

MERGER TEAM MEETING – CONCURRENCE POINT 4A

NC 73 IMPROVEMENTS – NC 16 TO NORTHCROSS DRIVE (SR 2316) LINCOLN AND MECKLENBURG COUNTIES STIP PROJECT NOS. R-5721 and U-5765

MARCH 21, 2019

PURPOSE OF THIS MEETING

The purpose of today's meeting is to discuss Concurrence Point (CP) 4A – Avoidance and Minimization. Concurrence will be requested on CP 4A during today's meeting.

PROJECT DESCRIPTION

North Carolina State Transportation Improvement Program (STIP) Project Nos. R-5721 and U-5765 consist of widening NC 73 from NC 16 to Northcross Drive (SR 2316), a distance of approximately 8.5 miles. These projects are included in the 2018-2027 STIP. The limits for each project are described as follows and are shown on Figure 1:

- R-5721 – Widen NC 73 to multi-lanes from NC 16 to West Catawba Avenue (SR 5544), Lincoln and Mecklenburg Counties.
- U-5765 – Widen NC 73 from West Catawba Avenue to Northcross Drive, Mecklenburg County.

PROJECT SCHEDULE/COST

The right-of-way acquisition and construction schedule for the projects are aligned in the 2018-2027 STIP, currently:

Begin Right-of-Way Acquisition: Fiscal Year (FY) 2020

Begin Construction: FY 2022

Table 1 outlines the next major milestones in the development of the project leading to right-of-way acquisition and construction. Table 2 provides the 2018-2027 State Transportation Improvement Program (STIP) project funding. It is anticipated that these two projects would be permitted and let to construction together.

Table 1. Project Schedule

Next Steps	Date*
Complete Environmental Studies	Ongoing
Evaluate Environmental Impacts and Select Preferred Alternative	January-March 2019
Announcement to Inform Public of Preferred Alternative	March 2019
Complete the Final Environmental Document	April 2019
Begin Final Design	Spring 2019
Begin Right-of-Way Acquisition	Spring 2020
Begin Construction	Spring 2022

Table 2. Cost Estimates (STIP)

	R-5721	U-5765
Project Development/Design	\$2.3 Million	\$0.5 Million
Right-of-Way & Utilities	\$82.0 Million	\$4.4 Million
Construction	\$69.4 Million	\$7.0 Million
Total Cost	\$153.7 Million	\$11.9 Million
Grand Total	\$165.6 Million	

PROJECT PURPOSE (CP 1)

Initial concurrence on CP1 was achieved August 9, 2017. Revised concurrence on the project purpose and study area was reached on March 22, 2018.

The purpose of the proposed project is to increase the traffic carrying capacity of NC 73 within the study area to operate at an acceptable level of service (LOS D or better) through the design year 2040 and preserve long-term mobility of the corridor. A secondary purpose is to safely accommodate multi-modal uses of the corridor.

ALTERNATIVES FOR DETAILED STUDY (CP 2)

Formal concurrence on the alternatives for detailed study was reached on March 22, 2018. Team members agreed on the study alternatives described below:

- No-Build Alternative
- Alternative 1: Best Fit Widening Along Existing NC 73
- Alternatives 2A and 2B: Best Fit Widening Along Existing NC 73 with Realignment in the Vicinity of the McGuire Nuclear Station and Beatties Ford Road
 - Alternative 2A resembles an alignment proposed in local and regional plans.
 - Alternative 2B provides a more shallow realignment than Alternative 2A.

BRIDGING DECISIONS AND ALIGNMENT REVIEW (CP 2A)

Formal concurrence on bridging decisions was reached on June 6, 2018. Eight major stream crossings require structures that are 72 inches or greater in diameter. All other crossings can be contained in smaller pipes. Of these, six existing culverts along existing NC 73 are proposed to be retained and extended at Sites 1, 3, 4, 5, 6, and 7. The bridge over the Catawba River at Site 2 is proposed to be replaced on new alignment with dual bridges (45'x883'). The only new major drainage structure is proposed at Site 8 under Alternative 2A. Table 3 provides additional detail on the existing and proposed major drainage structures.

Table 3. Existing and Proposed Major Drainage Structures

SITE NO.	MAP ID	EXISTING STRUCTURE NO., SIZE, TYPE	PROPOSED STRUCTURE SIZE, TYPE	
			Alt 1	Alt 2A
1	SDD	2@9'x8' RCBC	Replace with 2@9'x10' RCBC*	
2	Catawba River	Bridge No. 50, 33'x883'	Replace with Dual Bridges 45'x883'	
3	SBB	72" CMP	Retain Existing 72" CMP and Extend Upstream**	
4	McDowell Creek	Culvert #83, 3@8'x9' RCBC	Retain Existing RCBC and Extend Each Side	
5	Caldwell Station Creek	Culvert #84, 2@10x8' RCBC	Retain Existing RCBC and Extend Each Side	
6	Caldwell Station Creek	Culvert #16, 2@10x8' RCBC	Retain Existing RCBC and Extend Each Side	
7	SCC	1@8'x5' RCBC	Retain Existing RCBC and Extend Upstream	1@8'x7 RCBC
8	SJ	N/A		

NOTES: CMP = Corrugated Metal Pipe, RCBC = Reinforced Concrete Box Culvert

See Figures 3.1-3.3 for Locations of Hydraulic Sites and Jurisdictional Streams/Wetlands

There Are No Major Drainage Structures for Alternative 2B.

* Current Design Proposes to Retain Existing RCBC and Extend Each Side (based on CP 2A Merger Meeting comments).

** Structural integrity of the existing CMP to be determined prior to extension.

LEDPA (CP 3)

Formal concurrence on the Least Environmentally Damaging and Practicable Alternative (LEDPA) is expected to be finalized prior to the CP 4A meeting. As of March 7, 2019, the CP 3 form is pending signature by the Charlotte Regional TPO and Gaston-Cleveland-Lincoln MPO. The Merger Team concurred on Alternative 1 (Best fit widening along existing NC 73) as the LEDPA.

CONCURRENCE POINT (CP) 4A – AVOIDANCE AND MINIMIZATION

Throughout the project development process the project team has examined ways to avoid and minimize impacts to the human and natural environment. These measures have been incorporated into the preliminary design. Avoidance and minimization efforts, on a site-by-site basis, include the following:

Jurisdictional Avoidance and Minimization Measures

- Stream SD
 - The proposed intersection treatment at NC 16 Business/NC 73 attempts to provide a balance between impacts to businesses and jurisdictional resources. Stream SD runs parallel to NC 16 Business north of the intersection before it crosses NC 73 to the east side of NC 16 Business. The proposed intersection footprint minimizes impacts to this resource by locating the displaced lefts, as part of the Continuous Flow Intersection (CFI) design, along the NC 73 mainline.
- Stream SE
 - This resource crosses NC 73 between Club Drive and Cowans Ford Drive. The proposed alignment minimizes impacts to this resource by crossing it as perpendicularly as possible. The median width narrows to 17.5 feet in the vicinity of Stream SE as a means to minimize impacts.
- Stream SDD (CP 2A Site 1), and Wetlands WR, WS, and WQ
 - Several horizontal alignment options were explored just west of the Catawba River to avoid or minimize impacts to Duke Energy assets, including transmission towers and the Highway 73 Access Area, a Federal Energy Regulatory Commission (FERC) recreation site. These options were presented during the June 6, 2018 CP 2A meeting. The proposed alignment was chosen because it results in the least amount of jurisdictional impacts and least cost.
 - The proposed alignment of NC 73 minimizes impacts to these closely-located resources located to the west of the Catawba River by best-fit widening that follows mostly existing NC 73. The proposed alignment avoids the extensive wetland and stream systems to the south. The alignment also minimizes impacts to large Duke Energy transmission towers and to FERC resources. The project will require reconfiguration of the Highway 73 Access Area (Boat Ramp Facility) on the west side of the Catawba River, but preliminary concepts indicate little to no impact to jurisdictional resources as a result of this reconstruction. The reconstruction design is subject to Duke Energy/FERC approval.
 - The median width narrows to 17.5 feet through these resources as a means to minimize impacts.
- Catawba River (CP 2A Site 2)
 - The proposed design avoids impacts to the Catawba River by spanning the resource with dual bridges.
- Stream SF and Ponds 7 and 8
 - The proposed design attempts to balance impacts to various resources in this area: Southlake Christian Academy and Presbyterian Church on the north side

