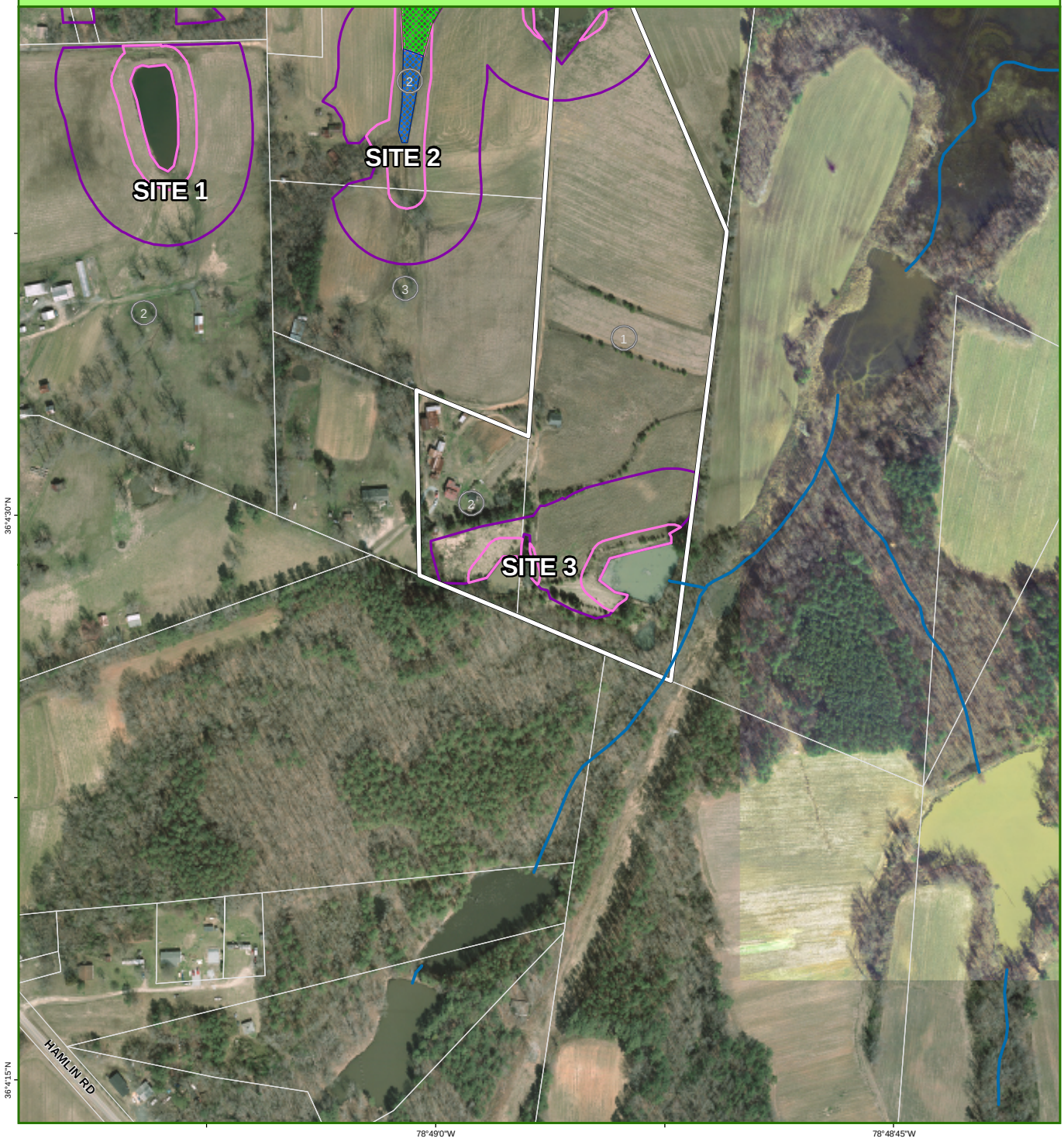
Ellerbe Creek Watershed: Site 2 HUC 3020201050010

Site Photographs:

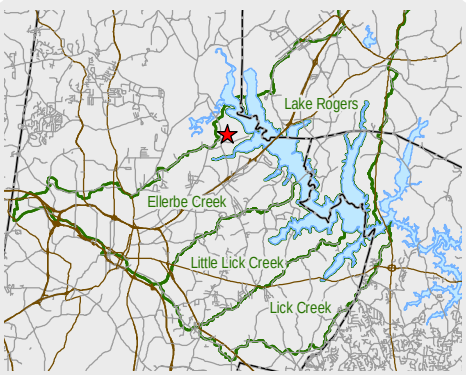
Riparian wetland restoration opportunity within a clearcut and ditched Headwater Forest wetland

Riparian wetland preservation opportunity within a Headwater Forest wetland

Ellerbe Creek Watershed: Site 3



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 3 *HUC 3020201050010*

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	3.1*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 3.1 acres of nutrient offset buffer restoration opportunity through the conversion of agricultural land to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to two ponds.

Location:

The Project Site is located 1250 feet east of Red Mill Road (SR 1632) at a point 1000 feet north along Red Mill Road from its intersection with Hamlin Road (SR 1633) in unincorporated Durham County, NC. Access to the Project Site is from Red Mill Road to the west.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☐Y	☒N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 3 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 1 watershed. Anthropogenic activities have resulted in the conversion of 50 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 42 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (4 percent), the presence of moderately erodible soils (49 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from agricultural land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

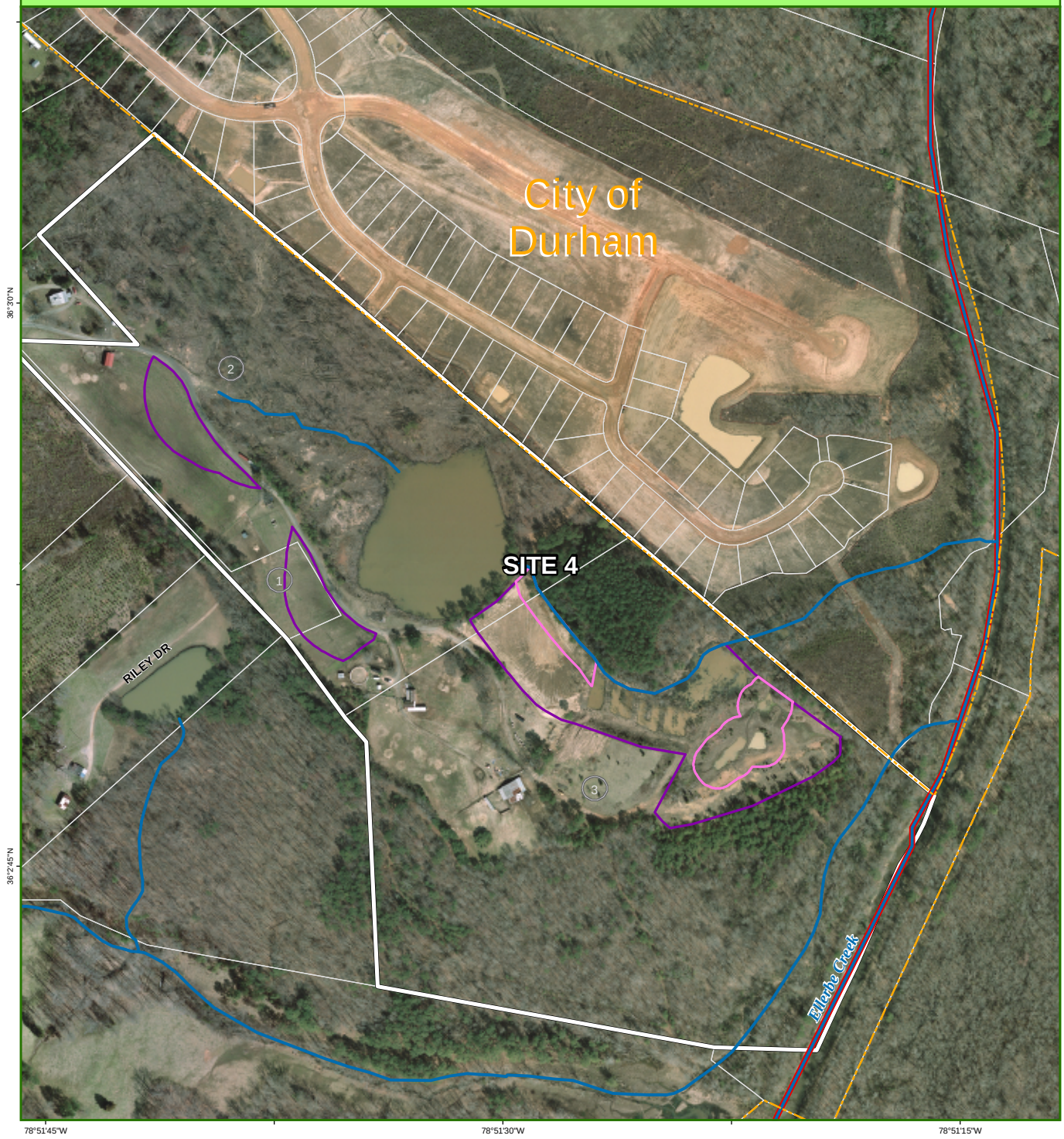
Ellerbe Creek Watershed: Site 3 *HUC 3020201050010*

Parcel Attributes:

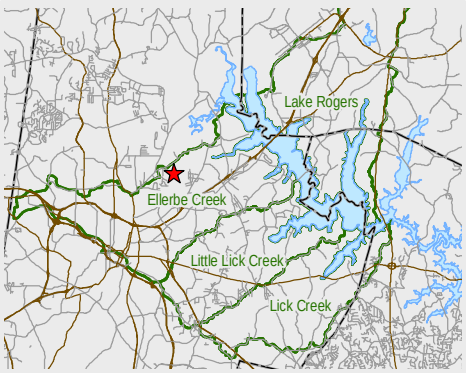
Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0854-01-46-7708	[redacted]	17.24	RD
2	Durham	0854-02-68-2472	[redacted]	325.90	RD
3	Durham	0854-01-46-2373	[redacted]	3.21	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 4



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 4 — HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	7.5*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

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SRP3 = Stream Restoration Priority 3
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SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 7.5 acres of nutrient offset buffer restoration opportunity through the conversion of an irregularly maintained field to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to a series of ponds and associated outfall channels.

Location:

The Project Site is located at three discrete areas along an unnamed, unpaved road extending from Riley Drive (SR 1694) in unincorporated Durham County, NC. The first area is immediately west of a point 450 feet southeast along the unpaved road from its intersection with Riley Drive; the second area is immediately west of a point 1100 feet from the Riley Drive intersection; and the third area is 1700 feet from the Riley Drive intersection. The unpaved road itself intersects Riley Drive at a point 940 feet southeast along Riley Drive from the Riley Drive-Hamlin Road (SR 1633) intersection. Access to the Project Site is from the unpaved road.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 4 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 3 watershed. Anthropogenic activities have resulted in the conversion of 43 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 2 percent of the watershed. The watershed is zoned 28 percent Industrial. Residential areas are zoned Low Density Residential (5 percent), Very Low Density Residential (36 percent), and Rural Residential (31 percent). Land use/land cover alterations have impacted 28 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (7 percent), the presence of highly erodible (8 percent coverage) and moderately erodible soils (69 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from an irregularly maintained field to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☐G	☒P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☒Y	☐N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 4 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0843-01-16-1397	[redacted]	1.26	R-20
2	Durham	0843-01-16-3748	[redacted]	25.14	PDR
3	Durham	0843-01-25-2723	[redacted]	33.68	I-2

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

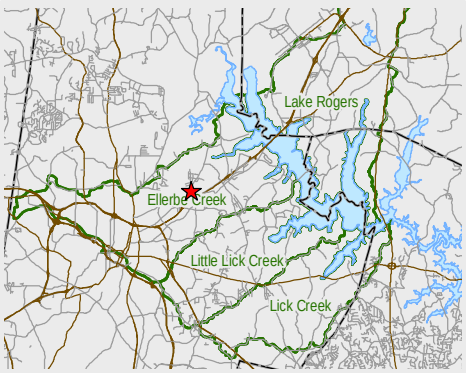
Ellerbe Creek Watershed: Site 4 HUC 3020201050010

Site Photographs:

Nutrient offset buffer opportunity proximal to an unbuffered pond

Ellerbe Creek Watershed: Site 5

- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 5 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	11.4*	--	--
1	SR	1#	--	--
2	NOB	1.0*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

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RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers opportunities for nutrient offset buffer restoration and a single stormwater retrofit within two systems (Systems 1 and 2). System 1 offers 11.4 acres of nutrient offset buffer restoration opportunity proximal to a pond, swale, and roadside ditch. Nutrient offset buffer restoration within System 1 is achievable through the conversion of agricultural land to natural vegetation. The stormwater retrofit opportunity in System 1 involves stabilizing the pond outfall channel and dike. At present, both the outfall channel and the dike abutting the channel are severely eroded. The erosion threatens to breach the dike. System 2 offers 1.0 acre of nutrient offset buffer restoration opportunity proximal to an ephemeral channel. Nutrient offset buffer restoration within System 2 is achievable through conversion of an irregularly maintained field to natural vegetation.

