Section 404/NEPA Merger Project Team Meeting
Purpose and Need, Study Area, and Alternatives Considered for NC 210 Improvements

NC 210 from US 17 to south of SR 1518 (Old Folkstone Road)
Onslow County

STIP Project U-5949

North Carolina Department of Transportation

Merger Concurrence Points 1 and 2

August 16, 2018

1. Introduction

Project Description

The North Carolina Department of Transportation (NCDOT) proposes to widen NC 210 from two lanes to a four-lane median-divided facility from US 17 to south of SR 1518 (Old Folkstone Road) in Onslow County, North Carolina. The project is approximately 5.8 miles long and is identified in the State Transportation Improvement Program (STIP) as Project No. U-5949, WBS No. 46896.1.1. The project location is shown in attached **Figures 1 and 2** in Appendix A.

Merger Screening

In coordination with the US Army Corps of Engineers (USACE), it was determined NCDOT should follow the Section 404/NEPA Merger Process for this project. This decision was made at the Merger Screening meeting held on March 22, 2018.

Purpose of this meeting

The purpose of this Merger Team meeting is to discuss the purpose and need for the project (Concurrence Point No. 1 [CP 1]) and the preliminary study alternatives and determine which alternatives should be carried forward for detailed analysis and design (CP 2). The meeting will be held on August 16, 2018 at 10:00am in the Structure Design Conference Room in Building A of the NCDOT Century Center in Raleigh, NC.

2. Project Status, Background, Schedule, and Cost

The project is included in the current 2018-2027 STIP as project U-5949 and will be managed by NCDOT Division 3. Right-of-way acquisition and construction are scheduled to begin in Fiscal Years 2022 and 2025, respectively.

This project, or portions of this project, are included in the following metropolitan or local plans:

(1) Jacksonville Urban Area Metropolitan Planning Organization (JUMPO)'s 2040 Long Range Transportation Plan (LRTP) (April 2015; amended in March 2018), which recommends widening between the project termini from the existing two lanes to a four-lane facility with bicycle and pedestrian improvements. The LRTP also noted that NC 210 is a designated evacuation route.

(2) Topsail Area Comprehensive Transportation Plan (November 2009) includes a portion of the NC 210 project corridor. The highway map shows NC 210 and NC 172 as "Boulevards that Need Improvement." The Bicycle Map shows NC 210 as an "On Road" facility that Needs Improvement.

(3) The Onslow County – Sneads Ferry Community Plan highlights the area between NC 172 and Old Folkstone Road as the preferred location for commercial growth in the area.

The project will include the following improvements:

(1) Widening of NC 210 from two lanes to a four-lane median-divided facility from US 17 to south of Old Folkstone Road
(2) Intersection improvements; intersections within the project corridor include:
    a. NC 210 at US 17 (signalized)
    b. NC 210 at Dixon High School Entrance (unsignalized)
    c. NC 210 at SR 1646 (Dixon Rd) (unsignalized)
    d. NC 210 at Rifle Range Road (US Marine Corps [USMC] Base Camp Lejeune/Marine Corps Special Operations Command [MARSOC] Main Entrance) (signalized)
    e. NC 210 at USMC/MARSOC Base Secondary Entrance/Manchester Lane (unsignalized)
    f. NC 210 at SR 1671 (Betty Dixon Road) (signalized)
    g. NC 210 at Beaufort Drive (unsignalized)
    h. NC 210 at Village Drive/Quarters Landing Circle (future signal)
    i. NC 210 at NC 172 (signalized)
    j. NC 210 at Dixon Middle School Entrance/Ridge Field Avenue (signalized)
    k. NC 210 at Pebble Shore Drive (unsignalized)
    l. NC 210 at Old Folkstone Road (signalized)
    m. US 17 at Dixon High School Entrance (future signal)

Feasibility Study

NCDOT prepared a Feasibility Study for the widening of NC 210 from US 17 to NC 172 and widening of NC 172 from NC 210 to the USMC/MARSOC gate in January 2013 (FS-1003C). Project U-5949 addresses only the improvements to NC 210. The Feasibility Study recommended the typical section on NC 210 to be a four-lane median-divided shoulder section using a 23-foot raised grass median and eight-foot shoulders on 150 feet of right of way.

Public Involvement

The JUMPO 2040 LRTP process included three workshops designed to gather community input. Local businesses and members of the public were presented with the recommendation to widen NC 210 at these meetings.

Other TIP Projects in the Area

(1) W-5203L – Widening of Old Folkstone Road
(2) W-5203T – Intersection Improvements at US 17 and NC 172 and US 17 and Old Folkstone Road
(3) W-5602 – NC 172 from the Camp Lejeune gate to NC 210; convert two lane roadway to three lane roadway with a two way left turn lane

Project Schedule

The tentative project schedule is show below. Dates are preliminary and subject to change.

• Data Collection (including Traffic)	Began June 2017
• Initial Project assessments	Began August 2017
• Design Public Hearing Map	2019
• Combined State EA/FONSI	2019
• Right of Way Plans	FY 2022
• Let to Construction	FY 2025

Cost

• Right of Way	$4,312,000
• Construction	$41,486,000
• Utilities	$1,000,000
• **Total**:	$46,798,000

3. Merger Concurrence Point 1 – PURPOSE AND NEED AND PROPOSED STUDY AREA

Environmental Resources

Environmental resources in the project area are listed below in **Table 1** and shown in attached **Figure 3** (Appendix A). Additional feature-specific data for streams and wetlands can be found in Appendix A. These features have been delineated as part of the Natural Resources Technical Report (NRTR; in progress). In addition to the streams and wetlands identified as part of this project, a previously-completed verification for the USMC (delineation referred to as Stones Bay and verified in May 2013) also overlaps with the project area. This delineation, where it overlaps the project study area, will be considered in the project design and alternative analysis. Appendix A also provides feature-specific details for the Stones Bay delineation where it overlaps the project. Species-specific information related to federally protected species can be also be found in Appendix A.

The study area is part of the Cape Fear River basin (U.S. Geological Survey [USGS] Hydrologic Unit 03030007) and the New River basin (USGS Hydrologic Unit 03020302). While a small portion of the study area occurs within the Cape Fear basin, all water resources occurring within the study area are part of the New River basin. Alligator Bay, which is within 1.0 mile of the project study area, has been designated as an Outstanding Resource Water (ORW). Additionally, Stones Creek, which crosses the study area, and both Everett Creek and Mill Creek are designated High Quality Waters (HQW). There are no water supply watersheds (WS-I or WS-II) within 1.0 mile downstream of the study area. The North Carolina 2016 Final 303(d) list of impaired waters does not identify any waters within 1.0 mile downstream of the study area as impaired; however, Stones Creek, Everett Creek, Mill Creek, and Alligator Bay are all listed as "Shellfish Growing Area – Prohibited (fecal, SH, SA)."

The project is located in an unincorporated area of the county, approximately 10 miles south of the City of Jacksonville and two miles from Sneads Ferry. Adjacent to the project are USMC Base Camp Lejeune/MARSOC and Stones Creek Game Land (SCGL). In addition, three Onslow County public schools are located along the project corridor: Dixon High School is located at the northern terminus; Dixon Elementary is located in the middle of the project, and the newly-relocated Dixon Middle School is located in the southern portion. The project corridor serves as an important route for local residents and USMC Base Camp Lejeune/MARSOC personnel, as well as for vacation travelers headed to Topsail Island, which is located less than three miles from the southern project terminus.

Table 1. Environmental Resources within the study area

Cultural Resources	
Archaeology	Survey Required, December 18, 2017
Historical Architecture	Intensive-level survey of one property (Dixon High School) currently underway

Table 1. Environmental Resources within the study area (Continued)

Human Environment Resources	
Community Resources	1 Cemetery – Dixon Cemetery
	2 Churches – Sneads Ferry Presbyterian Church and Born Again Baptist Church
	3 Public Schools – Dixon Elementary School, Dixon Middle School, and Dixon High School
	1 Private School – North Shore Academy
	Sneads Ferry Quality Childcare
	Onslow County Environmental Education Center and Walking Trails
	Sneads Ferry Branch Library
	USMC Base Camp LeJeune/MARSOC
	NC 210 Rescue Squad (EMS)
	Electrical Substation east of NC 210, south of Rifle Range Road
Public Parks	Stones Creek Game Land (SCGL)
	Everett Creek Preserve (NC Coastal Land Trust)
Greenways	North Carolina Mountains to Sea Trail (along NC 210 from southern terminus to SCGL and within SCGL)
	East Coast Greenway – NC 210 identified as part of coastal route
High % Special Populations	None
Natural Environment Resources	
Streams Delineated as Part of This Project /Number of Crossings	11 streams and 2 tributaries (2,289 lin. ft. streams, 122 lin. ft. tributaries); Streams include Stones Creek and 4 UTs, 2 UTs of Everett Creek, and 4 UTs of Mill Creek/3 stream crossings (1 bridge)
Streams Delineated as Part of the Stones Bay Verification Within Project Area/Number of Crossings	1 Stream (230 lin. Ft.); UT of Stones Creek/0 stream crossings
Wetlands Delineated as Part of This Project	43 wetlands, totaling 18.00 acres delineated

Table 1. Environmental Resources within the study area (Continued)

Wetlands Delineated as Part of the Stones Bay Verification Within Project Area	7 wetland features, totaling 2.97 acres
Water Supply Watershed Critical Areas	No
Stream Mitigation Sites	None
Riparian Buffer Rules Apply	No
List of Threatened and Endangered Species and Biological Conclusions	American alligator (T[S/A]) – Not Required
	Bald Eagle (BGPA) – No Impact
	Green sea turtle (T) – No Effect
	Hawksbill (=carey) sea turtle (E) – No Effect
	Kemp's (=Atlantic) ridley sea turtle (E) – No Effect
	Leatherback sea turtle (E) – No Effect
	Loggerhead sea turtle (T) – No Effect
	Northern long-eared bat (T) – MALAA (per NCDOT Programmatic Biological Opinion)
	Piping plover (T) – No Effect
	Red-cockaded woodpecker (E) – No Effect
	Red knot (T) – No Effect
	West Indian manatee (E) – No Effect
	Cooley's meadowrue (E) – No Effect
	Golden sedge (E) – No Effect
	Pondberry (E) – No Effect
	Rough-leaved loosestrife (E) – No Effect
	Seabeach amaranth (E) – No Effect

Note: BGPA – Bald and Golden Eagle Protection Act; MALAA – May Affect, Likely to Adversely Affect; E – Endangered; T – Threatened; T(S/A) – Threatened due to Similarity in Appearance

Existing Roadway Conditions and Classifications

NC 210 within the project corridor currently exists as a two-lane undivided facility. The posted speed limit along NC 210 varies between 35 and 55 miles per hour (mph) (55 mph from US 17 south to the southern boundary of Camp LeJeune; 45 mph from the southern boundary of Camp LeJeune to south to Old Folkstone Road; 35 mph from Old Folkstone Road south to the southern project terminus). The current facility configuration does not provide control of access.

Existing NC 210 is classified as a Minor Arterial in the NCDOT Functional Classification System, as is NC 172, which crosses NC 210 about halfway through the project area. US

17 at the northern terminus is classified as a Principal Arterial, while Old Folkstone Road is classified as a Major Collector near the southern terminus.

Purpose and Need of Project

NCDOT Division of Highways – Division 3 is currently managing the project development, environmental, and engineering studies for the proposed improvements to NC 210 in Onslow County (U-5949). The project is included in the approved 2018-2027 STIP and is scheduled for right-of-way in fiscal year 2022 and construction in 2025. The project will include analysis of widening and associated improvements to this 5.8-mile segment of NC 210 between US 17 and a point south of Old Folkstone Road.