- of NC 73, a residential neighborhood on the south side of NC 73, and the jurisdictional resources located on both sides of the roadway.
- Stream SF is classified as Intermittent.
 - Streams SI, SJ, SK, SH and Wetlands WB and WH
 - Alternative 1 avoids impacts to these resources to the south of existing NC 73 by best-fit widening along the existing roadway.
 - Stream SBB (CP 2A Site 3), Wetland WW, and Pond 10
 - These jurisdictional resources are surrounded by an apartment complex on the north side of NC 73 and dense commercial development on the south side of NC 73. Impacts to all resources were minimized to the greatest extent possible, while meeting the purpose of the project to increase traffic carrying capacity and associated need for additional travel lanes.
 - Wetlands WK, WI, WJ, McDowell Creek (CP 2A Site 4), and Caldwell Station Creek (CP 2A Sites 5 and 6)
 - This cluster of resources is located on both sides of NC 73 between Lindholm Drive and Northcross Drive. Through the analysis conducted for CP 2A, it was determined that spanning these resources with a bridge was determined not to be feasible. The use of an innovative intersection design at NC 73 and Northcross Drive eliminates the need for left turn lanes, thereby reducing the overall footprint of the intersection. The reduced footprint minimizes the culvert extensions required for Caldwell Station Creek at both the NC 73 and Northcross Drive crossings.
 - Due to the urban and densely developed nature of Huntersville, impacts to jurisdictional resources must be balanced with impacts to the human environment, including businesses and residential communities, coupled with the purpose of the project to increase the traffic carrying capacity of NC 73.
 - Stream SCC (CP 2A Site 7)
 - Impacts to this stream are minimized with a narrower median than what is proposed to the west. In the vicinity of SCC the median width is 23 feet as opposed to a 35-foot median to the west of Lindholm Drive. A narrower median minimizes the culvert extension required for SCC.

Non-Jurisdictional Avoidance and Minimization Measures

- Based on feedback during early planning and Merger discussions, the project's alternatives analysis initially focused on widening the existing alignment and one proposed realignment option. This realignment option was developed based on recommendations within local (Town of Huntersville) and regional (Charlotte Regional Transportation Planning Organization) plans. Additionally, this realignment option was developed due to the potential avoidance it could provide through a constrained portion of the corridor. A second, shallower realignment option was requested by the Merger Team in August 2017 to determine whether additional avoidance/minimization was possible.
- Numerous innovative at-grade intersection configurations are proposed along the entire project corridor. These configurations, as opposed to conventional intersections, are proposed to minimize the number of lanes needed to increase the

traffic carrying capacity of NC 73 to operate at an acceptable level of service through the design year 2040.

- The best-fit widening of existing NC 73 avoids impacts to the buildings and minimizes impacts to the boundary associated with Stillwell-Hubbard Complex, which has been determined eligible for listing on the National Register of Historic Places. This contrasts with the realignment option under Alternative 2A, which bisects the historic complex.
- The median width was reduced along NC 73 between Blythe Landing Park and Windaliere Drive/Norman View Lane from 23 feet to 17.5 feet. Additionally, multi-modal accommodations that were originally being considered were revised from a 12-foot multi-use path on both sides of NC 73 to a 10-foot multi-use path on the north side of NC 73 and a six-foot sidewalk on the south side. The proposed U-turn bulb on the south side of NC 73 in this area was redesigned to accommodate passenger vehicles only. Through coordination with Duke Energy and FERC, the project team was able to determine how far north the widening could occur towards the Hicks Crossroads Dike. The intent of these efforts was to minimize impacts to the residential properties located along Kelly Park Circle in the Birkdale neighborhood. Additional coordination with Duke Energy and FERC is needed during utility coordination and final design.

Additional minimization may be achieved during final design, when hydraulic design (CP 4B and 4C) and utility relocation design commence.

NEPA/404 MERGER TEAM AGREEMENT

Concurrence Point No. 1: *Purpose and Need & Study Area Defined*

PROJECT DESCRIPTION:

NC 73 Improvements from NC 16 to SR 2316 (Northcross Drive)
Lincoln and Mecklenburg Counties
STIP Project Nos. R-5721 and U-5765

Purpose and Need of Proposed Project

The purpose of the proposed project is to increase the traffic carrying capacity of NC 73 within the study area to operate at an acceptable level of service (LOS D or better) through the design year 2040 and preserve long-term mobility of the corridor. A secondary purpose is to safely accommodate multi-modal uses of the corridor.

The need for the proposed project is as follows:

- NC 73, a regionally important route, experiences poor LOS, extended delays, and queue spillbacks at numerous intersections along the corridor.
- The NC 73 corridor lacks access management and is experiencing rapid growth.
- Traffic analyses performed in 2014, 2015, and 2017 indicate NC 73 will require additional capacity and improvements to provide adequate LOS for users in the future.
- Traffic volumes and the lack of accommodations on NC 73 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes.

Project Study Area

The revised project study area boundaries are shown on Figures 2 and 3.1-3.3, dated March 2018. The study area has a variable width along NC 73 to account for environmental constraints, major utilities, and recommendations in the Northwest Huntersville Transportation Study.

The Project Team concurred on this date of March 22, 2018 with the purpose of and need for the proposed project as stated above and the revised project study area as illustrated on Figures 2 and 3.1-3.3. This concurrence form supersedes the form signed August 9, 2017.

US Army Corps of Engineers

US Environmental Protection Agency

US Fish and Wildlife Service

NC Wildlife Resources Commission

NC Department of Cultural and Natural Resources

NC Division of Water Resources

NC Department of Transportation

Charlotte Regional TPO

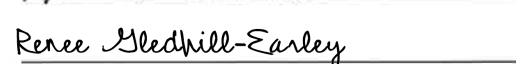
Gaston-Cleveland-Lincoln MPO



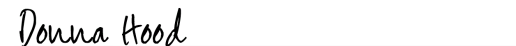
Amanetta Somerville



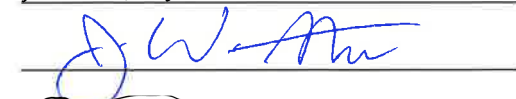
Mark Bruck



Renee Gledhill-Earley



Donna Hood



J. W. Atkinson



Randi Gates

NEPA/404 MERGER TEAM AGREEMENT

Concurrence Point No. 2: *Alternatives for Detailed Study*

PROJECT DESCRIPTION:

NC 73 Improvements from NC 16 to SR 2316 (Northcross Drive)
Lincoln and Mecklenburg Counties
STIP Project Nos. R-5721 and U-5765

Alternatives for Detailed Study

Alternatives 1, 2A, and 2B are the revised project alternatives for detailed study. These are described as follows:

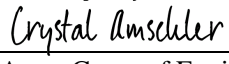
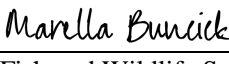
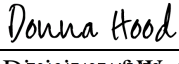
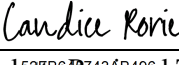
No-Build Alternative

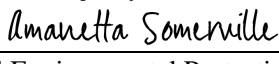
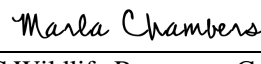
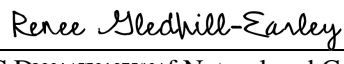

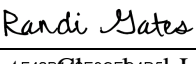
Alternative 1: Best Fit Widening Along Existing NC 73

Alternatives 2A and 2B: Best Fit Widening Along Existing NC 73 with Realignment in the Vicinity of the McGuire Nuclear Station and Beatties Ford Road

- Alternative 2A resembles an alignment proposed in local and regional plans
- Alternative 2B provides a more shallow realignment than Alternative 2A

The Project Team concurred on this date of March 22, 2018 with the revised detailed study alternatives carried forward as described above. This concurrence form supersedes the form signed August 9, 2017.