Location:

The Project Site consists of two discrete systems in unincorporated Durham County, NC. The systems are located east (System 1) and immediately west (System 2) of Glenn Road (SR 1636) at a point 850 feet northeast along Glenn Road from its intersection with Glenn School Road (SR 1675). Access to both systems is from Glenn Road.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☐Y	☒N	Ephemeral Channel Channel Protected	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 5 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 3 watershed. Anthropogenic activities have resulted in the conversion of 43 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 2 percent of the watershed. The watershed is zoned 28 percent Industrial. Residential areas are zoned Low Density Residential (5 percent), Very Low Density Residential (36 percent), and Rural Residential (31 percent). Land use/land cover alterations have impacted 28 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (7 percent), the presence of highly erodible (8 percent coverage) and moderately erodible soils (69 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from agricultural land and maintained fields to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion. The stormwater retrofit will provide water quality benefits by reducing the sediment load from a severely eroded pond dike and outfall channel.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☒Y	☐N	- Downstream	At road conveys drainage from the roadside ditch and pond.

Additional Comments:

Ellerbe Creek Watershed: Site 5 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0843-04-62-4845	[redacted]	51.02	RD
2	Durham	0843-04-52-3892	[redacted]	44.18	R-20

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

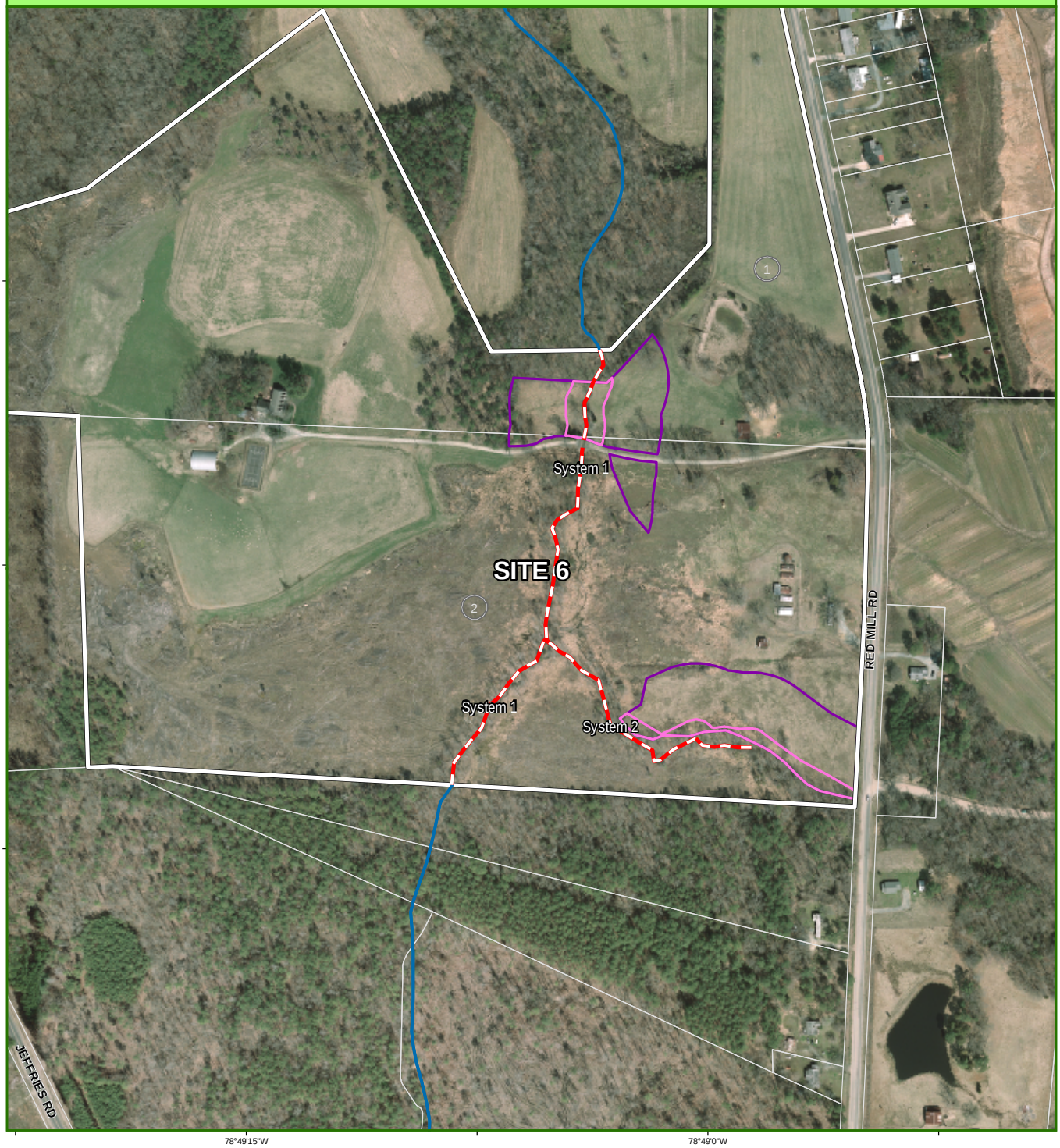
Ellerbe Creek Watershed: Site 5 HUC 3020201050010

Site Photographs:

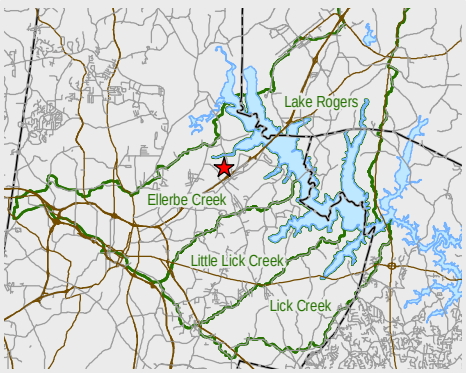
Nutrient offset buffer restoration opportunity proximal to an unbuffered pond

Repairing the pond outfall pipe and pond dike provides stormwater retrofit opportunity

Ellerbe Creek Watershed: Site 6



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 6 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP+	1290	Perennial	0.35
1	RBR*	0.4	--	--
1	NOB*	1.8	--	--
2	SP+	600	Perennial	0.7
2	SP+	160	Intermittent	0.6
2	RBR*	0.5	--	--
2	NOB*	2.1	--	--

Abbreviations

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RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers opportunities for stream preservation, riparian buffer restoration, and nutrient offset buffer restoration within two systems (Systems 1 and 2). System 1 offers stream preservation opportunity for a 1290-foot perennial reach of an unnamed tributary to the Neuse River as wells as riparian buffer restoration (0.4 acre) and nutrient offset buffer restoration (1.8 acres) opportunities proximal to the same tributary. System 2 offers stream preservation opportunities for perennial (600 feet) and intermittent (160 feet) reaches of an unnamed tributary as well as riparian buffer restoration (0.5 acre) and nutrient offset buffer restoration (2.1 acres) opportunities proximal to the same tributary. For both systems, riparian buffer restoration and nutrient offset buffer restoration are achievable through the conversion of agricultural land proximal to streams to natural vegetation.

Location:

The Project Site consists of two discrete systems located in unincorporated Durham County, NC. System 1 is immediately north and south of an unnamed, unpaved road at a point 770 feet west along the unpaved road from its intersection with Red Mill Road (SR 1632). The unpaved road itself intersects Red Mill Road at a point 2300 feet north along Red Mill Road from its intersection with the I-85 southbound lane ramp. Access to System 1 is from the unpaved road. System 2 is located immediately west of Red Mill Road at a point 1500 feet north along Red Mill Road from its intersection with the I-85 southbound lane ramp. Access to System 2 is from Red Mill Road to the east.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☐W	☒L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☐Y	☒N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Other:

Ellerbe Creek Watershed: Site 6 *HUC 3020201050010*

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 2 watershed. Anthropogenic activities have resulted in the conversion of 36 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 3 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 18 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (5 percent), the presence of highly erodible (7 percent coverage) and moderately erodible soils (91 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the riparian buffer and nutrient offset buffer areas will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the buffers area from agricultural land and pasture to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion. Stream preservation will ensure the functions provided by healthy stream reaches and intact riparian buffers at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☒Y	☐N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☒Y	☐N	- Downstream	Culvert at dirt road crossing.

Additional Comments:

Ellerbe Creek Watershed: Site 6 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0853-01-38-0706	[redacted]	42.15	RD
2	Durham	0853-01-37-7952	[redacted]	45.14	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 6 HUC 3020201050010

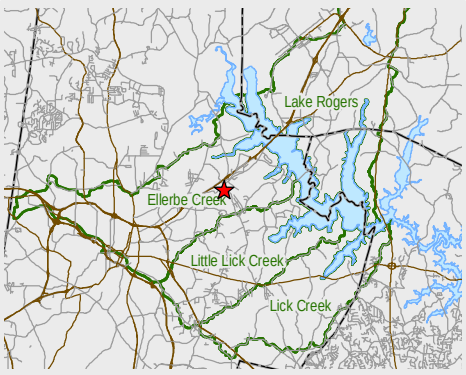
Site Photographs:

Stream preservation opportunity at the intermittent and perennial flow transition

Nutrient offset buffer restoration opportunity along a swale that drains to a pond

Ellerbe Creek Watershed: Site 7

- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 7 — HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	9.4*	--	--
--	--	--	--	--
--	--	--	--	--
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SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 9.4 acres of nutrient offset buffer restoration opportunity through the conversion of agricultural land to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to swales draining an agricultural field.