The attached figures provide details regarding the proposed project footprint and the potential environmental resources present. The attached figures are located in Appendix A and are as follows:

Figures (Appendix A)

(1) **Figure 1**: Project Location
(2) **Figure 2**: Project Study Area
(3) **Figure 3**: Environmental Features Map

Additionally, information regarding existing and future traffic conditions has been summarized from the 2018 draft Traffic Analysis Report for U-5949 completed for NCDOT Division 3 by Accelerate Engineering, PLLC.

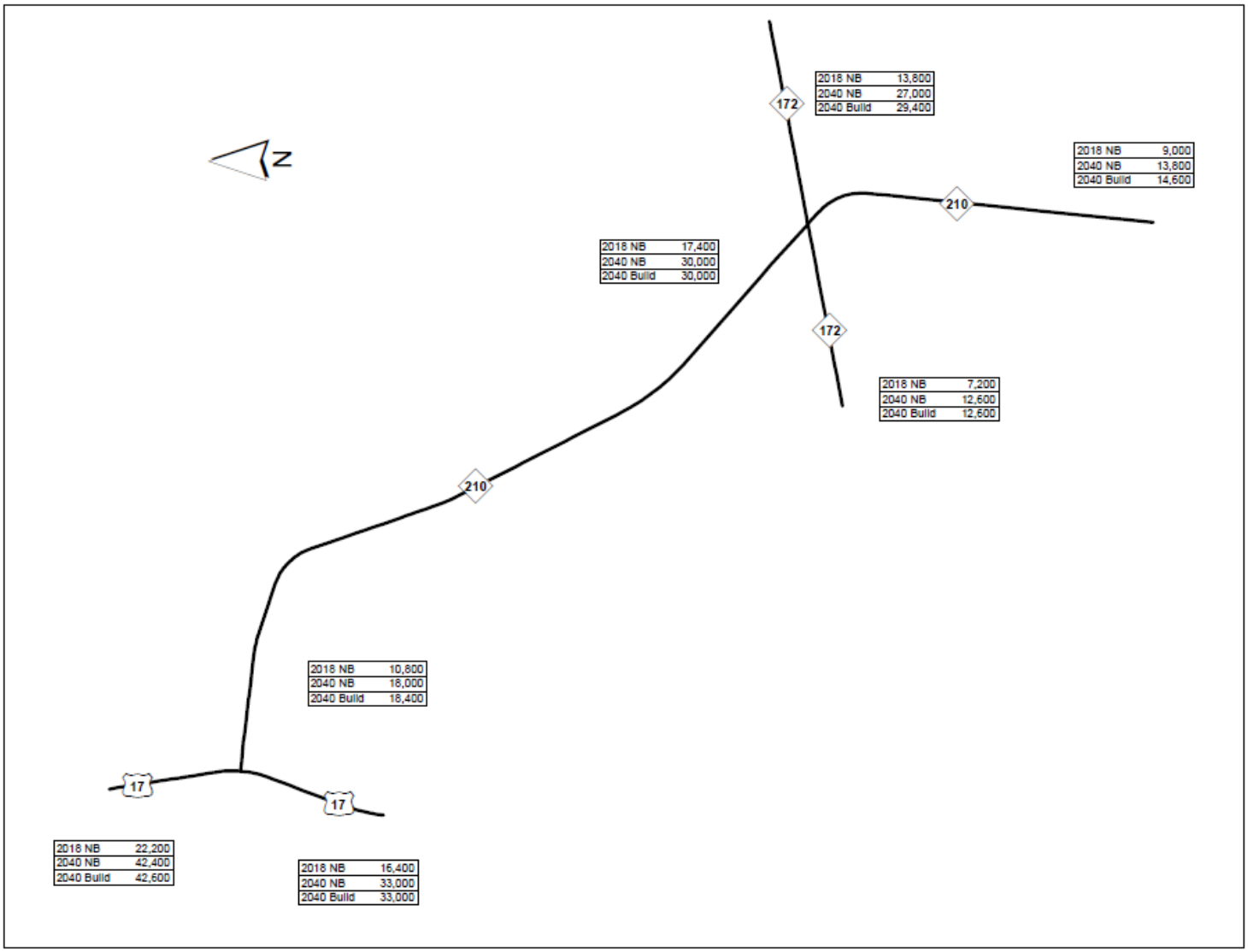
The **need** for this study can be summarized as follows:

- *Traffic congestion exists along the existing facility and is expected to worsen in the future.*

  Based on the NCDOT 2018 draft Traffic Analysis Report for U-5949, average vehicle per day (vpd) totals ranged between 9,000 (south of the NC 210/Old Folkstone Road intersection) and 17,400 (along NC 210 west of its intersection with NC 172) within the project area. These volumes are forecasted to increase to between approximately 13,800 and 31,800 along NC 210, respectively, in 2040 without construction of the project.

  Specifically, near the US 17/NC 210 intersection, the 2018 AADT ranges between 16,400 and 22,200 vpd on US 17 and is 10,800 vpd on NC 210. These volumes are projected to increase to 33,000 and 42,400 vpd along US 17 and to 18,000 on NC 210 in 2040 without construction of U-5949.

Figure 1. Average Annual Daily Traffic (AADT) Data



Note: 2040 Build data is for the preferred alternative identified in the Traffic Analysis Report (Alt. G-1).

As shown in Table 2, the 2017 No-Build capacity analysis shows that all the signalized study intersections currently operate at an overall acceptable level of service (LOS) of LOS D or better. Approaches at each of the signalized intersections within the project corridor currently operate at a LOS D or better in both peak hours for the existing conditions. However, the 2017 No-Build queue analysis shows that the signalized intersections of NC 210/NC 172 and NC 210/Old Folkstone Road have turn-lane storage deficiencies during at least one peak hour.

All the unsignalized study intersection movements operate at a LOS D or better in both the 2017 No-Build AM and PM peak hours, except for the side-street movements at the NC 210 and Quarters Landing Circle/Village

Drive intersection. During both AM and PM peak hours, the eastbound Village Drive approach and the westbound Quarters Landing Circle approach operate at a LOS E and F, respectively. The westbound left-turn queue exceeds the existing 50 feet of storage in both AM and PM peak hours. The 2017 Base Year peak-hour delays indicate that the roadway currently experiences congestion issues. Two traffic signals experience queues that spillback beyond available storage resulting in potential delay and safety concerns. Also, two unsignalized intersections result in side-street movements operating at undesirable levels of service, LOS E and LOS F.

As shown in Table 2, the 2040 No-Build capacity analysis shows that 3 signalized intersections are anticipated to operate at LOS F in the AM peak hour, while 2 are anticipated to operate at LOS F in the PM peak hour. The analysis shows that the intersections of NC 210/NC 172 and NC 210/Old Folkstone Road are expected to operate at an overall LOS F in both peak hours in 2040 without improvements to NC 210. Additionally, all unsignalized intersections except for the intersection of NC 210 and Pebble Shore Drive are anticipated to have movements operate at a LOS F in at least one peak hour in 2040 without construction of U-5949. In total, 10 of 13 studied intersections will experience failing movements in at least one peak hour in 2040 without construction of U-5949. Furthermore, 9 of the 13 intersections have movements that will experience maximum queue lengths that exceed the available storage in either the AM or PM peak of the 2040 No-Build conditions.

Table 2. Signalized Intersection LOS Comparison

	Existing		2040 No Build		Alternative G-1[1]	
	AM	PM	AM	PM	AM	PM
Intersections Operating at LOS E	0	0	0	0	0	0
Intersections Operating at LOS F	0	0	3	2	0	0
Movements Operating at LOS E	0	0	1	3	1	0
Movements Operating at LOS F	0	0	11	8	0	0

[1] Identified as the Preferred Alternative in the Traffic Analysis Report.

Table 3. Unsignalized Intersection LOS Comparison

	Existing		2040 No Build		Alternative G-1[1]	
	AM	PM	AM	PM	AM	PM
Movements Operating at LOS E	1	1	0	0	0	3
Movements Operating at LOS F	1	1	8	6	4	2

[1] Identified as the Preferred Alternative in the Traffic Analysis Report.

Based on the 2017 No-Build analysis, two signalized intersections are anticipated to have side-street movements that operate at LOS E in the AM peak and LOS F in the PM peak. Also, two signalized intersections have storage deficiencies. These operations are expected to considerably degrade in 2040 without construction of U-5949 resulting in multiple signalized intersections operating at LOS F and numerous signalized and unsignalized movements operating at LOS F. LOS F operations indicate that the projected volumes exceed the capacity of a facility or a movement often resulting in breakdown and unstable conditions.

Additionally, NC 210 is an important artery for the area. It is classified as a major collector and connects to US 17 (a principal arterial) and North Topsail Beach, serves as a commuter corridor for the area USMC facilities, and provides access to three public schools. All of these area-specific stressors are expected to continue to grow, in turn contributing to the increasing traffic volumes in the area.

- *On the current two-lane facility, crash rates are higher than the statewide crash rate and the critical crash rate for rural two-lane undivided NC routes.*

  Per the 2013 Feasibility Study (FS-1003C), which covers the portion of the project corridor between US 17 and NC 172, between 2008 and 2010, 118 total crashes were reported along NC 210. There were 2 fatal crashes, 28 non-fatal injury crashes, and 88 property damage-only crashes. Of the 118 total crashes, 30 were at night and 15 were during wet conditions. The most prevalent types of crashes were: Rear End (38%) (which are often a sign of congestion), Left Turn (21%), Animal (13%), and Fixed Object (12%).

  The crash rate for NC 210 for the 2008-2010 time period was 210.59 crashes per 100 million vehicle miles (crashes/100MVM) traveled. This rate was higher than both the statewide rate of 173.02 crashes/100MVM and the critical crash rate of 202.83 crashes/100MVM for rural two-lane undivided NC routes. These crash rates were a contributing factor in the Feasibility Study's recommendation to improve NC 210 from a two-lane facility to a four-lane median-facility in its area of interest.

  Compared to the 2015-2017 three-year crash rates provided by NCDOT, the 2008-2010 crash rate for NC 210 of 210.59 crashes/100MVM is still higher than the 2015-2017 statewide crash rate of 181.73 crashes/100MVM for rural two-lane undivided NC routes.

Table 4. Crash Rates per 100 Million Vehicle Miles

Crash Rate	2008-2010	2015-2017
NC 210	210.59	
Rural 2-lane Undivided NC Route Statewide Crash Rate	173.02	181.73
Rural 2-lane Undivided NC Route Critical Crash Rate	202.83	

The **purpose** for the proposed action is as follows:

- *Alleviate motorized vehicle congestion along NC 210 between US 17 and south of Old Folkstone Road (SR 1518).*

  The measure of performance for evaluating this improvement will be level of service (LOS). The project is intended to bring the peak hour operations at the study area signalized intersections to an overall **LOS D or better**. Where feasible, the goal of the project will also be to bring signalized and unsignalized movements to LOS D or better.

- *Improve traffic safety along the project corridor by providing a wider paved roadway, two lanes in either direction, a grass median, and improved intersection configurations.*

  Upgrading the existing majority two-lane undivided facility to a four-lane facility throughout and adding wider shoulders is expected to provide safer traffic conditions throughout the project corridor. The additional travel lane throughout in either direction will provide a passing lane, allowing for more opportunity to maneuver around slower vehicles and the minimization of queuing or aggressive passing maneuvers related to those vehicles. The additional travel lane will also reduce the anticipated future congestion and potentially reducing the incidence of rear-end collisions. Wider shoulders would provide sufficient paved width for breakdowns to fully leave the lanes of traffic and provide an additional paved area for vehicles to avoid collisions, especially rear-end collisions.