DocuSigned by: 	4/24/2018
US Army Corps of Engineers	
DocuSigned by: 	4/25/2018
US Fish and Wildlife Service	
DocuSigned by: 	4/25/2018
NC Division of Water Resources	
DocuSigned by: 	4/26/2018
Charlotte Regional TPO	

DocuSigned by: 	5/23/2018
US Environmental Protection Agency	
DocuSigned by: 	5/21/2018
NC Wildlife Resources Commission	
DocuSigned by: 	5/21/2018
NC Department of Natural and Cultural Resources	
	3-30-18
NC Department of Transportation	
DocuSigned by: 	5/23/2018
Gaston-Cleveland-Lincoln MPO	

NEPA/404 MERGER TEAM AGREEMENT

Concurrence Point No. 2A: *Bridging Decisions and Alignment Review*

PROJECT DESCRIPTION:

NC 73 Improvements from NC 16 to SR 2316 (Northcross Drive), Lincoln and Mecklenburg Counties
STIP Project Nos. R-5721 and U-5765

Recommended Major Structures

SITE NO.	MAP ID	EXISTING STRUCTURE NO., SIZE, TYPE	PROPOSED STRUCTURE SIZE, TYPE				
			Catawba River Options				Realignment Options*
			Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 2A
1	SDD	2@9'x8' RCBC	Replace with 2@9'x10' RCBC	Replace with 2@9'x10' RCBC	Retain and Extend Existing 2@9'x8' RCBC and Construct New Single 45'x185' Bridge	Replace with 2@9'x10' RCBC	
2	Catawba River	Bridge No. 50, 33'x883'	Replace with Dual Bridges 45'x883'	Replace with Dual Bridges 45'x883'	Replace with Dual Bridges 45'x883' 45'x1088'	Replace with Dual Bridges 45'x883'	
3	SBB	72" CMP	Retain Existing 72" CMP and Extend Upstream				
4	McDowell Creek	Culvert #83, 3@8'x9' RCBC	Retain Existing RCBC and Extend Each Side				
5	Caldwell Station Creek	Culvert #84, 2@10x8' RCBC	Retain Existing RCBC and Extend Each Side				
6	Caldwell Station Creek	Culvert #16, 2@10x8' RCBC	Retain Existing RCBC and Extend Each Side				
7	SCC	1@8'x5' RCBC	Retain Existing RCBC and Extend Upstream				
8	SJ	N/A					1@8'x7 RCBC


NOTES: CMP = Corrugated Metal Pipe, RCBC = Reinforced Concrete Box Culvert

See Figures 3.1-3.3 and 4.1-4.7 for Locations of Hydraulic Sites and Jurisdictional Streams

There are no major drainage structures for Alternative 2B.

The Project Team concurred on this date of June 6, 2018 with the structures to be considered for the proposed project as described above.


US Army Corps of Engineers



US Fish and Wildlife Service


NC Division of Water Resources

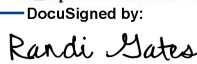
DocuSigned by:
 6/11/2018
Charlotte Regional TPO

DocuSigned by:
 6/12/2018
US Environmental Protection Agency

DocuSigned by:
 6/12/2018
NC Wildlife Resources Commission

DocuSigned by:
 6/12/2018
NC Department of Natural and Cultural Resources


NC Department of Transportation

DocuSigned by:
 6/12/2018
Gaston-Cleveland-Lincoln MPO

NEPA/404 MERGER TEAM AGREEMENT

Concurrence Point No. 3: *Least Environmentally Damaging Practicable Alternative (LEDPA)*

PROJECT DESCRIPTION:

NC 73 Improvements from NC 16 to SR 2316 (Northcross Drive)
Lincoln and Mecklenburg Counties
STIP Project Nos. R-5721 and U-5765

Least Environmentally Damaging Practicable Alternative (LEDPA):

No Build ☐ Yes ☒ No

Build Alternative 1 ☒ Yes ☐ No

Best Fit Widening Along Existing NC 73

Build Alternative 2A ☐ Yes ☒ No

Best Fit Widening Along Existing NC 73 with realignment in the vicinity of McGuire Nuclear Station and Beatties Ford Road, which resembles an alignment proposed in local and regional plans

Build Alternative 2B ☐ Yes ☒ No

Best Fit Widening Along Existing NC 73 with a more shallow realignment than Alternative 2A

The Project Team has concurred on Alternative 1 as the LEDPA for the proposed project as noted above.

Agency Signature

Date

DocuSigned by:

Mark Matthews

2/25/2019

US Army Corps of Engineers

DocuSigned by:

Claire Ellwanger

2/26/2019

US Fish and Wildlife Service

DocuSigned by:

Donna Hood

3/1/2019

NC Division of Water Resources

Charlotte Regional TPO

Agency Signature

Date

DocuSigned by:

Amanetta Somerville

3/1/2019

US Environmental Protection Agency

DocuSigned by:

Marla Chambers

3/5/2019

NC Wildlife Resources Commission

DocuSigned by:

Renee Gledhill-Earley

3/1/2019

NC Department of Natural and Cultural Resources

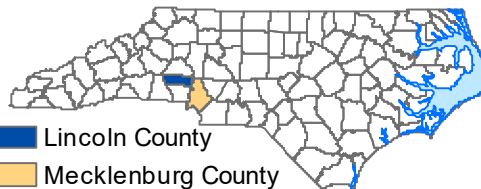
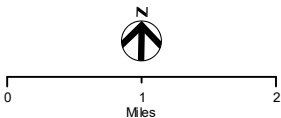
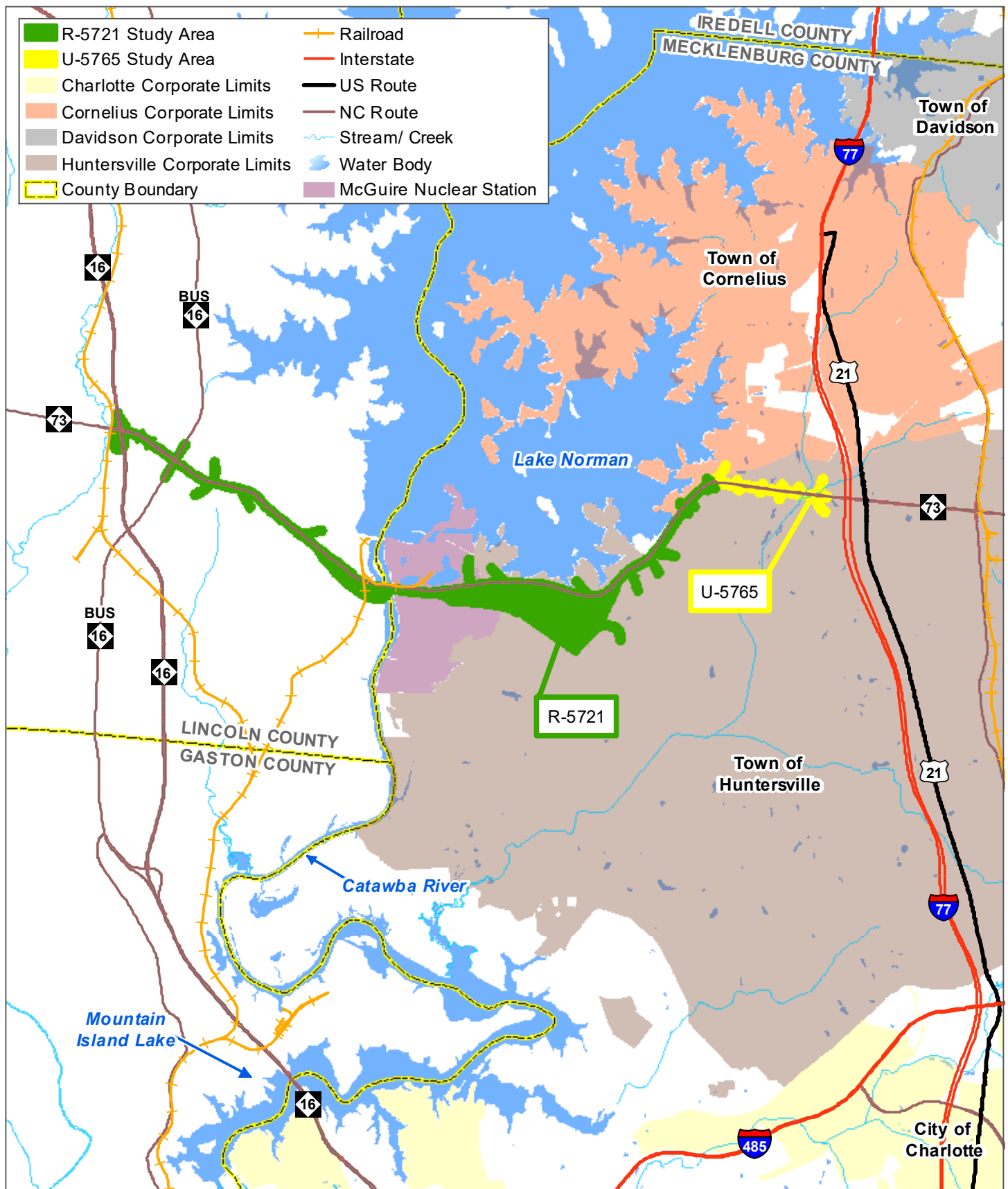
DocuSigned by:

D.W. Howard

2/21/2019

NC Department of Transportation

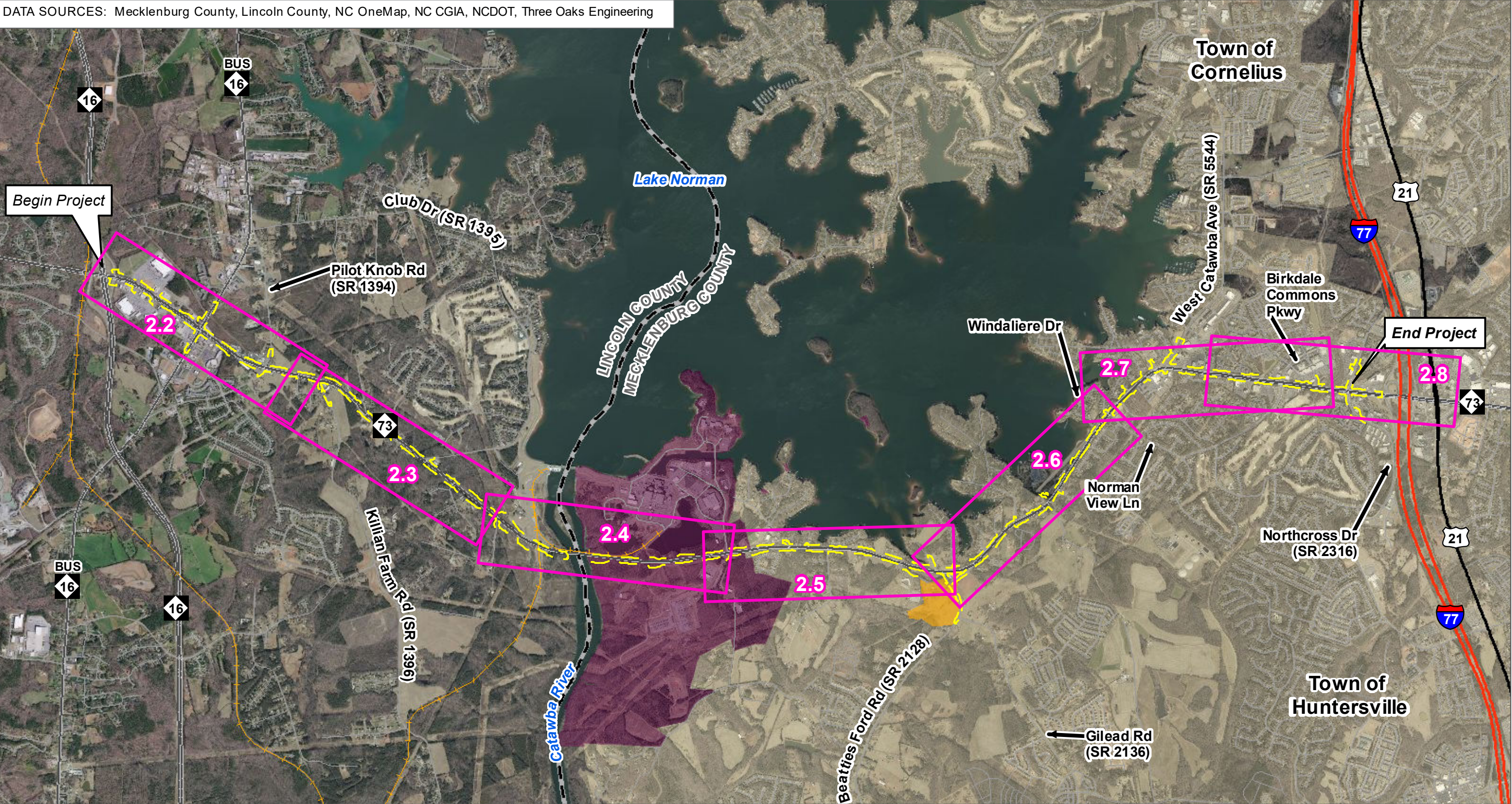
Gaston-Cleveland-Lincoln MPO



DATA SOURCES: Mecklenburg County, Lincoln County,
NC OneMap, NCDOT GIS

FIGURE 1
PROJECT VICINITY MAP
STIP R-5721 & U-5765
LINCOLN AND
MECKLENBURG COUNTIES

MARCH 2019



Slope Stakes Plus 25 Feet

Map Index

Interstate

US Route

NC Route

Railroad

County Boundary

Municipal Boundary

Stillwell-Hubbard Complex