Location:

The Project Site is located immediately southwest of Burton Road (SR 1818) at a point 900 feet southeast along Burton Road from its intersection with East Geer Street in unincorporated Durham County, NC. Access to the Project site is from Burton Road to the northeast or from an unnamed, unpaved road to the southwest. The unpaved road intersects Burton Road at a point 1170 feet southeast along Burton Road from the Burton Road-East Geer Street intersection.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☐W	☒L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☒H	☐L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 7 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 5 watershed. Anthropogenic activities have resulted in the conversion of 48 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 3 percent of the watershed. The watershed is zoned 1 percent Business and 14 percent Industrial. Residential areas are zoned Low Density Residential (13 percent), Very Low Density Residential (22 percent), and Rural Residential (50 percent). Land use/land cover alterations have impacted 36 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (93 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from agricultural land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☒Y	☐N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 7 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0853-03-32-7033	[redacted]	76.14	R-15

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

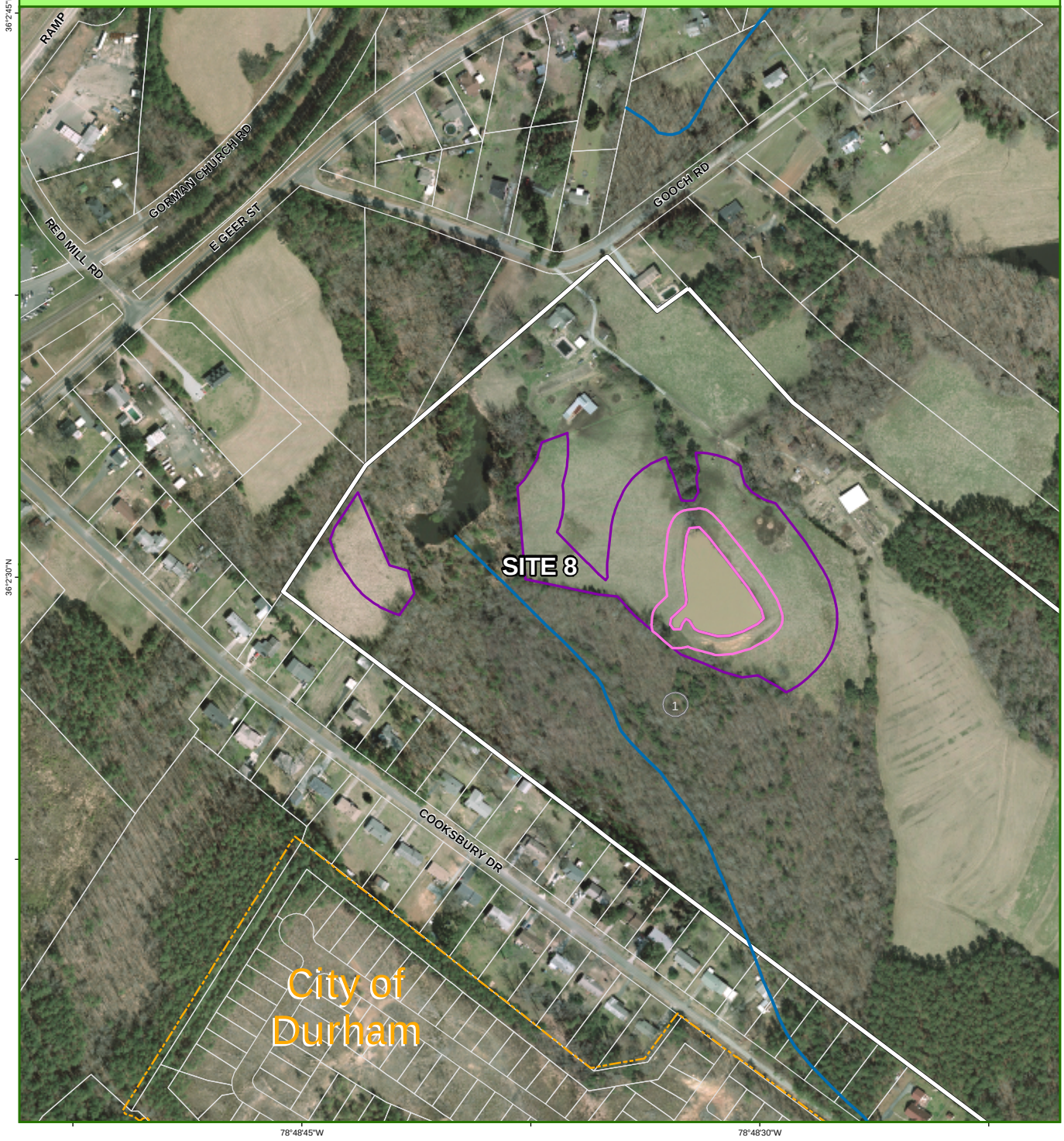
Ellerbe Creek Watershed: Site 7 HUC 3020201050010

Site Photographs:

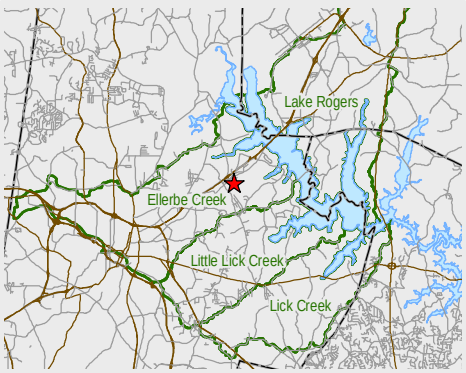
Unbuffered swale through an agricultural field

Nutrient offset buffer restoration opportunity proximal to an unbuffered pond

Ellerbe Creek Watershed: Site 8



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 8 — HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	7.0*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 7.0 acres of nutrient offset buffer restoration opportunity through the conversion of pasture to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to two ponds and associated outfall channels.

Location:

The Project Site is located at two discrete areas in unincorporated Durham County, NC. The first, larger area is located 600 feet southeast of Gooch Road at a point 730 feet southeast along Gooch Road from its intersection with East Geer Street. Access to the first area is from Gooch Road to the northwest. The second area is located 400 feet northeast of Cooksbury Drive at a point 1000 feet along Cooksbury Drive from its intersection with East Geer Street. Access to the second area is from Cooksbury Drive to the southwest.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☒Y	☐N	Ephemeral Channel	☒H	☐L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 8 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 4 watershed. Anthropogenic activities have resulted in the conversion of 38 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. No portion of the watershed is zoned Business or Industrial. Residential areas are zoned Low Density Residential (10 percent), Very Low Density Residential (8 percent), and Rural Residential (82 percent) Land use/land cover alterations have impacted 30 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of highly erodible (2 percent coverage) and moderately erodible soils (89 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from pasture to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☐G	☒P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 8 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0853-04-63-9646	[redacted]	82.78	PDR

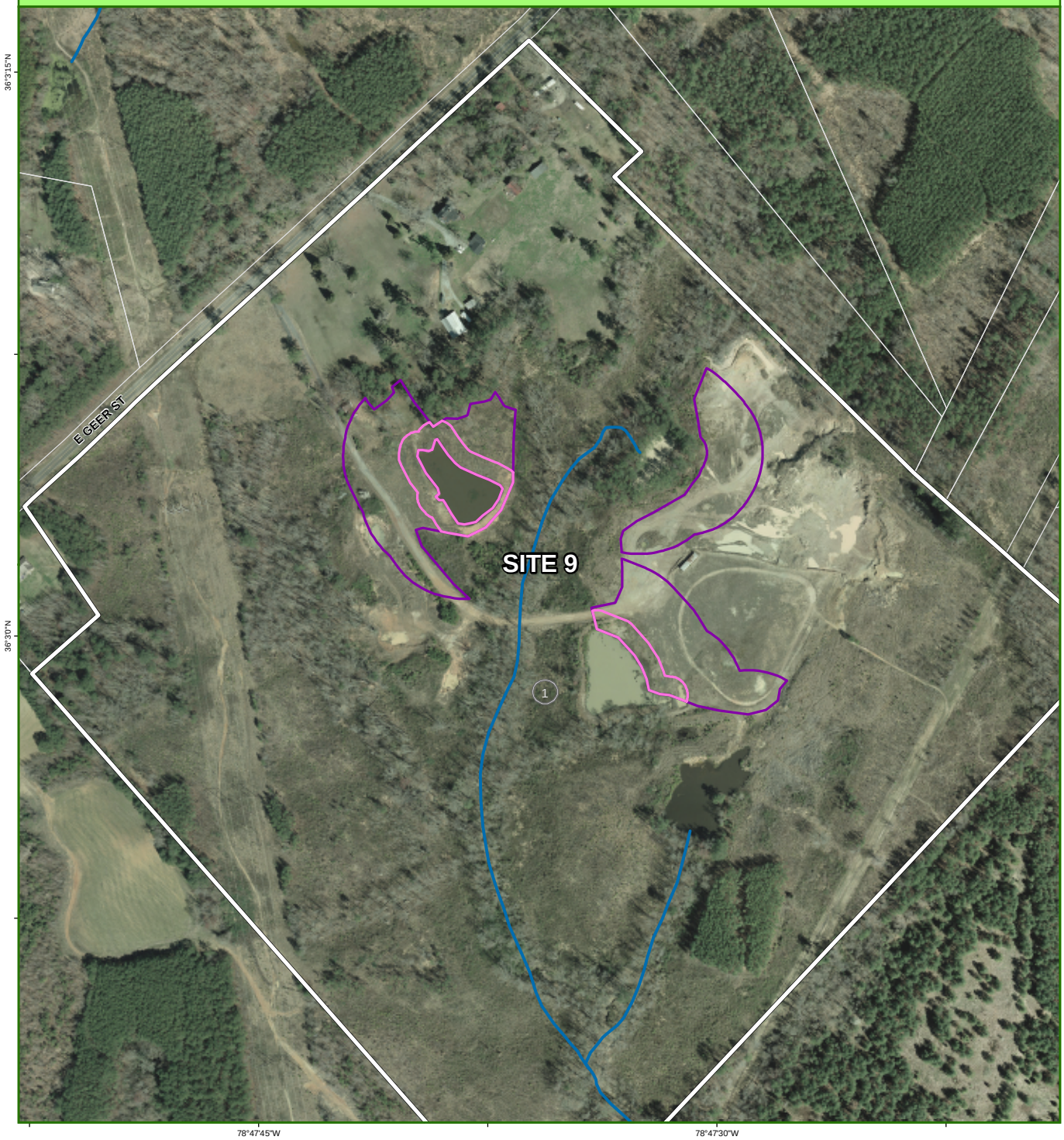
[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 8 HUC 3020201050010

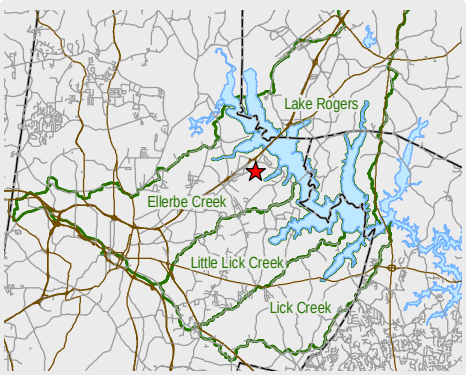
Site Photographs:

Nutrient offset buffer restoration opportunity proximal to an unbuffered pond in a pasture

Ellerbe Creek Watershed: Site 9



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 9 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	7.1*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 7.1 acres of nutrient offset buffer restoration opportunity through the conversion of barren land to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to 4 ponds and associated outfall channels. During the Project Site assessment, sedimentation and erosion resulting from land clearing activities was observed.

Location:

The Project Site consists of two discrete areas along an unnamed, unpaved road extending from East Geer Street (SR 1670) in unincorporated Durham County, NC. The first area is immediately east and west of a point 600 feet southeast along the unpaved road from its intersection with East Geer Street. The second area is immediately east of the unpaved road terminus. The unpaved road itself intersects East Geer Street at a point 1900 feet southwest along East Geer Street from the East Geer Street-Redwood Road (SR 1637) intersection. Access to the Project Site is from the unpaved road.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☒Y	☐N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 9 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 4 watershed. Anthropogenic activities have resulted in the conversion of 38 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. No portion of the watershed is zoned Business or Industrial. Residential areas are zoned Low Density Residential (10 percent), Very Low Density Residential (8 percent), and Rural Residential (82 percent) Land use/land cover alterations have impacted 30 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of highly erodible (2 percent coverage) and moderately erodible soils (89 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from barren land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☐G	☒P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 9 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-01-17-0288	[redacted]	112.75	R-20