  Other aspects of the proposed roadway that would contribute to improved traffic safety are the addition of a center median and improvements to existing cross-facility intersections, including the use of superstreet design in several areas. The provision of a median will limit indiscriminate

movements across the facility and regulate left-turns and crossing maneuvers to specific access points, such as leftovers and bulb turnarounds with turn lanes in superstreet portions and signalized traditional intersections with turn lanes. This will potentially reduce the chances of left-turn and right-angle collisions. The reduction in left-turn locations and the additional of dedicated turn lanes may also contribute to the reduction in congestion since there will be a reduction in incidences where backup occurs behind left-turners that currently do not have a dedicated turn lane. This could secondarily reduce rear-end collision potential as well.

Proposed Project Study Area

The proposed study area developed to address the purpose and need of U-5949 is shown in attached **Figures 1 and 2** (Appendix A). The study area ranges between 300 – 500 feet wide and begins at the US 17/NC 210 intersection and extends approximately 5.8 miles south along NC 210 to a point approximately 3,300 linear feet south of SR 1518 (Old Folkstone Road). The study area also extends ~1,500 linear feet north and 1,900 linear feet south along US 17; 1,500 linear feet west and 1,700 linear feet east along NC 172; and ~1,200 linear feet west and 2,300 linear feet east along Old Folkstone Road.

The Concurrence Point 1 concurrence form, which includes the proposed purpose and need and project study area, is attached to this package in Appendix A.

4. Merger Concurrence Point 2 – ALTERNATIVES TO BE STUDIED IN DETAIL

Typical Section

The project team has developed one typical section for use along NC 210. The base typical section, Typical Section No. 1, is a four-lane divided section with a variable 23- to 36-foot raised grass median, 1-foot-60-inch mountable curb and gutter along the inside lanes, and 8-foot-11-foot (with guardrail) shoulders (4 feet of which will consist of full-depth paved shoulder). The travel lanes consist of two 12-foot lanes in each direction.

Figure 4 of Appendix A illustrates this typical section, as well as the proposed typical sections for the Stones Creek bridge crossing (Typical Section No. 2), US 17 (Typical Section No. 3), NC 172 (Typical Section No. 4), and Old Folkstone Road (Typical Section No. 5). The design assumptions outlining the parameters for each roadway typical section are shown below in **Table 5**.

Table 5 – U-5949 Design Assumptions

ROUTE	NC 210	US 17	NC 172	Old Folkstone Road (SR 1518)
LINE	-L-	-Y1-	-Y11-	-Y13-
TRAFFIC DATA				
ADT LET YR = 2016	17,400	22,200	17,400	7,200
ADT DESIGN YR = 2040	31,800	42,400	30,000	17,200
TTST	1%	2%	1%	1%
DUALS	2%	2%	2%	2%
DHV	9%	8%	10%	10%
DIR	60%	60%	55%	55%
CLASSIFICATION	*Minor Arterial	Principal Arterial	*Minor Arterial	Major Collector
TERRAIN TYPE	Level	Level	Level	Level
DESIGN SPEED (mph)	50 mph	60 mph	50 mph	50 mph
POSTED SPEED (mph)	Var. 45/55 mph	55 mph	45 mph	45 mph
PROP. R/W WIDTH (ft)	Var. Contain SS+	Existing	Existing	Existing
CONTROL OF ACCESS	No	Partial	No	No
RUMBLE STRIPS (Y/N)	N	N	N	N
TYPICAL SECTION TYPE	4-Ln Median Divided (w/ C & G Median & Shoulders)	4-Ln Median Divided w/ Shoulders	3-Ln Shoulder w/ Turn Lanes	2-Ln Shoulder w/ Turn Lanes
LANE WIDTH (ft)	12'	12'	12'	12'
SIDEWALKS (Y/N)	N	N	N	N
BICYCLE LANES (Y/N)	N	N	N	N
MEDIAN WIDTH (ft)	23' - 30'	46'	N/A	N/A
MED. PROTECT. (GR/BARRIER)	N/A	N/A	N/A	N/A
SHOULDER / BERM WIDTH (total)				
MEDIAN (ft)	N/A	N/A	N/A	N/A
OUTSIDE w/o GR (ft)	8'	8'	8'	8'
OUTSIDE w/ GR (ft)	11'	11'	11'	11'
PAVED SHOULDER				
OUTSIDE TOTAL/FDPS (ft)	8'/4'	8'/4'	8'/4'	8'/2'
MEDIAN TOTAL/FDPS (ft)	C+G	6'/2'	N/A	N/A
GRADE				
MAX.	* 6%	3%	* 6%	6%
MIN.	0.3%	0.3%	0.3%	0.3%
K VALUE				
SAG	96	136	96	96
CREST	84	151	84	84
HORIZ. ALIGN.				
MAX. SUPER.	.06	.08	.06	.06
MIN. RADIUS (ft)	833'	1200'	833'	833'
SPIRAL (Y/N)	N	N	N	N
CROSS SLOPES				
PAVEMENT	2.5%	2.5%	2%	2%
PAVED SHOULDER	2.5%	2.5%	2%	2%
TURF SHOULDER	8%	8%	8%	8%
MEDIAN DITCH	N/A	N/A	N/A	N/A
DITCH TYPICAL (A,B)	A	A	A	A
CLEAR ZONE (ft)	24' - 28'	36' - 44'	24' - 28'	24' - 28'
TYPICAL SECTION NO.	1/2/3	4	5	6

NOTE: * Minor Arterials are designed using collector criteria per general Roadway Design Guidance from Unit Head in 3/2016.

Identified Alternatives

Multiple alignment alternatives have been identified and a preliminary evaluation completed. Due to the length of the proposed project (approximately 5.8 miles), the corridor was divided into four segments where possible widening transitions could be made to allow for the evaluation of manageably-sized sections on an individual basis in order to develop an overall "best fit" alternative for the project. The segments along NC 210 are as follows:

(1) **Segment 1:** US 17 to Rifle Range Road (USMC/MARSOC entrance)
(2) **Segment 2:** Rifle Range Road to Betty Dixon Road
(3) **Segment 3:** Betty Dixon Road to NC 172
(4) **Segment 4:** NC 172 to south of Old Folkstone Road

Figures 2 and 3 in Appendix A show the extent of each segment.

No-Build Alternative

The No-Build Alternative is the baseline comparative alternative for the design year (2040). The No- Build Alternative would not provide any substantial improvements to the NC 210 corridor or any intersections therein.

Build Alternatives

Three build alternatives were developed (Symmetrical, Right Side [West], and Left Side [East]) for further analysis. All alternatives would include the following:

(1) The widening of existing NC 210 to a four-lane divided facility with 12-foot lanes, a variable 23- to 36-foot raised grass median, 1-foot-6-inch mountable curb and gutter along the inside lanes, and 8-foot-11-foot (with guardrail) shoulders (4 feet of which will consist of full-depth paved shoulder).
(2) All alternatives have the same intersection configurations:
   a. At NC 210 and US 17, a Green-T intersection is proposed
   b. At both the NC 210/USMC base entrance and the NC 210/ NC 172 intersection, traditional intersections are proposed
   c. A superstreet design is proposed at all remaining intersections

A general description of each alternative follows:

Symmetrical

The symmetrical widening alternative would follow NC 210 along its existing alignment, with the assumption that roughly the same amount of widening will occur on either side of the centerline throughout the project.

Right Side (West)

With the project extending from US 17 to south of Old Folkstone Road, the right-side (West) alternative utilizes existing pavement on the left side (East) and widening for a median and additional lanes to the West.

Left Side (East)

With the project extending from US 17 to South of Old Folkstone Road, the left-side (East) alternative utilizes existing pavement on the right side (West) and widening for a median and additional lanes to the East.

Preliminary Impacts

Preliminary impacts have been calculated for each of the above alternatives. These impacts are based off of preliminary slope stakes and general corridor alignment only. Impacts were calculated based on preliminary slopes stakes plus 40 linear feet. **Tables 6a-6d** summarize the potential impacts of each alternative per segment, while **Table 7** summarizes the total impacts for each alternative.

Table 6a – U-5949 Alternative Impacts by Segment – Segment 1

	Resource		Alternative		
			Symmetrical Widening	**West Widening**	**East Widening**
	Natural Environment Resources				
Segment 1 (US 17 to Rifle Range Road [USMC/MARSOC entrance])	Streams (No./ Lin. Ft.)	U-5949	2/847	2/828	2/517
		Stones Bay	1/64	1/141	1/127
	Wetlands (No./Acres)	U-5949	7/1.17	7/1.80	8/0.85
		Stones Bay	1/0.35	1/0.06	1/0.51
	Protected Species		0	0	0
	Human Environment and Cultural Resources				
	Historic Properties	Eligible	TBD	TBD	TBD
		Listed	0	0	0
	Archaeological Sites		TBD	TBD	TBD
	Estimated No. of Properties Impacted[1]	Residential	16	16	16
		Commercial	4	4	4
		Industrial	0	0	0
		Public (Property)	3 (USMC, Dixon MS - old property, SCGL)	3 (USMC, Dixon MS - old property, SCGL)	3 (USMC, Dixon MS - old property, SCGL)
		Church	0	0	0
		Cemetery	1	1	1
		Other[3]	10	10	10
	Estimated No. of Buildings Impacted (Potential Displacements)[2]	Residences	12	12	8
		Commercial	1	1	1
		Industrial	0	0	0
		Public (Property)	1 (Dixon MS - old property)	1 (Dixon MS - old property)	1 (Dixon MS - old property)
		Church	0	0	0
		Other[3]	0	0	0
	Conservation Easement Property (Acres)	SCGL	1.15	1.50	0.69
	USMC (MARSOC) Property (Acres)	Outside Fence	12.86	9.82	15.24
		Inside Fence	0.17	0.03	0.26

Table 6b – U-5949 Alternative Impacts by Segment – Segment 2

	Resource		Alternative		
			Symmetrical Widening	West Widening	East Widening
	Natural Environment Resources				
	Streams (No./ Lin. Ft.)	U-5949	1/92	1/81	1/104
	Wetlands (No./Acres)	U-5949	10/3.27	10/2.00	9/1.36
		Stones Bay	3/1.12	3/0.79	3/1.50
	Protected Species		0	0	0
	Human Environment and Cultural Resources				
	Historic Properties	Eligible	TBD	TBD	TBD
		Listed	0	0	0
	Archaeological Sites		TBD	TBD	TBD
Segment 2 (Rifle Range Road to Betty Dixon Road)	Estimated No. of Properties Impacted[1]	Residential	7	7	7
		Commercial	0	0	0
		Industrial	0	0	0
		Public (Property)	5 (USMC, EMS, SCGL, Everett Pres. [x2])	5 (USMC, EMS, SCGL, Everett Pres. [x2])	5 (USMC, EMS, SCGL, Everett Pres. [x2])
		Church	0	0	0
		Cemetery	0	0	0
		Other[3]	6	6	6
	Estimated No. of Buildings Impacted (Potential Displacements)[2]	Residences	2	2	2
		Commercial	0	0	0
		Industrial	0	0	0
		Public	0	0	0
		Church	0	0	0
		Other[3] (Type)	2 (Pump Station, Water Tower)	2 (Pump Station, Water Tower)	1 (Pump Station)
	Conservation Easement Property (Acres)	SCGL	5.69	6.80	4.17
		Everett Creek Preserve	2.11	1.56	2.61
	USMC (MARSOC) Property Impacted (Acres)	Outside Fence	7.86	6.47	9.35
		Inside Fence	0	0	0
	EMS Property (Acres)		0.32	0.36	0.17
	Substation Property (Acres)[4]		0.46	0.39	0.57

