

NC 5
From US 1-15-501/NC 211 in Aberdeen to Trotter Drive/Blake Boulevard in Pinehurst
Moore County

WBS Element 50171.1

STIP Project U-5756

ADMINISTRATIVE ACTION

**STATE ENVIRONMENTAL ASSESSMENT/FINDING OF NO SIGNIFICANT
IMPACT**

N. C. Department of Transportation
Division of Highways

In Compliance with the North Carolina Environmental Policy Act



APPROVED:

9/13/2022

Date

DocuSigned by:

Patrick Norman

34F914AC31694A5...

Patrick Norman, P.E.
Division Engineer
NCDOT Highway Division 8

NC 5
From US 1-15-501/NC 211 in Aberdeen to Trotter Drive/Blake Boulevard in Pinehurst
Moore County

WBS Element 50171.1

STIP Project U-5756

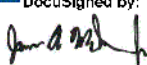
**STATE ENVIRONMENTAL ASSESSMENT/FINDING OF NO SIGNIFICANT
IMPACT**



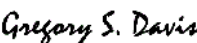
Documentation prepared by
Infrastructure Consulting Services, Inc. dba Ramey Kemp Associates



for the North Carolina Department of Transportation

DocuSigned by:

F7A82EF0E1334F7...

James A. McInnis, Jr., P.E.
Director of Project Development
Ramey Kemp Associates

DocuSigned by:

33D47B5FD78F4A8...

Gregory S. Davis, P.E.
Division Project Engineer
NCDOT Highway Division 8



TABLE OF CONTENTS

PROJECT COMMITMENTS	i
SUMMARY	ii
I. DESCRIPTION OF PROPOSED ACTION	1
A. General Description	1
B. Project Schedule.....	1
C. Cost Estimates.....	1
II. PURPOSE AND NEED FOR PROJECT	2
A. Project Purpose	2
B. Need for Project	2
1. Description of Existing Conditions.....	2
a. Route Classification	2
b. Physical Description of Existing Facility	2
c. Traffic Carrying Capacity	4
d. Accident Record.....	4
e. Airports	5
f. Other Highway Projects in the Area	5
2. Transportation and Land Use Plans	6
a. Local Transportation Plans	6
b. Land Use Plans	6
C. Benefits of Proposed Project.....	6
1. Capacity	6
2. Safety	7
III. ALTERNATIVES.....	7
A. Alternate Modes of Transportation	7
B. “No-Build” Alternative	7
C. Improve Existing Facility	7
IV. PROPOSED IMPROVEMENTS.....	7
A. Roadway Cross-section and Alignment.....	7
B. Right of Way and Access Control	8
C. Speed Limit.....	8
D. Design Speed	9
E. Anticipated Design Exceptions.....	9
F. Intersections/Interchanges.....	9
G. Service Roads.....	9
H. Railroad Crossings	9
I. Structures	9
J. Bicycle and Pedestrian Facilities/Greenways	9
K. Utilities.....	9
L. Landscaping	10
M. Noise Barriers	10
V. ENVIRONMENTAL EFFECTS OF PROPOSED ACTION.....	10
A. Natural Resources	10
1. Terrestrial Communities	10
a. Terrestrial Communities in Study Area	10

b.	Summary of Anticipated Effects.....	11
2.	Waters of the United States.....	11
a.	Streams, Rivers and Impoundments	11
b.	Wetlands	11
c.	Summary of Anticipated Impacts	12
d.	Anticipated Permit Requirements	12
e.	Avoidance, Minimization and Mitigation.....	12
3.	Protected Species	13
a.	Federally-Protected Species.....	13
b.	Bald Eagle and Golden Eagle Protection Act.....	13
B.	Cultural Resources	14
1.	Historic Architectural Resources	14
2.	Archaeological Resources.....	14
C.	Prime and Important Farmland	15
D.	Social Effects	15
1.	Neighborhoods/Communities	15
2.	Relocation of Homes and Businesses	15
3.	Minority/Low-Income Populations.....	16
E.	Land Use	16
1.	Existing Land Use.....	16
2.	Future Land Use.....	16
3.	Project Compatibility with Local Plans	17
F.	Economic Effects	17
G.	Indirect and Cumulative Effects	17
H.	Flood Hazard Evaluation	17
I.	Highway Traffic Noise	17
1.	Introduction.....	17
2.	Traffic Noise Impacts and Noise Contours.....	18
3.	Traffic Noise Abatement Measures	18
4.	Noise Barriers	19
5.	Summary	19
J.	Air Quality Analysis	19
1.	Project Air Quality Effects.....	19
2.	Mobile Source Air Toxics.....	20
3.	Summary	23
K.	Hazardous Materials	23
VI.	COMMENTS AND COORDINATION.....	25
A.	Public Meeting	25
B.	Other Agency Coordination.....	26
VII.	BASIS FOR FINDING OF NO SIGNIFICANT IMPACT	27

MAPS AND ILLUSTRATIONS

- Figure 1 Project Vicinity Map
- Figure 2 Proposed Improvements
- Figure 3 Proposed Typical Sections
- Figure 4A 2017 Projected Traffic Volumes without Proposed Project
- Figure 4B 2040 Projected Traffic Volumes without Proposed Project
- Figure 4C 2040 Projected Traffic Volumes with Proposed Project
- Figure 5 Environmental Features in Project Area

APPENDICES

- Appendix A – Comments Received from Agencies
- Appendix B – Relocation Reports

LIST OF TABLES

	Page
Table S-1 – Anticipated Environmental Effects of the Project	iii
Table 1 – Crash Rate Comparison	5
Table 2 – Terrestrial Communities in the Project Study Area	10
Table 3 – Anticipated Effects on Terrestrial Communities	11
Table 4 – Physical Characteristics of Water Resources in the Project Area	11
Table 5 – Jurisdictional Characteristics of Wetlands in the Project Area	12
Table 6 – Estimated Impacts to Wetlands	12
Table 7 – Federally-Protected Species in the Project Study Area	13
Table 8 – Predicted Traffic Noise Impacts	18
Table 9 – Sites Potentially Containing Hazardous Materials	24

PROJECT COMMITMENTS

NC 5

From US 1-15-501/NC 211 in Aberdeen to Trotter Drive/Blake Boulevard in Pinehurst

Moore County

WBS Element 50171.1

STIP Project U-5756

Division Eight Construction/NCDOT Hydraulics Unit

This project involves construction activities on or adjacent to FEMA-regulated streams. Therefore, NCDOT Division Eight shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

SUMMARY

State Environmental Assessment/Finding of No Significant Impact
Prepared by Ramey Kemp Associates
for the
North Carolina Department of Transportation

1. Type of Action

This is a North Carolina Department of Transportation Action, combined State Environmental Assessment and Finding of No Significant Impact.

2. Project Purpose/Description of Action

The purpose of the proposed project is to improve traffic operations on the portion of NC 5 in Moore County between US 1-15-501/NC 211 in Aberdeen and Trotter Drive/Blake Boulevard in Pinehurst. Figure 1 shows the project location.

The project involves widening NC 5 within the project limits to three or four lanes with either a two-way left turn lane or a 17.5-foot raised median. A sidewalk or multi-use path is proposed on the west side of NC 5. Figure 2 shows proposed improvements and Figure 3 shows proposed typical sections. The project is approximately 4.3 miles long.

3. Alternatives Considered

Improving the existing facility, alternate modes of transportation, transportation systems management, and the “no-build” alternative were considered for this project.

Alternate modes of transportation, transportation systems management, and the “no-build” alternative would not address the operational concerns along NC 5 within the project limits; and therefore, would not effectively meet the purpose and need of the project.

4. Summary of Environmental Impacts

Table S-1 presents anticipated environmental effects of the project.

**Table S-1
Anticipated Environmental Effects of the Project**

Residential Relocations	4
Business Relocations	3
Jurisdictional Wetlands Affected (Acres)	0.18
Open Waters Affected (Acres)	0
Stream Impacts (Linear Feet)	0
Receptors Impacted by Traffic Noise	7
Forested Areas Affected (Acres)	10.8
Prime and Important Farmland Affected	0
Effect on Federally Protected Species?	No
Effect on Historic Resources?	No
Adverse/ Disproportional Impact to Low Income or Minority Populations	No
Right of Way Cost	\$5,537,000
Utility Relocation Cost	\$6,365,000
Construction Cost	\$41,900,000
Total Cost	\$53,802,000

5. Special Permits Required

The proposed project will likely require a Nationwide Section 404 Permit from the US Army Corps of Engineers. Final permit decisions rest with the US Army Corps of Engineers.

A Section 401 General Water Quality Certification will be required from the NC Division of Water Resources prior to issuance of the Nationwide 404 Permit.

6. Coordination

Comments regarding the proposed project were requested from various federal, state and local agencies. Copies of the comments received are included in Appendix A. An asterisk indicates comments were received from that agency.

US Department of the Army – Corps of Engineers*

US Department of the Interior – Fish and Wildlife Service*

NC Department of Cultural Resources

NC Department of Environment and Natural Resources, Division of Water
Resources*

NC Wildlife Resources Commission

Triangle Area Rural Planning Organization

Moore County

Town of Aberdeen

Village of Pinehurst

7. Contact Information

The following person may be contacted for additional information concerning this proposal and statement:

Patrick Norman, P.E., Division Engineer

Highway Division 8

North Carolina Department of Transportation

121 DOT Drive

Carthage, North Carolina 28327

Telephone: (910) 773-8000

I. DESCRIPTION OF PROPOSED ACTION

A. General Description

The subject project involves widening the portion of NC 5 in Moore County between US 1-15-501/NC 211 in Aberdeen and Trotter Drive/Blake Boulevard in Pinehurst. The project is approximately 4.3 miles long.

B. Project Schedule

The project is included in the 2020-2029 North Carolina State Transportation Improvement Program (STIP). Right of way acquisition and construction are scheduled for state fiscal years 2023 and 2025 in the 2020-2029 STIP.

C. Cost Estimates

The cost estimate included in the 2020-2029 STIP for the project is as follows:

Right of Way Acquisition	\$5,300,000
Utility Relocation	\$5,818,000
<u>Construction</u>	<u>\$34,000,000</u>
Total	\$45,118,000

Current cost estimates for the project are as follows:

Right of Way Acquisition	\$5,537,000
Utility Relocation	\$6,365,000
<u>Construction</u>	<u>\$41,900,000</u>
Total	\$53,802,000

II. PURPOSE AND NEED FOR PROJECT

A. Project Purpose

The purpose of the proposed project is to improve traffic operations on NC 5 in Moore County between US 1-15-501/NC 211 in Aberdeen and Blake Boulevard/Trotter Drive in Pinehurst.

B. Need for Project

The proposed project will address the following needs:

- Portions of NC 5 in the project area are operating at or near capacity (see Section II-B-1-c).
- The lack of left turn lanes at most intersections along NC 5 within the project limits leads to delays to through traffic as turning vehicles block the through lane.
- The majority (51%) of crashes along NC 5 within the project limits are rear-end collisions. Many of these crashes are due to turning vehicles slowing or stopping in the through lane due to the lack of turn lanes at many intersections on NC 5 (see Section II-B-1-d).

1. Description of Existing Conditions

a. Route Classification

NC 5 within the project limits is classified as a minor arterial in the North Carolina Functional Classification System.

b. Physical Description of Existing Facility

(1) Typical Section

Existing NC 5 is a two-lane roadway with one travel lane in each direction from US 1-15-501/NC 211 to SR 1103 (Sand Pit Road). Existing NC 5 is a three-lane roadway with one through lane in each direction and a center left turn lane from Sand Pit Road to Whitney Drive. Existing NC 5 is a two-lane roadway with one travel lane in each direction from Whitney Drive to Trotter Drive/Blake Boulevard. Left and right turn lanes exist at several intersections along NC 5. Existing NC 5 within the project limits has grassed shoulders

(2) Intersections

Three signalized intersections exist along NC 5 within the study area: US 1-15-501/NC 211, SR 1103 (Sand Pit Road), and Blake Boulevard/Trotter Drive. Other intersections within the project area are stop sign-controlled.

(3) Existing Right of Way and Access Control

Existing right of way along NC 5 in the project area varies from 60 feet to 80 feet wide. No control of access exists along NC 5 within the project area. The existing right of way for NC 5 overlaps with right of way for the Aberdeen Carolina and Western Railway in the areas where NC 5 is adjacent to the railroad.

(4) Speed Limits

The existing speed limit along NC 5 within the project limits varies. The existing speed limit is 35 miles per hour (MPH) from US 1-15-501/NC 211 to O'Connor Place, 45 MPH from O'Connor Place to SR 1115 (Linden Road), and 35 MPH from Linden Road to Blake Boulevard/Trotter Drive.

(5) Railroad Crossings

Two at-grade railroad crossings exist on NC 5 within the project area, near Anderson Street and Saunders Avenue. Both crossings are for railroad sidings serving industrial facilities. The crossing near Anderson Street is unsignalized, with a yield sign. The crossing near Saunders Avenue has signals but no gates.

(6) Structures

There is one major drainage structure on NC 5 within the study area. A three barrel, 11-foot by 11-foot reinforced concrete box culvert carries Aberdeen Creek under NC 5 approximately 300 feet west of US 1-15-501/NC 211.

(7) Bicycle and Pedestrian Facilities/Greenways

There is a short section of sidewalk (less than 500 feet) at the southern end of the project area, on the west side of NC 5 just north of US 1. The Pottery Loop Bike Route follows NC 5 from US 1-15-501/NC 211 to Pinehurst Street.

(8) Utilities

A water line runs mostly along the west side of NC 5 and along both sides of the road in several places throughout the project limits. Water lines cross NC 5 in several places within the project limits. Sewer lines also cross NC 5 in several places. Underground fiber-optic cables run along both sides of NC 5 in the project area. Underground power lines are located near NC 5 in several places. Overhead power lines also exist along NC 5, mostly along the west side but power lines are also located on the east side in several places. A power transmission line crosses NC 5 near McNeill Way. An underground gas line runs mostly along the east side of NC 5 from US 1 to just south of Shepard Trail. Gas lines also cross NC 5 in several places.

c. Traffic Carrying Capacity

(1) Traffic Volumes Without Project

Traffic volumes for NC 5 were estimated for the years 2017 and 2040. These volumes are shown on Figures 4A, 4B, and 4C. In the year 2017, traffic along NC 5 in the project area ranged between 10,600 and 14,700 vehicles per day (vpd) (see Figure 4A). In the year 2040, traffic along NC 5 is expected to range between 18,300 and 23,500 vpd (see Figure 4B).

(2) Levels of Service Without Project

The effectiveness of a roadway to service traffic demand is measured in terms of level of service (LOS). Level of service is a qualitative measure describing the ability of a facility to carry traffic and how individual users perceive traffic conditions. It is based on factors of speed, travel time, comfort, maneuverability, interruptions, convenience, and safety. Levels of Service range from “A” to “F”, with “A” representing free flow (ideal conditions) and “F” representing forced or breakdown flow (undesirable condition).

A transportation facility is considered to be operating at capacity when it is just able to accommodate the traffic demand. Once the traffic demand exceeds the facility’s capacity (LOS E), excessive delays occur.

In 2017, portions of NC 5 in the project area were operating at capacity (LOS E) while other areas of NC 5 were operating below capacity with queues up to approximately 200 feet within the project limits. By the year 2040, NC 5 at US 1-15-501/NC 211 will operate above capacity (LOS F) while other areas of NC 5 will operate below or at capacity (LOS E or better) with queues up to approximately 880 feet.

d. Accident Record

An accident study was conducted along NC 5 within the project area for the time period between July 1, 2017 and June 30, 2022. During this period, 225 crashes, one of which was fatal, were reported along NC 5 within the project area. The reported crashes resulted in \$1,192,150 in property damage. Of these 225 crashes, 53 resulted in non-fatal injuries.

Forty-one percent of these crashes were rear-end collisions. Nineteen percent were angle collisions. Eight percent were lane departure crashes.

Table 1
Crash Rate Comparison

	Total Crash Rate (Crash/100MVM)	Fatal Crash Rate (Crash/100MVM)
NC 5 (7/17 to 6/22)	222.84	0.99
2017-2021 Statewide Average Urban 2-Lane NC Routes	253.06	1.07
Critical Rate*	279.61	3.26

Crash/100MVM - Crashes per 100 million vehicle miles

* The critical rate is a statistically derived number that can be used to identify high accident roadway segments.

As Table 1 above shows, the total and fatal accident rates on NC 5 within the project area for the studied time period were lower than the statewide average and the critical rate.

e. Airports

No airports are located near the proposed project. The closest airport is the Moore County Airport, which is a public airport located approximately seven miles northeast of NC 5 on NC 22.

f. Other Highway Projects in the Area

Other projects included in the approved STIP in the area are listed below:

R-5892 – Project involves adding turn lanes, signal improvements, and making other operational improvements to NC 5 from Trotter Drive/Blake Boulevard to NC 211 in Pinehurst. Right of way acquisition is scheduled for 2028 and construction will occur sometime after 2029.

U-5815A – Project involves making access management improvements to US 1 from SR 1112 (Roseland Road) to Knight Street in Aberdeen. Right of way acquisition and construction are scheduled for 2022 and 2027, respectively.

U-5815B – Project involves making access management improvements to US 1 from Knight Street in Aberdeen to Old US 1 in Southern Pines. Right of way acquisition is in progress and construction is scheduled for 2025.