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

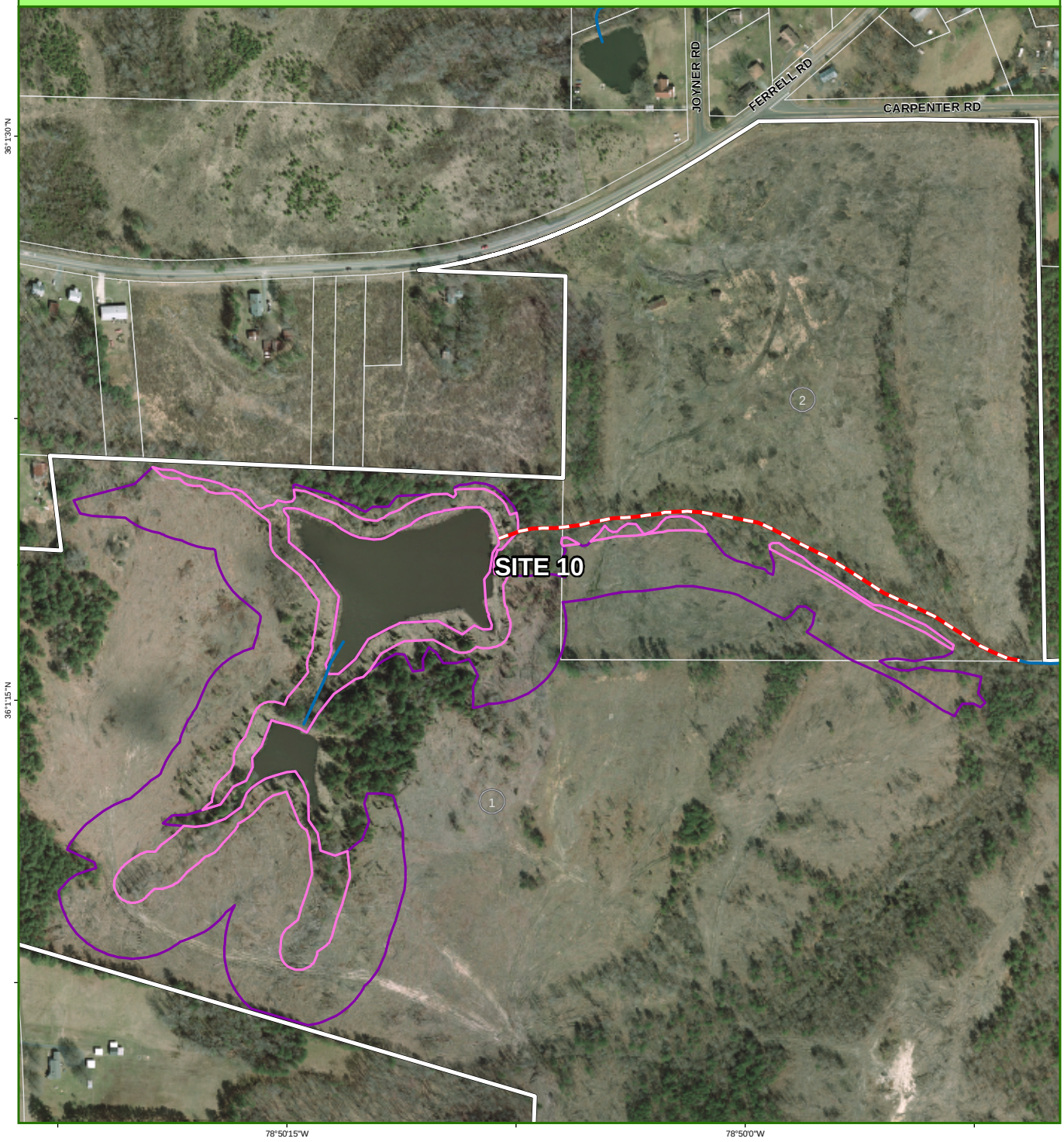
Ellerbe Creek Watershed: Site 9 HUC 3020201050010

Site Photographs:

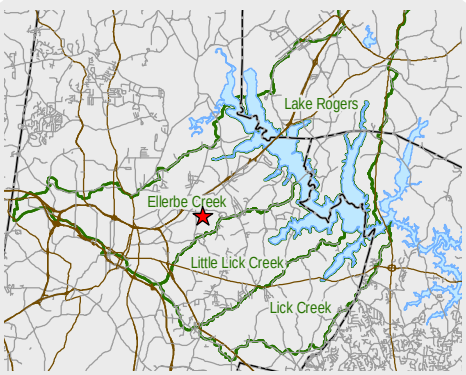
Exposed soil within the nutrient offset buffer area

Evidence of erosion resulting from exposed soil

Ellerbe Creek Watershed: Site 10



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 10 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP	1480+	Intermittent	0.22
1	RBR	0.4*	--	--
1	NOB	21.8*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers opportunities for stream preservation, riparian buffer restoration, and nutrient offset buffer restoration. Stream preservation opportunity exists for a 1480-foot intermittent reach of an unnamed tributary to Panther Creek. Riparian buffer restoration opportunity (0.4 acre) exists along the right bank (looking downstream) of the unnamed tributary. Nutrient offset buffer restoration (21.8 acres) exists proximal to the unnamed tributary, two ponds at the head of the tributary, and swales draining to the ponds. Riparian buffer and nutrient offset buffer restoration are achievable through the conversion of recent clearcuts to natural vegetation. The long-term viability of the Project Site may be compromised by the extensive development upstream.

Location:

The Project Site is 2200 feet south of Ferrell Road (SR 1671) at a point 1500 feet east along Ferrell Road from its intersection with Junction Road (SR 1675) in unincorporated Durham County, NC. Access to the Project Site is from Ferrell Road to the north.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☒H	☐L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 10 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 5 watershed. Anthropogenic activities have resulted in the conversion of 48 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 3 percent of the watershed. The watershed is zoned 1 percent Business and 14 percent Industrial. Residential areas are zoned Low Density Residential (13 percent), Very Low Density Residential (22 percent), and Rural Residential (50 percent). Land use/land cover alterations have impacted 36 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (93 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the riparian buffer and nutrient offset buffer areas will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the buffer areas from clearcut land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion. Stream preservation will ensure the functions provided by the healthy stream reach and intact riparian buffers at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☐G	☒P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☒Y	☐N	FEMA SSFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

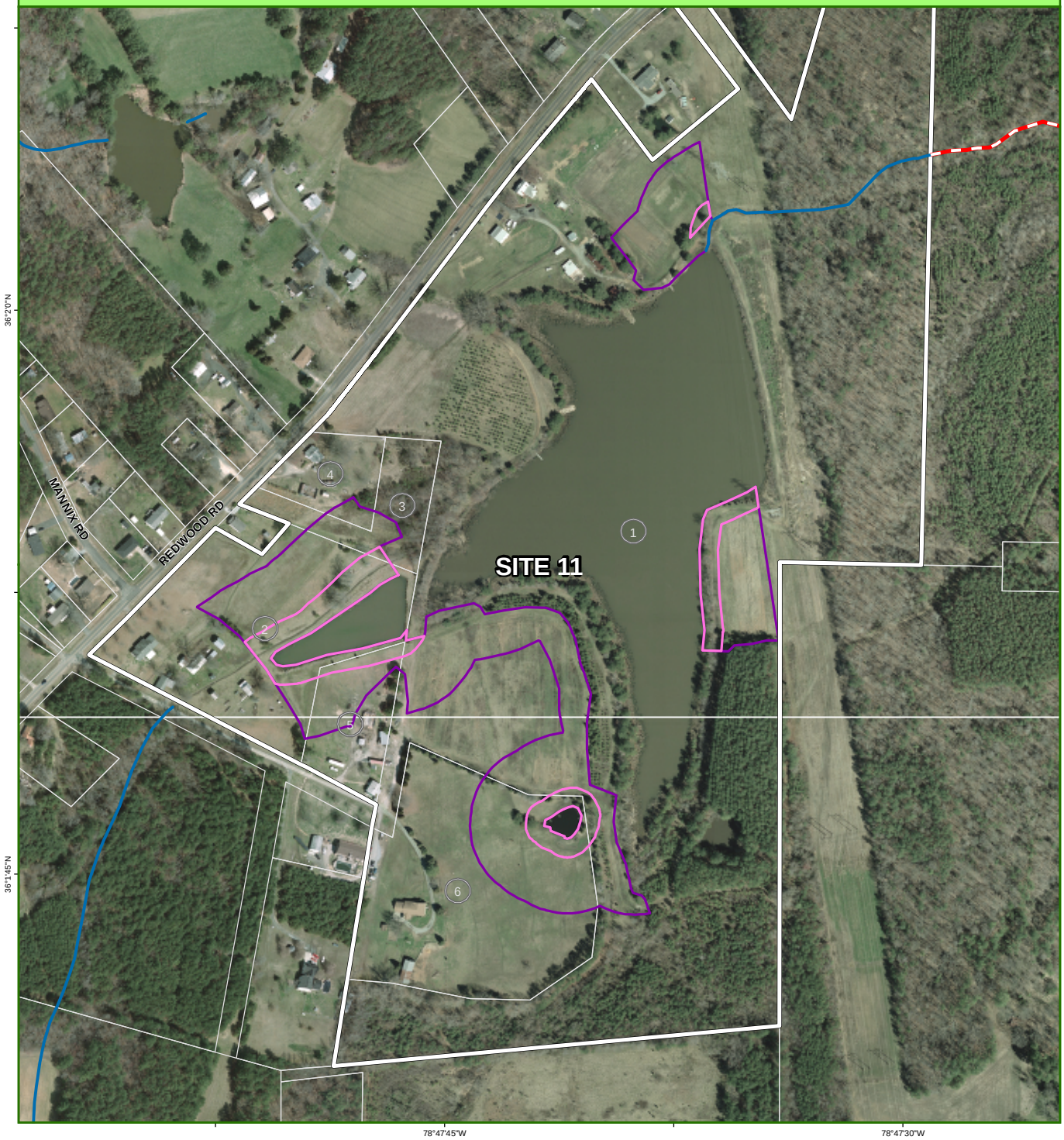
Ellerbe Creek Watershed: Site 10 *HUC 3020201050010*

Parcel Attributes:

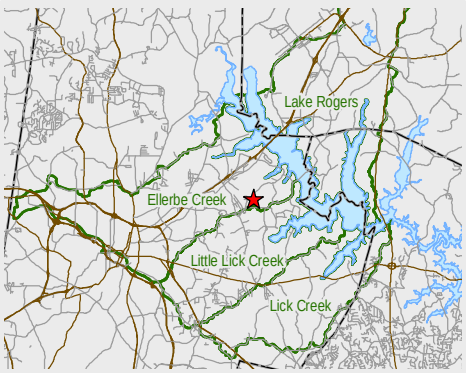
Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0842-02-86-8103	[redacted]	99.63	I-2
2	Durham	0842-01-97-4352	[redacted]	41.29	R-20

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 11



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 11 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	12.2*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

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RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
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SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 12.2 acres of nutrient offset buffer restoration opportunity through the conversion of maintained lawn to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to three ponds.

Location:

The Project Site consists of two discrete areas along Redwood Road (SR 1637) in unincorporated Durham County, NC. The first area is located 200 feet southeast of Redwood Road (SR 1637) at a point 250 northeast along Redwood Road from its intersection with Mannix Road (SR 1864) in unincorporated Durham County, NC. The second area is located 400 feet southeast of Redwood Road at a point 1700 feet northeast along Redwood Road from its intersection with Mannix Road. Access to the Project Site is from Redwood Road to the northwest.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☒N	Hydric Soils
☒Y	☐N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 11 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from maintained lawn to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☒Y	☐N	Structures Present	
☒Y	☐N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☐N	- Upstream	
☒Y	☐N	- Downstream	Culvert connect the two ponds.