Table 6c – U-5949 Alternative Impacts by Segment – Segment 3

	Resource		Alternative		
			Symmetrical Widening	West Widening	East Widening
Segment 3 (Betty Dixon Road to NC 172)	**Natural Environment Resources**				
	Streams (No./ Lin. Ft.)	U-5949	1/57	1/57	1/57
	Wetlands (No./Acres)	U-5949	2/0.53	2/0.46	2/0.60
	Protected Species		0	0	0
	Human Environment and Cultural Resources				
	Historic Properties	Eligible	TBD	TBD	TBD
		Listed	0	0	0
	Archaeological Sites		TBD	TBD	TBD
	Estimated No. of Properties Impacted[1]	Residential	0	0	0
		Commercial	35	35	35
		Industrial	0	0	0
		Public (Property)	2 (SCGL, Dixon ES)	2 (SCGL, Dixon ES)	2 (SCGL, Dixon ES)
		Church[5]	2	2	2
		Cemetery	0	0	0
		Other[3]	1	1	1
	Estimated No. of Buildings Impacted (Potential Displacements)[2]	Residences	0	0	0
		Commercial	4	5	3
		Industrial	0	0	0
		Public	0	0	0
		Church	0	0	0
		Other[3]	0	0	0
	Conservation Easement Property (Acres)	SCGL	0.09	0.10	0.06

Table 6d – U-5949 Alternative Impacts by Segment – Segment 4

	Resource		Alternative		
			Symmetrical Widening	West Widening	East Widening
Segment 4 (NC 172 to south of Old Folkstone Road)	**Natural Environment Resources**				
	Streams (No./ Lin. Ft.)	U-5949	3/380	3/375	3/387
	Wetlands (No./Acres)	U-5949	9/1.18	8/1.30	9/1.14
	Protected Species		0	0	0
	Human Environment and Cultural Resources				
	Historic Properties	Eligible	TBD	TBD	TBD
		Listed	0	0	0
	Archaeological Sites		TBD	TBD	TBD
	Estimated No. of Properties Impacted[1]	Residential	1	1	1
		Commercial	73	73	73
		Industrial	0	0	0
		Public	0	0	0
		Church	1	1	1
		Cemetery	0	0	0
		Other[3]	12	12	11
	Estimated No. of Buildings Impacted (Potential Displacements)[2]	Residences	2[6]	1	2[6]
		Commercial	8	9	10
		Industrial	0	0	0
		Public	0	0	0
		Church	0	0	0
		Other[3]	1	1	1

[1]Property types were determined using the Onslow County Parcel data. The parcel descriptions were cross-referenced with owner information to determine actual property type.

[2]Building types were determined using the Onslow County Parcel data, 2016 Onslow County building shapefile, and aerial photography. If aerial photography indicated an incorrect assignment by one or both of the other sources, the aerial was used as the determining resource.

[3]For properties, "Other" indicated properties that were designated as Building Site (with no residential information), Undeveloped, Right-of-Way, etc. For buildings, "Other" indicated buildings that were unidentifiable as another type using any of the resources. It also included features such as pump stations, water towers, etc. that did not fit any other categories.

[4]Substation acreage was not included in the USMC/MARSOC acreage even though it was within the property boundary.

[5]Both church properties in each Alternative are owned by Sneads Ferry Presbyterian Church.

[6]In these two instances, a property was not categorized as residential, but it was clear on the aerial that the building was being used as such. Therefore, the building impact was considered as a residence.

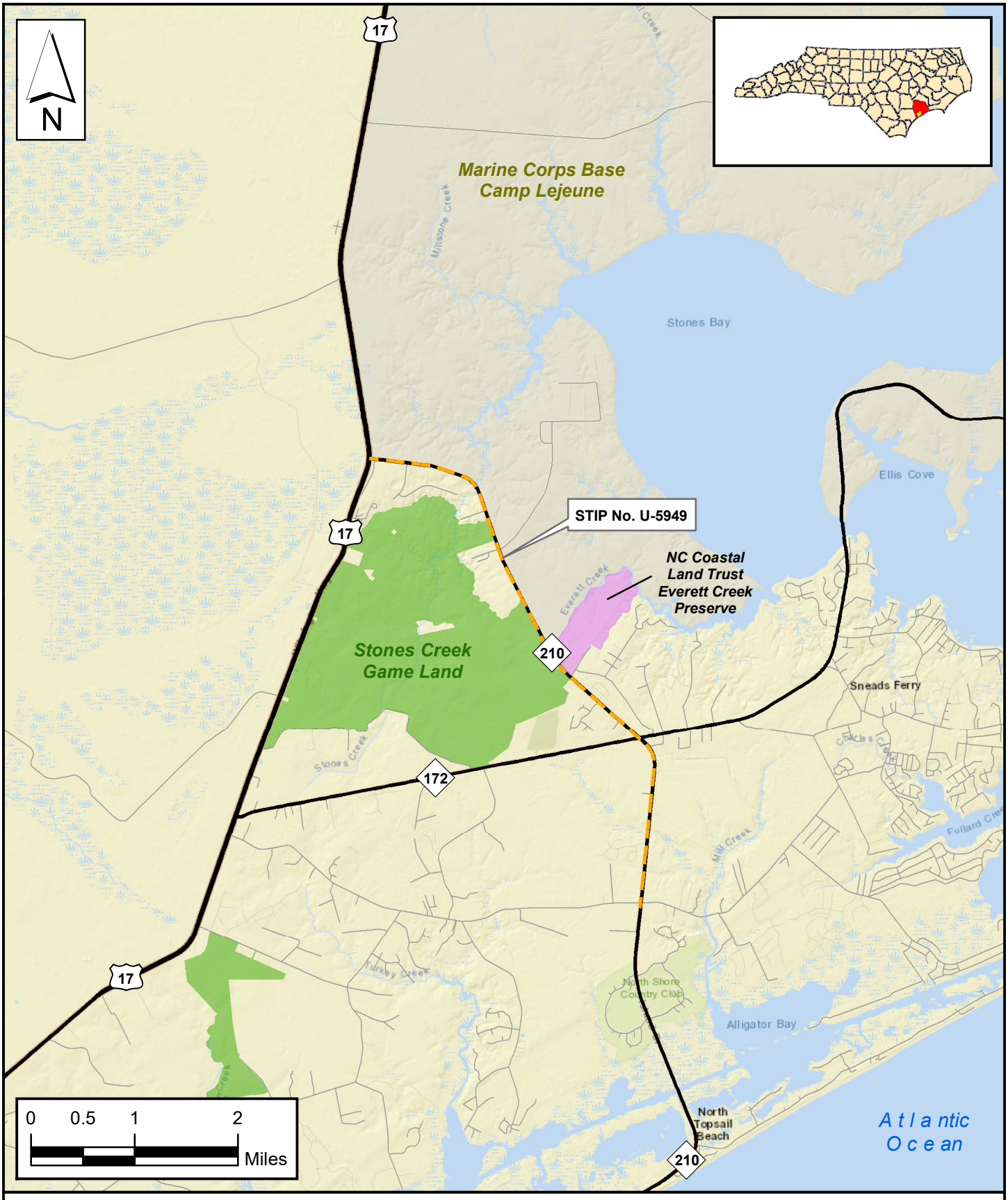
Table 7 – U-5949 Summary of Total Impacts by Alternative

Resource		Alternative		
		Symmetrical Widening	West Widening	East Widening
Natural Environment Resources				
Streams (No./Lin. Ft.)	U-5949	7/1,376	7/1,341	7/1,065
	Stones Bay	1/64	1/141	1/127
Wetlands (No./Acres)	U-5949	28/6.15	27/5.56	28/3.95
	Stones Bay	4/1.47	4/0.85	4/2.01
Protected Species		0	0	0
Human Environment and Cultural Resources				
Historic Properties	Eligible	TBD	TBD	TBD
	Listed	0	0	0
Archaeological Sites		0	0	0
Estimated No. of Properties Impacted	Residential	24	24	24
	Commercial	112	112	112
	Industrial	0	0	0
	Public	10	10	10
	Church	3	3	3
	Cemetery	1	1	1
	Other	29	29	28
Estimated No. of Buildings Impacted (Potential Displacements)	Residences	16	15	12
	Commercial	13	15	14
	Industrial	0	0	0
	Public[1]	1	1	1
	Church	0	0	0
	Other	3	3	2
Conservation Easement (Acres)	SCGL	6.93	8.40	4.92
	Everett Creek Preserve	2.11	1.56	2.61
USMC (MARSOC) Property (Acres)	Outside Fence	20.72	16.29	24.59
	Inside Fence	0.17	0.03	0.26
EMS Property (Acres)		0.32	0.36	0.17
Substation Property (Acres)		0.46	0.39	0.57

[1]Dixon Middle School – old property near US 17.

The Concurrence Point 2 concurrence form, which includes the alternatives to be studied in detail, is attached to this package in Appendix A.

Appendix A
Concurrence Points 1 and 2 Supporting Documentation



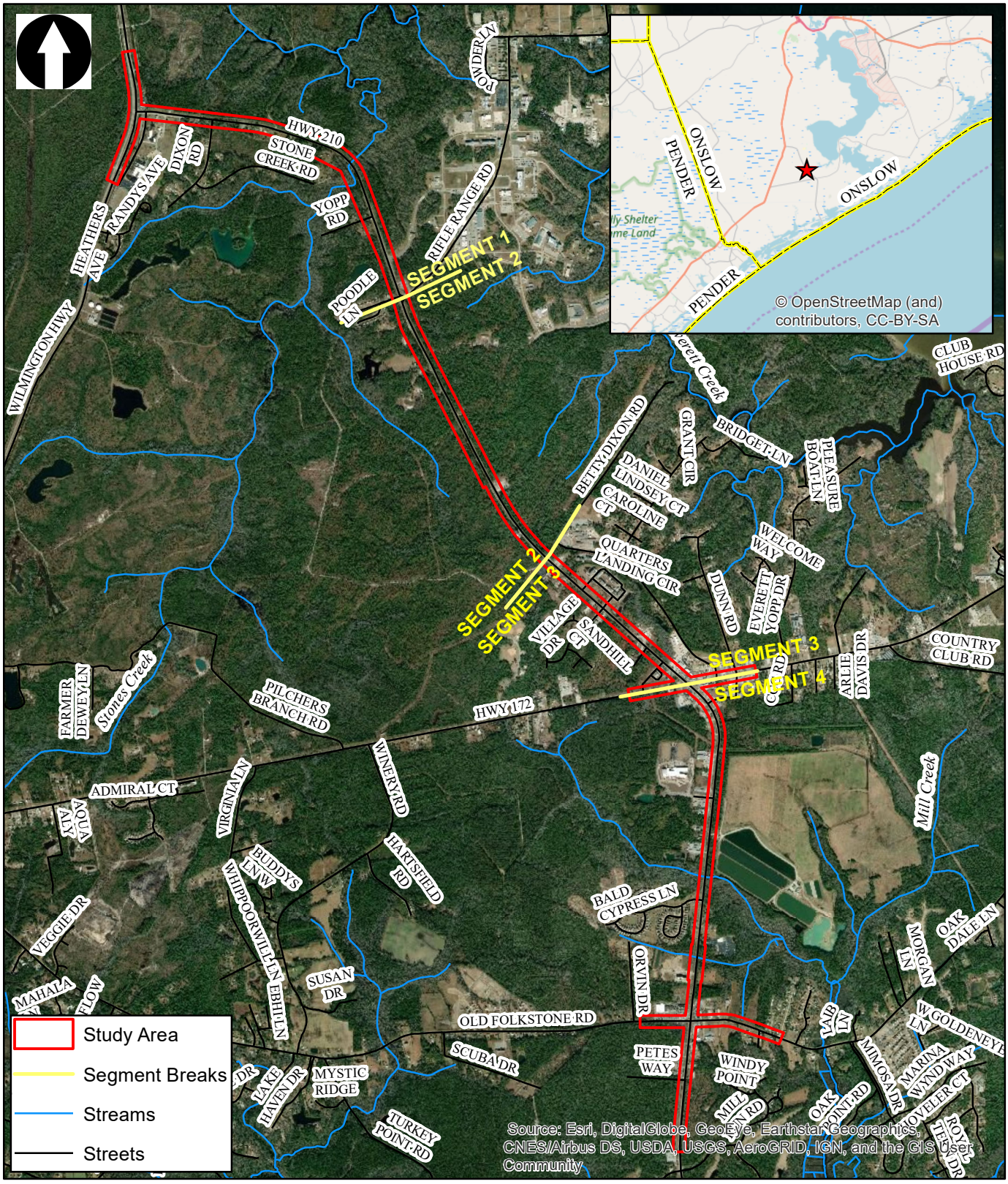
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS

Project Location
WIDEN NC 210 FROM
US 17 TO SOUTH OF
SR 1518 (OLD FOLKSTONE RD)

ONSLOW COUNTY
NORTH CAROLINA

County:	ONSLOW
Div: 3	STIP# U-5949
WBS:	46896.1.1
Date:	NOVEMBER 2017

Figure
1



THREE OAKS ENGINEERING

Prepared For: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Study Area

Widen NC 210 from
US 17 to south of
SR 1518 (Old Folkstone Rd)

Onslow County, North Carolina

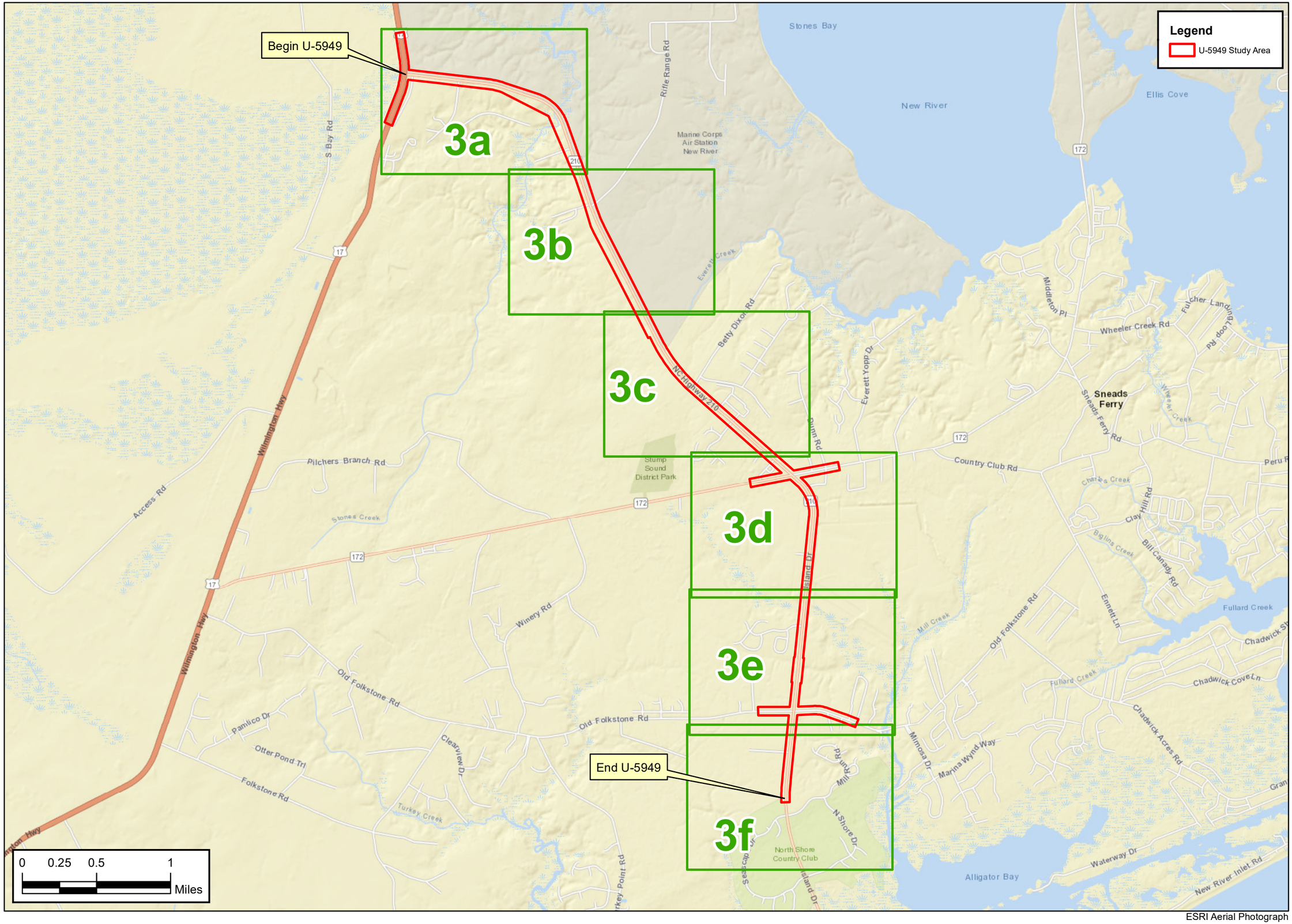
Date: June 2018

Scale: 0 1,000 2,000 Feet

Job No.: 17-006

Drawn By: CMR | Checked By: NH

Figure 2



ESRI Aerial Photograph

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH OF SR 1518 (OLD FOLKSTONE RD)

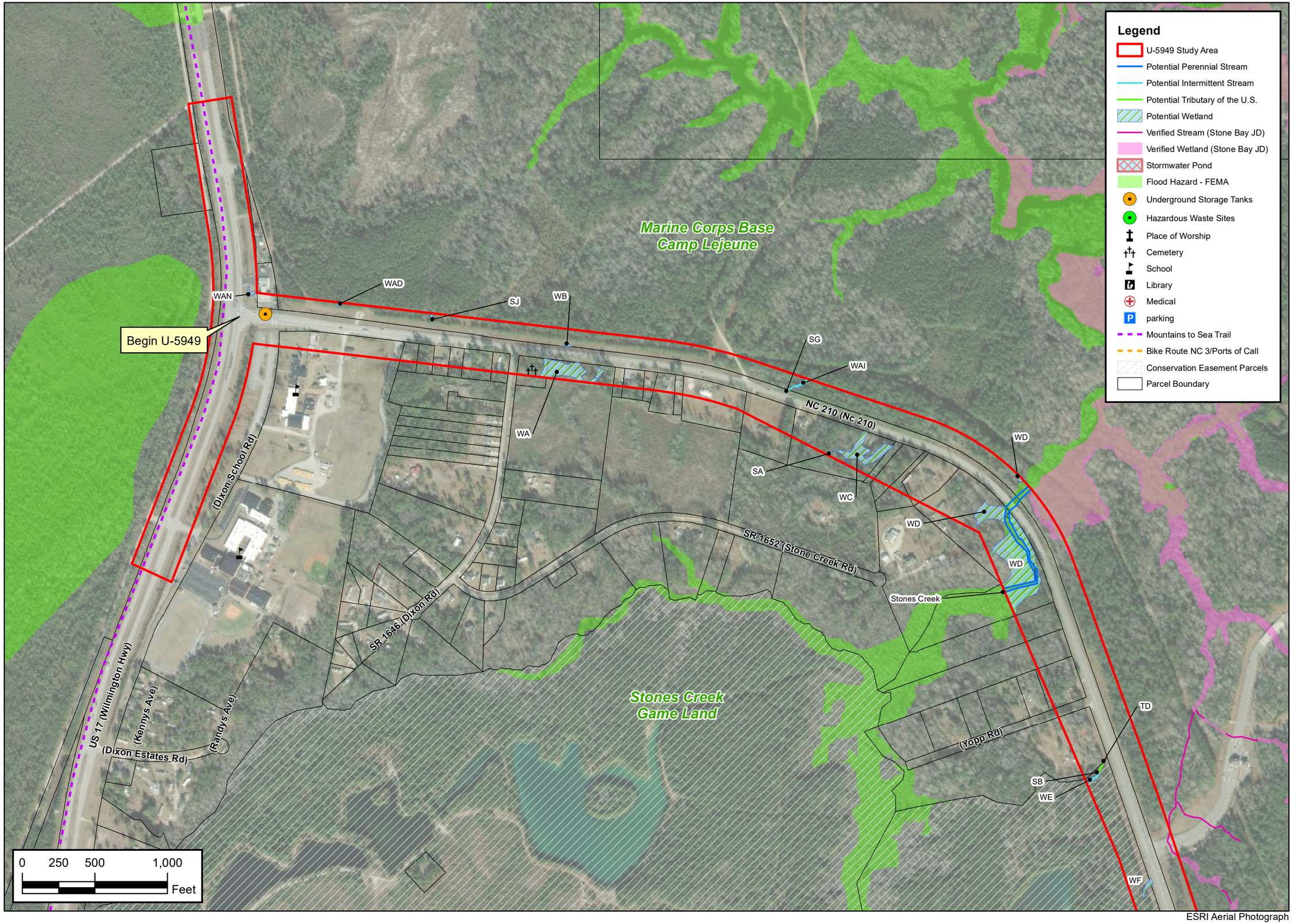
ONSLOW COUNTY
STIP PROJECT U-5949

N

By: C ROWELLS	
County: ONSLOW	
Div: 3	STIP# U-5949
Date: JUNE 2018	

Figure

3



ESRI Aerial Photograph

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH
OF SR 1518 (OLD FOLKSTONE RD)