EB-6005 – Project involves constructing pedestrian improvements at five intersections and one mid-block location in the central business district of Aberdeen. The project is scheduled for construction in 2026.

EB-5741 – Project involves constructing a mid-block crosswalk, median refuge island, and installing a pedestrian signal at the intersection of US 1-15-501/NC 211 with Maple Avenue in Aberdeen. The project is scheduled for construction in 2023.

R-5709 – Project involves widening NC 211 to multi-lanes from US 1-15-501 in Aberdeen to east of SR 1244 (West Palmer Street)/SR 1311 (Mockingbird Hill Road) in Raeford. Right of way acquisition is currently in progress and construction is scheduled for 2024.

2. Transportation and Land Use Plans

a. Local Transportation Plans

The Moore County Comprehensive Transportation Plan (CTP) was adopted by the NC Board of Transportation in January 2019. The CTP identifies the subject section of NC 5 as a major thoroughfare in need of improvement.

The 2012 Aberdeen Bicycle Transportation Plan recommends paved shoulders along NC 5 within the project limits in Aberdeen. The plan also recommends a greenway be constructed parallel to NC 5 between US 1-15-501/NC 211 within the project limits in Aberdeen.

The 2011 Aberdeen Pedestrian Transportation Plan recommends a greenway along NC 5.

The 2015 Pinehurst Comprehensive Bicycle Plan recommends either a greenway or bicycle lanes along Linden Road from Pine Vista Drive to NC 5 but does not contain any recommendations for bicycle facilities along NC 5.

The 2003 Pinehurst Greenway Plan recommends a greenway along NC 5 within the project limits in Pinehurst.

b. Land Use Plans

The 2019 Aberdeen Comprehensive Land Development Plan designates most of the land adjacent to NC 5 for commercial uses, with some low and medium-density residential uses.

The 2011 Pinehurst Comprehensive Long-Range Plan designates most of the land adjacent to NC 5 within the project limits in Pinehurst for higher density residential, multi-family residential and other business uses.

C. Benefits of Proposed Project

1. Capacity

The proposed widening of NC 5 will improve its capacity. As discussed in Section II-B-1-c-(2), in 2017, portions of NC 5 within the project limits were operating at capacity (level of service E). By the year 2040, portions of NC 5 were operating above capacity with most intersections operating at or below capacity. The proposed project will increase the traffic carrying capacity of NC 5 in the project area.

2. Safety

The proposed improvements to NC 5 are expected to improve the safety of the route throughout the study area. As noted in Section II-B-1-d, the majority of crashes occurring along NC 5 within the project limits are rear-end collisions. The proposed turn lanes will allow turning traffic to move out of the through lane to complete a turn, reducing the likelihood of rear-end collisions. The proposed additional through lanes proposed should also help to reduce the number of rear-end type crashes by reducing congestion and providing another lane for through traffic to move into to avoid stopping or slowing vehicles.

III. ALTERNATIVES

A. Alternate Modes of Transportation

The only transit serving the project is the A-Pines Line, an 11-stop bus route. The southernmost stop is off NC 5 at Pine Hill Apartments on Keith Street. The northernmost stop is Sandhills Community College.

Improvements (funding, park-and-ride lots, etc.) to the A-Pines Line would not meet the project purpose. The operational issues experienced along NC 5 due to the lack of turn lanes would still occur. Alternate modes of transportation would not meet the purpose and need of the subject project, and therefore, is not considered a viable alternative to the proposed project.

B. “No-Build” Alternative

The “no-build” alternative avoids impacts to the project area. However, this alternative does not address the purpose and need of the project. The “no-build” alternative does not improve traffic operations on NC 5. For this reason, this alternative was eliminated from further consideration.

C. Improve Existing Facility

The proposed improvements to NC 5 will meet the project purpose and need by improving traffic operations on NC 5 in the project area.

IV. PROPOSED IMPROVEMENTS

A. Roadway Cross-section and Alignment

The alignment of NC 5 will be revised near the existing northern intersection of Keith Street in order to improve the radius of the curve in this area and to provide room to widen NC 5 and provide a u-turn bulb without encroaching on the Aberdeen Carolina and Western rail line. The northern intersection of Keith Street will be removed and a cul-de-sac constructed on Keith Street.

Several typical sections are proposed for the project. Twelve-foot lanes are proposed throughout the project. These typical sections are discussed below and shown on Figure 3.

US 1-15-501/NC 211 to Pinehurst Street

The proposed project will add an exclusive right turn lane to southbound NC 5 at the US 1-15-501/NC 211 intersection. Curb and gutter and a ten-foot (seven-foot over the culvert) berm is proposed on both sides of NC 5 from US 1-15-501/NC 211 to Pinehurst Street. A six-foot (five-foot over the culvert) sidewalk is proposed on the west side of NC 5 in this area as well.

Pinehurst Street to North of Turning Leaf Way

From north of Pinehurst Street to north of Turning Leaf Way, NC 5 will be widened to a four-lane roadway (two lanes in each direction) with a 17.5-foot median. Curb and gutter with a 14.5-foot berm and a ten-foot multi-use path (narrowing to either a 12.5-foot berm with a ten-foot path or a 10.5-foot berm with an eight-foot path in constrained areas) is proposed on the west side of NC 5. An eight-foot shoulder (four-foot paved) is proposed on the east side of NC 5.

North of Turning Leaf Way to South of Linden Road

From north of Turning Leaf Way to approximately 400 feet south of Linden Road, NC 5 will be widened to a four-lane roadway with two southbound through lanes, a two-way left turn lane, and one northbound through lane. Curb and gutter with a 14.5-foot berm and a ten-foot multi-use path (narrowing to either a 12.5-foot berm with a ten-foot path or a 10.5-foot berm with an eight-foot path in constrained areas) is proposed on the west side of NC 5. An eight-foot shoulder (four-foot paved) is proposed on the east side of NC 5.

South of Linden Road to Blake Boulevard/Trotter Drive

From 400 feet south of Linden Road to Trotter Drive/Blake Boulevard, NC 5 will be widened to a three-lane roadway, with one through lane in each direction and a two-way left turn lane. Curb and gutter with a 10.5-foot berm and an eight-foot multi-use path is proposed on the west side of NC 5 from south of Linden Road to Dawkins Street. Curb and gutter with a seven-foot berm and a six-foot sidewalk is proposed on the west side of NC 5 from Dawkins Street to Blake Boulevard/Trotter Drive. An eight-foot shoulder (four-foot paved) is proposed on the east side of NC 5.

B. Right of Way and Access Control

Proposed right of way varies along the project. No control of access is proposed except for adjacent to u-turn bulbs.

C. Speed Limit

It is anticipated NC 5 will be signed 35 MPH from US 1-15-501/NC 211 to O'Connor Place, 45 MPH from O'Connor Place to SR 1115 (Linden Road), and 35 MPH from Linden Road to Blake Boulevard/Trotter Drive. The actual speed limits along NC 5 will be determined during final design.

D. Design Speed

The proposed design speed for the project is 40 MPH from US 1-15-501/NC 211 to O'Connor Place, 50 MPH from O'Connor Place to Linden Road, and 40 MPH from Linden Road to Trotter Drive/Blake Boulevard. This is consistent with the anticipated 35 MPH and 45 MPH speed limits.

E. Anticipated Design Exceptions

It is anticipated no design exceptions will be required for the project.

F. Intersections/Interchanges

All intersections along the proposed project will remain at-grade. The existing signalized intersections of NC 5 with US 1-15-501/NC 211, SR 1103 (Sand Pit Road), and Trotter Drive/Blake Boulevard will be upgraded. A new traffic signal is proposed at the intersection of NC 5 with SR 1115 (Linden Road).

G. Service Roads

It is not expected service roads will be required for the project.

H. Railroad Crossings

The existing railroad crossings near Anderson Street and Saunders Avenue will be widened as part of the project. No signalization is proposed at the Anderson Street crossing and no changes to the existing signalization is proposed at the Saunders Avenue crossing.

I. Structures

The existing culvert carrying Aberdeen Creek under NC 5 will remain in place. No work is proposed to this structure.

J. Bicycle and Pedestrian Facilities/Greenways

A sidewalk or multi-use path is proposed along the west side of NC 5 within the project limits. Within the Aberdeen Town limits, a five-foot sidewalk is proposed from US 1-15-501/NC 211 to Pinehurst Street. A ten-foot multi-use path (narrowing to eight feet in constrained areas) is proposed from Pinehurst Street to approximately 350 feet south of Linden Road. An eight-foot multi-use path is proposed from south of Linden Road to Dawkins Street. Within the Pinehurst Village Limits, a six-foot sidewalk is proposed from Dawkins Street to Blake Boulevard/Trotter Drive.

Four-foot paved shoulders are proposed along the east side of NC 5 from north of Pinehurst Street to Blake Boulevard/Trotter Drive.

NCDOT coordinated with both the Town of Aberdeen and the Village of Pinehurst regarding bicycle and pedestrian accommodations to be provided by this project. Both municipalities were in agreement with the recommended improvements.

K. Utilities

Utilities affected by the project will be relocated prior to project construction.

L. Landscaping

No special landscaping is proposed as a part of the project. Disturbed areas along the project will be reseeded with grass.

M. Noise Barriers

No noise barriers are proposed along the project (see Section V-I).

V. ENVIRONMENTAL EFFECTS OF PROPOSED ACTION

A. Natural Resources

Natural resource investigations for the project were conducted by Terracon Consultants, Inc. and NCDOT staff and documented in a natural resources technical report prepared by Terracon Consultants, Inc. The information presented below is a summary of information included in the natural resources technical report

1. Terrestrial Communities

a. Terrestrial Communities in Study Area

Five terrestrial communities were identified in the study area. Table 2 below presents data regarding these communities.

Table 2
Terrestrial Communities in the Project Study Area

Community	Dominant Species (Scientific Name)	Study Area Coverage (ac)
Dry Oak-Hickory Forest	white oak (<i>Quercus alba</i>) sweetgum (<i>Liquidambar styraciflua</i>) mockernut hickory (<i>Carya tomentosa</i>)	3.1
Maintained/Disturbed Land	Japanese honeysuckle (<i>Lonicera japonica</i>) broomsedge (<i>Andropogon virginicus</i>) sassafras (<i>Sassafras albidum</i>)	61.8
Pine/Scrub Oak Sandhill	longleaf pine (<i>Pinus palustris</i>) turkey oak (<i>Quercus laevis</i>) flowering dogwood (<i>Cornus florida</i>)	22.8
Headwater Forest	black gum (<i>Nyssa sylvatica</i>) red maple (<i>Acer rubrum</i>) laurel oak (<i>Quercus laurifolia</i>)	0.2
Xeric Sandhill Scrub	loblolly pine (<i>Pinus taeda</i>) black cherry (<i>Prunus serotina</i>) smooth sumac (<i>Rhus glabra</i>)	6.3

Note: The study area also includes 28.8 acres of impervious surface and 0.1 acre of open water.

b. Summary of Anticipated Effects

Terrestrial communities in the study area may be impacted by project construction. Table 3 below presents the anticipated effects of the project on terrestrial communities within the proposed right of way.

Table 3
Anticipated Effects on Terrestrial Communities

Community	Impacts (acres)
Dry Oak-Hickory Forest	1
Maintained/disturbed Land	20.6
Pine/Scrub Oak Sandhill	7.6
Headwater Forest	0.1
Xeric Sandhill Scrub	2.1

Figures presented are one third of the amount of the community present within the project study area.

2. Waters of the United States

Surface waters and jurisdictional wetlands fall under the broad category of “waters of the United States,” as defined under 33 CFR §328.3(a). Any action that proposes to place fill material into these areas falls under the jurisdiction of the US Army Corps of Engineers under Section 404 of the Clean Water Act (33 U.S.C. 1344).

a. Streams, Rivers and Impoundments

The project study area is located in USGS Hydrologic Unit (HU) 03040203 of the Lumber River Basin. One jurisdictional stream was identified within the project study area (Figure 5). The characteristics of this stream are shown in Table 4.

Table 4
Physical Characteristics of Water Resources in the Project Area

Stream	Bank Height (ft)	Bankfull Width (ft)	Water Depth (in)	DWQ Index Number	Best Usage Classification
Aberdeen Creek	4	25	36	14-2-11-(6)	C

There are no designated High-Quality Waters (HQW), Outstanding Resource Waters (ORW) or water supply watersheds (WS-I or WS-II) within one-mile downstream of the study area. The North Carolina 2016 Final 303(d) list of impaired waters identifies no streams within the study area as an impaired water.

No surface waters were identified in the study area.

b. Wetlands

One jurisdictional wetland was identified within the project study area (see Figure 5). Wetland classification and quality rating data are presented in Table 5. The wetland in the project study area is within the Lumber River basin (USGS Hydrologic Unit 3040203).

Table 5
Jurisdictional Characteristics of Wetlands in the Project Area

Map ID	NCWAM Classification	NCWAM Rating	Hydrologic Classification
WA	Headwater Forest	High	Riparian

c. Summary of Anticipated Impacts

The proposed project is not anticipated to impact Aberdeen Creek or any other streams. No work is proposed to the existing culvert carrying Aberdeen Creek under NC 5.

Precautions will be taken to minimize impacts to water resources in the study area. NCDOT's Best Management Practices for the Protection of Surface Waters will be strictly enforced during construction of the project.

Expected project impacts to wetlands are shown on Table 6 below.

Table 6
Estimated Impacts to Wetlands

Map ID	NCWAM Classification	NCWAM Rating	Hydrologic Classification	Project Impacts (Acres)*
WA	Headwater Forest	N/A	Riparian	0.18

*-Impacts based on area extending 25 feet beyond project construction limits.

d. Anticipated Permit Requirements

The proposed project will likely require a Nationwide Section 404 Permit from the US Army Corps of Engineers. Final permit decisions rest with the US Army Corps of Engineers.

A Section 401 General Water Quality Certification will be required from the NC Division of Water Resources prior to issuance of the Nationwide 404 Permit.

No riparian buffer rules apply to streams in the project study area. No anadromous fish habitat or primary nursery areas occur in the study area. No construction moratorium is anticipated for this project.

e. Avoidance, Minimization and Mitigation

Wetland WA is located within approximately 15 feet of the existing edge of pavement. Avoiding the wetland by widening NC 5 away from it is not possible due to the railroad on the opposite side of NC 5. NCDOT will attempt to minimize impacts to Wetland WA to the greatest extent practicable during final design. Best Management Practices will be used during construction to minimize the project's effects on the wetland and Aberdeen Creek. Final decision regarding mitigation for the project's impacts to wetlands rests with the Corps of Engineers.

3. Protected Species

a. Federally-Protected Species

Species with the federal classification of Endangered, Threatened, or officially proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

As of July 21, 2022, two federally protected species are listed on the Fish and Wildlife Service's Information for Planning and Consultation (IPaC) website as potentially occurring in the project study area. These species are presented on Table 7 below.

Table 7
Federally-Protected Species in the Project Study Area

Scientific Name	Common Name	Habitat	Federal Status	Biological Conclusion
<i>Picoides borealis</i>	Red-cockaded woodpecker	Yes	E	No Effect
<i>Rhus michauxii</i>	Michaux's sumac	Yes	E	No Effect

E = Endangered. A taxon "in danger of extinction throughout all or a significant portion of its range."

Suitable habitat for red-cockaded woodpecker and Michaux's sumac exists in the project area. Surveys for these species were conducted.

Potential nesting and foraging habitat for the red-cockaded woodpecker is present in the pine/scrub oak sandhill and xeric sandhill scrub communities throughout the study area. The NCDOT Biological Surveys Group completed surveys for red-cockaded woodpecker in all areas of potential habitat occurring within 0.5 mile of the project's centerline in November-December 2021. No red-cockaded woodpecker cavity trees (active or relict) were identified and no red-cockaded woodpeckers were heard or observed during the survey period. Based on these results, it can be concluded the project will have "No Effect" on red-cockaded woodpecker.

Potential habitat for Michaux's sumac is present throughout the study area. In the Sandhills region, Michaux's sumac typically is found in sandy or sub mesic loamy swales and depressions as well as along maintained roadsides, power lines, railroads, and other natural or artificial clearings that are undergoing succession. The plant is shade intolerant and grows best where disturbance maintains its open habitat. Areas of potential habitat were surveyed on September 20, 2021 by walking pedestrian transects. No evidence of Michaux's sumac was observed. A review of NC Natural Heritage Program (NHP) records updated April 2018 indicates occurrences of Michaux's sumac within one mile of the study area; however, these occurrences are considered historic by NHP. It is expected the project will have "No Effect" on Michaux's sumac.

b. Bald Eagle and Golden Eagle Protection Act

The bald eagle is protected under the Bald and Golden Eagle Protection Act. Habitat for the bald eagle primarily consists of mature forests in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within one mile of open water. A desktop-GIS assessment of the project study area, as well as the area within a one-mile

radius of the project limits, was performed on May 1, 2018 using recent (2017) color aerials. Pinehurst Lake is the only water body large enough or sufficiently open to be considered a potential feeding source. Pages Lake, near the southern terminus, is currently drained. Since there is no foraging habitat within the review area, a survey of the project study area and the area within 660 feet of the project limits was not conducted. Additionally, a review of April 2018 NCNHP records revealed no known occurrences of this species within one mile of the project study area. Due to the lack of habitat, known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect this species.