McGuire Nuclear Station

FIGURE 2.1

STREAM AND WETLAND

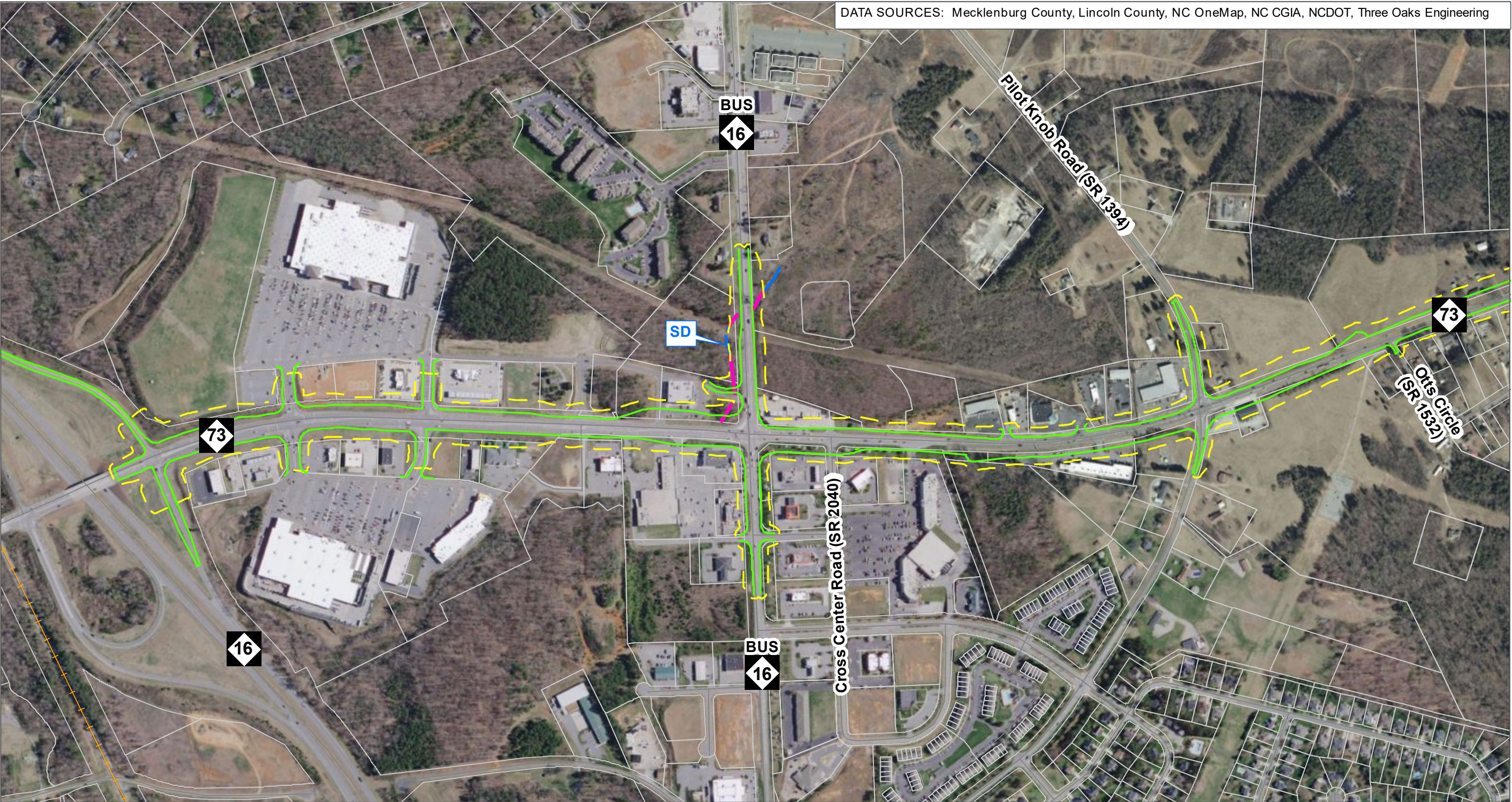
INDEX MAP


STIP R-5721 & U-5765



LINCOLN & MECKLENBURG

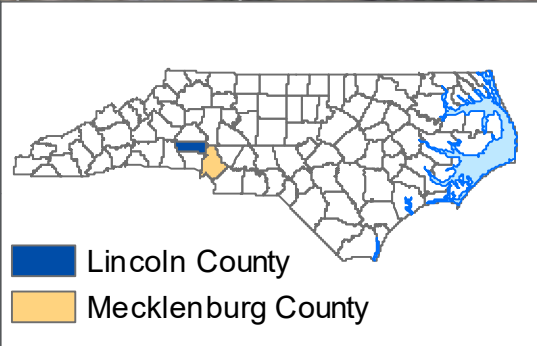
COUNTIES

MARCH 2019




0 500 1,000 Feet
1 inch = 500 feet











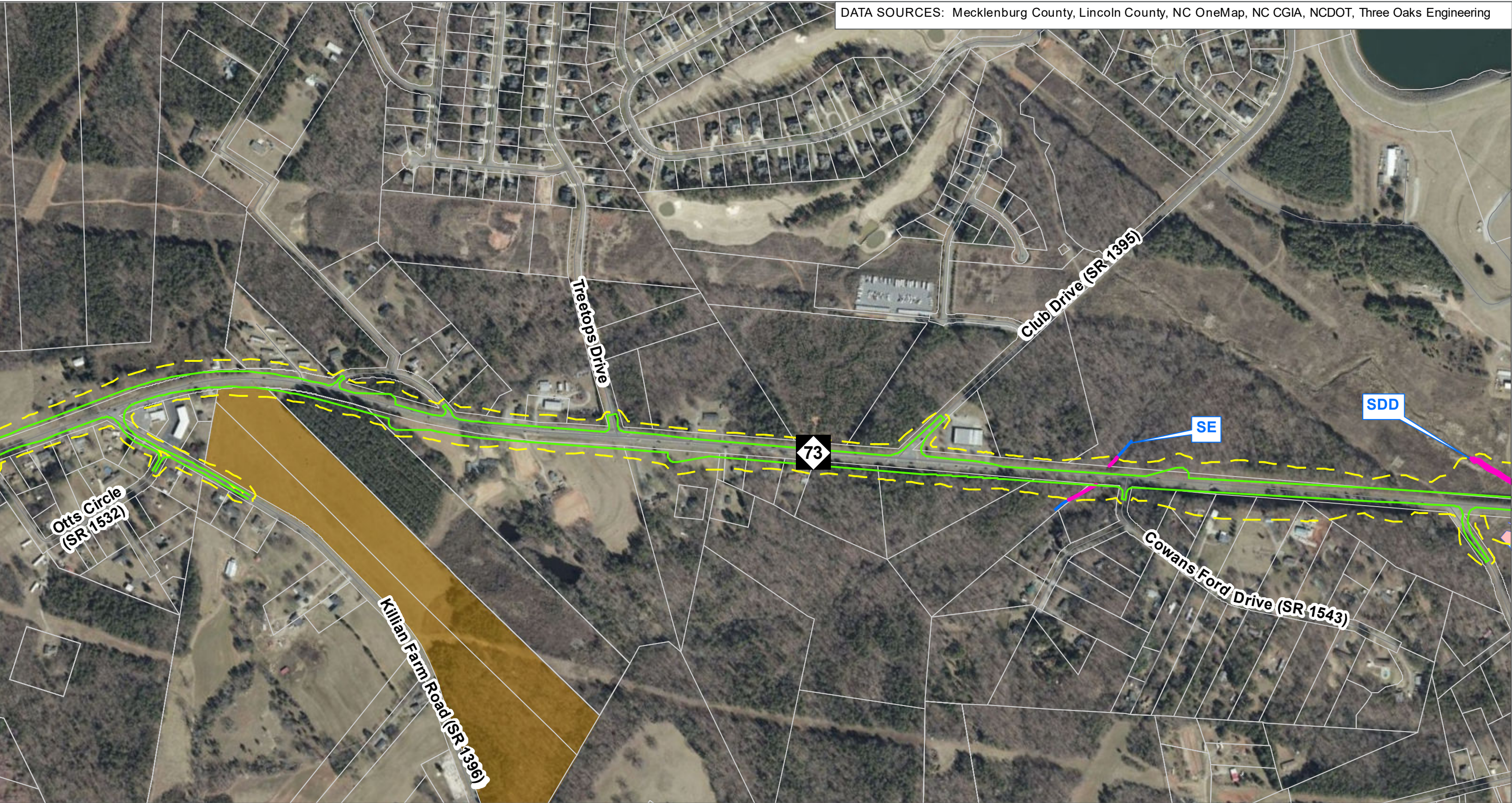

 Proposed Edge of Travel	 Jurisdictional Stream	 Jurisdictional Wetland
 Slope Stakes Plus 25 Feet	 Impacted Stream	 Impacted Wetland



