Three Oaks Engineering, Inc.
324 Blackwell Street, Suite 1200
Durham, NC 27701
(919) 732-1300

June 11, 2024

William Wirt
Summit Design and Engineering Services
320 Executive Court
Hillsborough, NC 27278
919-732-3883 x 3151
william.wirt@summitde.com

SUBJECT: Environmental Evaluation – Parcel PIN No.'s 9779427516, 9779429615, 9779531130, and 9778899390, Carrboro, Orange County, North Carolina

Three Oaks Engineering, Inc. (Three Oaks) was contracted by Summit Design and Engineering Services (Summit) to complete jurisdictional waters delineations and a federally listed species habitat assessment within four parcels totaling approximately 7.9 acres in Carrboro, Orange County, NC (Figure 1). The sites are comprised of upland hardwoods and streamside riparian zones. This memo provides a summary of the potential jurisdictional waters and federally listed species habitat identified within the study area.

Staff members Joanna Salvucci and Nathan Howell conducted the site investigation on April 2, 2024.

Potential Jurisdictional Resources

Four potential jurisdictional features (two streams and one wetland) were identified within the study area. In addition to the two identified perennial streams, nine ephemeral channels were identified. While ephemeral channels remain unprotected from a state and federal regulatory agency standpoint, some counties, and local municipalities (e.g., the Town of Carrboro) require certain ephemeral channel protections. As a result, ephemeral channels were identified and buffered accordingly in this assessment. (Tables 1-2; Appendix A: Figures 2A & 2B).

All potential jurisdictional features are located within the Cape Fear River Basin (United States Geological Survey [USGS] Hydrologic Unit Code [HUC] 03030002).

Table 1. Streams in the study area

Stream Name	Map ID	Classification	NCDWR Index Number	Best Usage Classification	River Basin Buffer	Length (ft.)
Unnamed Tributary (UT) to Bolin Creek (Hogan Lake)	S1	Perennial	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	236

Table 1. Streams in the study area (continued)

Stream Name	Map ID	Classification	NCDWR Index Number	Best Usage Classification	River Basin Buffer	Length (ft.)
UT to Bolin Creek (Hogan Lake)	S2	Perennial	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	91
UT to Bolin Creek (Hogan Lake)	E1	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	114
UT to Bolin Creek (Hogan Lake)	E2	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	195
UT to Bolin Creek (Hogan Lake)	E3	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	209
UT to Bolin Creek (Hogan Lake)	E4	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	37
UT to Bolin Creek (Hogan Lake)	E5	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	168
UT to Bolin Creek (Hogan Lake)	E6	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	21
UT to Bolin Creek (Hogan Lake)	E7	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	157
UT to Bolin Creek (Hogan Lake)	E8	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	187
UT to Bolin Creek (Hogan Lake)	E9	Ephemeral	16-41-1-15-1-(0.5)	WS-V;NSW	Subject	14
					Total	1,429

Table 2. Characteristics of wetlands in the study area

Map ID	NCWAM Classification	Forested	Hydrologic Classification	404/401 or 401	Area (ac.) in Study Area
W1	Headwater Forest	Yes	Riparian	404/401	0.03
				Total	0.03

No potential surface waters (ponds, basins, or lakes) were identified within the study area.

Riparian Buffers

The study area is located within the Jordan Lake Watershed (Cape Fear River basin). As such, Jordan Lake buffer rules apply to any stream depicted on USGS 7.5 Minute Topographic Quadrangle mapping, as well as any streams depicted on the 1977 Orange County Soil Survey Map. Streams S1 and S2 are depicted; therefore, buffer rules apply to these streams. In addition to state-regulated buffers, the Town of Carrboro enforces municipal, stream-specific, buffer regulations, which take precedent over the state. Perennial streams located outside of the University Lake watershed receive a 50' Zone 1 buffer (50' from the stream top-of-bank) and a 50' Zone 2 buffer (50' from the end of zone 1 extending perpendicularly away from the stream). Ephemeral channels receive a 15' Zone 2 buffer, which extends perpendicularly off the channel top-of-bank (Appendix A: Figures 2A & 2B).

Federally Listed Species

Table 3. Endangered Species Act (ESA) Federally Listed Species within the study area

Scientific Name	Common Name	Federal Status[1]	Habitat Present	Biological Conclusion[2]
Perimyotis subflavus	Tricolored Bat	PE	Yes	MANLAA
Myotis septentrionalis	Northern Long-eared Bat	E	Yes	MANLAA
Fusconaia masoni	Atlantic Pigtoe	T	Yes	Unresolved

Note: - Unites States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website checked on May 10, 2024.