B. Cultural Resources

The proposed project is subject to North Carolina General Statute 121-12(a). This State law requires state agencies to take into account the effect of an agency undertaking on any district, site, building, structure, or object that is listed on the National Register of Historic Places. Although no federal funds will be used for the construction of this project, the project will require a permit from the US Army Corps of Engineers. Section 106 of the National Historic Preservation Act of 1966, as amended, applies to federal permit areas along the project. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council a reasonable opportunity to comment on such undertakings.

1. Historic Architectural Resources

An initial field survey of the project's Area of Potential Effects (APE) was conducted by an NCDOT architectural historian in May 2018 and found four properties that required a full evaluation of National Register eligibility. New South Associates, Inc. evaluated these four properties for NCDOT and recommended two of the properties as eligible for the National Register. The State Historic Preservation Office (HPO) concurred that one of these properties, the Chapin Orchard is eligible for the National Register of Historic Places.

Since the Corps of Engineers has defined the Section 404 permit areas as the only portions of the project subject to Section 106 and the closest permit area to the Chapin Orchard property is more than 8,000 feet away, there are no historic properties within the permit areas. No historic properties will be affected by this project under Section 106. These findings are documented on the April 16, 2020 "No Historic Properties Present or Affected" form included in Appendix A.

2. Archaeological Resources

NCDOT archaeologists reviewed preliminary information for the project and recommended a comprehensive archaeological survey and evaluation for the project study area. Commonwealth Heritage Group, Inc. completed an initial survey and evaluation of the study area for the NCDOT Archaeology Group and prepared a technical report which is on file at NCDOT. The NCDOT Archaeology Group reviewed the results of the evaluation documented in the report and determined there are no National Register-listed or eligible archaeological sites present within the project's area of potential effects and subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register. All identified archaeological sites located within the APE have been considered and all compliance

for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project. This finding is documented in the July 26, 2019 “No Eligible or Listed Archaeological Sites Present” form included in Appendix A.

C. Prime and Important Farmland

North Carolina Executive Order Number 96 requires all state agencies to consider the impact of land acquisition and construction projects on prime farmland soils, as designated by the US Natural Resources Conservation Service (NRCS). Land which is planned or zoned for urban development is not subject to the same level of preservation afforded other rural, agricultural areas.

No active farm operations exist in the project area. All of the land surrounding the proposed project is designated for future residential, commercial or industrial development.

D. Social Effects

A community impact assessment was prepared for the project in January 2019 by Jessica Kim, AICP, of Stewart, Inc.

1. Neighborhoods/Communities

The proposed project is located within the municipal boundaries of the Town of Aberdeen and the Village of Pinehurst. The Jackson Hamlet community is a historically African-American community located mostly on the west side of NC 5 between Dawkins Street and Gaines Street. The neighborhood contains places of worship, a community center, and community cemetery. Jackson Hamlet has a community action group to promote community organization, education, and development.

Several other neighborhoods and subdivisions are located on the west side of NC 5. The Colonial Heights neighborhood is a former mill housing village. The neighborhood is a predominately African-American neighborhood. Colonial Heights contains a community park. The Meadow Ridge subdivision is marked by a sign along NC 5 at Whitney Drive. The neighborhood contains sidewalk and bike lanes. The Abingdon Square subdivision is identified by a sign along NC 5 at Holly Pines Drive.

2. Relocation of Homes and Businesses

The proposed project will require the relocation of four homes and three businesses, none of which are minority-owned or occupied.

The relocation program for the project will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), and/or the North Carolina Relocation Assistance Act (GS-133-5 through 133-18). The NCDOT relocation program is designed to provide assistance to displaced persons in relocating to a replacement site in which to live or do business. Appendix B contains additional information regarding NCDOT relocation programs and includes copies of the relocation reports prepared for the project.

3. Minority/Low-Income Populations

Title VI of the Civil Rights Act of 1964, protects individuals from discrimination on the grounds of race, age, color, religion, disability, sex, and national origin.

Census data indicates a notable presence of minority and low-income populations within the project study area. Minority and low-income communities were observed within the study area during the field visit. The Colonial Heights and Jackson Hamlet neighborhoods are primarily African-American. The Jackson Hamlet neighborhood is also a lower-income community. The Pine Hill Apartments are federally subsidized housing primarily for elderly and elderly persons with mobility impairments.

A public meeting was held for the project on March 7, 2019 (see Section VI-A). This workshop was advertised in local newspapers and newsletters announcing the workshop were mailed to area property owners.

Through the public involvement program, citizens have been kept informed of the proposed project. While minority and low-income populations are present in the project study area, no notably adverse community impacts are anticipated; thus, impacts to minority and low-income populations do not appear to be disproportionately high and adverse. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community. No disparate impacts are anticipated under Title VI and related statutes.

E. Land Use

1. Existing Land Use

The land uses along NC 5 between US 1-15-501/NC 211 and Ridgeline Road are primarily industrial or commercial, with some vacant land. There is some residential development near NC 5 on Pinehurst Street and Keith Street in this area, including the Pine Hill Apartments. The land uses along NC 5 between Ridgeline Road and Trotter Drive/Blake Boulevard are mostly residential. A shopping center is located on the west side of NC 5 between Ampersand Drive and Dawkins Street in this area. Most development along NC 5 in the project area is on the west side of the road. The Aberdeen, Carolina and Western Railroad runs along the east side of NC 5. There is some industrial and residential development on the east side of the railroad, but most of the land east of the railroad in the project area is vacant.

2. Future Land Use

The Town of Aberdeen's 2019 *Comprehensive Land Development Plan* designates most of the land along NC 5 within the Town limits for commercial uses. Some low-density and medium-density residential uses are also planned in a few areas along NC 5. One such area is at the southern end of the project just north of US 1-15-501/NC 211.

The Village of Pinehurst's 2019 *Comprehensive Plan* designates the area along NC 5 near Linden Road as "Suburban Neighborhood" and the area near Trotter Drive as a commercial area. The Village of Pinehurst is developing small area plans for the portion of the project area within the Village's jurisdiction.

3. Project Compatibility with Local Plans

This project is consistent with local land use plans.

F. Economic Effects

No direct economic impacts are expected to result from this project, although access to some businesses could be marginally disrupted during construction.

G. Indirect and Cumulative Effects

The project will not alter travel patterns, substantially reduce travel time, affect access to properties in the area, or open areas for development or redevelopment. Due to its minimal transportation impact-causing activities, this project will neither influence nearby land uses nor stimulate growth.

H. Flood Hazard Evaluation

Moore County, the Town of Aberdeen, and the Village of Pinehurst are all participants in the National Flood Insurance Program. Flood zones in the project area are shown on Figure 5. Based on the most current information available from the NC Floodplain Mapping Program, Aberdeen Creek is in a designated flood hazard zone which is within a detailed flood study reach, having a regulated 100-year floodway. The existing culvert carrying Aberdeen Creek under NC 5 will remain in place with this project.

NCDOT will coordinate with the NC Floodplain Mapping Program (FMP) to determine whether the Memorandum of Agreement between NCDOT and FMP is applicable or if approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR) will be required for this project.

This project involves construction activities on or adjacent to FEMA-regulated streams. Therefore, NCDOT Division Eight shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

I. Highway Traffic Noise

1. Introduction

In accordance with Title 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23 CFR 772) and the North Carolina Department of Transportation Traffic Noise Policy, each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal highway projects that construct a highway on new location, add new through lanes to an existing highway, substantially change the horizontal or vertical alignment of an existing highway, add or relocate interchange ramps or loops to complete an existing partial interchange, or involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM®) approved by the Federal Highway Administration (FHWA) and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Policy and the NCDOT Traffic Noise Manual. When traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures must be considered for reducing or eliminating these impacts. Construction noise impacts may occur if noise-sensitive receptors are in proximity to project construction activities. All reasonable efforts should be made to minimize exposure of noise sensitive areas to construction noise impacts.

The source of this traffic noise information is the *Traffic Noise Report, NC 5 from US 1-15-501/NC 211 to Trotter Drive/Blake Boulevard, STIP U-5756* by Ramey Kemp Associates, Inc. approved in February 2022.

2. Traffic Noise Impacts and Noise Contours

The maximum number of receptors for each project alternative predicted to be impacted by future traffic noise is shown in Table 8 below. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by being subjected to substantially higher exterior noise levels as defined in the NCDOT Traffic Noise Policy.

Table 8
Predicted Traffic Noise Impacts

Alternative	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C & D)	Businesses (NAC E)	Total
Build	5	1	1	7

*Per TNM®2.1 and in accordance with 23 CFR Part 772

The maximum extent of the 71 and 66 dB(A) noise level contours measured from the centerline of the roadway is within the right of way and 200 feet, respectively.

3. Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts were considered for all impacted receptors. The primary noise abatement measures evaluated included highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers and noise insulation (NAC D only). For each of these measures, benefits versus allowable abatement quantity (reasonableness), engineering feasibility, effectiveness, and other factors were included in the noise abatement considerations.

Substantially changing the highway alignment to minimize noise impacts is not considered a viable option for this project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement due to the negative impact they would have on the capacity and level of service of the proposed roadway. Acquiring buffer zones for impacted receptors would be an unreasonable abatement measure

because the cost would exceed the NCDOT base dollar value of \$22,500 plus an incremental increase as defined in the NCDOT Traffic Noise Manual.

4. Noise Barriers

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb, and reflect highway traffic noise.

No control of access is proposed for this project, meaning that most noise-sensitive land uses will have direct access connections to the proposed project, and all intersections along the project will be at-grade. The traffic noise analysis for this project confirmed that the physical breaks in potential noise barriers required to provide access to adjacent properties would prohibit any noise barrier from providing the minimum required traffic noise level reductions for receptors with predicted traffic noise impacts, as defined by the noise abatement measure feasibility criteria of the NCDOT Traffic Noise Policy. Therefore, noise barriers would not be a feasible noise abatement measure.

5. Summary

Based on this preliminary study, traffic noise abatement is not recommended, and no noise abatement measures are proposed. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772. No additional noise analysis will be performed for this project unless warranted by a substantial change in the project's design concept or scope.

In accordance with NCDOT Traffic Noise Policy, the Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the subject project will be the approval date of this combined State Environmental Assessment/Finding of No Significant Impact. NCDOT strongly advocates the planning, design and construction of noise-compatible development and encourages its practice among planners, building officials, developers, and others.

J. Air Quality Analysis

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality.

1. Project Air Quality Effects

Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter, sulfur dioxide (SO₂), and lead (Pb) (listed in order of decreasing emission rate).

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). The NAAQS contain criteria for SO₂, particulate matter (PM₁₀, 10-micron and smaller, PM_{2.5}, 2.5-micron and smaller), CO, nitrogen dioxide (NO₂), ozone (O₃), and lead (Pb).

The primary pollutants from motor vehicles are unburned HC, NO_x, CO, and particulates. HC and NO_x can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as O₃ and NO₂. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. These pollutants are regional problems.

A project-level air quality analysis was prepared for this project. A copy of the unabridged version of the full technical report entitled *Air Quality Report, NC 5 From US 1-15-501/NC 211 in Aberdeen to Trotter Drive/Blake Boulevard in Pinehurst, Moore County* dated March 2022 can be viewed at the NCDOT Environmental Analysis Unit, Century Center Building A, 1000 Birch Ridge Drive, Raleigh.

2. Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the US Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 2011 National Air Toxics Assessment (NATA). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority MSAT, the list is subject to change and may be adjusted in consideration of future EPA rules.

According to EPA, the latest model MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data.

MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015 MOVES2014a Questions and Answers Guide, EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake

wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

Using EPA's MOVES2014a model, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

MSAT analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically defined "study area" will not capture the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area's entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects." Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are

summarized in Appendix D of FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (<https://www.epa.gov/iris>).”

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Under the build alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the expanded roadway sections that would be built between SR 1108 (Pinehurst Street) and Anderson Street and also between Dawkins Street and Gaines Street under the build alternative. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

Under the build alternative in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the no-build alternative, due to EPA's MSAT reduction programs.

3. Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The proposed project is located in Moore County, which complies with the NAAQS. The proposed project is located within an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. The project is not anticipated to create any adverse effects on the air quality of this attainment area. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the SEPA process. No additional reports are necessary.

K. Hazardous Materials

Six sites presently or formerly containing petroleum underground storage tanks (USTs) were identified within the project limits. These sites are described in Table 9 below and shown on Figure 5.

Table 9
Sites Potentially Containing Hazardous Materials

Site No.	Property	Type	Facility ID	Incident Type/Number	Anticipated Impacts
1	Short Stop 78 1410 NC 5 Hwy (245 NC-5 South?) Pinehurst, NC 28374	UST (active gas station)	00-0- 0000020905	N/A	Low
2	American Cleaners 1430 NC 5 Hwy Pinehurst, NC 28374	UST (former gas station)	N/A	N/A	Low
3	Curtains 1560 NC 5 Hwy Pinehurst, NC 28374	UST (former gas station)	N/A	N/A	Low
4	Speedway # 8673 1760 US Highway 5 Aberdeen, NC 28315	UST (active gas station)	00-0- 0000036637	N/A	Low
5	Lucky Star Store and Grill 104 N Sandhills Blvd Aberdeen, NC 28315	UST (former gas station)	N/A	N/A	Low
6	Short Stop 72 300 S Sandhills Blvd Aberdeen, NC 28315	UST (active gas station)	00-0- 0000020958	N/A	Low

No hazardous waste sites or landfills were identified within the project limits. Discovery of additional sites not recorded by regulatory agencies and not reasonably discernable during the project reconnaissance may occur.

VI. COMMENTS AND COORDINATION

A. Public Meeting

A public meeting was held for the subject project on March 7, 2019 at the Aberdeen Lake Park Recreation Station in Aberdeen. Property owners in the area were notified about the workshop by postcards distributed by mail and advertisements in the local paper. A project map showing the project design was displayed and informational handouts were available to meeting participants. No formal presentation was made; the public could attend at any time during the meeting hours.

Eighty people attended this public meeting, including project team staff. Nine comment sheets were received from local citizens during the comment period. Comments were also received by email. Comments and concerns expressed included the following:

- Loss of driveway length at Pinetree Animal Hospital
- Concerns regarding effect of proposed widening on driveway slopes were expressed for two locations:
 - Pinetree Animal Hospital
 - 1430 NC 5 in Pinehurst
- Median blocking left-turning traffic; accidents from resulting U-turns near Pinetree Animal Hospital
- A commenter stated they were told there would be an entrance from NC 5 for the Marathon gas station at the US 1/NC 5 intersection, but that the plans only show an entrance from US 1, but not from NC 5.
- Request for landscaping in median.
- A concern was expressed about possible traffic issues resulting from the transition from four to two lanes at Linden Road.
- A suggestion was made to extend Linden Road across NC 5 and the railroad (with a bridge at the railroad) and connect the extension of Linden Road to US 15-501.
- A commenter noted that the Town of Aberdeen has approved the construction of 111 homes at NC 5 and Linden Road, and this will result in additional traffic.
- A commenter asked if there would be any road closures during project and expressed concerns traffic will be slower during construction.
- A commenter asked about the project start date.
- A commenter stated they liked the project but are concerned the project does not include turn lanes at Pine Tree Road (opposite Fair Barn) and the buildings just south of the underpass in Pinehurst.
- One commenter stated they looked forward to easier traffic on NC 5 following construction of the project.

- A commenter expressed concern the project will result in additional traffic using Monticello Drive as a cut-through to access the shopping center on US 15-501 and Southern Pines.
- One commenter expressed concern with the lack of a center turn lane on NC 5 and suggested extending Sand Pit Road across NC 5 and connecting it with Columbus Drive near the Hampton Inn. Commenter stated they believed that would reduce traffic trying to use Morganton Road to reach US 15-501.
- One commenter requested that bike lanes be included in the project
- One commenter stated they agreed with widening NC 5 but thought that the road should end at Morganton Road and be more like a neighborhood road. Mentioned people having trouble crossing NC 5 on foot. Thought a bypass of Pinehurst should be built as well.
- A commenter stated they thought the project would benefit the area but expressed concern the proposed right of way shown on the property at 1420 NC Hwy 5 in Pinehurst is excessive. Commenter stated the project would remove 17 parking spaces, or 40% of their parking, which would be detrimental to their tenant's businesses and make it difficult to lease the property in the future. They stated they could not build additional parking spaces to replace what would be taken by the project.

Project designs have been reviewed based on comments received. The project alignment was shifted in one area to reduce project impacts to a property based on a comment received from a property owner.

B. Other Agency Coordination

Comments regarding the proposed project were requested from various federal, state, and local agencies. Copies of the comments received are included in Appendix A. An asterisk indicates comments were received from that agency.