ONSLOW COUNTY
STIP PROJECT U-5949

N

By:
C ROWELLS

County:
ONSLOW

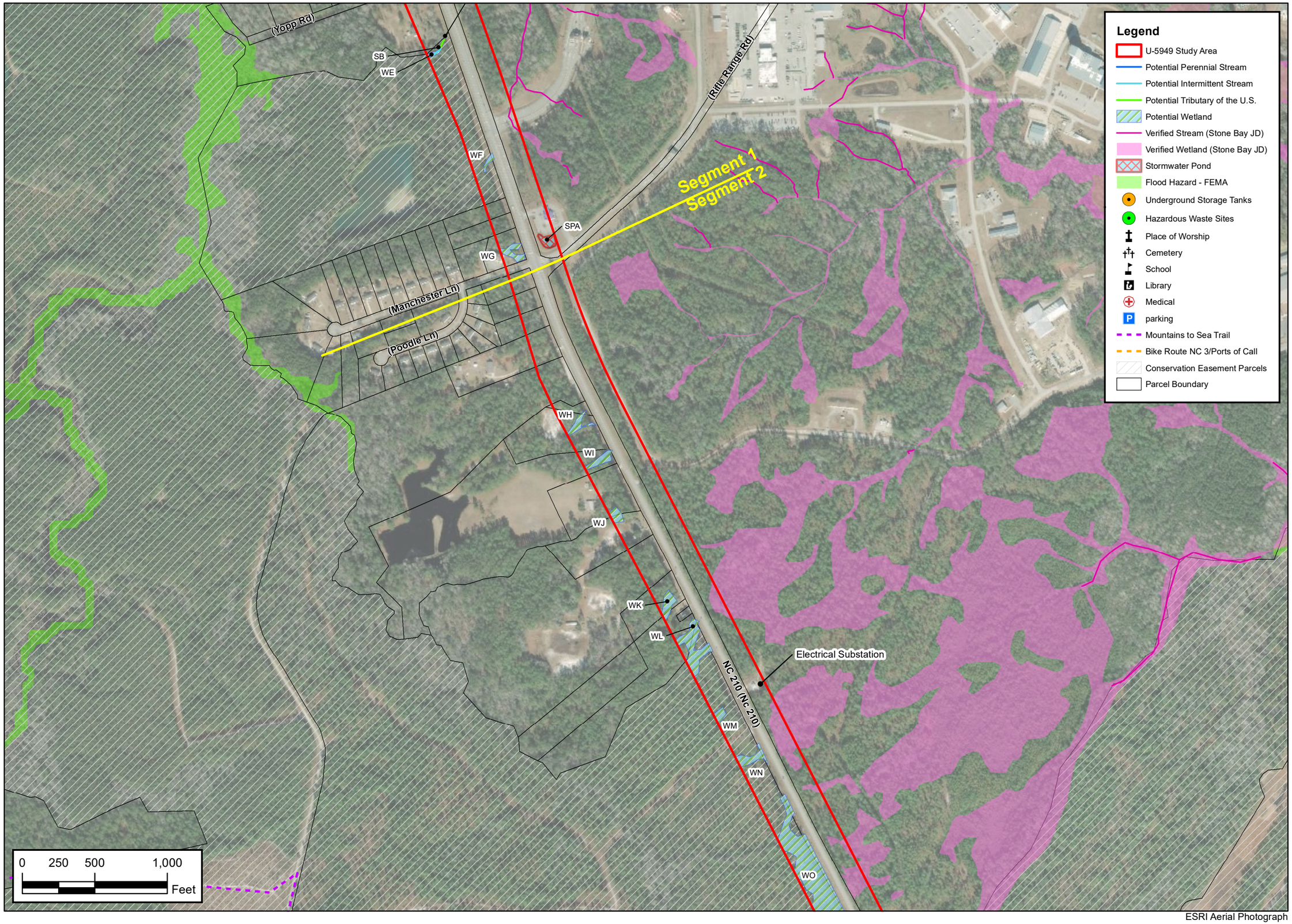
Div:
3

STIP#
U-5949

Date:
JUNE 2018

Figure

3a



ESRI Aerial Photograph

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH OF SR 1518 (OLD FOLKSTONE RD)

ONSLOW COUNTY
STIP PROJECT U-5949

N

By:
C ROWELLS

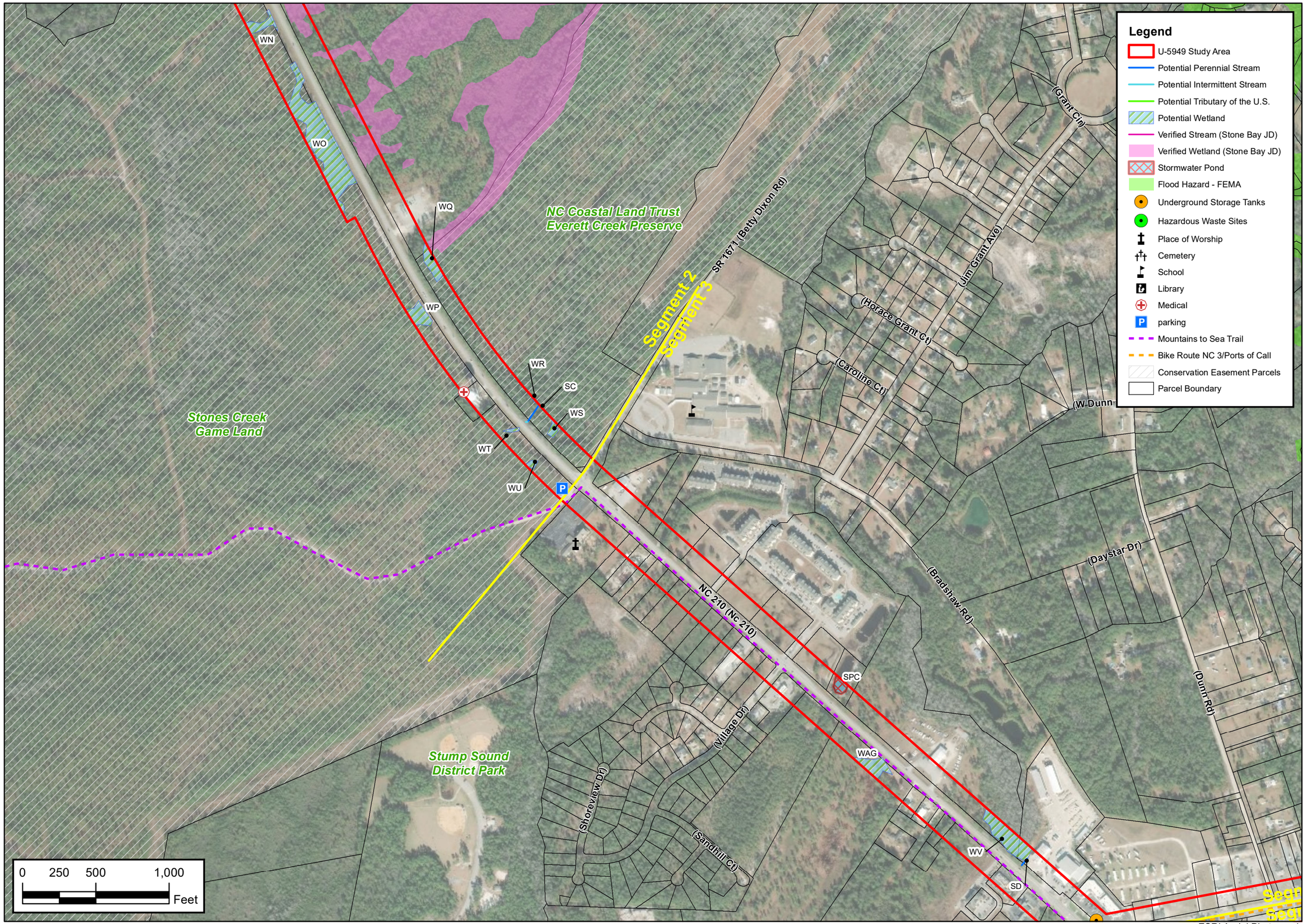
County:
ONSLOW

Div:	STIP#
3	U-5949

Date:
JUNE 2018

Figure

3b



ESRI Aerial Photograph

Legend

- U-5949 Study Area
- Potential Perennial Stream
- Potential Intermittent Stream
- Potential Tributary of the U.S.
- Potential Wetland
- Verified Stream (Stone Bay JD)
- Verified Wetland (Stone Bay JD)
- Stormwater Pond
- Flood Hazard - FEMA
- Underground Storage Tanks
- Hazardous Waste Sites
- Place of Worship
- Cemetery
- School
- Library
- Medical
- parking
- Mountains to Sea Trail
- Bike Route NC 3/Ports of Call
- Conservation Easement Parcels
- Parcel Boundary

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH OF SR 1518 (OLD FOLKSTONE RD)

ONSLOW COUNTY
STIP PROJECT U-5949

N

By: C ROWELLS

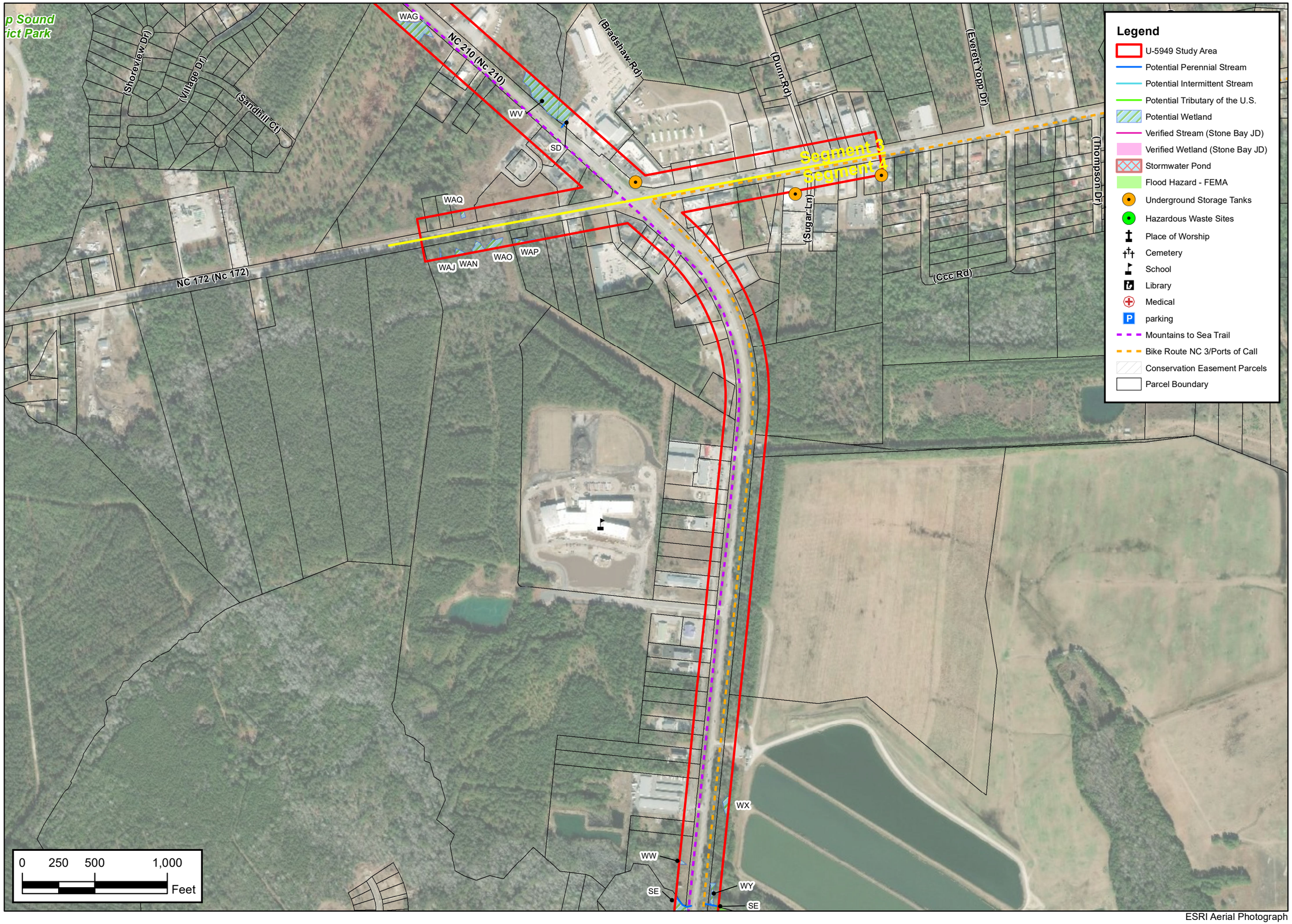
County: ONSLOW

Div: 3 | STIP# U-5949

Date: JUNE 2018

Figure

3c



ESRI Aerial Photograph

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH OF SR 1518 (OLD FOLKSTONE RD)