Additional Comments:

Ellerbe Creek Watershed: Site 11 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-03-00-9784	[redacted]	64.96	RD
2	Durham	0853-04-90-7286	[redacted]	7.01	RD
3	Durham	0863-03-00-2438	[redacted]	1.62	RD
4	Durham	0863-03-00-0694	[redacted]	1.31	RD
5	Durham	0862-01-09-1903	[redacted]	1.76	RD
6	Durham	0862-01-09-4546	[redacted]	7.77	RD

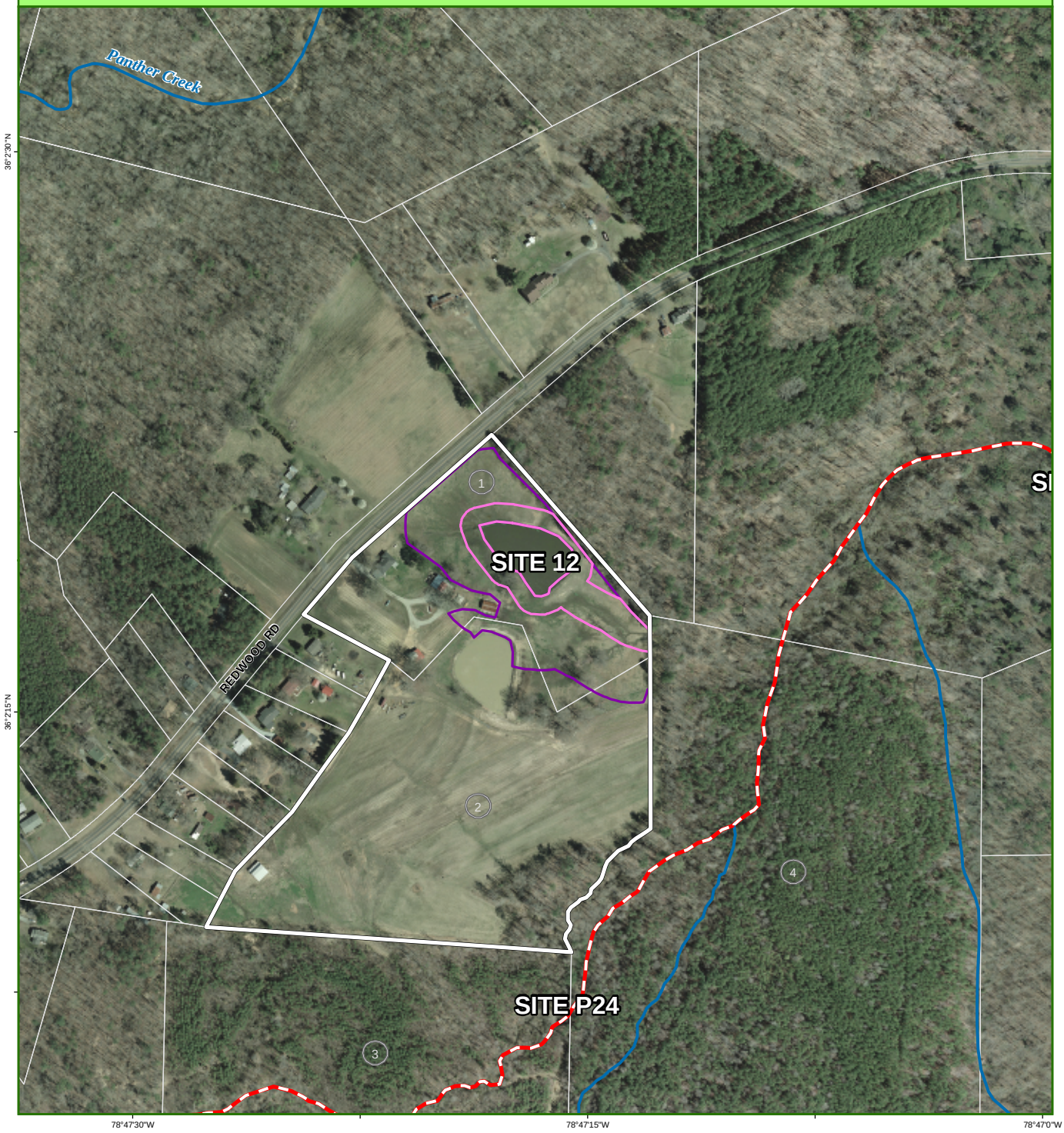
[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 11 HUC 3020201050010

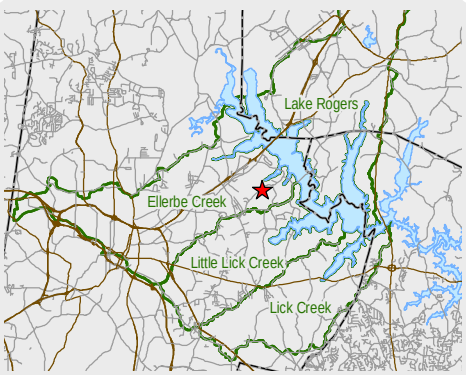
Site Photographs:

Unbuffered pond surrounded by maintained lawn

Ellerbe Creek Watershed: Site 12



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 12 *HUC 3020201050010*

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	4.5*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 12.2 acres of nutrient offset buffer restoration opportunity through the conversion of pasture to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to two ponds and their outfall channels.

Location:

The Project Site is located immediately southeast of Redwood Road (SR 1637) at a point 0.5 mile southwest along Redwood Road from its intersection with Creech Road (SR 1802) in unincorporated Durham County, NC. Access to the Project Site is from Redwood Road to the northwest.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☐W	☒L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☒Y	☐N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 12 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from pasture to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☒Y	☐N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 12 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-03-23-5063	[redacted]	7.77	RD
2	Durham	0863-03-22-5314	[redacted]	15.62	RD

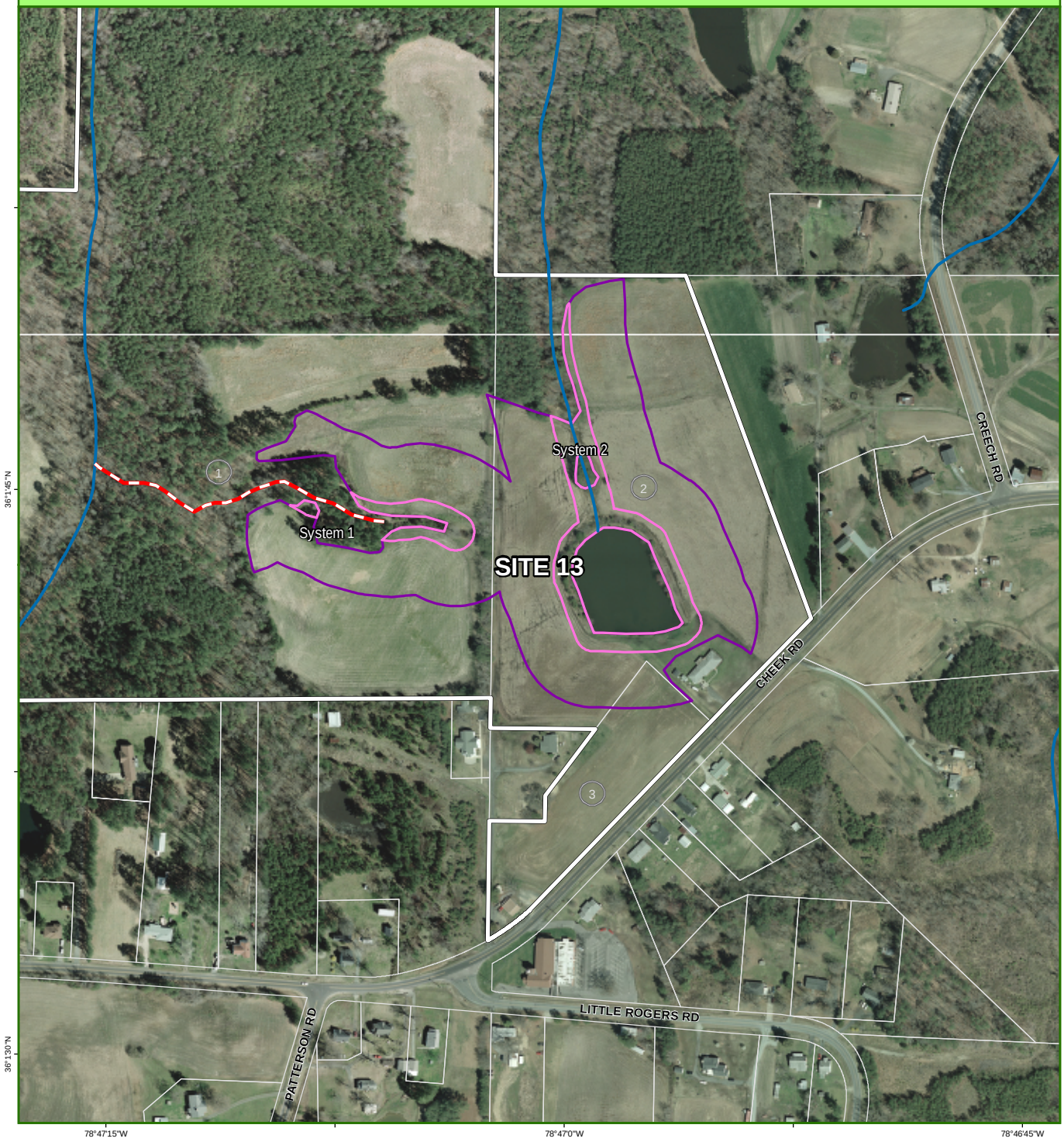
[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site 12 HUC 3020201050010

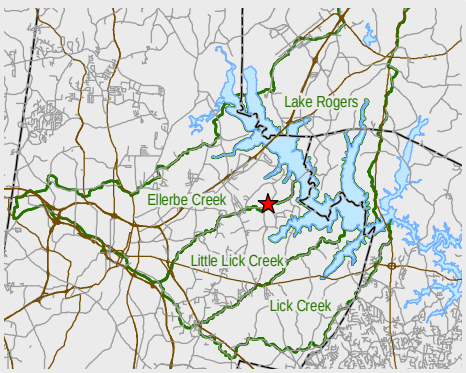
Site Photographs:

Unbuffered pond surrounded by pasture

Ellerbe Creek Watershed: Site 13



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 13 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP	860+	Intermittent	0.07
1	RBR	0.1*	--	--
1	NOB	4.8*	--	--
2	NOB	9.4*	--	--
--	--	--	--	--
--	--	--	--	--

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RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers opportunities for stream preservation, riparian buffer restoration, and nutrient offset buffer restoration within two systems (Systems 1 and 2). System 1 offers stream preservation opportunity for a 860-foot intermittent reach of an unnamed tributary. System 1 also offers riparian buffer restoration (0.1 acre) and nutrient offset buffer restoration (4.8 acres) opportunities along both banks of the unnamed tributary. System 2 offers 9.4 acres of nutrient offset buffer restoration proximal to a pond and associated outfall channel. For both systems, riparian buffer restoration and nutrient offset buffer restoration are achievable through the conversion of agricultural land to natural vegetation.

Location:

This Project Site consists of two discrete systems in unincorporated Durham County, NC. System 1 is located 70 feet northwest of Cheek Road (SR 1800) at a point 800 feet southwest along Cheek Road from its intersection with Creech Road (SR 1802). System 2 is located 880 feet northwest of the above mentioned point on Cheek Road. Access to both systems is from Cheek Road to the southeast.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 13 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the riparian buffer and nutrient offset buffer areas will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the buffer areas from agricultural land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion. Stream preservation will ensure the functions provided by the healthy stream reach and intact riparian buffers at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☒Y	☐N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 13 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-03-31-2182	[redacted]	157.60	RD
2	Durham	0862-01-49-2553	[redacted]	18.68	RD
3	Durham	0862-01-48-1766	[redacted]	3.51	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

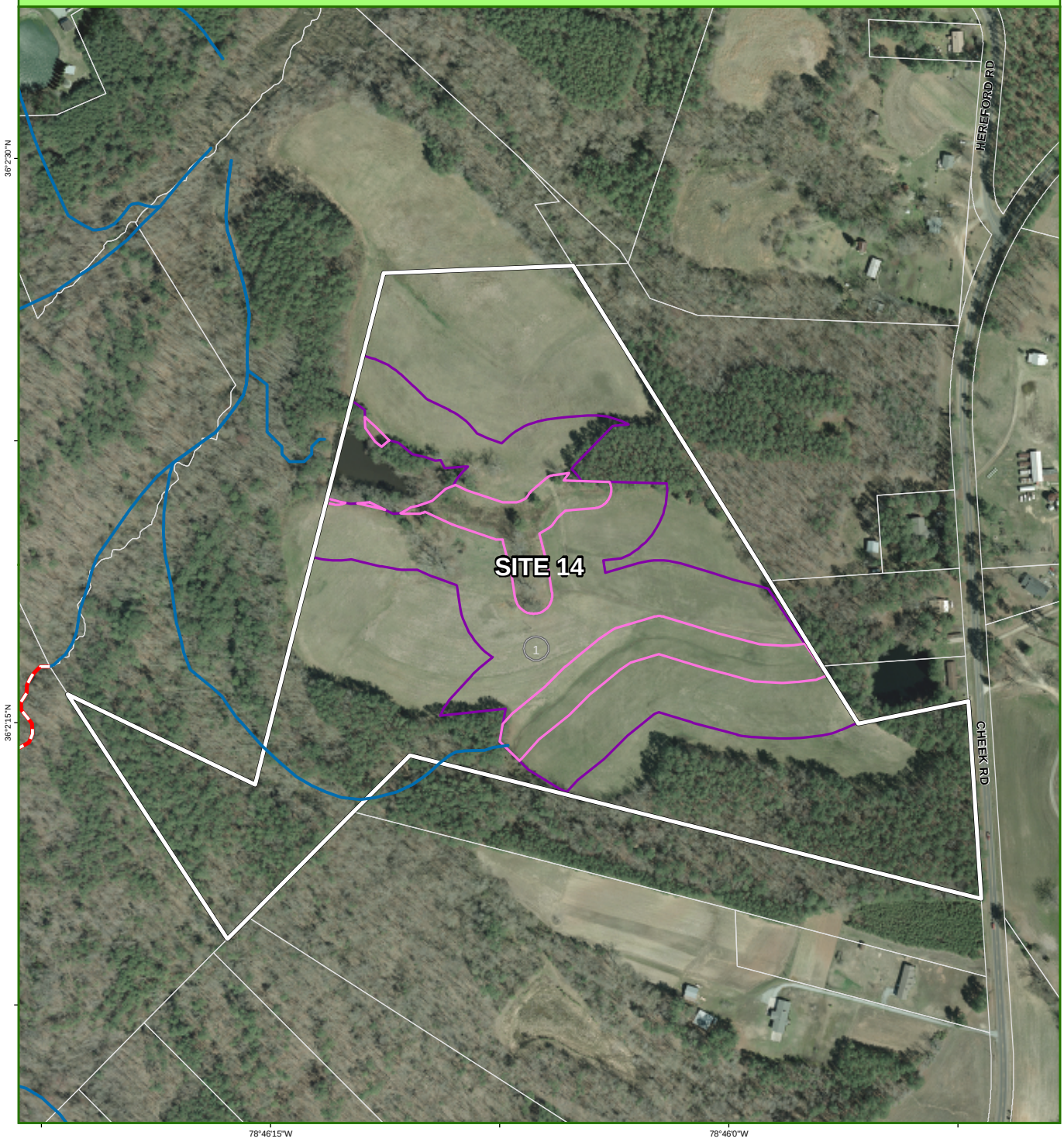
Ellerbe Creek Watershed: Site 13 HUC 3020201050010