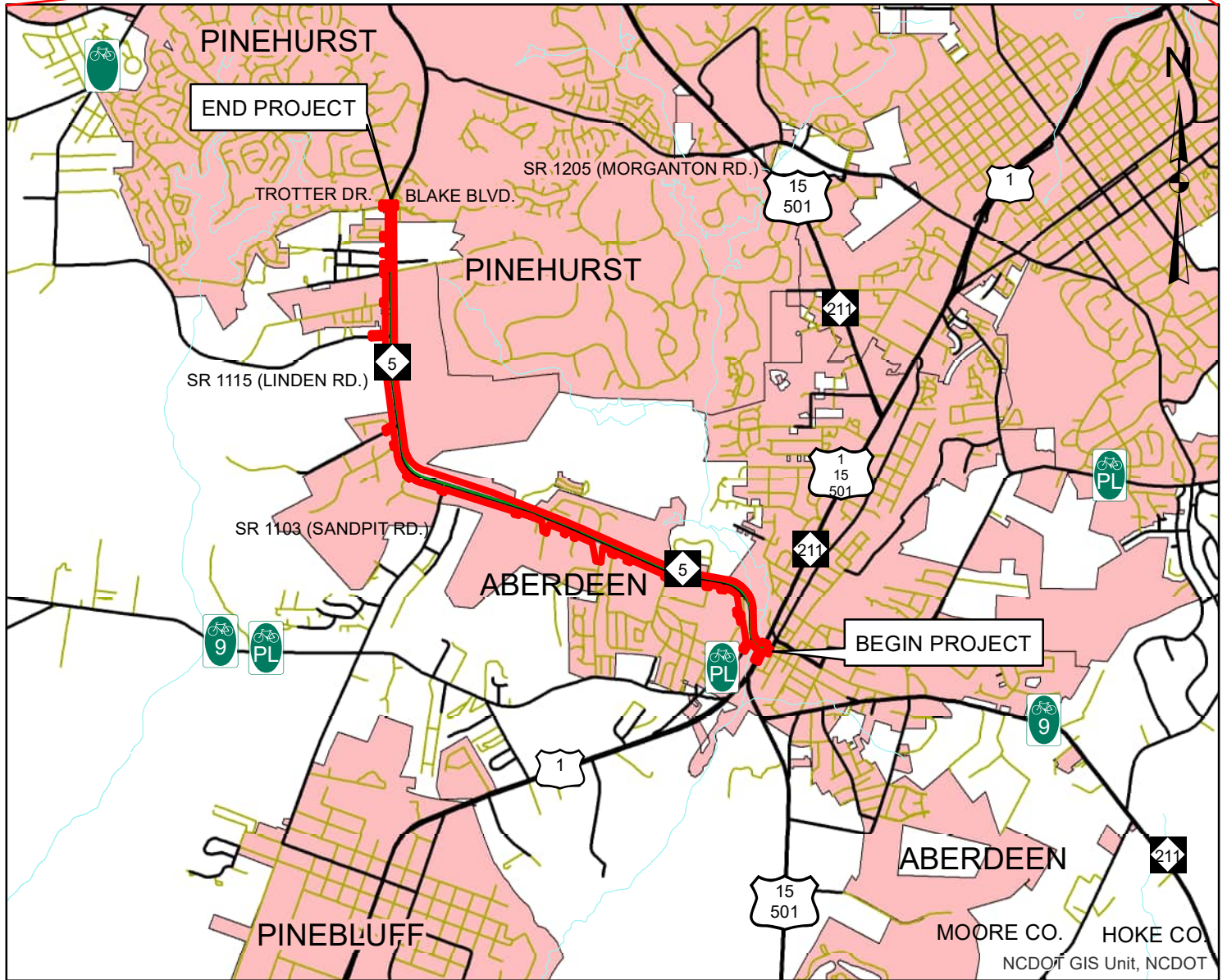
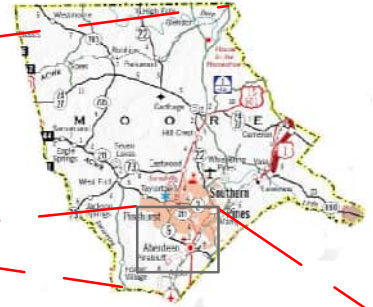
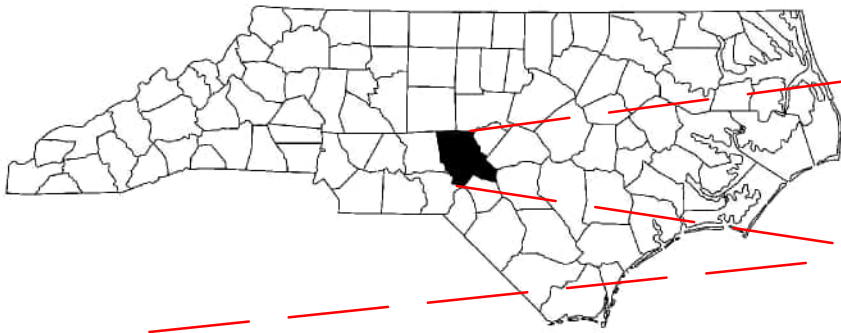
US Department of the Army – Corps of Engineers*
 US Department of the Interior – Fish and Wildlife Service*
 NC Department of Cultural Resources
 NC Department of Environment and Natural Resources, Division of Water
 Resources*
 NC Wildlife Resources Commission
 Triangle Area Rural Planning Organization
 Moore County
 Town of Aberdeen
 Village of Pinehurst

VII. BASIS FOR FINDING OF NO SIGNIFICANT IMPACT

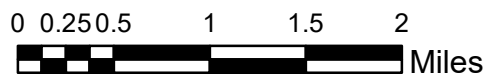
Based upon environmental studies and coordination with appropriate state and local agencies, it is the finding of the North Carolina Department of Transportation that the proposed action will have no significant impact upon the quality of the human environment. Therefore, an environmental impact statement will not be required.

Additional information concerning this proposal can be obtained by contacting the following person:

Patrick Norman, P.E., Division Engineer
Highway Division 8
North Carolina Department of Transportation
121 DOT Drive
Carthage, North Carolina 28327
Telephone: (910) 773-8000



— STUDY LIMITS

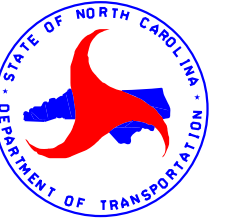
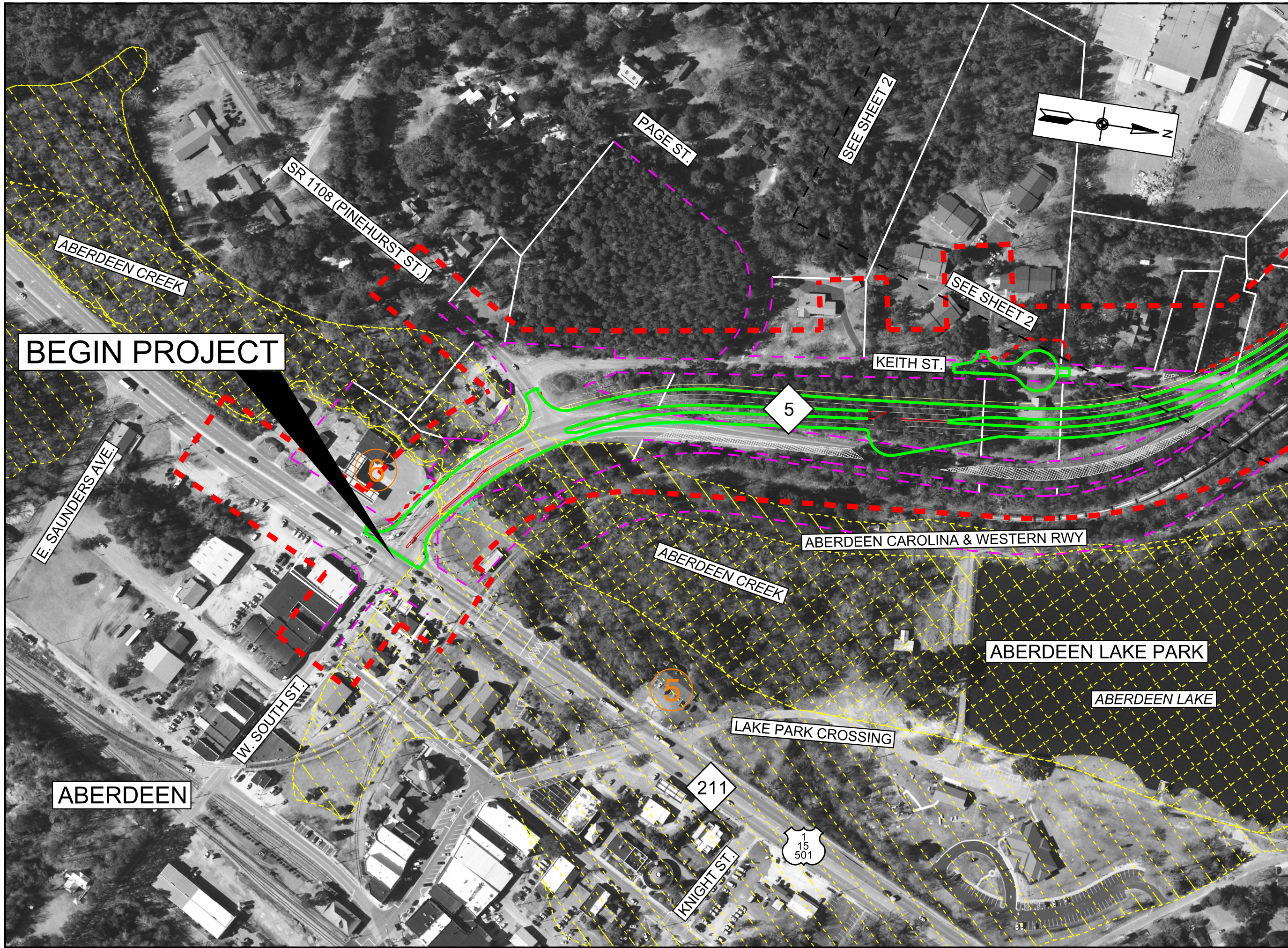


NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

RAMEY KEMP & ASSOCIATES

NC 5
FROM US 1-15-501/NC 211 IN ABERDEEN
TO TROTTER DR./BLAKE BLVD. IN
PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

VICINITY MAP-FIGURE 1



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5800 Fairington Place
Raleigh, North Carolina 27606
Phone: 919-872-5019

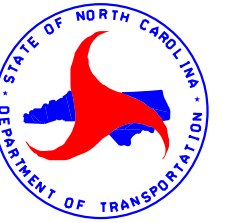
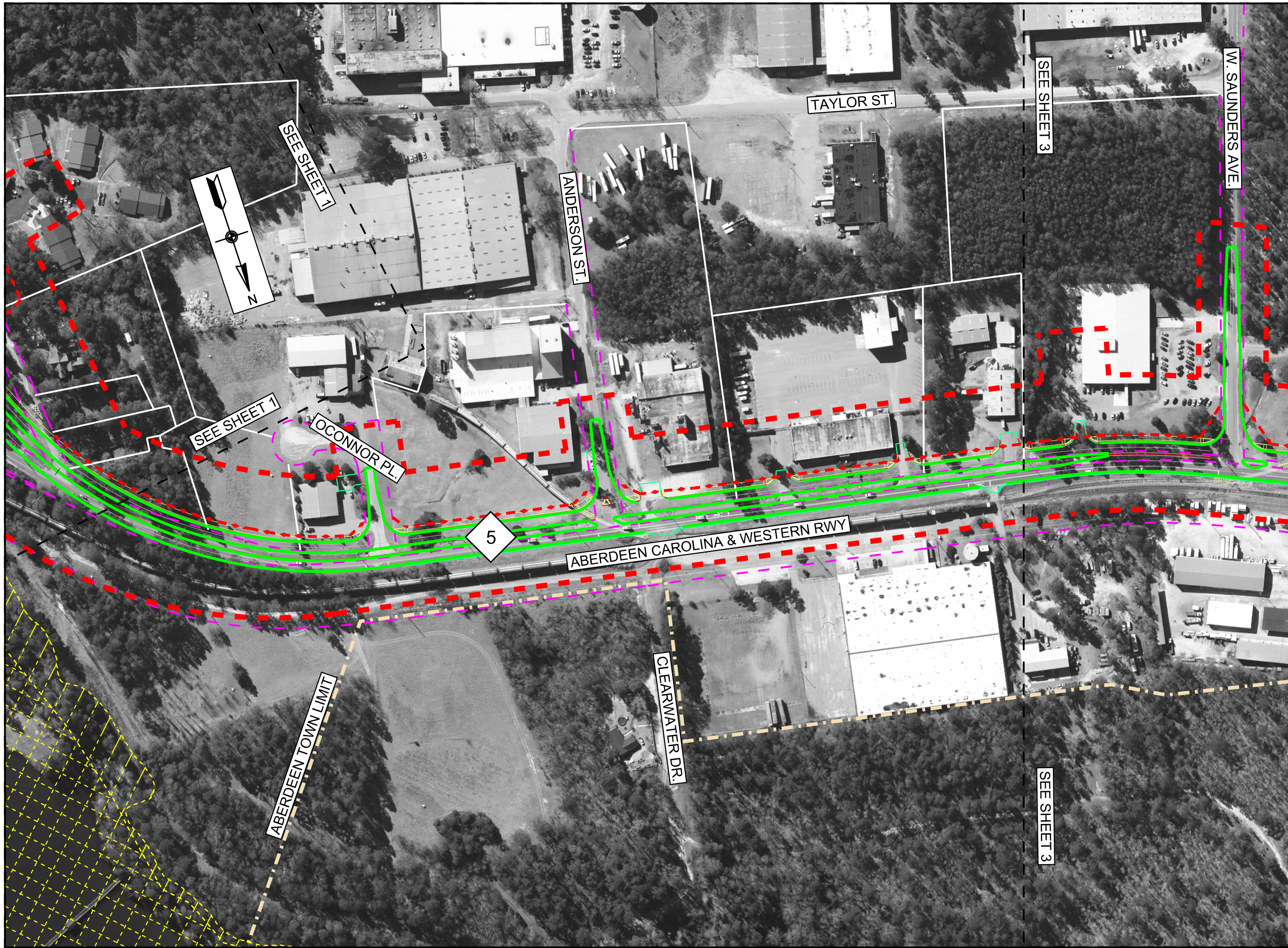
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5808 Fairington Place
Raleigh, North Carolina 27606 License No. C-0118
Phone: 919-872-5125

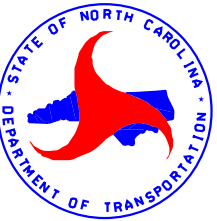
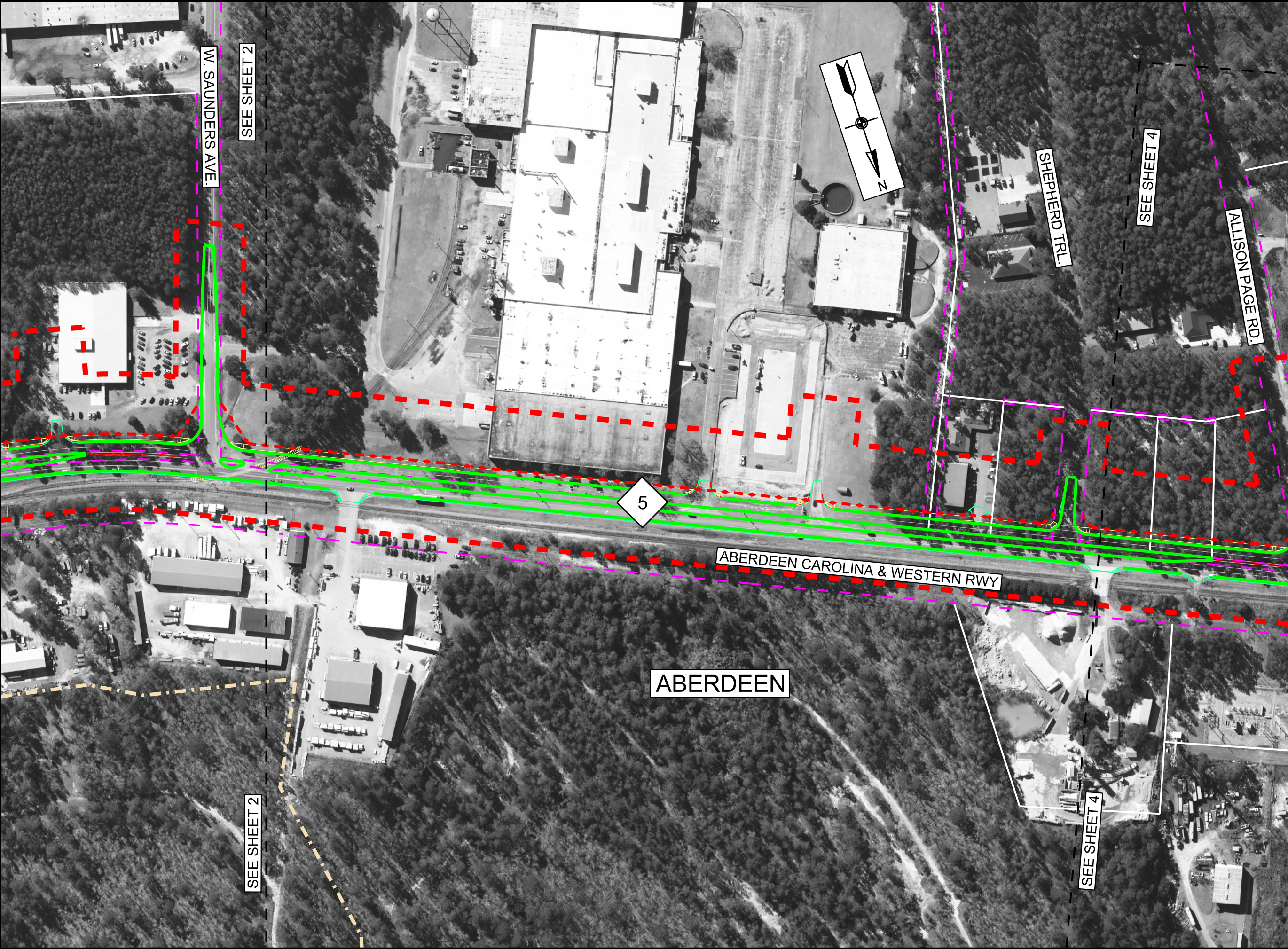
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5600 Fairington Place
Raleigh, North Carolina 27606 License No. C-0118
Phone: 919-872-5019