ONSLOW COUNTY
STIP PROJECT U-5949

N

By:
C ROWELLS

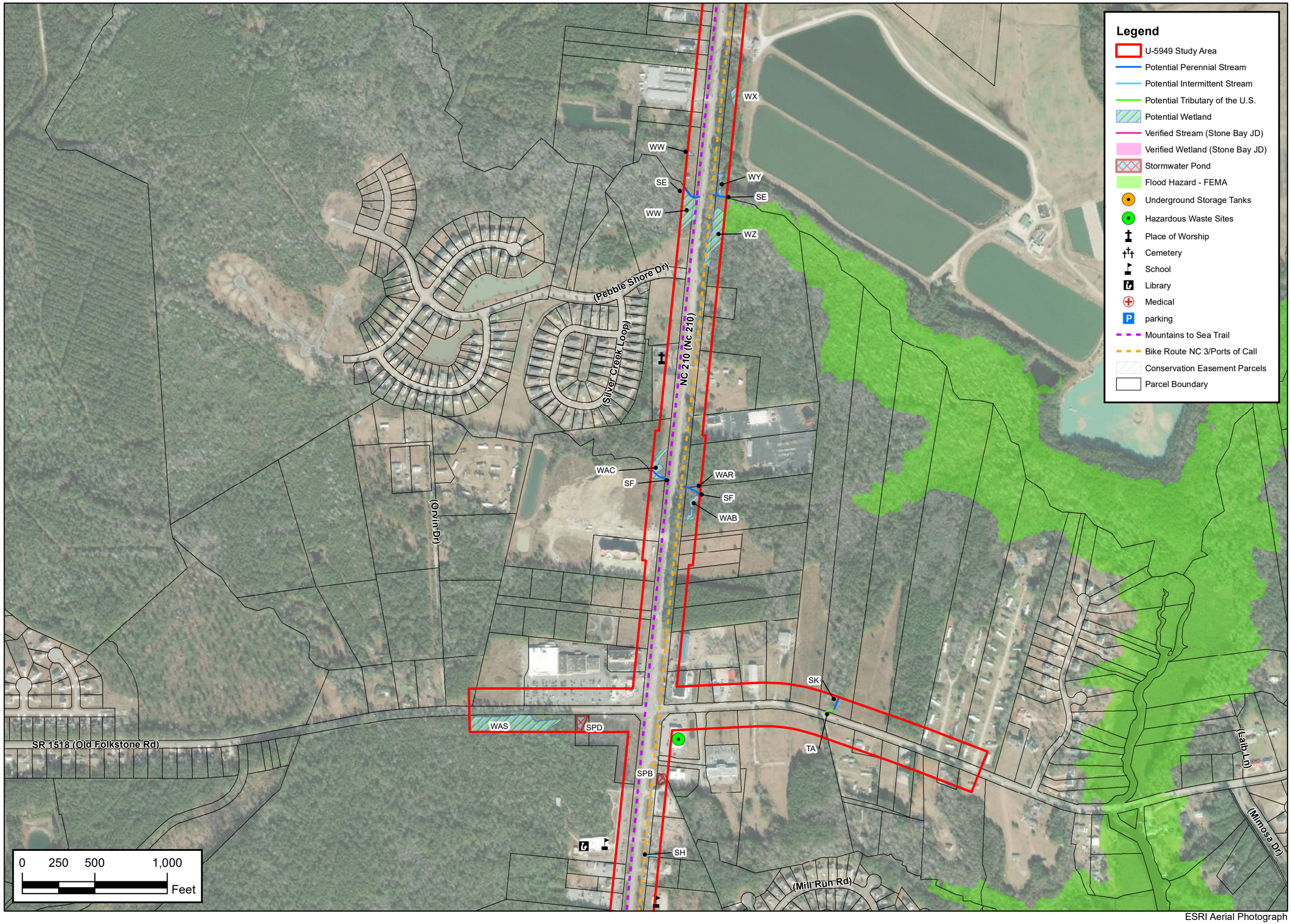
County:
ONSLOW

Div:	STIP#
3	U-5949

Date:
JUNE 2018

Figure

3d



ESRI Aerial Photograph

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH OF SR 1518 (OLD FOLKSTONE RD)
ONSLOW COUNTY
STIP PROJECT U-5949

N

By:
C ROWELLS

County:
ONSLOW

Div:	STIP#
3	U-5949

Date:
JUNE 2018

Figure

3e

ESRI Aerial Photograph

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
HIGHWAY DIVISION 3

ENVIRONMENTAL FEATURES MAP
WIDEN NC 210 FROM US 17 TO SOUTH
OF SR 1518 (OLD FOLKSTONE RD)
ONSLOW COUNTY
STIP PROJECT U-5949

N

By:
C ROWELLS

County:
ONSLOW

Div:
3

STIP#
U-5949

Date:
JUNE 2018

Figure

3f

Figure 4a

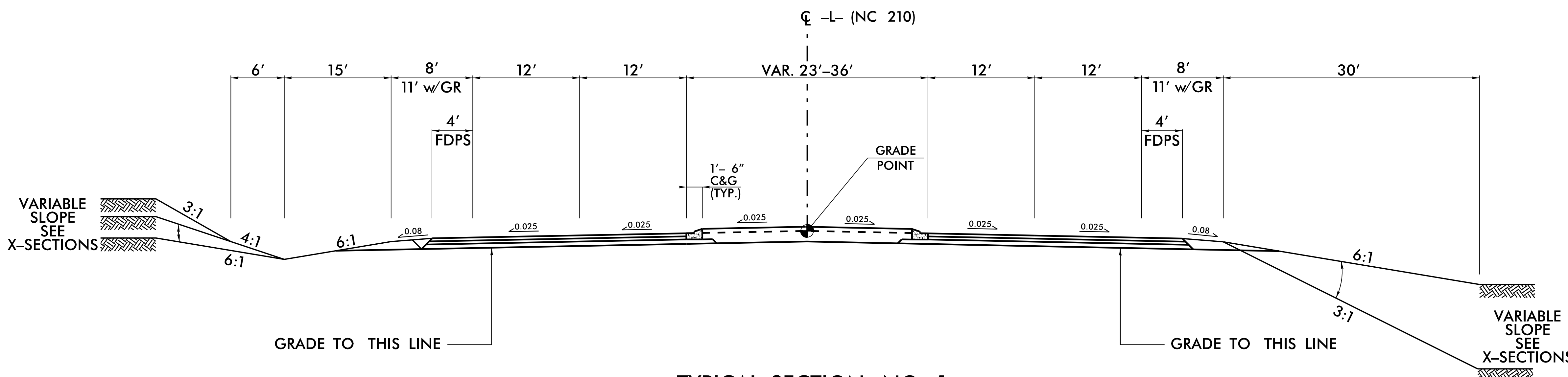
PROJECT REFERENCE NO.	SHEET NO.
U-5949	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of: SUMMIT

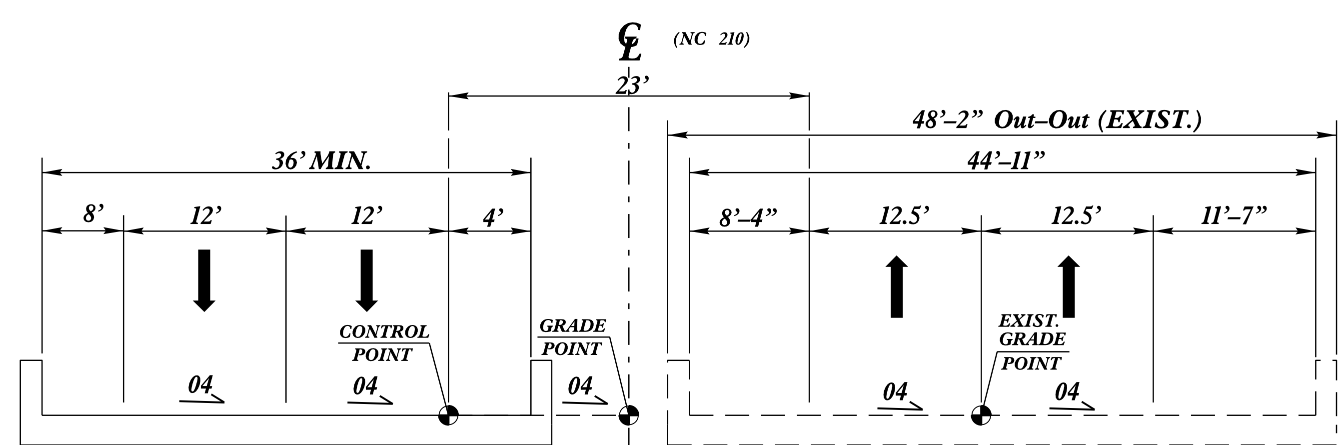
NC FIRM LICENSE No: P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- (MAINLINE)



TYPICAL SECTION NO. 2

PROPOSED BRIDGE (40' MIN. CL RDWY WIDTH - ADJUST TO BOX BEAM DIMENSIONS IF REQUIRED)

RETAIN EXIST. BRIDGE #660019 (BOX BEAM STRUCTURE)

TYPICAL SECTION NO. 3

-L- (STONES CREEK BRIDGE SITE APRX. 130' IN LENGTH)

6/2/99

13-JUN-2018 10:22
U5949_Rdy_typ.dgn

6/2/99

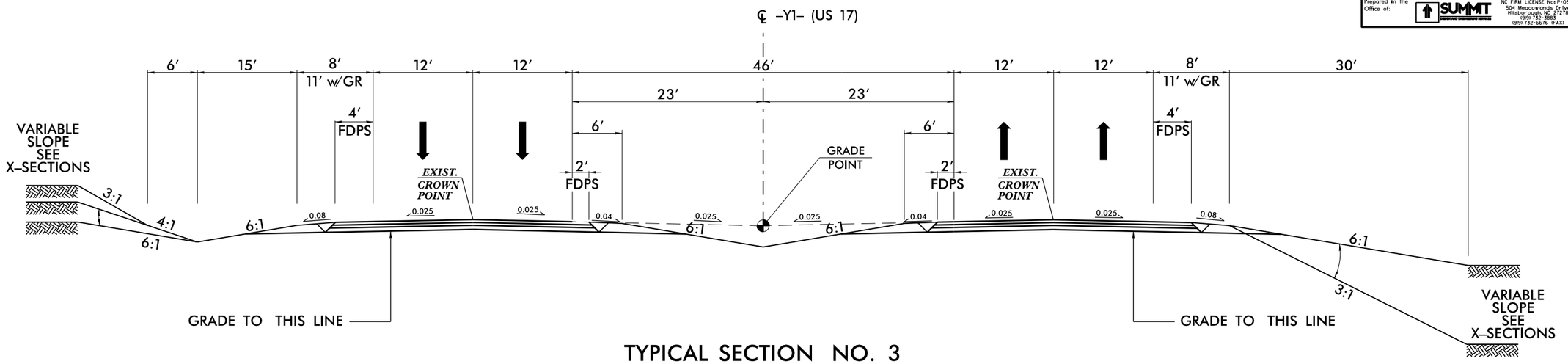
Figure 4b

PROJECT REFERENCE NO.	SHEET NO.
U-5949	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

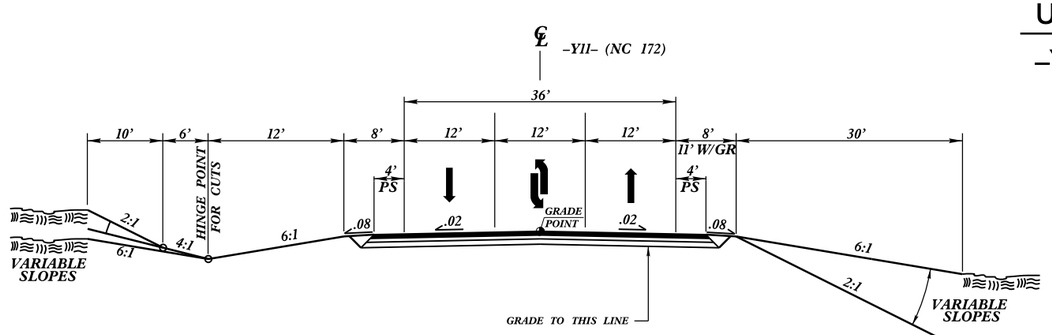
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