FIGURE 2.2
STREAM AND WETLAND
IMPACT MAP

STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES








MARCH 2019




0 500 1,000
Feet
1 inch = 500 feet



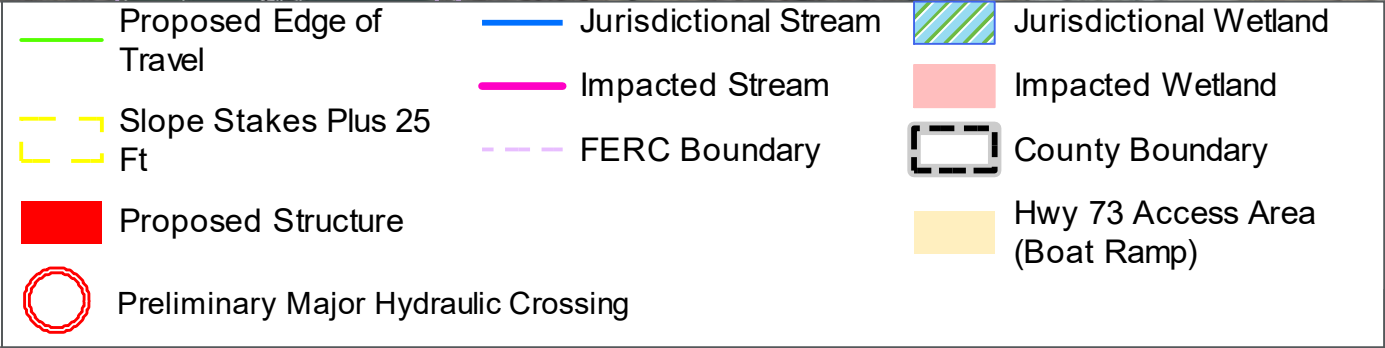
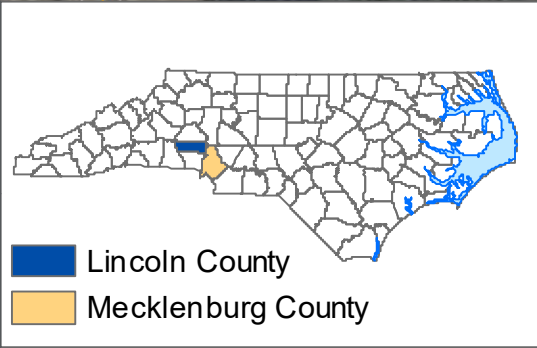
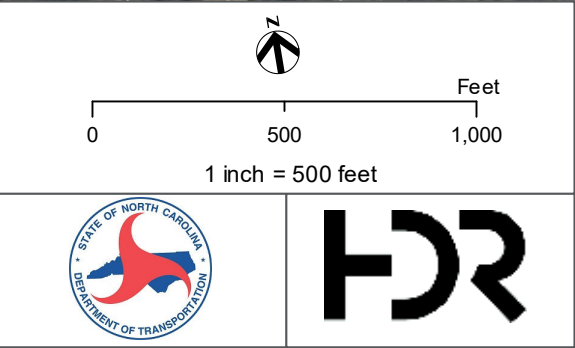
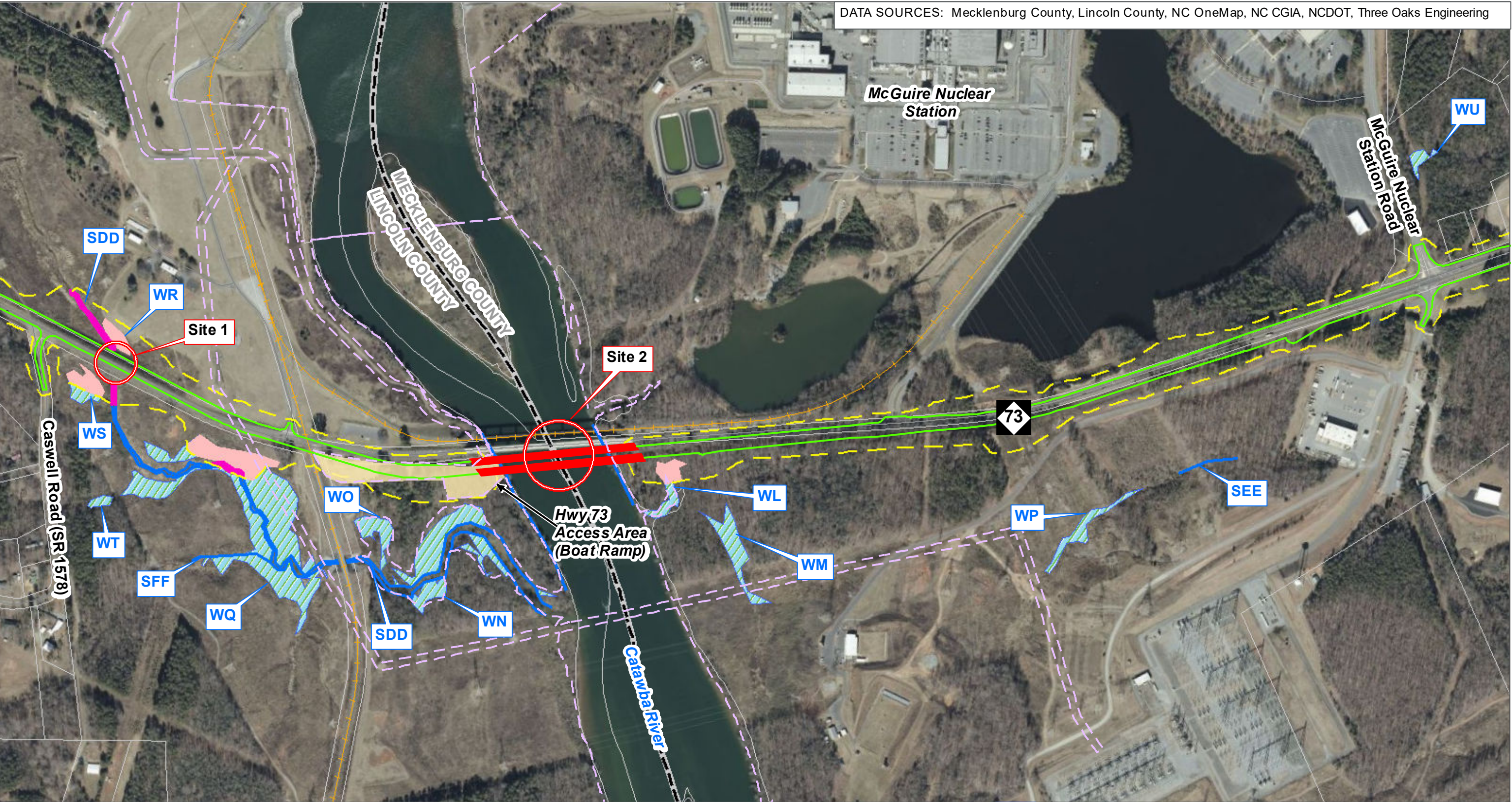
 Proposed Edge of Travel	 Impacted Stream	 Impacted Wetland
 Slope Stakes Plus 25 Feet	 Jurisdictional Stream	 Jurisdictional Wetland
		 VAD*

*VAD - Voluntary Agricultural District

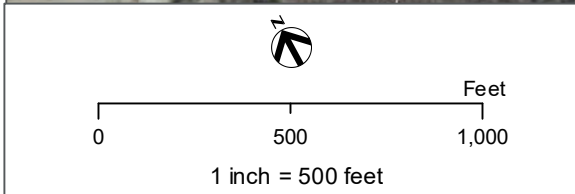
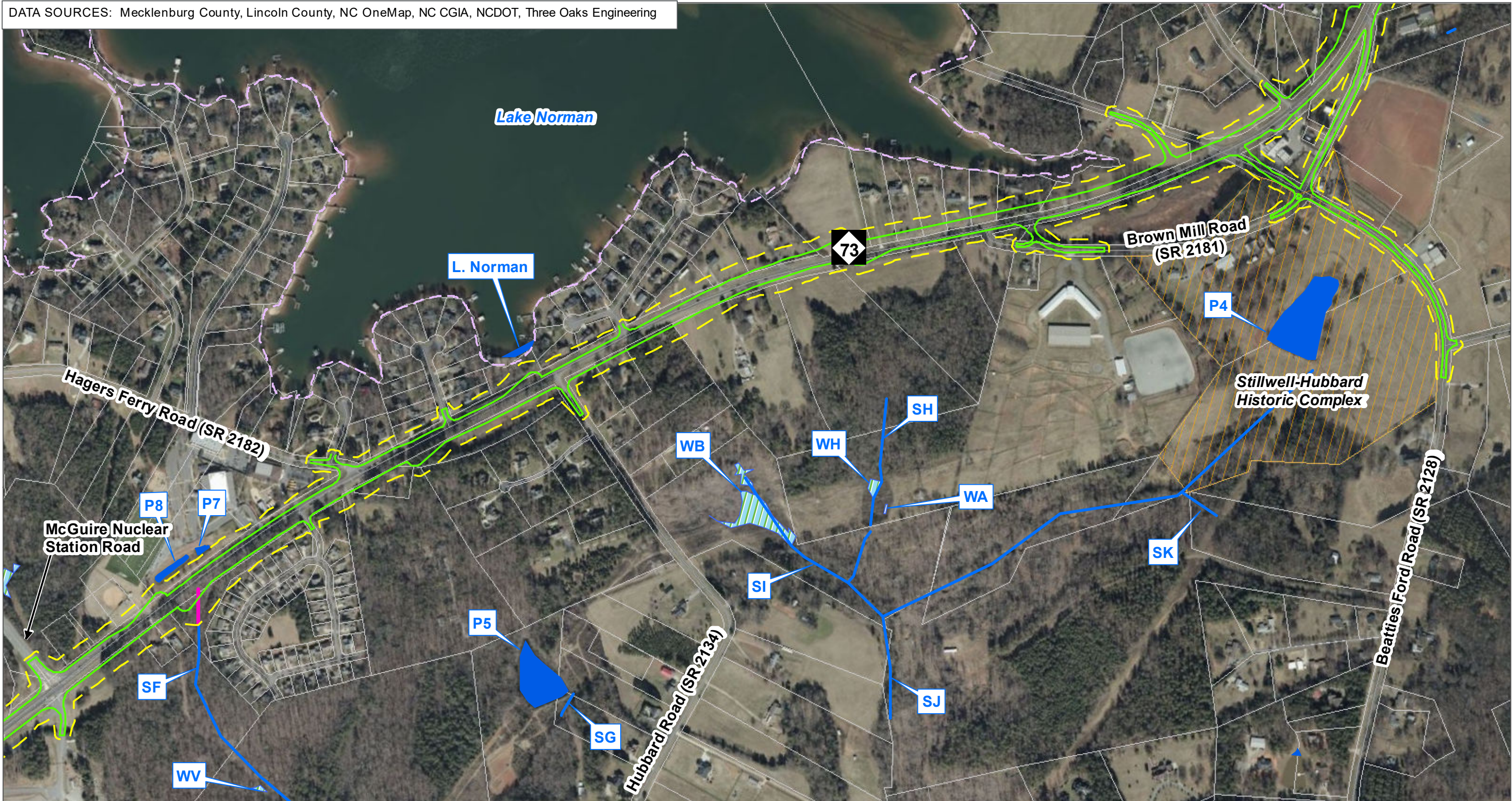
FIGURE 2.3
STREAM AND WETLAND
IMPACT MAP

STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES

MARCH 2019



**FIGURE 2.4
STREAM AND WETLAND
IMPACT MAP**
STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES
MARCH 2019



- Legend:

 - Lincoln County (Blue)
 - Mecklenburg County (Orange)
 - Stillwell-Hubbard Complex (Hatched)
 - FERC Boundary (Dashed line)
 - Pond (Blue)

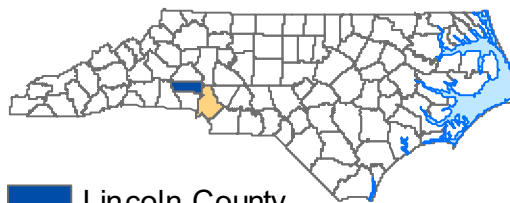
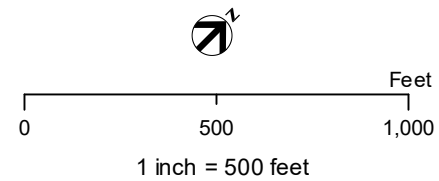
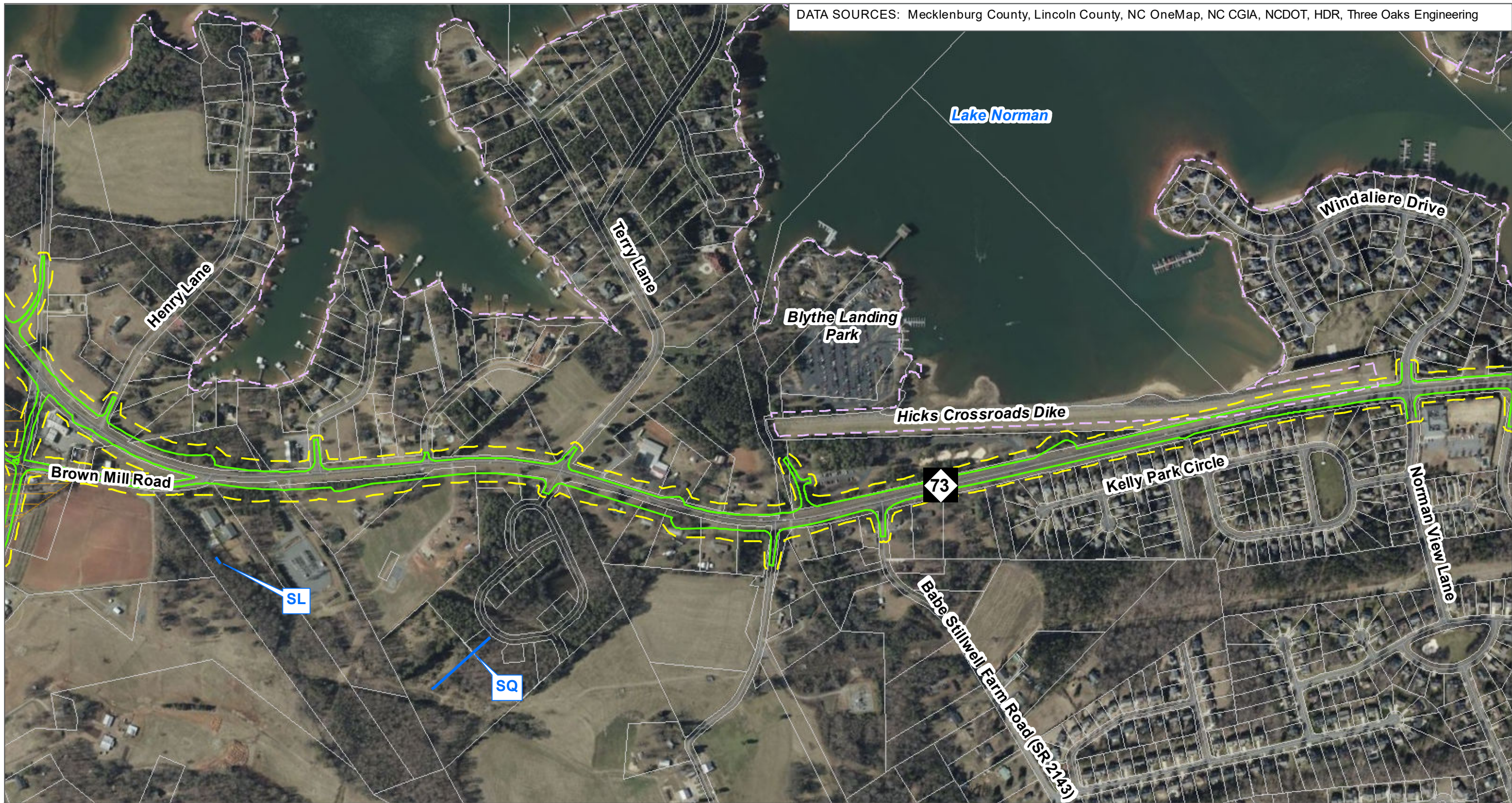
FIGURE 2.5
STREAM AND WETLAND
IMPACT MAP

STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES

MARCH 2019

STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES

MARCH 2019



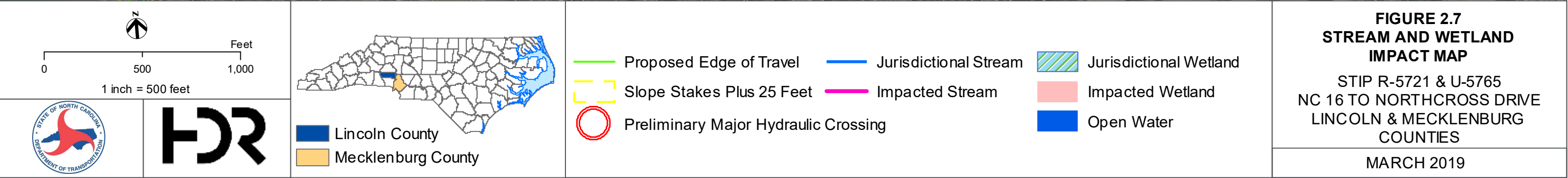
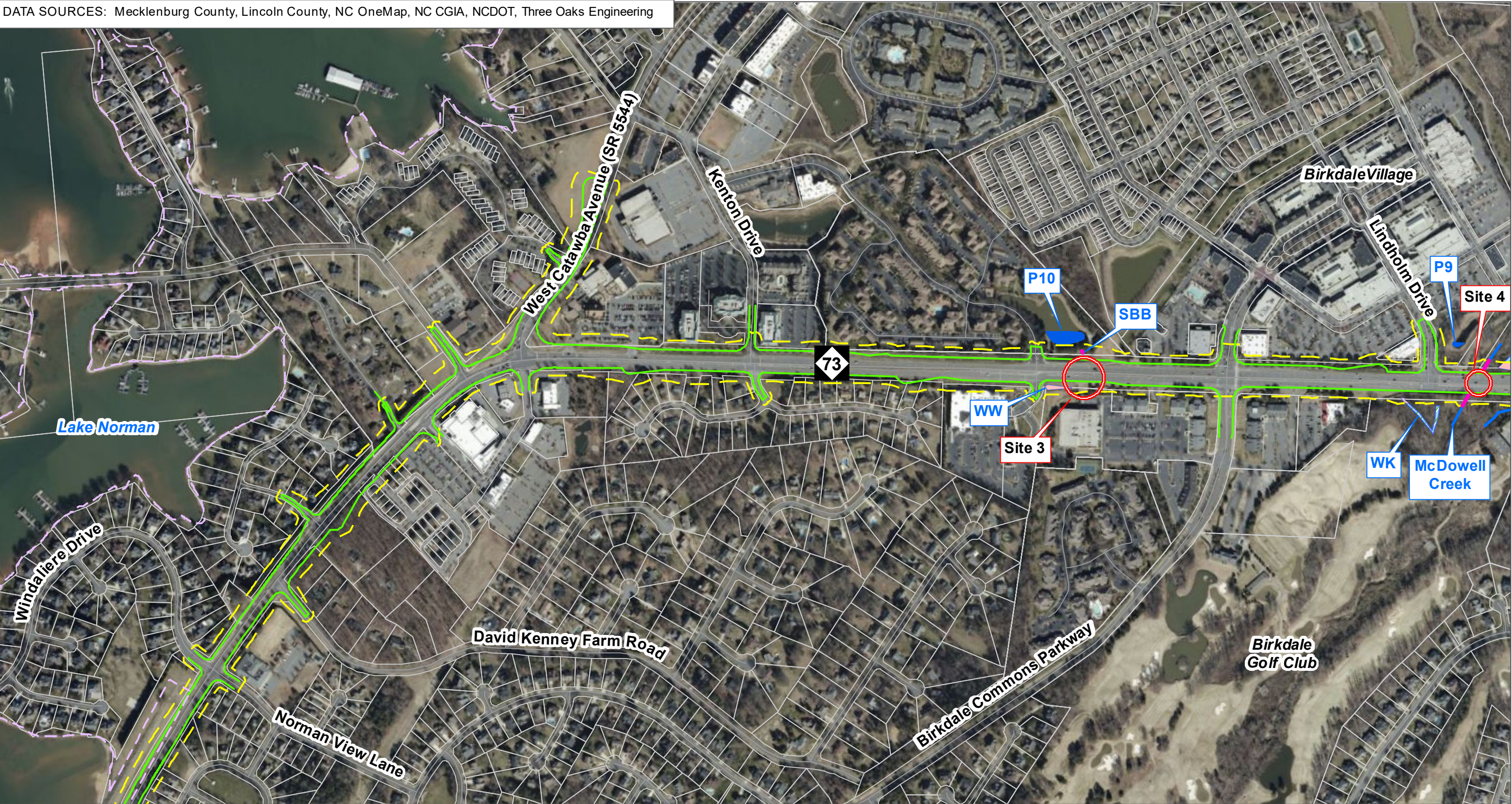
Lincoln County
Mecklenburg County

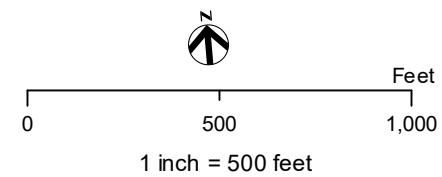
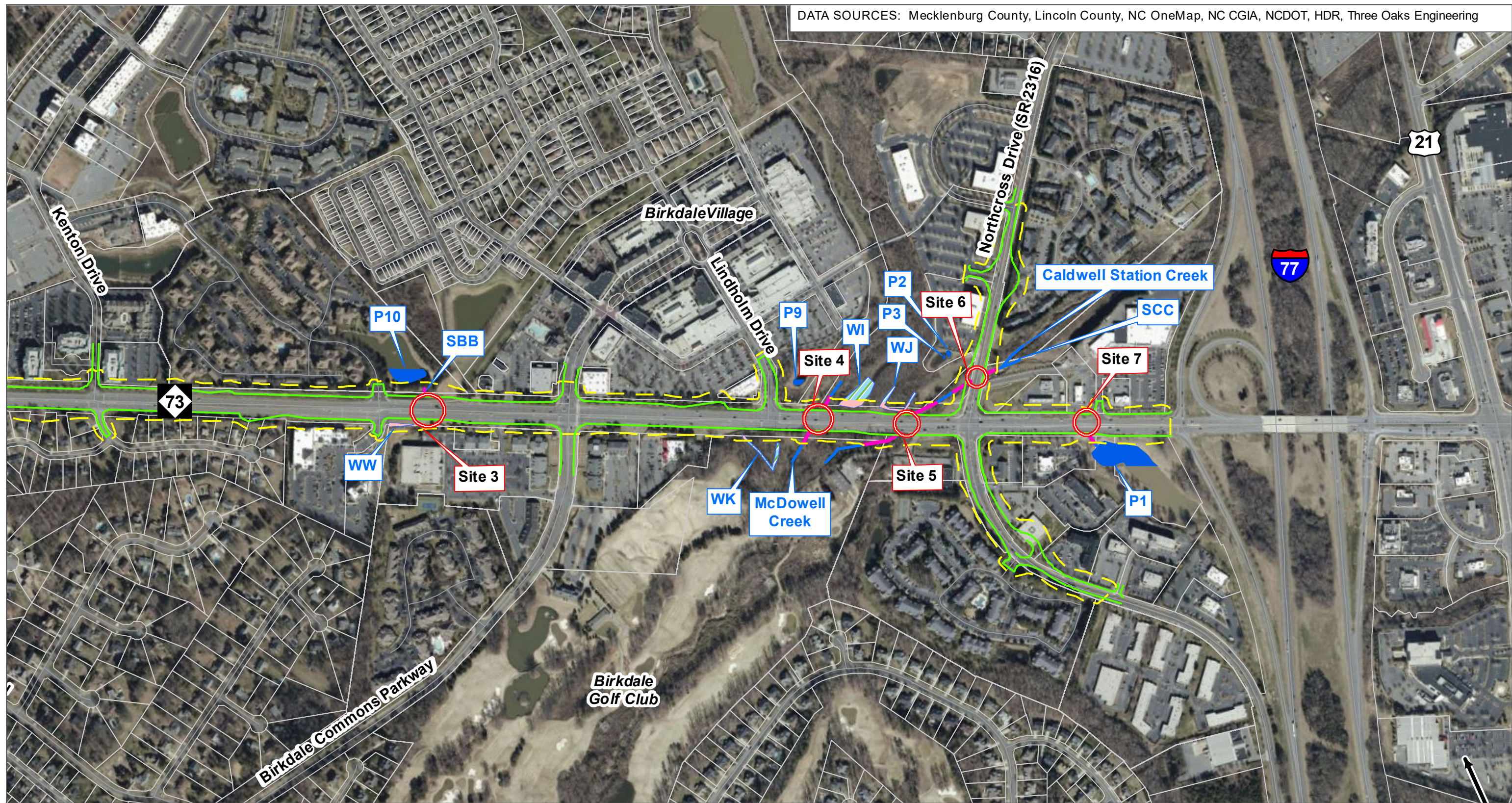
- | | | |
|---------------------------|-----------------------|------------------------|
| Proposed Edge of Travel | Jurisdictional Stream | Jurisdictional Wetland |
| Slope Stakes Plus 25 Feet | Impacted Stream | Impacted Wetland |
| Stillwell-Hubbard Complex | FERC Boundary | |

**FIGURE 2.6
STREAM AND WETLAND
IMPACT MAP**

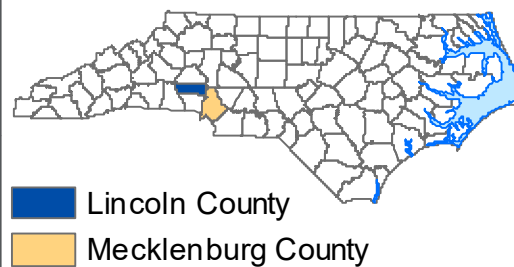
STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES

MARCH 2019





HDR



- | | | |
|--------------------------------------|-----------------------|------------------------|
| Proposed Edge of Travel | Jurisdictional Stream | Jurisdictional Wetland |
| Slope Stakes Plus 25 Feet | Impacted Stream | Impacted Wetland |
| Preliminary Major Hydraulic Crossing | Open Water | |

**FIGURE 2.8
STREAM AND WETLAND
IMPACT MAP**

STIP R-5721 & U-5765
NC 16 TO NORTHCROSS DRIVE
LINCOLN & MECKLENBURG
COUNTIES

MARCH 2019