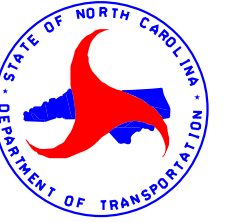
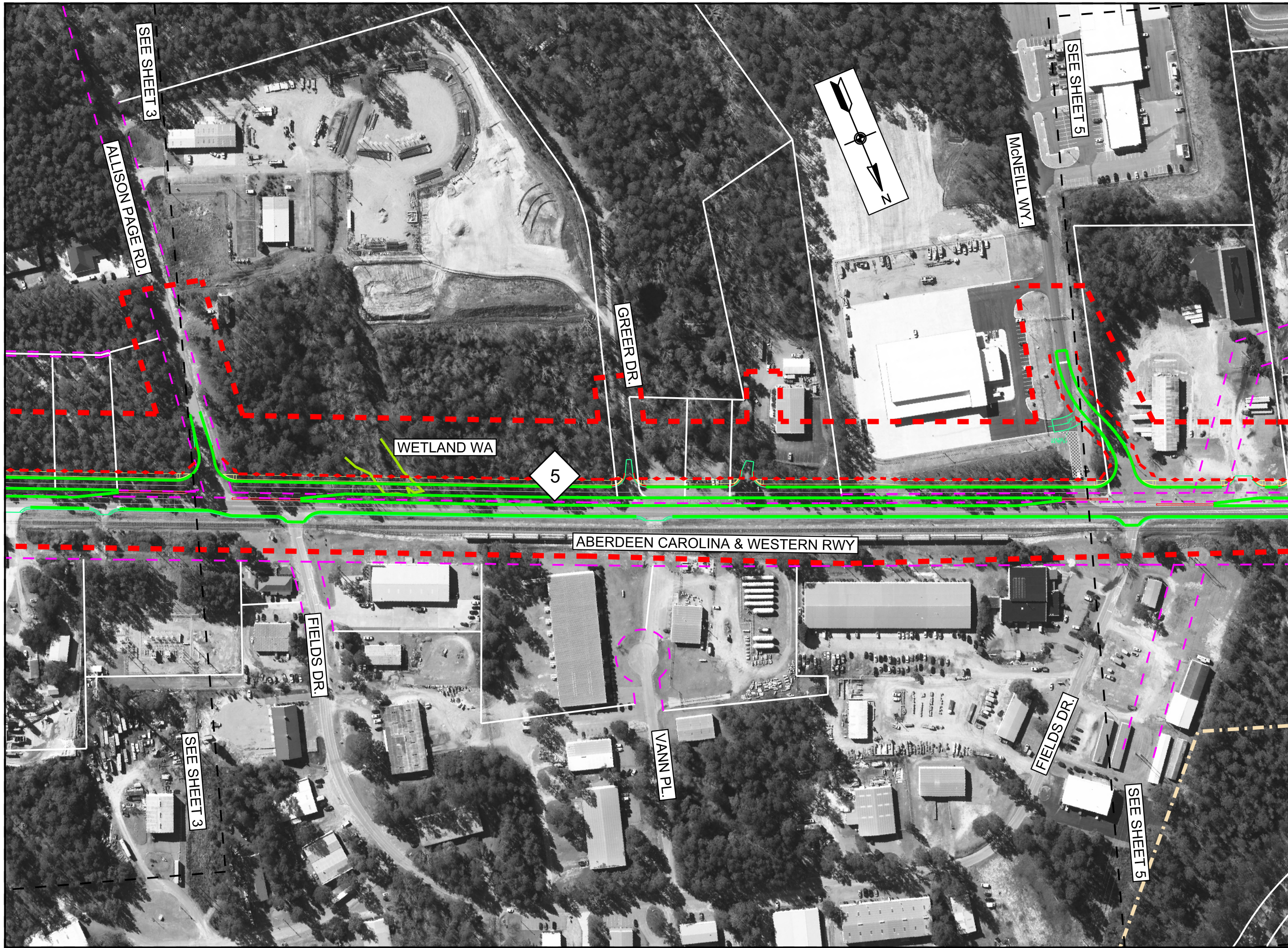
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



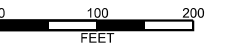
NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5808 Fairington Place
Raleigh, North Carolina 27606 License No. C-0918
Phone: 919-872-5019

LEGEND

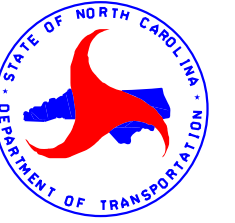
- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS

SHEET 4 OF 10 **FIGURE 2**



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS

RKA

RAMEY KEMP ASSOCIATES
5808 Fairington Place
Raleigh, North Carolina 27606 License No. C-0118
Phone: 919-872-5115

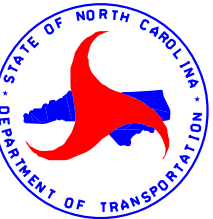
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5808 Fairway Place
Raleigh, North Carolina 27606 License No. C-0118
Phone: 919-872-5019

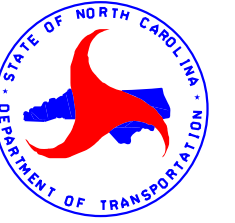
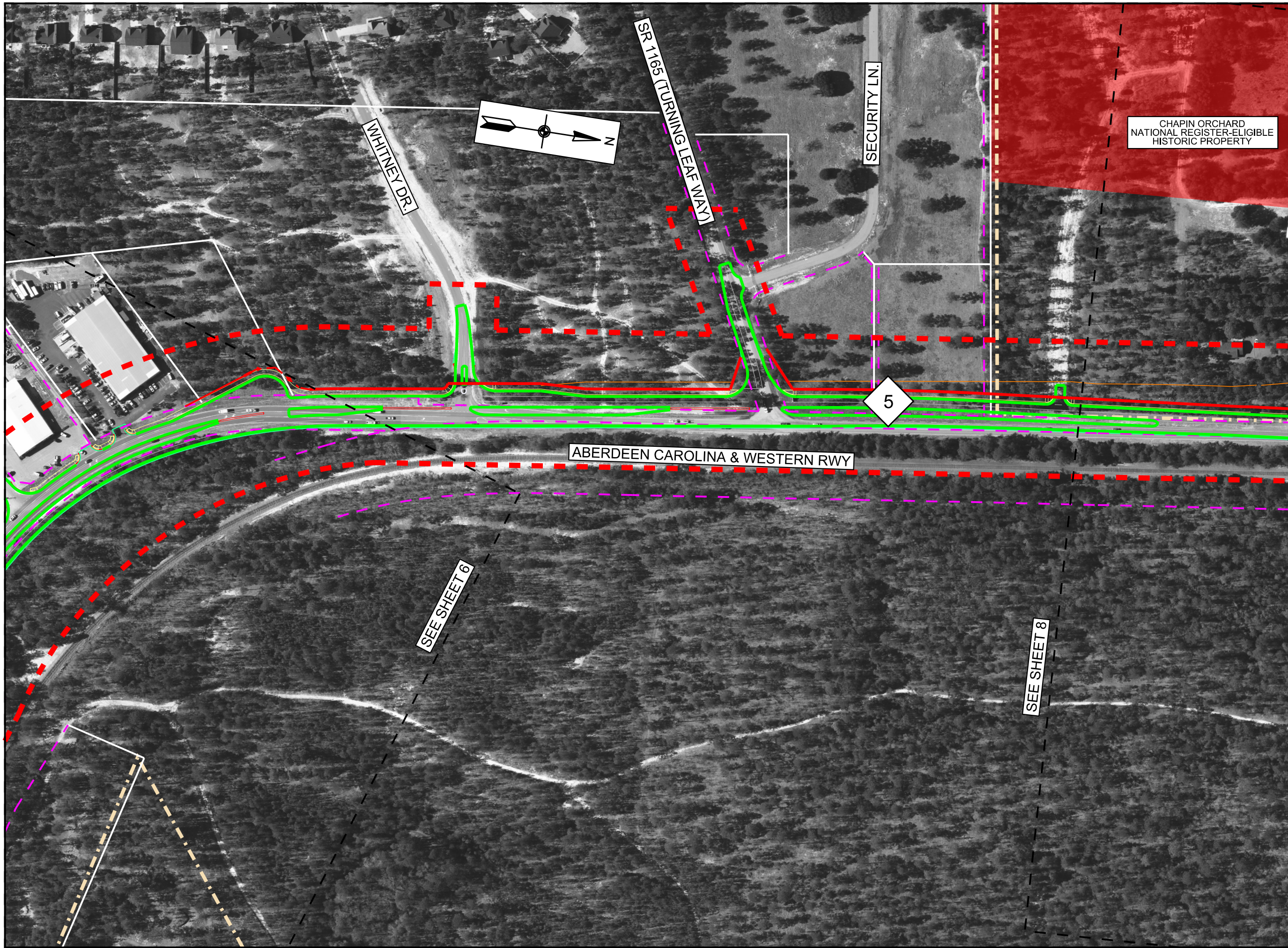
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS

RKA
RAMEY KEMP ASSOCIATES

5608 Fairington Place
Raleigh, North Carolina 27606 License No. C-0918
Phone: 919-872-5019 Fax: 919-872-5019

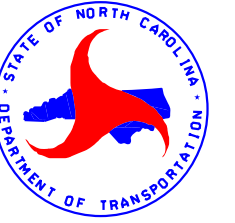
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5608 Fairington Place
Raleigh, North Carolina 27606 License No. C-0918
Phone: 919-872-5119

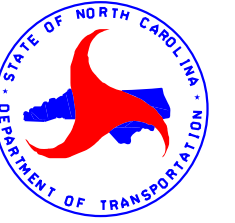
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5808 Fairway Place
Raleigh, North Carolina 27616 License No. C-0918
Phone: 919-872-5115

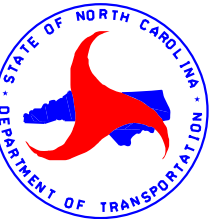
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS



RAMEY KEMP ASSOCIATES
5808 Fairington Place
Raleigh, North Carolina 27616
Phone: 919-872-5019

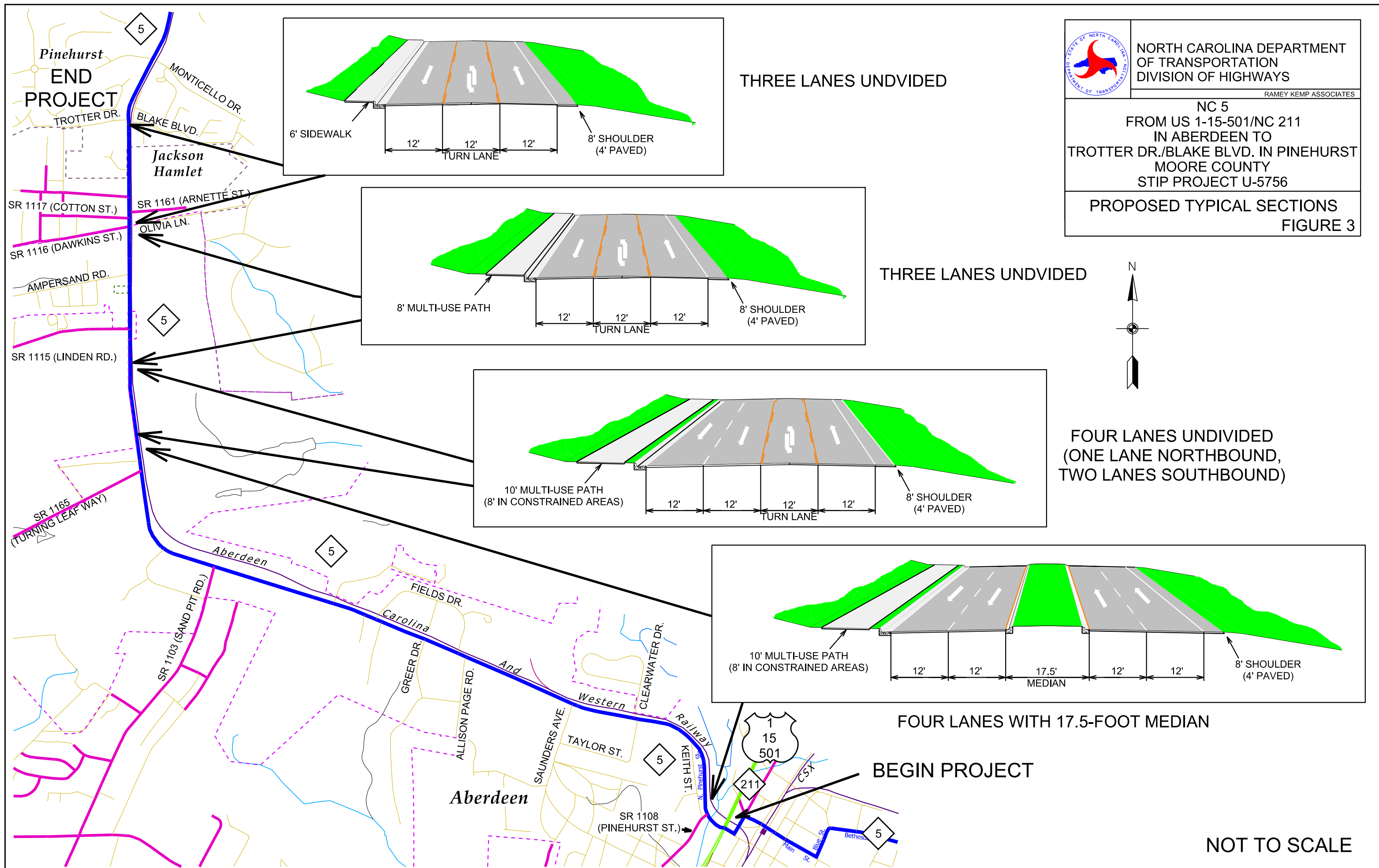
LEGEND

- STUDY AREA
- PROPOSED EDGE OF TRAVEL
- PROPOSED PAVED SHOULDER
- PROPOSED SIDEWALK OR MULTI-USE PATH
- PROPOSED CONCRETE CURB AND GUTTER OR ISLAND
- PROPOSED PAVEMENT REMOVAL
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINES
- STREAMS
- WETLANDS
- HISTORIC PROPERTIES
- 100-YEAR FLOODPLAIN
- FLOODWAY
- UST SITES (SITE NO.)