Site Photographs:

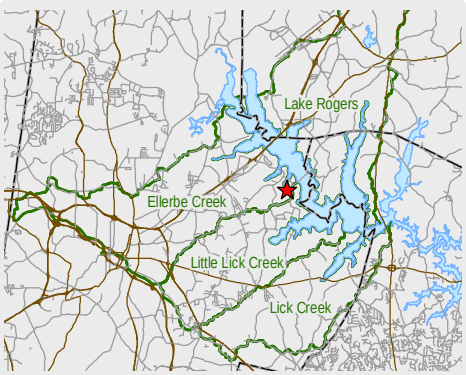
Stream buffer restoration along deeply incised intermittent stream

Incised intermittent stream

Ellerbe Creek Watershed: Site 14



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 14 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	16.5*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

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RWP = Riparian Wetland Preservation
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SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 16.5 acres of nutrient offset buffer restoration opportunity through the conversion of agricultural land to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to a pond, the pond's inflow and outfall channels, and a swale.

Location:

The site is located 350 feet west of Cheek Road (SR 1800) at a point and 2100 feet north along Cheek Road from its intersection with Shaw Road (SR 2501) in unincorporated Durham County, NC. Access to the Project Site is from Cheek Road to the east.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☐W	☒L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☐Y	☒N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 14 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from agricultural land to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 14 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-04-82-4814	[redacted]	44.81	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

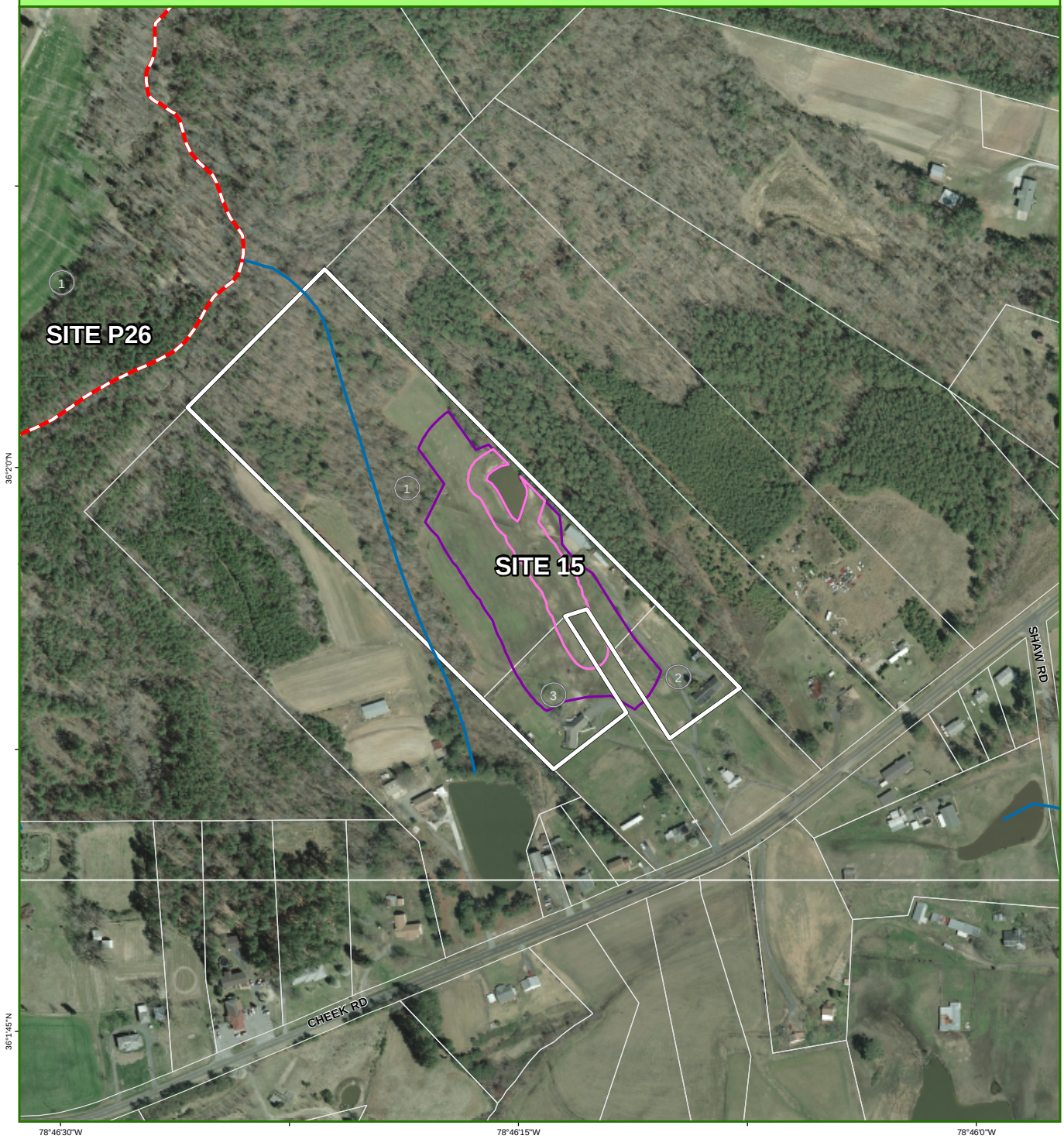
Ellerbe Creek Watershed: Site 14 HUC 3020201050010

Site Photographs:

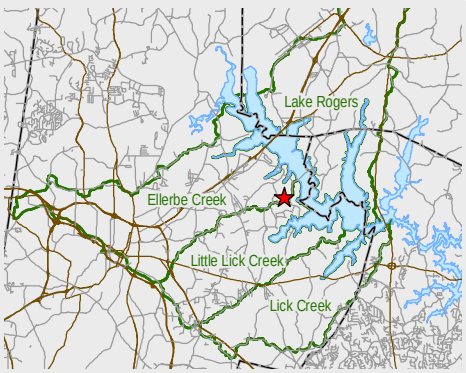
Nutrient offset buffer restoration opportunity along a vegeatated swale

Nutrient offset buffer restoration opportunity proximal to a pond

Ellerbe Creek Watershed: Site 15



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site 15 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	NOB	5.1*	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Abbreviations

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SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers 6.3 acres of nutrient offset buffer restoration opportunity through the conversion of pasture to natural vegetation. Nutrient offset buffer restoration opportunity exists proximal to a pond and associated inflow channel.

Location:

This Project Site is located 450 feet northwest of Cheek Road (SR 1800) at a point 1000 southwest along Cheek Road from its intersection with Shaw Road (2501) in unincorporated Durham County, NC. The Project Site is accessed from Cheek Road to the southeast.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☐W	☒L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☐N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☒Y	☐N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site 15 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Reestablishing natural vegetation in the nutrient offset buffer area will provide hydrology, water quality, and habitat benefits by reducing and filtering runoff and improving terrestrial habitat. Additionally, conversion of the nutrient offset buffer area from pasture to natural vegetation will reduce nutrient and sediment loading at the Project Site as well as mitigate the elevated runoff and sedimentation associated with the Triassic Basins ecoregion.

Feasibility & Implementation:

			Notes:
☐Y	☒N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☒Y	☐N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site 15 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-04-70-5949	[redacted]	13.84	RD
2	Durham	0863-04-80-1576	[redacted]	1.38	RD
3	Durham	0863-04-70-8468	[redacted]	1.85	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

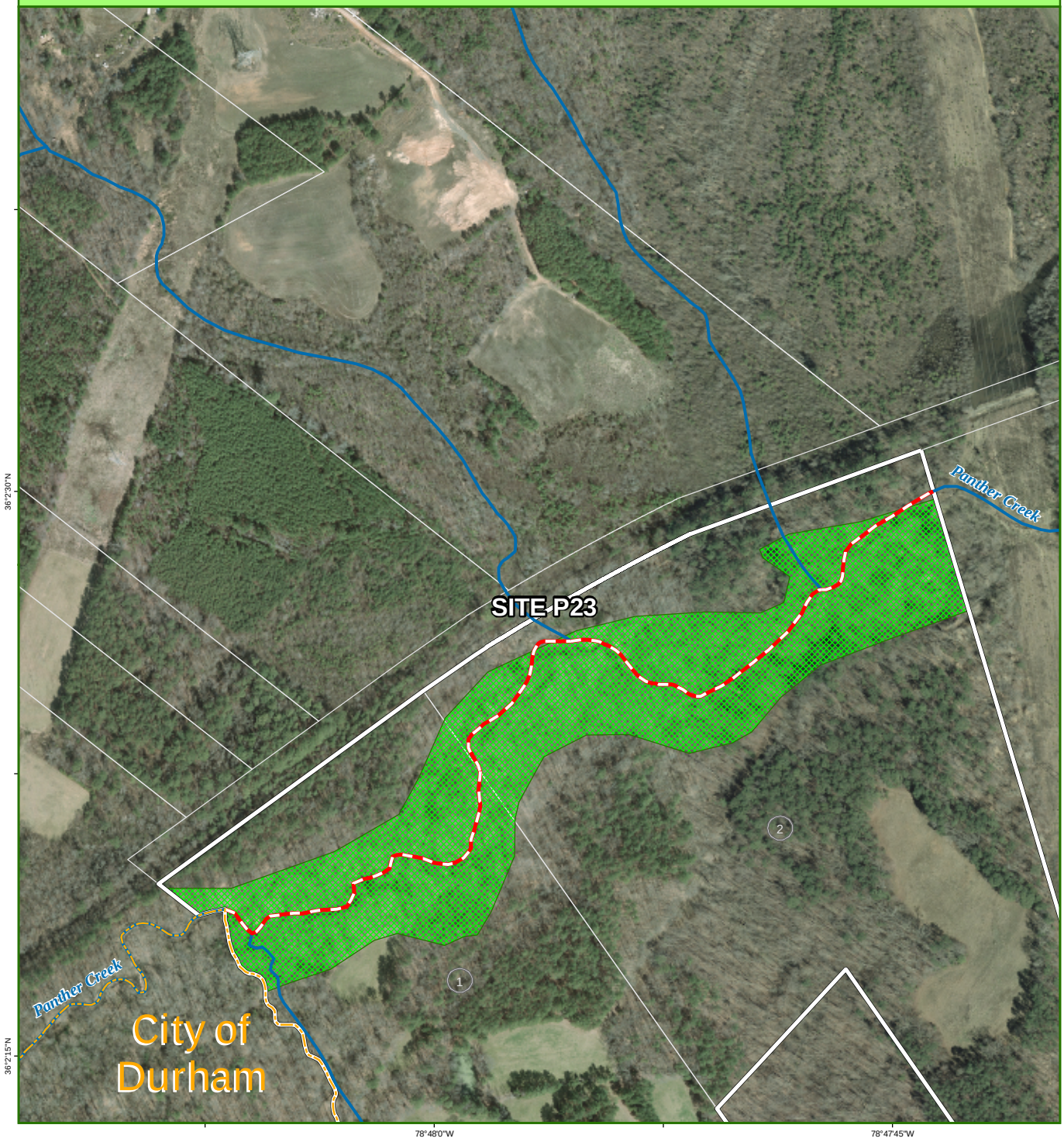
Ellerbe Creek Watershed: Site 15 HUC 3020201050010