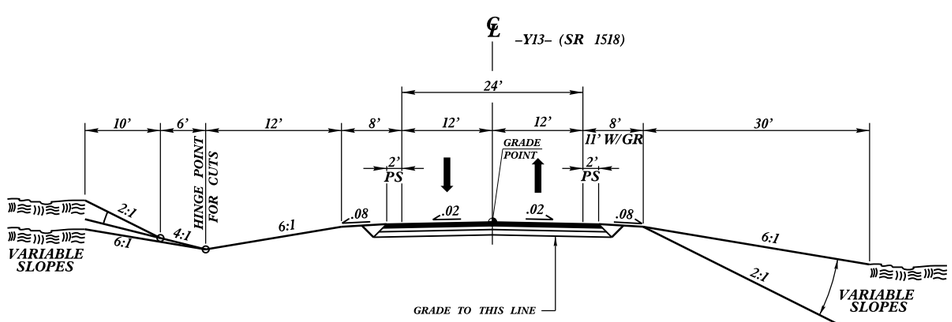
Prepared in the Office of: SUMMIT
NC FIRM LICENSE No: P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 4

–Y1– (US 17)

USE TYPICAL SECTION NO. 4

–Y11– (NC 172)

USE TYPICAL SECTION NO. 5

–Y13– (SR 1518)

13-JUN-2018 10:22
U5949 Rdy Fig2.dgn

Table 1. Streams in the study area

Stream Name	Map ID	NCDWR Index Number	Best Usage Classification
Stones Creek	Stones Creek	19-30-3	SA; HQW
UT to Stones Creek	SA	19-30-3	SA; HQW
UT to Stones Creek	SB	19-30-3	SA; HQW
UT to Everett Creek	SC	19-32	SA; HQW
UT to Everett Creek	SD	19-32	SA; HQW
UT to Mill Creek	SE	19-39-3-1	SA; HQW
UT to Mill Creek	SF	19-39-3-1	SA; HQW
UT to Stones Creek	SG	19-30-3	SA; HQW
UT to Mill Creek	SH	19-39-3-1	SA; HQW
UT to Stones Creek	SJ	19-30-3	SA; HQW
UT to Mill Creek	SK	19-39-3-1	SA; HQW

Table 2. Characteristics of potential jurisdictional streams in the study area

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
Stones Creek	1,013	Perennial	Yes	Not Subject
SA	31	Intermittent	Undetermined	Not Subject
SB	76	Intermittent	Undetermined	Not Subject
SC	13	Intermittent	Undetermined	Not Subject
SC	139	Perennial	Yes	Not Subject
SD	57	Perennial	Yes	Not Subject
SE	232	Perennial	Yes	Not Subject
SF	289	Perennial	Yes	Not Subject
SG	189	Intermittent	Undetermined	Not Subject
SH	114	Intermittent	Undetermined	Not Subject
SJ	44	Intermittent	Undetermined	Not Subject
SJ	4	Perennial	Yes	Not Subject
SK	88	Perennial	Yes	Not Subject
Total	**2,289**			

Table 3. Characteristics of potential jurisdictional wetlands in the study area

Map ID*	NCWAM Classification	NCWAM Rating	Hydrologic Classification	Area (ac.) in Study Area
WA	Headwater Forest	Medium	Riparian	0.79
WB	Headwater Forest	Low	Riparian	0.03
WC	Headwater Forest	High	Riparian	0.66
WD	Riverine Swamp Forest	High	Riparian	1.38
WE	Headwater Forest	High	Riparian	0.05
WF	Headwater Forest	High	Riparian	0.07
WG	Headwater Forest	High	Riparian	0.23
WH	Headwater Forest	High	Riparian	0.18
WI	Headwater Forest	High	Riparian	0.22
WJ	Headwater Forest	High	Riparian	0.17
WK	Headwater Forest	High	Riparian	0.26
WL	Headwater Forest	High	Riparian	0.80
WM	Seep	High	Non-riparian	0.12
WN	Headwater Forest	High	Riparian	0.29
WO	Headwater Forest	High	Riparian	3.00
WP	Headwater Forest (Forested)	High	Riparian	0.16
WP	Headwater Forest (Unforested)	Low	Riparian	0.23
WQ	Headwater Forest	High	Riparian	0.35
WR	Bottomland Hardwood Forest	Medium	Riparian	0.01
WS	Bottomland Hardwood Forest	Medium	Riparian	0.10
WT	Headwater Forest	Low	Riparian	0.04
WU	Headwater Forest	High	Riparian	0.07
WV	Bottomland Hardwood Forest	High	Riparian	0.99
WW	Headwater Forest (Forested)	High	Riparian	0.29
WW	Headwater Forest (Unforested)	Low	Riparian	0.21
WX	Basin Wetland	Medium	Non-riparian	0.10
WY	Headwater Forest	High	Riparian	0.07
WZ	Bottomland Hardwood Forest	High	Riparian	0.63
WAB	Bottomland Hardwood Forest	Medium	Riparian	0.14
WAC	Bottomland Hardwood Forest	Low	Riparian	0.26
WAD	Bottomland Hardwood Forest	Low	Riparian	0.01
WAE	Bottomland Hardwood Forest	Low	Riparian	0.77
WAF	Headwater Forest	High	Riparian	0.12
WAG	Pine Flat	Medium	Non-riparian	0.44
WAI	Headwater Forest	High	Riparian	0.05
WAJ	Headwater Forest	High	Riparian	0.01
WAK	Pine Flat	Low	Non-riparian	0.67

Table 3. Characteristics of potential jurisdictional wetlands in the study area (Continued)

Map ID*	NCWAM Classification	NCWAM Rating	Hydrologic Classification	Area (ac.) in Study Area
WAL	Pine Flat	Medium	Non-riparian	0.06
WAM	Pine Flat	Low	Non-riparian	2.18
WAN	Pine Flat	Medium	Non-riparian	0.09
WAO	Headwater Forest	High	Riparian	0.23
WAP	Headwater Forest	High	Riparian	0.06
WAQ	Basin Wetland	Low	Non-riparian	0.03
WAR	Headwater Forest	High	Riparian	<0.01
WAS	Pine Flat	Medium	Non-riparian	1.38
			Total	**18.00**

*Wetland WAA doesn't exist.

Table 4. Surface waters in the study area

Surface Water*	Jurisdictional	Map ID of Connection	Length (lf)
TA	No	SK/Mill Creek	67
TD	No	SB/Stones Creek	55

* TB and TC do not exist.

Table 5. Stones Bay streams in the study area

Stream Name*	Map ID	NCDWR Index Number	Best Usage Classification
UT to Stones Creek	Stones Bay Stream 1	19-30-3	SA; HQW

*Feature IDs were not provided with the Stones Bay delineation.

Table 6. Stones Bay wetlands in the study area

Map ID*	Hydrologic Classification	Area (ac.) in Study Area
Stones Bay Wetland 1	Riparian	0.66
Stones Bay Wetland 2	Riparian	<0.01
Stones Bay Wetland 3	Riparian	0.38
Stones Bay Wetland 4	Riparian	1.05
Stones Bay Wetland 5	Riparian	0.11
Stones Bay Wetland 6	Riparian	0.75
Stones Bay Wetland 7	Riparian	0.02
	Total	**2.97**

*Feature IDs were not provided with the Stones Bay delineation. The IDs above were assigned by NCDOT. The IDs start at the northernmost wetland and proceed south.

Table 7. ESA federally protected species listed for Onslow County

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Alligator mississippiensis	American alligator	T (S/A)	Yes	Not Required
Chelonia mydas	Green sea turtle	T	No	No Effect
*Eretmochelys imbricate**	Hawksbill (=carey) sea turtle	E	No	No Effect
Lepidochelys kempii	Kemp's (=Atlantic) ridley sea turtle	E	No	No Effect
Dermochelys coriacea	Leatherback sea turtle	E	No	No Effect
Caretta caretta	Loggerhead sea turtle	T	No	No Effect
Charadrius melodus	Piping plover	T	No	No Effect
Picoides borealis	Red-cockaded woodpecker	E	Yes	No Effect
Calidris canutus rufa	Red knot	T	No	No Effect
Trichechus manatus	West Indian manatee	E	No	No Effect
Thalictrum cooleyi	Cooley's meadowrue	E	Yes	No Effect
Carex lutea	Golden sedge	E	Yes	No Effect
Lindera melissifolia	Pondberry	E	Yes	No Effect
Lysimachia asperulaefolia	Rough-leaved loosestrife	E	Yes	No Effect
Amaranthus pumilus	Seabeach amaranth	T	No	No Effect

Note: E – Endangered; T – Threatened; T(S/A) – Threatened due to Similarity in Appearance

Section 404/NEPA Merger Team Meeting Agreement

Concurrence Point No. 1: Project Purpose & Need and Proposed Study Area

Project Name/Description: Widen NC 210 from two lanes to a four-lane median-divided facility from US 17 to south of SR 1518 (Old Folkstone Road) in Onslow County, North Carolina., WBS No. 46896.1.1, **State Transportation Improvement Program (STIP) Project No. U-5949**.

Purpose and Need of Proposed Project

The needs to be addressed by this project can be summarized as follows:

- *Traffic congestion exists along the existing facility and is expected to worsen in the future.*
- *On the current two-lane facility, crash rates are higher than the statewide crash rate and the critical crash rate for rural two-lane undivided NC routes.*

The purpose of the proposed project is to alleviate motorized vehicle congestion along NC 210 between US 17 and south of Old Folkstone Road (SR 1518), with the goal of achieving an overall level of service (LOS) D or better at all signalized intersections within the project area during peak hour operations. Where feasible, the goal of the project will also be to bring signalized and unsignalized movements to LOS D or better. The project also aims to improve traffic safety along the project corridor by providing a wider paved roadway, two lanes in either direction, a grass median, and improved intersection configurations.

Project Study Area

The proposed project study area was developed to address the above-stated purpose and need for U-5949. The project study area boundaries are fully depicted on Figures 1 and 2 of the Merger packet.

The Project Team members have concurred, on this date of August 16, 2018, on the project purpose and need as stated above and the project study area fully depicted in Figures 1 and 2 of the Merger packet.

US Army Corps of Engineers

Brad Shaver DATE

US Fish & Wildlife Service

Gary Jordan DATE

NC Division of Water Resources

Joanne Steenhuis DATE

NC Wildlife Resources Commission _____
Travis Wilson DATE

US Environmental Protection Agency _____
Chris Militscher DATE

NC Department of Transportation _____
Krista Kimmel DATE

NC State Historic Preservation Office _____
Renee Gledhill-Earley DATE

NC Division of Coastal Management _____
Stephen Lane DATE

Section 404/NEPA Merger Team Meeting Agreement

Concurrence Point No. 2: Detailed Study Alternatives Carried Forward

Project Name/Description: Widen NC 210 from two lanes to a four-lane median-divided facility from US 17 to south of SR 1518 (Old Folkstone Road) in Onslow County, North Carolina., WBS No. 46896.1.1, **State Transportation Improvement Program (STIP) Project No. U-5949**.

A concurrence meeting was held with members of the Merger Team on August 16, 2018 to discuss the Detailed Study Alternatives to be carried forward for the proposed project. Multiple design alternatives and their respective preliminary impacts were presented in the meeting package and reviewed during the CP2 meeting. The Project Team has concurred on this date with the Detailed Study Alternatives to be Carried Forward as described below.

The Detailed Study Alternatives to be Carried Forward include:

- A "Best-Fit" Alignment Alternative that consists of the following widening scenarios for each of the four project segments:
    - **Segment 1 –** Symmetrical / West / East Widening
    - **Segment 2 –** Symmetrical / West / East Widening
    - **Segment 3 –** Symmetrical / West / East Widening
    - **Segment 4 –** Symmetrical / West / East Widening

US Army Corps of Engineers	Brad Shaver	DATE
US Fish & Wildlife Service	Gary Jordan	DATE
NC Division of Water Resources	Joanne Steenhuis	DATE
NC Wildlife Resources Commission	Travis Wilson	DATE
US Environmental Protection Agency	Chris Militscher	DATE
NC Department of Transportation	Krista Kimmel	DATE
NC State Historic Preservation Office	Renee Gledhill-Earley	DATE
NC Division of Coastal Management	Stephen Lane	DATE