NC 5
FROM US 1-15-501/NC 211
IN ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

PROPOSED IMPROVEMENTS



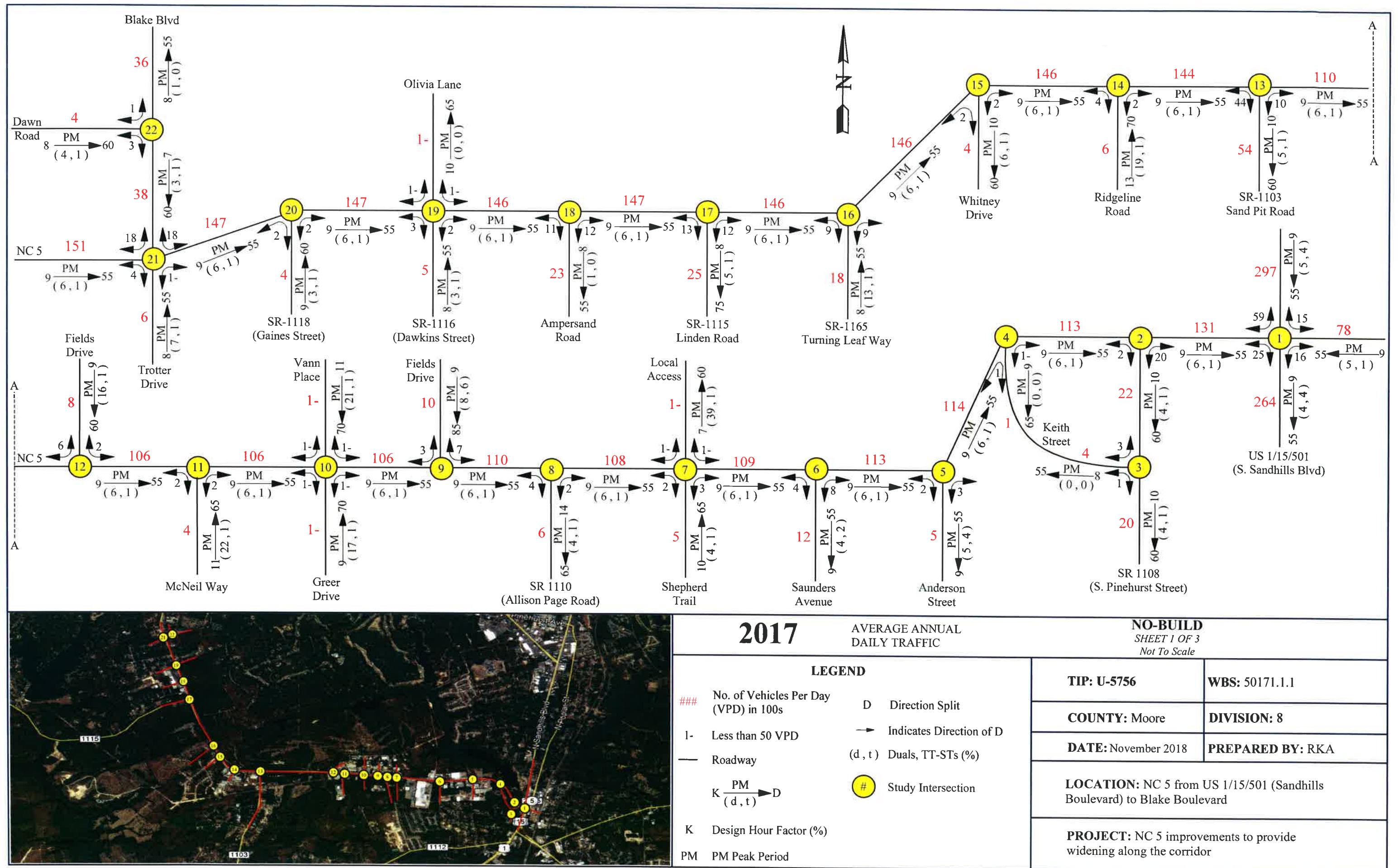
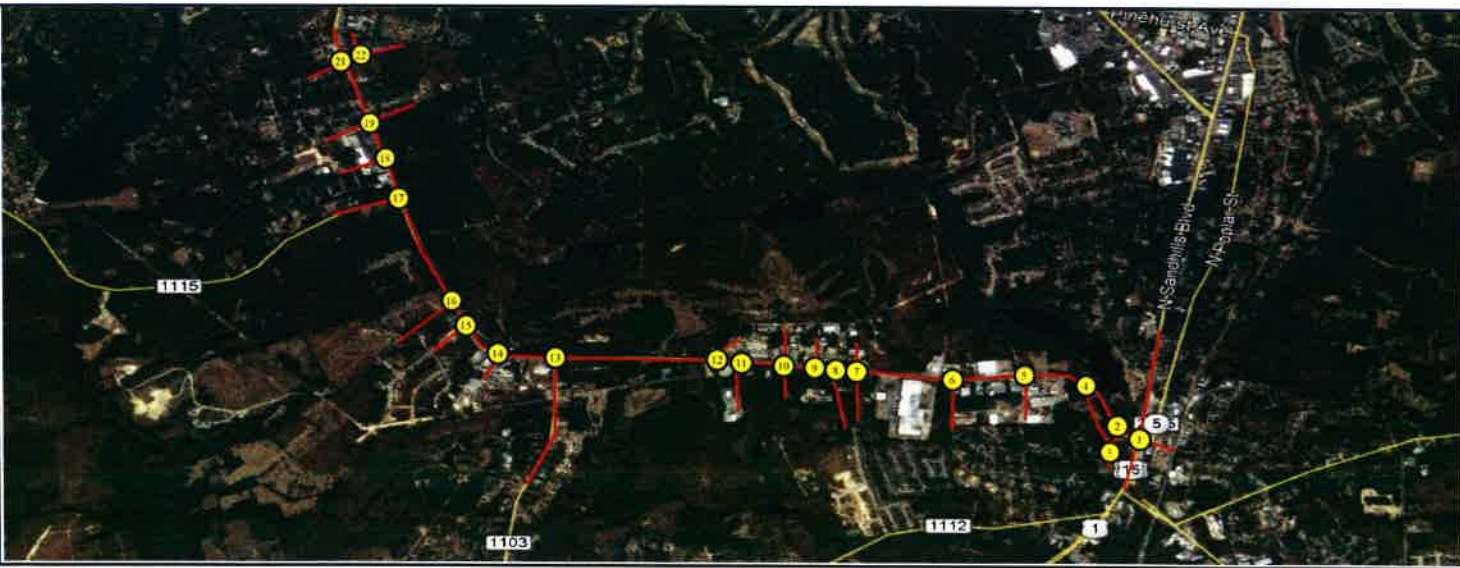
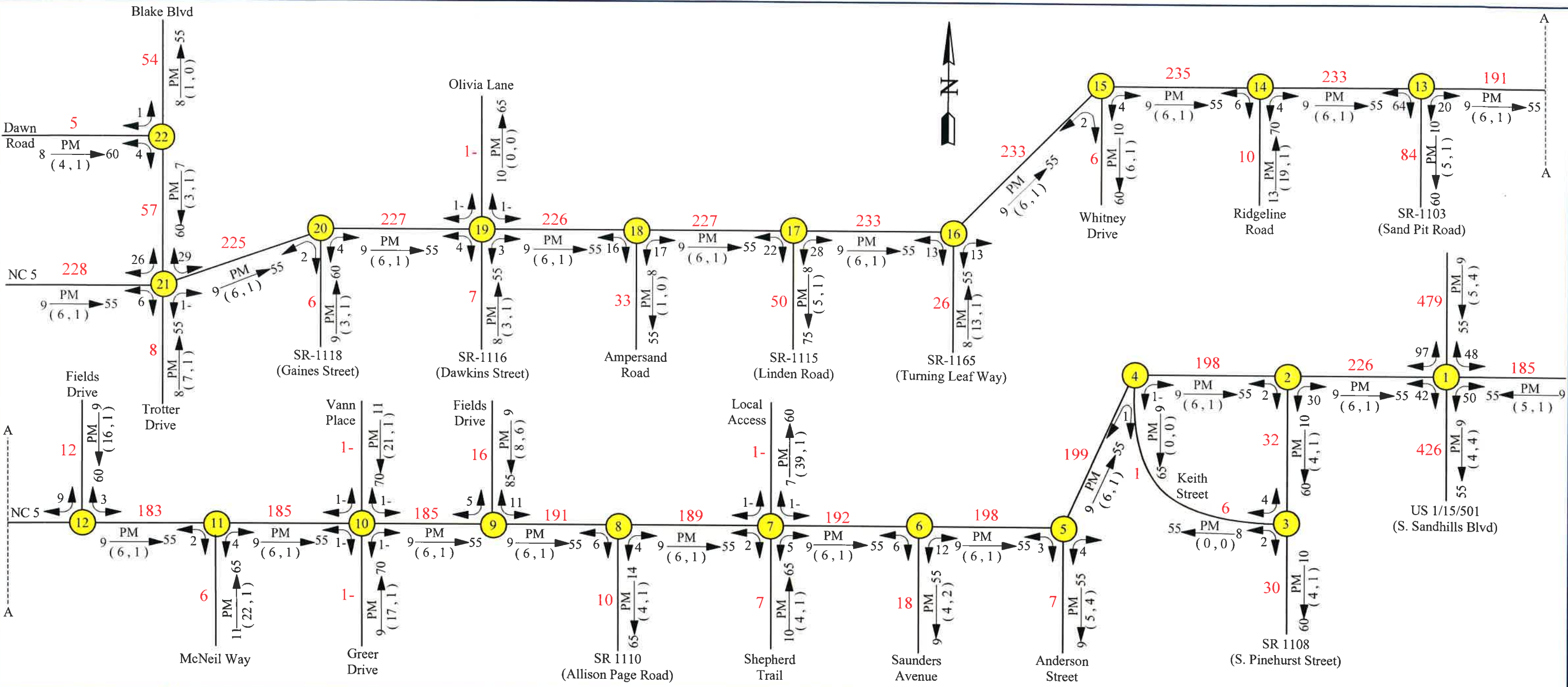


FIGURE 4A



2040 AVERAGE ANNUAL DAILY TRAFFIC		NO-BUILD SHEET 2 OF 3 Not To Scale	
LEGEND ### No. of Vehicles Per Day (VPD) in 100s 1- Less than 50 VPD — Roadway K $\frac{PM}{(d, t)}$ D K Design Hour Factor (%) PM PM Peak Period D Direction Split → Indicates Direction of D (d, t) Duals, TT-STs (%) # Study Intersection		TIP: U-5756	WBS: 50171.1.1
		COUNTY: Moore	DIVISION: 8
		DATE: November 2018	PREPARED BY: RKA
		LOCATION: NC 5 from US 1/15/501 (Sandhills Boulevard) to Blake Boulevard	
		PROJECT: NC 5 improvements to provide widening along the corridor	

FIGURE 4B

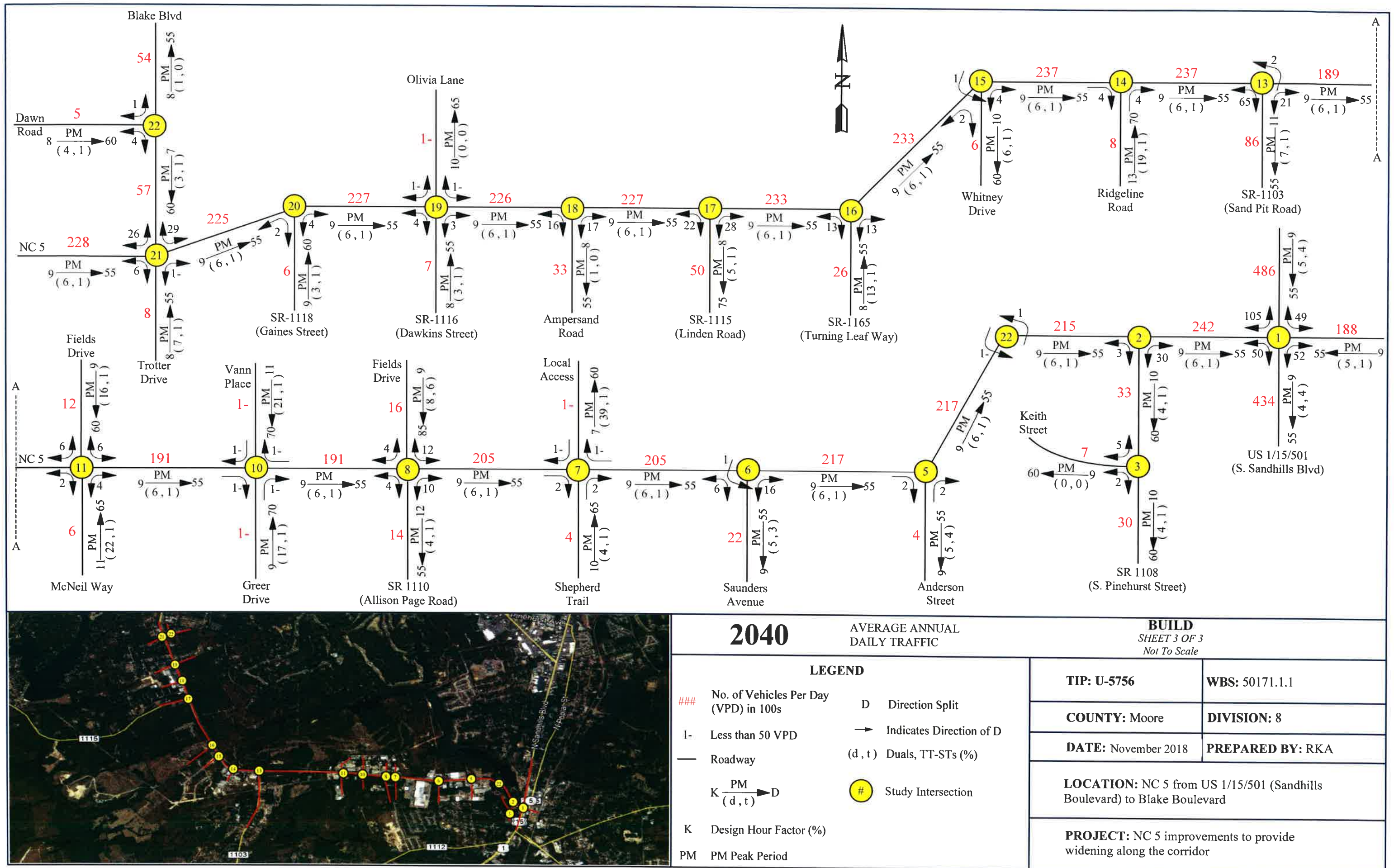
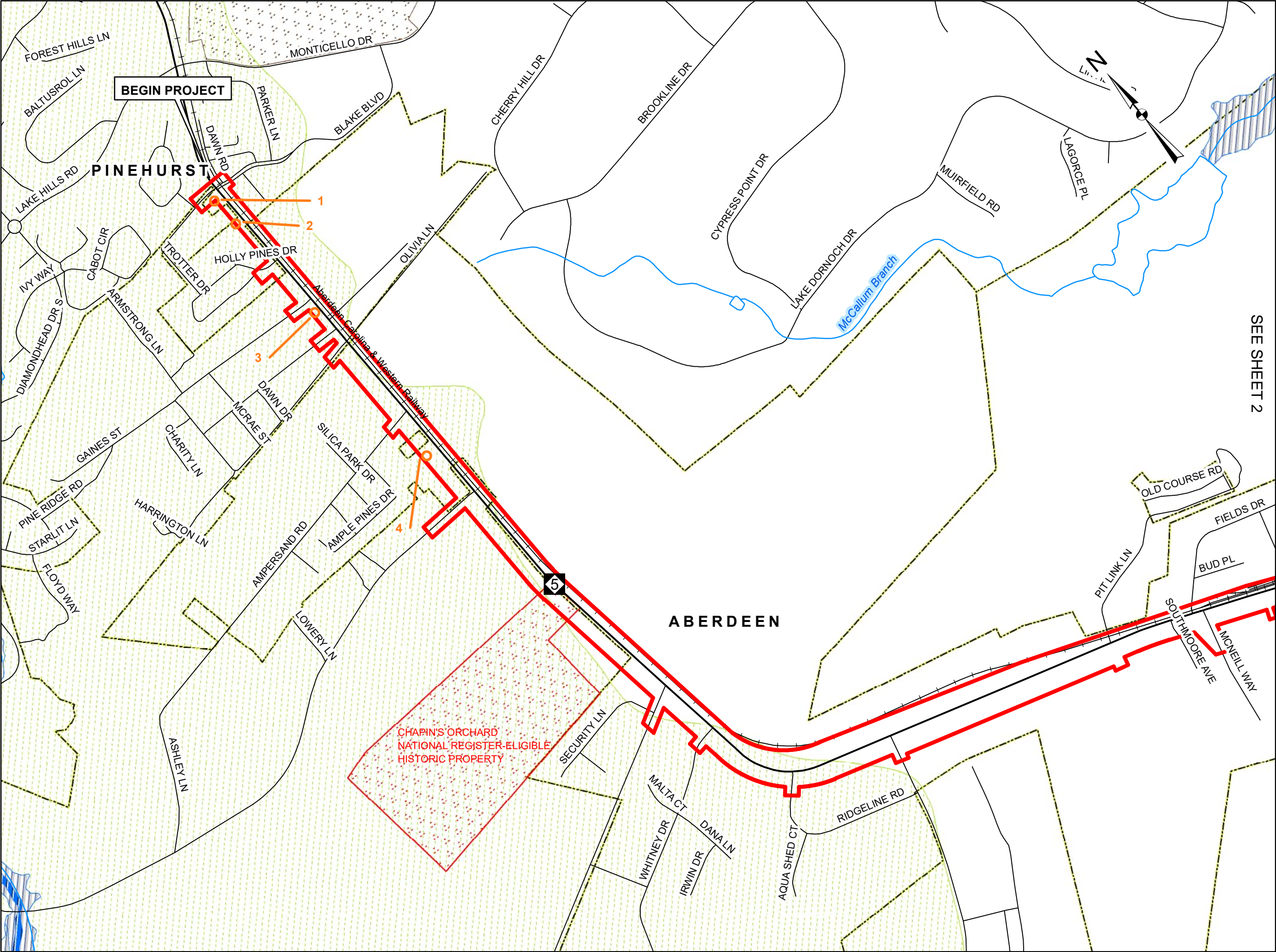


FIGURE 4C



NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS

RAMEY KEMP ASSOCIATES

LEGEND

- STUDY AREA
- ELIGIBLE OR LISTED HISTORIC PROPERTIES
- LOCAL HISTORIC DISTRICT
- DELINEATED WETLANDS
- STREAMS
- HIGH QUALITY/ OUTSTANDING RESOURCE WATERS WATERSHED
- 100-YEAR FLOODPLAIN
- FLOODWAY
- CITY LIMITS
- UST SITE