Site Photographs:

Nutrient offset buffer restoration opportunity along an unbuffered swale

Unbuffered pond in a horse pasture

Ellerbe Creek Watershed: Site P23



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
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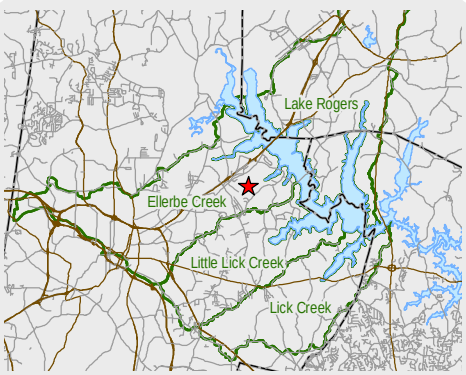
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site P23 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP	2810+	Perennial	3.56
1	RWP	16.4*	BLH	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

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SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers opportunities for stream preservation and riparian wetland preservation. Stream preservation opportunity exists for a 2810-foot perennial reach of Panther Creek. Riparian wetland preservation exists for 16.4 acres of Bottomland Hardwood Forest wetland associated with Panther Creek. The Project Site was identified as a candidate for preservation based on the following preservation site selection criteria: large tract, located in a riparian area; presence of prime farmland soil; presence of erosive soil; presence of rare plant or animal habitat; located in a FEMA Special Flood Hazard Area; adjacent designated open space (Panther Creek floodplain); and presence of NWI wetlands.

Location:

The Project Site is located 150 feet west of a power line corridor at a point 2000 feet north along the power line corridor from its intersection with Redwood Road (SR 1637) in unincorporated Durham County, NC. Access to the Project Site is from the power line corridor to the east.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☒W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☒Y	☒N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☒H	☐L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site P23 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 4 watershed. Anthropogenic activities have resulted in the conversion of 38 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. No portion of the watershed is zoned Business or Industrial. Residential areas are zoned Low Density Residential (10 percent), Very Low Density Residential (8 percent), and Rural Residential (82 percent) Land use/land cover alterations have impacted 30 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of highly erodible (2 percent coverage) and moderately erodible soils (89 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Stream preservation and riparian wetland preservation will ensure the hydrology, water quality, and habitat functions provided by the healthy stream reach and Bottomland Hardwood Forest wetland at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☐G	☒P	Site Access (good or poor)	In forest interior, 2000 feet off a road.
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☒Y	☐N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

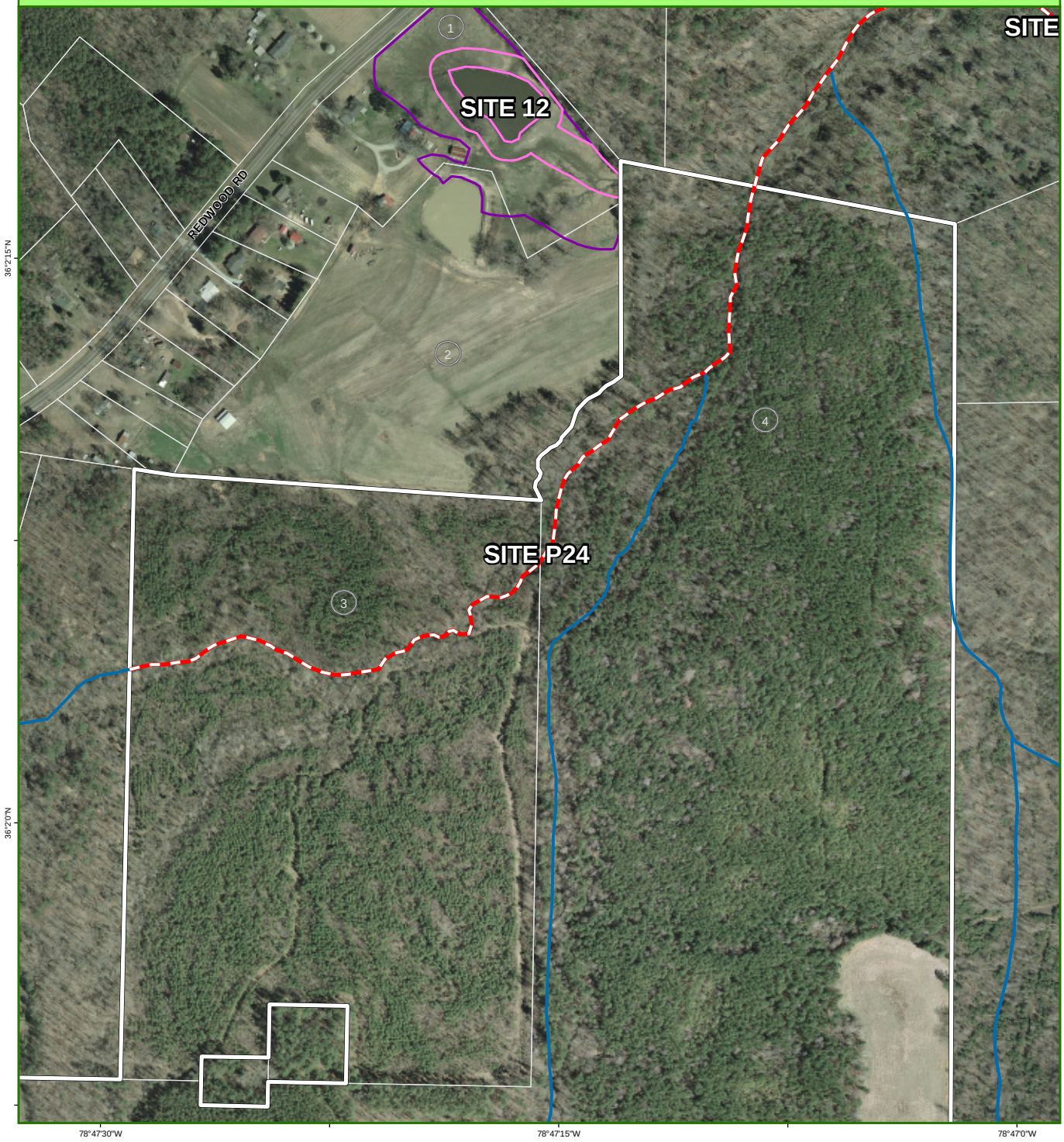
Ellerbe Creek Watershed: Site P23 *HUC 3020201050010*

Parcel Attributes:

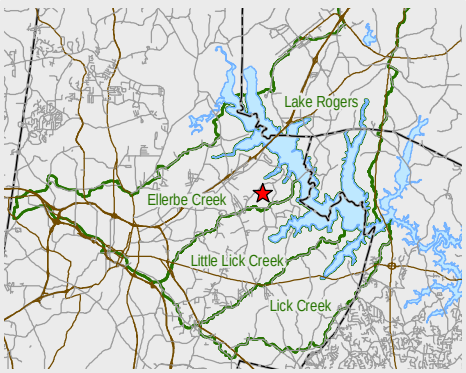
Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0853-04-92-3465	[redacted]	54.10	PDR
2	Durham	0863-03-03-1261	[redacted]	47.82	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site P24



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site P24 HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP	2590+	Perennial	0.65
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Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers stream preservation opportunity for a 2560-foot perennial reach of an unnamed tributary to Falls Lake. The Project Site is immediately upstream of Project Site P25 and 2500 feet upstream of the NCNHP Falls Lake Natural Areas Macrosite. The Project Site was identified as a candidate for preservation based on the following preservation site selection criteria: large tract, located in a riparian area; presence of rare plant or animal habitat; located in a FEMA Special Flood Hazard Area; and adjacent designated open space (Falls Lake floodplain).

Location:

The Project Site is located immediately west of Creech Road (SR 1802) at a point 800 feet along Creech Road from its intersection with Redwood Road (SR 1637) in unincorporated Durham County, NC. Access to the Project Site is Creech Road to the east.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☐W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☐Y	☒N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site P24 *HUC 3020201050010*

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Stream preservation will ensure the hydrology, water quality, and habitat functions provided by the healthy stream reach at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☒G	☐P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☒Y	☐N	FEMA SFHA	
☒Y	☐N	Known EO/Rare Community	Falls Lake Natural Areas Macrosite
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

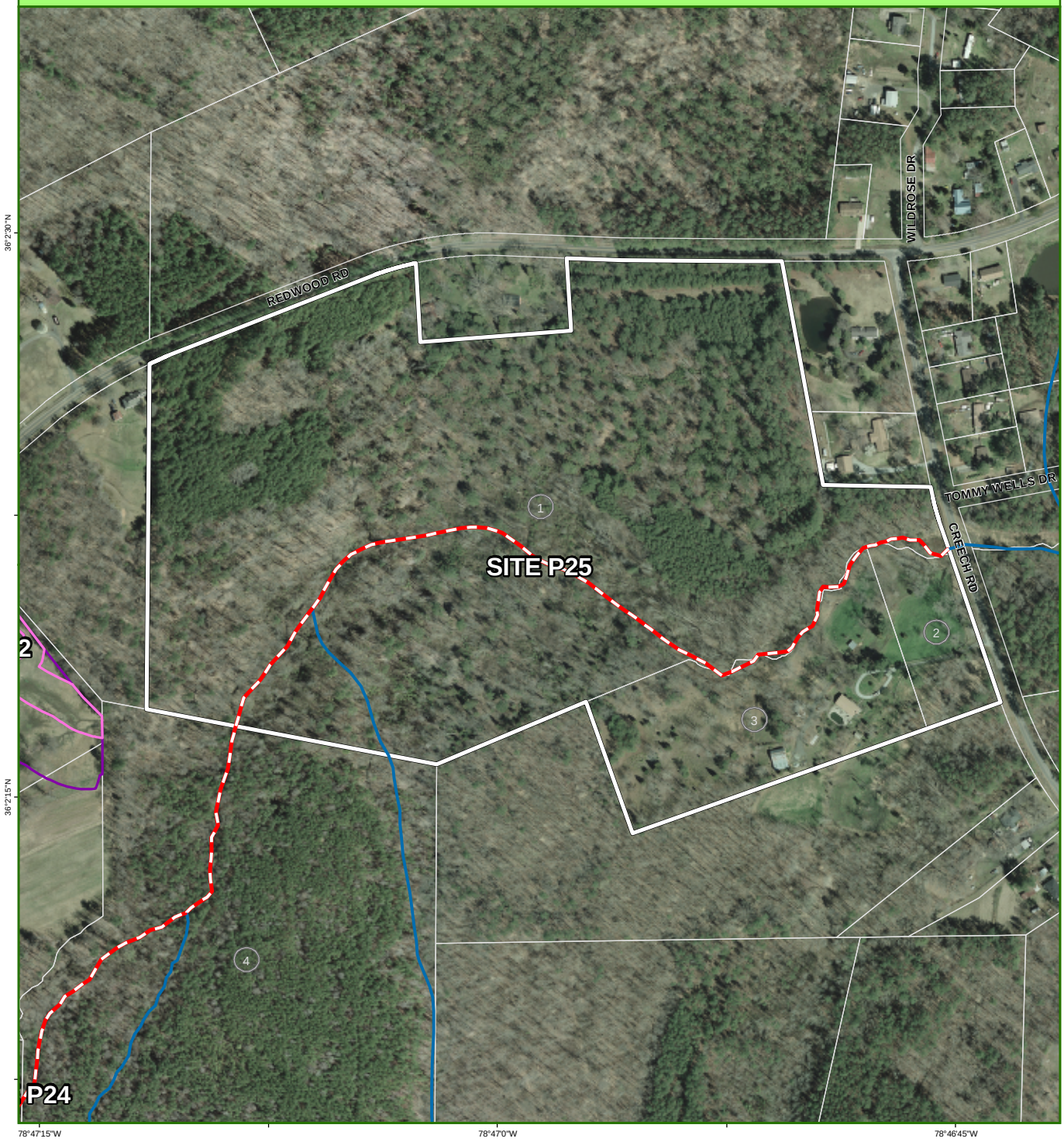
Ellerbe Creek Watershed: Site P24 *HUC 3020201050010*