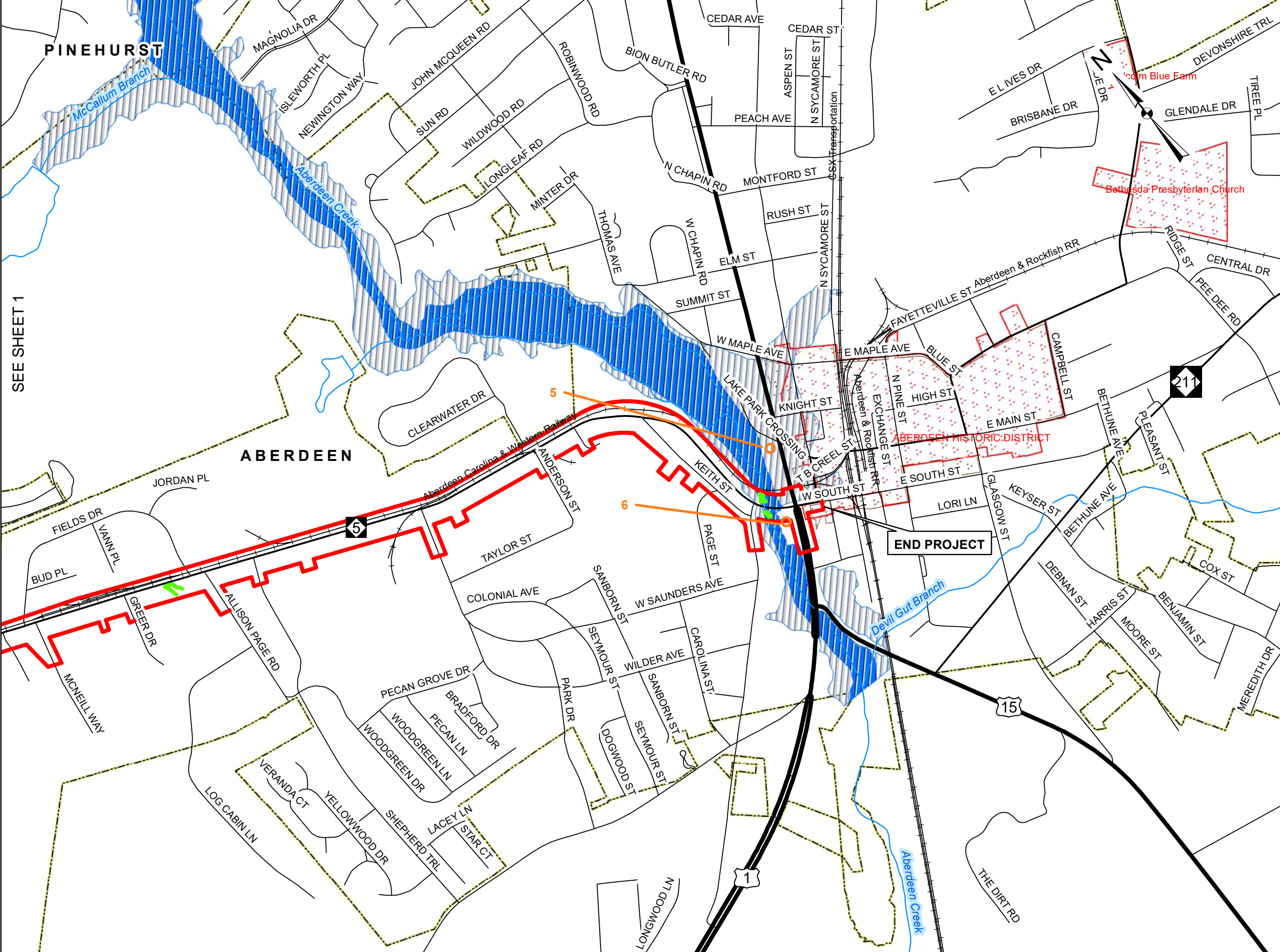
0 500 1,000
Feet

NC 5
FROM US 1-15-501/NC 211 IN
ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

ENVIRONMENTAL FEATURES

SHEET 1

FIGURE 2

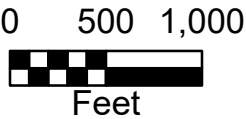


NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS

RAMEY KEMP ASSOCIATES

LEGEND

- STUDY AREA
- ELIGIBLE OR LISTED HISTORIC PROPERTIES
- LOCAL HISTORIC DISTRICT
- DELINEATED WETLANDS
- STREAMS
- HIGH QUALITY/OUTSTANDING RESOURCE WATERS WATERSHED
- 100-YEAR FLOODPLAIN
- FLOODWAY
- CITY LIMITS
- UST SITE (NUMBER)



NC 5
FROM US 1-15-501/NC 211 IN
ABERDEEN
TO TROTTER DR./BLAKE BLVD.
IN PINEHURST
MOORE COUNTY
STIP PROJECT U-5756

ENVIRONMENTAL FEATURES

APPENDIX A

COMMENTS RECEIVED FROM AGENCIES

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2018-01184 County: Moore County U.S.G.S. Quad: Southern Pines

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Applicant: NCDOT Division 8
Greg Davis
Address: 902 N. Sandhills Blvd.
Aberdeen, North Carolina 28315

Telephone Number: 910-944-2344

Size (acres) 125 (approximate)
Nearest Waterway Aberdeen Creek
USGS HUC 03040203

Nearest Town Aberdeen/Pinehurst
River Basin Lower Pee Dee
Coordinates Latitude: 35.151844
Longitude: -79.450769

Location description: The project site is located along NC 5 from US 1 in Aberdeen to Trotter Drive/Drake Boulevard, in Pinehurst, Moore County, North Carolina and is identified as TIP U-5756 (see attached Preliminary JD form, including 10 map pages).

Indicate Which of the Following Apply:

A. Preliminary Determination

- ☒ There are waters, including wetlands, on the above described project area, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The waters, including wetlands, have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.
- ☐ There are wetlands on the above described property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the waters, including wetlands, have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the waters, including wetlands, at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

- ☐ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ There are waters of the U.S., including wetlands, on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- We recommend you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.
- The waters of the U.S., including wetlands, on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.
- The waters of the U.S., including wetlands, have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Morehead City, NC, at (252) 808-2808 to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Andrew Williams at (919) 554-4884 or Andrew.E.Williams2@usace.army.mil.**

C. Basis For Determination: N/A. An Approved JD has not been completed.

D. Remarks: Based on a desk review and site visit conducted by USACE on July 12, 2018

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information for Approved Jurisdiction Determinations (as indicated in Section B. above)

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not Applicable**.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: _____

Andrew Williams

Digitally signed by WILLIAMS.ANDREW.E.1244561655
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI,
ou=USA, cn=WILLIAMS.ANDREW.E.1244561655
Date: 2018.07.16 14:43:15 -04'00'

Date: **July 16, 2018**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at

http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Copy Furnished (via email):

Jeff Harbour
Environmental Services, Inc.
4901 Trademark Drive
Raleigh, NC 27610

Art King
NCDOT Division 8
902 North Sandhill Boulevard
Aberdeen, North Carolina 28315

April R. Norton
Environmental Senior Specialist
Transportation Permitting Unit
Division of Water Resources
NC Department of Environmental Quality
512 North Salisbury Street, 12th Floor (physical)
1617 Mail Service Center (mailing)
Raleigh, NC 27699

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Greg Davis NCDOT Division 8	File Number: SAW-2018-01184	Date: July 16, 2018
Attached is:		See Section below
<input type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
<input type="checkbox"/> PERMIT DENIAL	C	
<input type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION	D	
<input checked="" type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision.
 Additional information may be found at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or
 Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Attn: Andrew Williams
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:
---	-------	-------------------

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele,
Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

This Page Left Blank Intentionally.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

April 17, 2018

Gregory S. Davis, PE
North Carolina Department of Transportation
902 N. Sandhills Blvd
Aberdeen, NC 28315

Dear Mr. Davis:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental effects of the proposed improvements to NC 5 from US 1-15-501 to Trotter Drive/Blake Boulevard in Pinehurst, Moore County, North Carolina (STIP No. U-5756). These comments provide information in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

Section 7(a)(2) of the ESA requires that all federal action agencies (or their designated non-federal representatives), in consultation with the Service, insure that any action federally authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any federally threatened or endangered species. Due to the lack of federal funding for this project and the limited water resources (i.e. possibly precluding the need for a Section 404 permit), it is unclear at this time if there is a federal nexus for this project. However, Section 9 of the ESA prohibits unauthorized take of listed species. To assist you, a county-by-county list of federally protected species known to occur in North Carolina and information on their life histories and habitats can be found on our web page at http://www.fws.gov/raleigh/species/cntylist/nc_counties.html.

Several active clusters of the federally endangered red-cockaded woodpecker (RCW, *Picoides borealis*) occur in close proximity to the project area (see Figure 1). Based on current data, the proposed project only intersects the foraging partition of one known active RCW cluster – SOPI 69/113 (see Figure 2). We recommend avoiding the clearing of any large pine trees (>8" dbh) within the foraging partition of this cluster. However, if the clearing of large pine trees is unavoidable, a foraging habitat analysis for this cluster may be necessary. Although the remainder of the project does not intersect the foraging partitions of any known active RCW clusters, a cavity tree survey should be conducted within a one-half mile radius of the project footprint if any large pine trees are to be removed. If no large pine trees will be removed, then the project will likely have no effect on RCWs.

If you determine that the proposed action may affect (i.e. likely to adversely affect or not likely to adversely affect) the RCW or any other listed species, you should notify this office with your determination, the results of your surveys, survey methodologies and an analysis of the effects of the action on listed species, including consideration of direct, indirect and cumulative effects, before conducting any activities that might affect the species. If you determine that the proposed action will have no effect (i.e. no beneficial or adverse, direct or indirect effect) on listed species, then you are not required to contact our office for concurrence.

The Service appreciates the opportunity to comment on this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,


for Pete Benjamin
Field Supervisor

Attachments

Electronic copy provided to:

Andy Williams, USACE, Wake Forest, NC
Travis Wilson, NCWRC, Creedmoor, NC
Art King, NCDOT, Aberdeen, NC
Rex Badgett, NCDOT, Aberdeen, NC
Devyn Lozzi, Ramey Kemp and Associates, Raleigh, NC
Jay McInnis, Ramey Kemp and Associates, Raleigh, NC

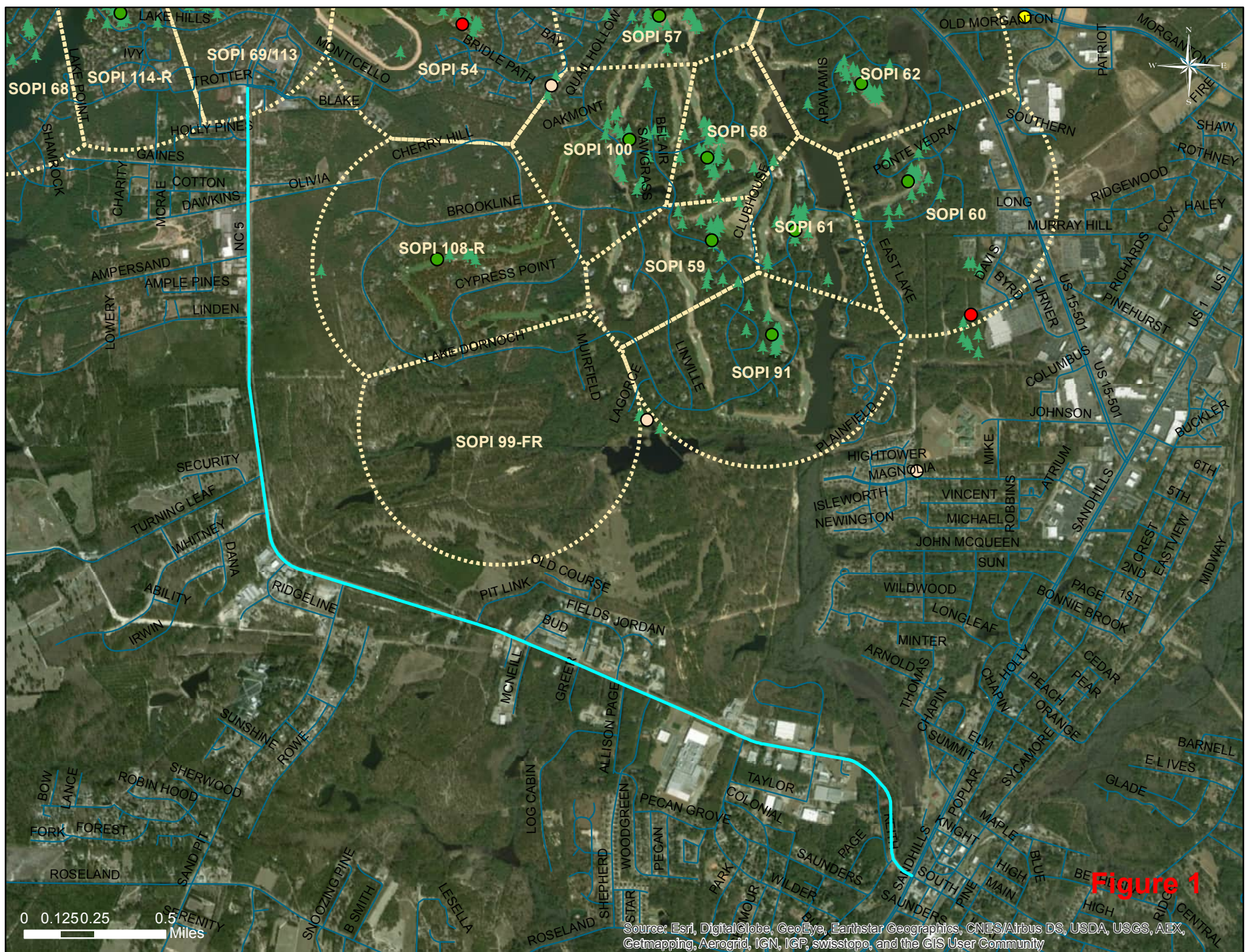


Figure 1

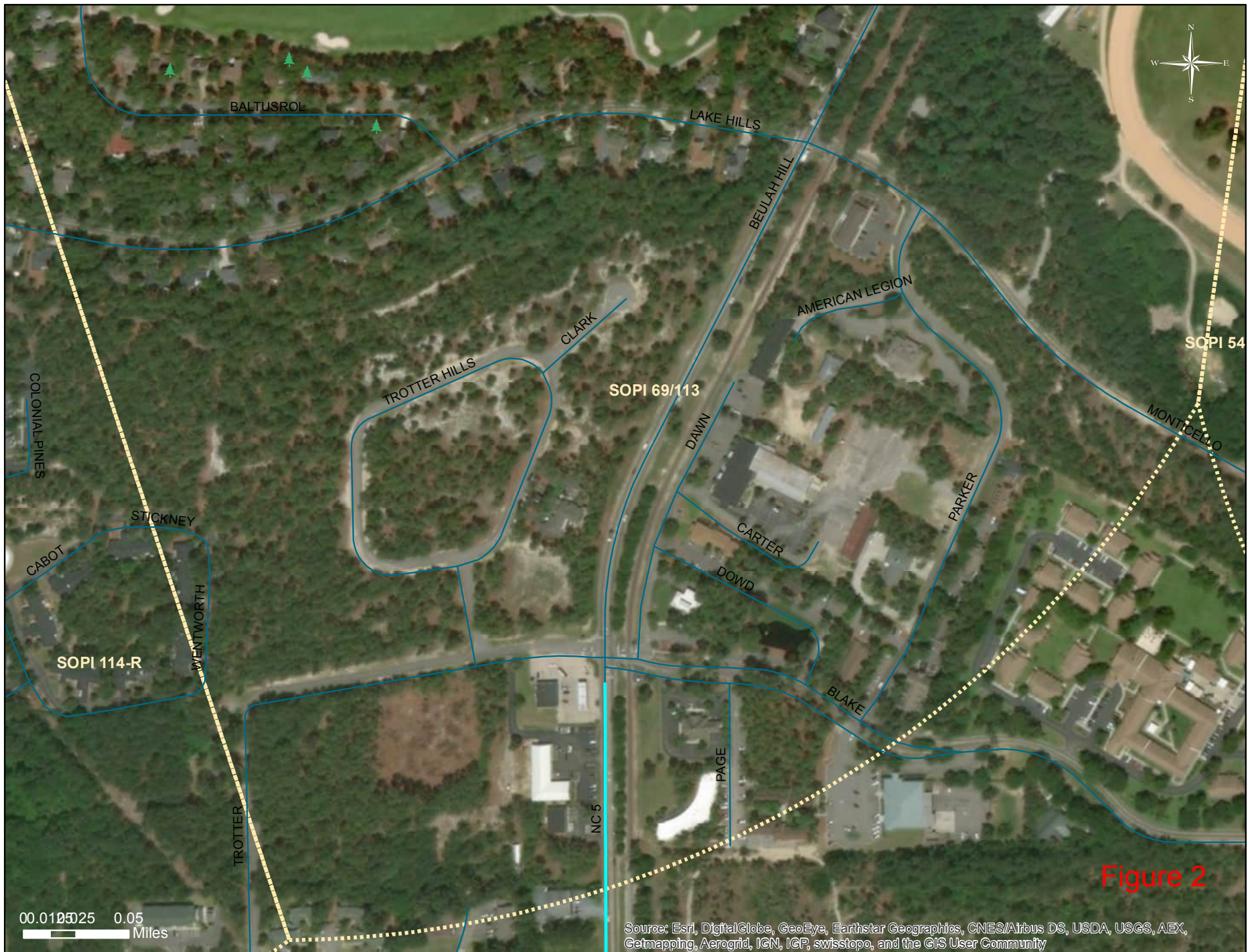


Figure 2



ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

LINDA CULPEPPER
Interim Director

April 12, 2018

MEMORANDUM

To: Gregory Davis, Project Engineer, NCDOT

From: April Norton, NC Division Water Resources, Transportation Permitting Unit

Subject: Scoping Comments on the Proposed NC 5 Improvements from US 1-15-501/NC211 to Trotter Drive/Blake Boulevard in Pinehurst, Moore County, WBS Element 50171.1.1, STIP Project U-5756.