Parcel Attributes:

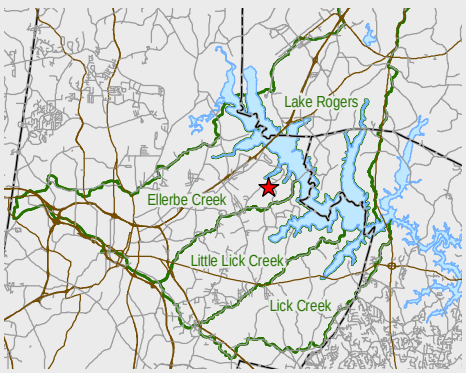
Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
3	Durham	0863-03-21-2214	[redacted]	39.26	RD
4	Durham	0863-03-31-2182	[redacted]	157.60	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site P25



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site P25

HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP	2520+	Perennial	0.95
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Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers stream preservation opportunity for a 2520-foot perennial reach of an unnamed tributary to Falls Lake. The Project Site is immediately downstream of Project Site P24 and west of the NCNHP Falls Lake Natural Areas Macrosite. The Project Site was identified as a candidate for preservation based on the following preservation site selection criteria: large tract, located in a riparian area; presence of rare plant or animal habitat; located in a FEMA Special Flood Hazard Area; and adjacent designated open space (Falls Lake floodplain).

Location:

The Project Site is located immediately west of Creech Road (SR 1802) at a point 800 feet along Creech Road from its intersection with Redwood Road (SR 1637) in unincorporated Durham County, NC. Access to the Project Site is Creech Road to the east.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☐W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☐Y	☒N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site P25 HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Stream preservation will ensure the hydrology, water quality, and habitat functions provided by the healthy stream reach at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☐G	☒P	Site Access (good or poor)	In forest interior.
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☒Y	☐N	FEMA SFHA	
☒Y	☐N	Known EO/Rare Community	Falls Lake Natural Areas Macrosite
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☒Y	☐N	- Downstream	At downstream road crossing.

Additional Comments:

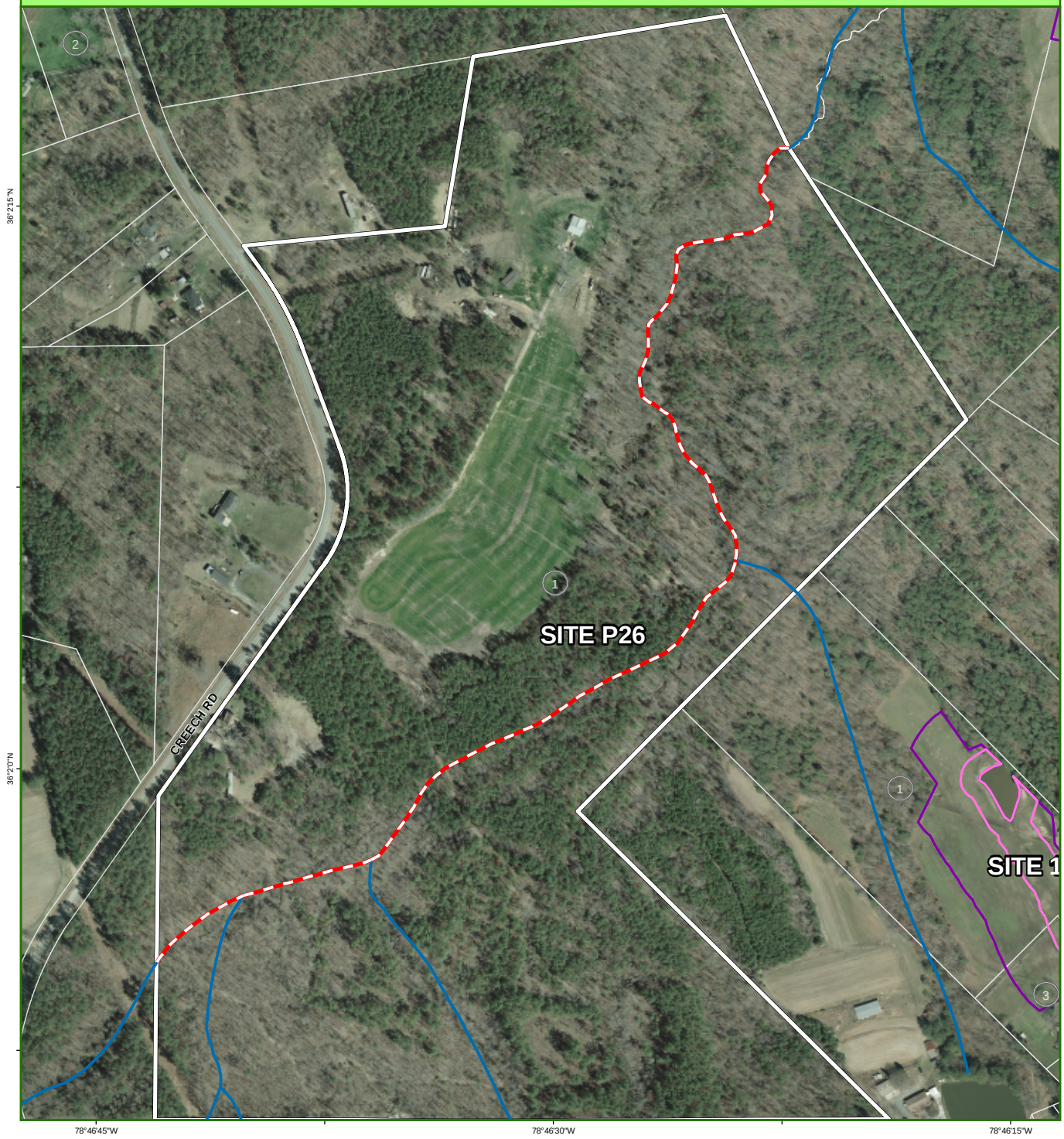
Ellerbe Creek Watershed: Site P25 *HUC 3020201050010*

Parcel Attributes:

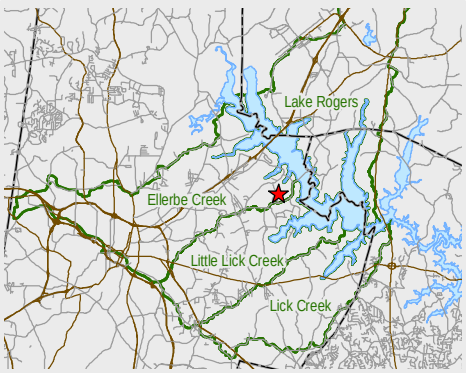
Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-03-43-0446	[redacted]	46.90	RD
2	Durham	0863-04-53-2035	[redacted]	2.25	RD
3	Durham	0863-03-42-6881	[redacted]	7.38	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county

Ellerbe Creek Watershed: Site P26



- Stream Restoration (Priority 1)
- Stream Restoration (Priority 2)
- Stream Enhancement (Level 1)
- Stream Enhancement (Level 2)
- Stream Preservation
- Wetland Restoration
- Wetland Enhancement
- Wetland Preservation
- Stormwater BMP Retrofit
- 50' Buffer Restoration
- 200' Buffer Restoration
- Stream
- 303(d) List Stream
- Ambient Water Quality
- Fish
- Macrobenthos
- Project Site Bounding Parcels
- Parcel Boundary
- Parcel Map Identification Number
- City Boundary



N

0 200 400 Feet

Scale: 1" = 400'

HUC: 3020201050010

Ellerbe Creek Watershed: Site P26

HUC 3020201050010

Mitigation Opportunity:

System	Type	Units (Acres*, Feet+, Count#)	Stream Type / Wetland Type	Drainage Area
1	SP	1470+	Perennial	0.28
1	SP	1970+	Intermittent	0.17
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Abbreviations

RWR = Riparian Wetland Restoration
RWE = Riparian Wetland Enhancement
RWP = Riparian Wetland Preservation
SRP1 = Stream Restoration Priority 1
SRP2 = Stream Restoration Priority 2
SRP3 = Stream Restoration Priority 3
SEI = Stream Enhancement Level I
SEII = Stream Enhancement Level II
SP = Stream Preservation
RBR = Riparian Buffer Restoration
RBE = Riparian Buffer Enhancement
NOB = Nutrient Offset Buffer Restoration
SR = Stormwater Retrofit
BLH = Bottomland Hardwood Forest
HWF = Headwater Forest

Project Description:

The Project Site offers stream preservation opportunity for a 1470-foot perennial and 1970-foot intermittent reach of an unnamed tributary to Falls Lake. The Project Site is immediately southwest of the NCNHP Falls Lake Natural Areas Macrosite. The Project Site was identified as a candidate for preservation based on the following preservation site selection criteria: large tract, located in a riparian area; presence of prime farmland soil; presence of rare plant or animal habitat; and adjacent designated open space (Falls Lake floodplain).

Location:

The Project Site is 1100 east of Creech Road (SR 1802) at a point 0.5 mile north along Creech Road from its intersection with Cheek Road (1800) in unincorporated Durham County, NC. Access to the Project Site is from Creech Road to the west. Alternately, the southern terminus of the Project Site can be accessed from a power line corridor that intersects Creech Road at a point 1260 feet along Creech Road from the Creech Road-Cheek Road intersection.

Environmental Characteristics:

☒Y	☐N	Riparian Area	☒W	☐L	Connectivity (well or loosely)
☐Y	☒N	303(d) List			
☐W	☐A	Wetland (NWI) (within or adjacent)	☐L	☒S	Relative Impact (large or small)
☐Y	☒N	Headwaters	☒Y	☐N	Erosive Soils
☒Y	☐N	Drinking Water Supply	☒Y	☐N	Hydric Soils
☐Y	☒N	Ephemeral Channel	☐H	☒L	Threat of Loss (high or low)

Other:

Ellerbe Creek Watershed: Site P26 — HUC 3020201050010

Watershed Stressors:

The Project Site occurs in the Functional Assessment Area 6 watershed. Anthropogenic activities have resulted in the conversion of 42 percent of the watershed to disturbed land use/land cover. Impervious land cover occurs over 1 percent of the watershed. The entire watershed is zoned Rural Residential. Land use/land cover alterations have impacted 37 percent of the riparian buffer corridor. Watershed geomorphic and physiographic characteristics that may influence water quality include the average watershed slope (6 percent), the presence of moderately erodible soils (72 percent coverage), and the occurrence of 100 percent of the watershed in the Triassic Basins ecoregion.

Functional Uplift:

Stream preservation will ensure the hydrology, water quality, and habitat functions provided by healthy stream reaches at the Project Site will persist.

Feasibility & Implementation:

			Notes:
☒Y	☐N	Meets EEP Criteria	
☐G	☒P	Site Access (good or poor)	
☐Y	☒N	Maintenance Required	
☒G	☐P	Long-term Viability (good or poor)	
☐PU	☒PR	Ownership (public or private)	

Constraints:

			Notes:
☐Y	☒N	Structures Present	
☐Y	☒N	FEMA SFHA	
☐Y	☒N	Known EO/Rare Community	
		Utilities	
☐Y	☒N	- Above ground	
☐Y	☒N	- Below ground	
		Culverts	
☐Y	☒N	- Upstream	
☐Y	☒N	- Downstream	

Additional Comments:

Ellerbe Creek Watershed: Site P26 *HUC 3020201050010*

Parcel Attributes:

Parcel MID[1]	County	PIN[2]	Property Owner	Acreage[3]	Zoning[4]
1	Durham	0863-04-62-5068	[redacted]	91.98	RD

[1] Parcel map identification number
[2] County parcel identification number
[3] Calculated acreage (not deeded acreage)
[4] Zoning according to the county