A request for comments was dated and received April 9, 2018 for the subject property. Preliminary analysis of the project reveals that the project is within the vicinity of the below waterbodies:

Stream Name	River Basin & Sub Basin	Stream Classifications	Stream Index Number	303(d) Listing?
Aberdeen Creek	Lumber LBR50	B	14-2-11-(5)	No
Aberdeen Lake	Lumber LBR50	C	14-2-11-(6)	No
Devil Gut Branch	Lumber LBR50	C	14-2-11-7	No
McCallum Branch	Lumber LBR50	C	14-2-11-3	No

Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. If any jurisdictional areas are identified, the Division of Water Resources requests that the following environmental issues for the proposed project are considered:

General Project Comments:

1. The environmental document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
2. Environmental impact statement alternatives shall consider design criteria that reduce the impacts to streams and wetlands from stormwater runoff. These alternatives shall include road designs that allow for treatment of the stormwater runoff through stormwater control measures (SCM, previously referred to as best management practices) as detailed in the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Tool box manual*, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.
3. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, avoidance and minimization of impacts to wetlands, buffers, and streams must be demonstrated to the maximum extent practical. In accordance with the Environmental Management Commission's Rules (15A NCAC 2H.0506[h]), mitigation will be required for impacts of greater than one acre to wetlands. If mitigation is



State of North Carolina | Environmental Quality

1617 Mail Service Center | Raleigh, North Carolina 27699-1617

required, the mitigation plan shall be designed to replace appropriate lost functions and values. North Carolina Division of Mitigation Services may be available for assistance with wetland mitigation.

4. In accordance with the Environmental Management Commission's Rules (15A NCAC 2H.0506[h]), mitigation will be required for impacts of greater than 300 linear feet to any perennial stream. If mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The North Carolina Division of Mitigation Services may be available for assistance with stream mitigation.
5. Future documentation, including the 401 Water Quality Certification Application, shall continue to include an itemized listing of the proposed wetland and stream impacts with corresponding mapping.
6. The NCDWR is very concerned with sediment and erosion impacts that could result from this project. These concerns shall be addressed by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.
7. An analysis of cumulative and secondary impacts anticipated as a result of this project is required. The type and detail of analysis shall conform to the NC Division of Water Resource Policy on the assessment of secondary and cumulative impacts dated April 10, 2004.
8. All impacts, including but not limited to, bridging, fill, excavation and clearing, and rip rap to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations. These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.
9. Where streams must be crossed, the NCDWR prefers bridges be used in lieu of culverts. However, we realize that economic considerations often require the use of culverts. Please be advised that culverts should be countersunk to allow unimpeded passage by fish and other aquatic organisms. Moreover, in areas where high quality wetlands or streams are impacted, a bridge may prove preferable. When applicable, bridge bents should not be installed within the creek, to the maximum extent practicable.
10. Whenever possible, the NCDWR prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges shall allow for human and wildlife passage beneath the structure. Fish passage and navigation by canoeists and boaters shall not be blocked. Bridge supports (bents) should not be placed in the stream when possible.
11. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures.
12. Sediment and erosion control measures should not be placed in wetlands or streams.
13. Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.
14. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater shall not be permitted to discharge directly into streams, buffers, or surface waters.
15. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

16. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.
17. Unless otherwise authorized, placement of culverts and other structures in waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required.
18. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation, floodplain benches, and/or sills may be required where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
19. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 4132/Nationwide Permit No. 6 for Survey Activities.
20. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.
21. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved SCMs from the most current version of the NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
22. While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.
23. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
24. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
25. Riparian vegetation (native trees and shrubs) shall be preserved to the maximum extent possible. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

Thank you for requesting our input. The issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact April Norton at april.norton@ncdenr.gov.

Sincerely,

DocuSigned by:
April Norton
C3BAC6376A834ED...

Electronic copy only distribution:

Andy Williams, US Army Corps of Engineers, Raleigh Field Office
File Copy

18-04-0007



HISTORIC ARCHITECTURE AND LANDSCAPES NO HISTORIC PROPERTIES PRESENT OR AFFECTED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	U-5756	County:	Moore
WBS No.:	50171.1.1	Document Type:	CE
Fed. Aid No:		Funding:	<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	USACE
<u>Project Description:</u> Widen NC 5 from US 1 in Aberdeen to Trotter Dr/Blake Blvd in Pinehurst			

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

- ☒ There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- ☒ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- ☐ There are no properties within the project's area of potential effects.
- ☒ There are properties over fifty years old within the area of potential effects, but they do not meet the criteria for listing on the National Register.
- ☒ There are no historic properties present or affected by this project. (Attach any notes or documents as needed.)

Date of field visit: March 2019

Description of review activities, results, and conclusions:

Review of HPO quad maps, relevant background reports, historic designations roster, and indexes was undertaken on May 8, 2018. Based on this review there are no NR, DE, LL, SL, or SS in the Area of Potential Effects (APE). An initial field survey found four properties that required a full evaluation for National Register eligibility. The report recommended two properties eligible, but NCHPO concurred with only one—the Chapin Orchard. Since that time USACE has defined the permit areas only to be subject to Section 106. The closest permit to Chapin Orchard is more than 8000 feet away. No historic properties will be affected by this project.

SUPPORT DOCUMENTATION

☒ Map(s) ☐ Previous Survey Info. ☐ Photos ☐ Correspondence ☐ Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

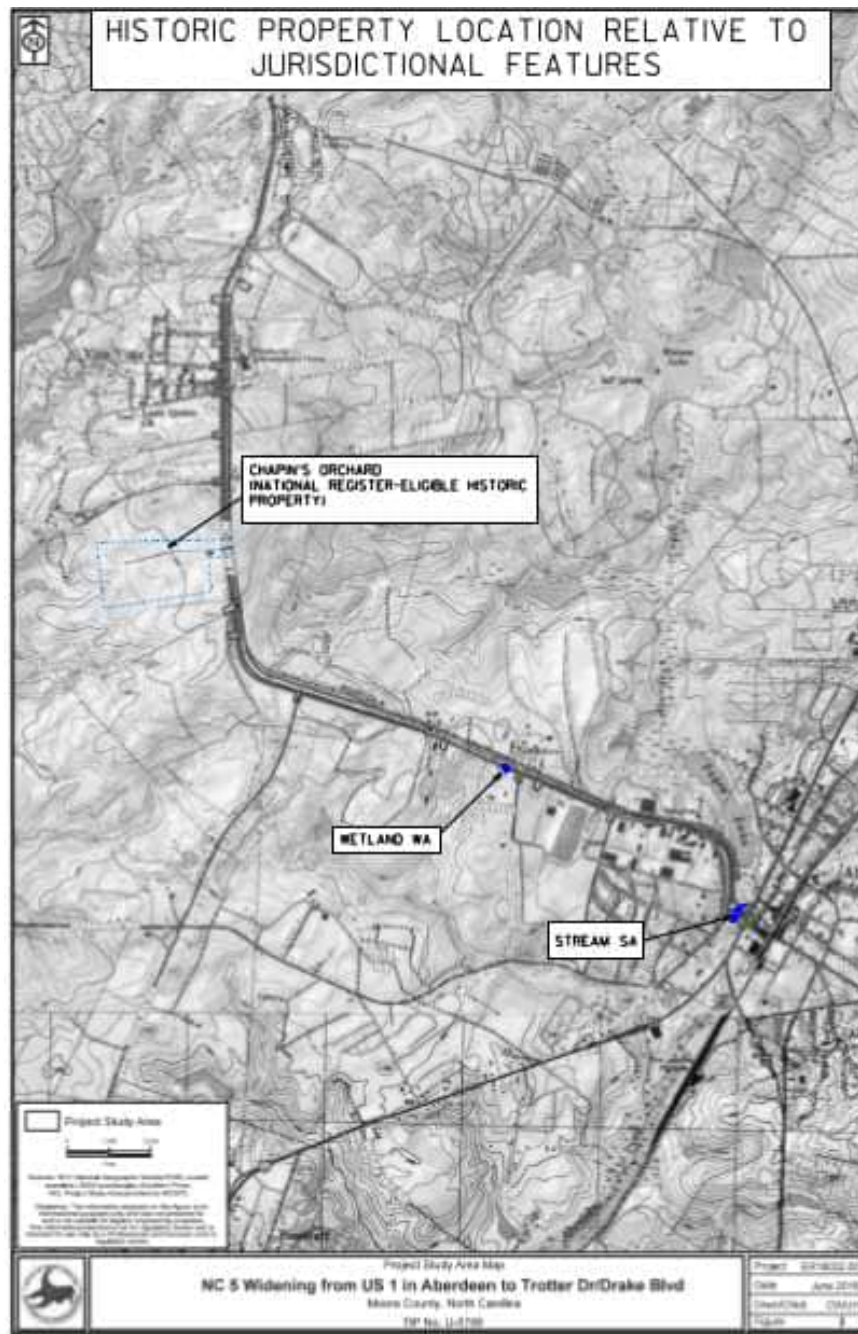
Historic Architecture and Landscapes – NO HISTORIC PROPERTIES PRESENT OF AFFECTED

Shelby Reap

April 16, 2020

NCDOT Architectural Historian

Date



18-04-0007



**NO NATIONAL REGISTER OF HISTORIC PLACES
ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES
PRESENT FORM**



This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No: **U-5756** County: **Moore**
WBS No: **50171.1.1** Document: **State EA and FONSI**
F.A. No: **na** Funding: ☒ State ☐ Federal

Federal Permit Required? ☒ Yes ☐ No Permit Type: ?

Project Description: NCDOT Division 8 is proposing improvements to NC 5 (Wilson Street) in Moore County. The proposed roadway improvement corridor is approximately 4.4 mi (7.1 km) long and is 300 ft (91.4 m) wide along the mainline with expansions for intersections south and west of NC 5. The corridor encompasses 186.4 acres (75.4 ha) and is the study area and archaeological Area of Potential Effects (APE) (Figure 1). The project crosses commercial, residential, and undeveloped wooded areas, and a portion of the study area overlaps with the Aberdeen, Carolina and Western Railway. NCDOT archaeologists reviewed preliminary information for the project and recommended a comprehensive archaeological survey and evaluation for both an initial smaller study area and the full study area described above (Petersen 2018, 2019). Commonwealth Heritage Group, Inc. (Commonwealth), completed an initial survey and evaluation of the smaller study area for NCDOT's Human Environment Section and Archaeology Group and prepared a technical report (Rose and Bamann 2019), which is on file at NCDOT. The results described in that report, as well as the results of an addendum survey to address the full study area, are included in this form and its attachments.

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined:

- ☒ There are no National Register listed or eligible ARCHAEOLOGICAL SITES present within the project's area of potential effects. (Attach any notes or documents as needed)
- ☐ No subsurface archaeological investigations were required for this project.
- ☐ Subsurface investigations did not reveal the presence of any archaeological resources.
- ☒ Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- ☒ All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

SUPPORT DOCUMENTATION

See attached: ☒ Maps ☐ Previous Survey Info ☒ Photos ☐ Correspondence

Signed:

July 26, 2019

NCDOT ARCHAEOLOGIST

Date

"NO NATIONAL REGISTER ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES PRESENT"
form for the Amended Minor Transportation Projects as Qualified in the 2007 Programmatic Agreement.

APPENDIX B

NCDOT RELOCATION ASSISTANCE PROGRAM/ RELOCATION REPORTS

DIVISION OF HIGHWAYS RELOCATION PROGRAMS

It is the policy of NCDOT to ensure comparable replacement housing will be available prior to construction of state and federally-assisted projects. Furthermore, the North Carolina Board of Transportation has the following three programs to minimize the inconvenience of relocation:

- Relocation Assistance
- Relocation Moving Payments
- Relocation Replacement Housing Payments or Rent Supplement

As part of the Relocation Assistance Program, experienced NCDOT staff will be available to assist displacees with information such as availability and prices of homes, apartments, or businesses for sale or rent and financing or other housing programs. The Relocation Moving Payments Program provides for payment of actual moving expenses encountered in relocation. Where displacement will force an owner or tenant to purchase or rent property of higher cost or to lose a favorable financing arrangement (in case of ownership), the Relocation Replacement Housing Payments or Rent Supplement Program will compensate up to \$22,500 to owners who are eligible and qualify and up to \$5,250 to tenants who are eligible and qualify.

The relocation program for the proposed action will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), and/or the North Carolina Relocation Assistance Act (GS-133-5 through 133-18). The program is designed to provide assistance to displaced persons in relocating to a replacement site in which to live or do business. At least one relocation officer is assigned to each highway project for this purpose.

The relocation officer will determine the needs of displaced families, individuals, businesses, non-profit organizations and farm operations for relocation assistance advisory services without regard to race, color, religion, sex, or national origin. The NCDOT will schedule its work to allow ample time, prior to displacement, for negotiations and possession of replacement housing which meets decent, safe and sanitary standards. The displacees are given at least a 90-day written notice after NCDOT purchases the property. Relocation of displaced persons will be offered in areas not generally less desirable in regard to public utilities and commercial facilities. Rent and sale prices of replacement property will be within the financial means of the families and individuals displaced and will be reasonably accessible to their places of employment. The relocation officer will also assist owners of displaced businesses, non-profit organizations and farm operations in searching for and moving to replacement property.

All tenant and owner residential occupants who may be displaced will receive an explanation regarding all available options, such as (1) purchase of replacement housing, (2) rental of replacement housing, either private or public, or (3) moving existing owner-occupant housing to another site (if possible). The relocation officer will also supply information concerning other state and federal programs offering assistance to displaced

persons and will provide other advisory services as needed in order to minimize hardships to displaced persons in adjusting to a new location.

The Moving Expense Payments Program is designed to compensate the displacee for the costs of moving personal property from homes, businesses, non-profit organizations and farm operations acquired for a highway project. Under the Replacement Program for Owners, NCDOT will participate in reasonable incidental purchase payments for replacement dwellings such as attorney's fees, surveys, appraisals, and other closing costs and, if applicable, make a payment for any increased interest expenses for replacement dwellings. Reimbursement to owner-occupants for replacement housing payments, increased interest payments and incidental purchase expenses may not exceed \$22,500 (combined total), except under the Last Resort Housing provision.

A displaced tenant may be eligible to receive a payment, not to exceed \$5,250, to rent a replacement dwelling or to make a down payment, including incidental expenses, on the purchase of a replacement dwelling. The down payment is based upon what the state determines is required when the rent supplement exceeds \$5,250.

It is a policy of the State that no person will be displaced by NCDOT's state or federally-assisted construction projects unless and until comparable replacement housing has been offered or provided for each displacee within a reasonable period of time prior to displacement. No relocation payment received will be considered as income for the purposes of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law.

Last Resort Housing is a program used when comparable replacement housing is not available, or when it is unavailable within the displacee's financial means, and the replacement payment exceeds the federal/state legal limitation. The purpose of the program is to allow broad latitude in methods of implementation by the state so that decent, safe and sanitary replacement housing can be provided. It is not believed this program will be necessary on the project, since there appear to be adequate opportunities for relocation within the area.

EIS RELOCATION REPORT

North Carolina Department of Transportation RELOCATION ASSISTANCE PROGRAM

☒ E.I.S.
 ☐ CORRIDOR
 ☐ DESIGN

WBS ELEMENT:		50171.1.1		COUNTY	Moore		Alternate:		1	
T.I.P. NO.:		U-5756								
DESCRIPTION OF PROJECT:		NC 5 widening from US 1-15-501/NC 211 in Aberdeen to Trotter Dr/Blake Blvd in Pinehurst								

ESTIMATED DISPLACEES					INCOME LEVEL				
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP
Residential	4	0	4	0	0	0	0	1	3
Businesses	2	1	3	0					
Farms	0	0	0	0					
Non-Profit	0	0	0	0					

ANSWER ALL QUESTIONS									
Yes	No	Explain all "YES" answers.							
	X	1. Will special relocation services be necessary?							
	X	2. Will schools or churches be affected by displacement?							
X		3. Will business services still be available after project?							
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.							
	X	5. Will relocation cause a housing shortage?							
		6. Source for available housing (list). Multiple listing Service, local survey, Internet searches.							
	X	7. Will additional housing programs be needed?							
X		8. Should Last Resort Housing be considered?							
	X	9. Are there large, disabled, elderly, etc. families?							
	X	10. Will public housing be needed for project?							
X		11. Is public housing available?							
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?							
	X *	13. Will there be a problem of housing within financial means?							
X		14. Are suitable business sites available (list source).							
		15. Number months estimated to complete RELOCATION? 12-18							

REMARKS (Respond by Number)			
3) Business Services will remain available as much of the project area is commercial/industrial 4) Please see attached spreadsheet for business relocatees 6) Available housing and commercial property availability was compiled from local visual survey, internet data, newspapers in Aberdeen/Pinehurst areas 8) Last Resort Housing should be a consideration. Where warranted, Last Resort housing will be applied in accordance with the Uniform Relocation Act. 11) Public housing is available through local agencies. 12) Based on the availability of DSS housing available on the market, it is not felt there will be a shortage of DSS housing * Any deficiency in housing not within financial means will be addressed within the guidelines of the Last Resort Housing Section of the Uniform Act. 14) Based on local survey and current real estate listings suitable business sites will be available. It should be noted that there exists a moderate amount of commercial property vacant or for rent throughout the project area.			

 Right of Way Agent	August 31, 2022 Date	 Relocation Coordinator	09/01/2022 Date
------------------------	-------------------------	----------------------------	--------------------

THIS PAGE LEFT BLANK INTENTIONALLY

[illegible]