[1] E – Endangered; PE – Proposed Endangered; T – Threatened

[2] MANLAA – May Affect Not Likely to Adversely Affect

Tricolored Bat (TCB)

USFWS Optimal Survey Window: May 15 – August 15 (Structure Checks)

Biological Conclusion: **May Affect, Not Likely to Adversely Affect**

The USFWS published its proposal to list TCB as Endangered on September 14, 2022 (87 Federal Register [FR] 56381–56393). TCBs primarily roost during the non-hibernating seasons (Spring, Summer, Fall) in live and dead leaf clusters of live or recently dead deciduous hardwood trees. TCBs have also been observed roosting during summer among pine needles, eastern red cedar (*Juniperus virginiana*), within artificial roosts like barns, beneath porch roofs, bridges, concrete bunkers, and rarely within caves. During the winter, TCBs utilize caves and mines; although, in the southern United States, where caves are sparse, TCBs often hibernate in road-associated culverts, as well as sometimes in tree cavities and abandoned water wells.

There were no structures (abandoned buildings or large culverts/bridges) present that were suitable for TCB use. Forested areas for roosting and foraging were identified within the study area during the site visit.

Due to the presence of trees within the study area, suitable habitat for summer roosting, foraging, and commuting habitat cannot be ruled out.

If tree-clearing activities occur prior to the official listing of the species, then no restrictions on tree clearing will be required. After listing, the USFWS may require conservation measures to minimize potential take of TCB, such as:

- Tree clearing recommended from February 16 – My 14 or July 16 – December 14 to minimize impacts to roosting TCBs.
- No percussive activities during the bat maternity season (May 15 - August 15).

A review of the North Carolina Natural Heritage Program (NCNHP) Spring (April) 2024 dataset indicates no known TCB Element Occurrences (EO) within a mile of the study area.

Due to the presence of forested habitat in the study area, if recommended conservation measures are followed for the species (once it is listed), the anticipated Biological Conclusion for TCB for this project is **May Affect, Not Likely to Adversely Affect**. If, for any reason, impacts to streams or wetlands within the study area become unavoidable, surveys for this species may become warranted and the USFWS should be notified to determine a survey resolution.

Northern Long-eared Bat (NLEB)

USFWS Optimal Survey Window: May 15 – August 15 (Structure Checks)

Biological Conclusion: **May Affect, Not Likely to Adversely Affect**

There were no structures (abandoned buildings or large culverts/bridges) present that were suitable for NLEB use. Forested areas for roosting and foraging were identified within the study area during the site visit. Due to the presence of trees within the study area, suitable habitat for summer roosting, foraging, and commuting habitat cannot be ruled out.

If tree-clearing activities occur prior to the official listing of the species, then no restrictions on tree clearing will be required. After listing, the USFWS may require conservation measures to minimize potential take of NLEB bat, such as:

- Tree clearing recommended from February 16 – My 14 or July 16 – December 14 to minimize impacts to roosting NLEB.
- No percussive activities during the bat maternity season (May 15 - August 15).

A review of the NCNHP Spring (April) 2024 dataset indicates no known NLEB EOs within a mile of the study area.

Due to the presence of forested habitat in the study area, if recommended conservation measures are followed for the species (once it is listed), the anticipated Biological Conclusion for NLEB for this project is **May Affect, Not Likely to Adversely Affect**. If, for any reason, impacts to streams or wetlands within the study area become unavoidable, surveys for this species may become warranted and the USFWS should be notified to determine a survey resolution.

Atlantic Pigtoe

USFWS Optimal Survey Window: year-round (only warm days in winter)

Biological Conclusion: **Unresolved**

Suitable habitat for Atlantic Pigtoe is present within the study area in Streams S1 and S2. If, for any reason, impacts to streams or wetlands within the study area become unavoidable, surveys for this species may become warranted. A review of the NCNHP Spring (April) 2024 quarterly

dataset revealed no known Atlantic Pigtoe EOs within a mile of the study area. Due to the presence of suitable habitat, the Biological Conclusion for this species is **Unresolved**.

Bald Eagle

USFWS Optimal Survey Window: year-round; November-March (optimal to observe birds and nest); February-May (optimal to observe active nesting)

Impact of Project on the Species: Will Not Affect

The Bald and Golden Eagle Protection Act is enforced by the USFWS. Golden eagles do not nest in North Carolina. 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 1.0 mile of open water.

A desktop-GIS assessment of the study area, as well as the area within a 1.0-mile radius of the project limits, was performed on April 1, 2024, using the most recent color aerials. Water bodies large enough or sufficiently open to be considered potential feeding sources were not identified. Since foraging habitat was absent within the review area, a survey of the study area and the area within 660 feet of the project limits was not conducted. Moreover, no nests or individuals were observed during the site visit. A review of the NCNHP Spring (April) 2024 NCNHP dataset revealed no known Bald Egale EOs within 1.0 mile of the study area. Due to the lack of nests, individuals, and known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect this species.

If you have any questions or require additional information, please contact me by email at nathan.howell @threeoaksengineering.com or by phone at (910) 876-3016.

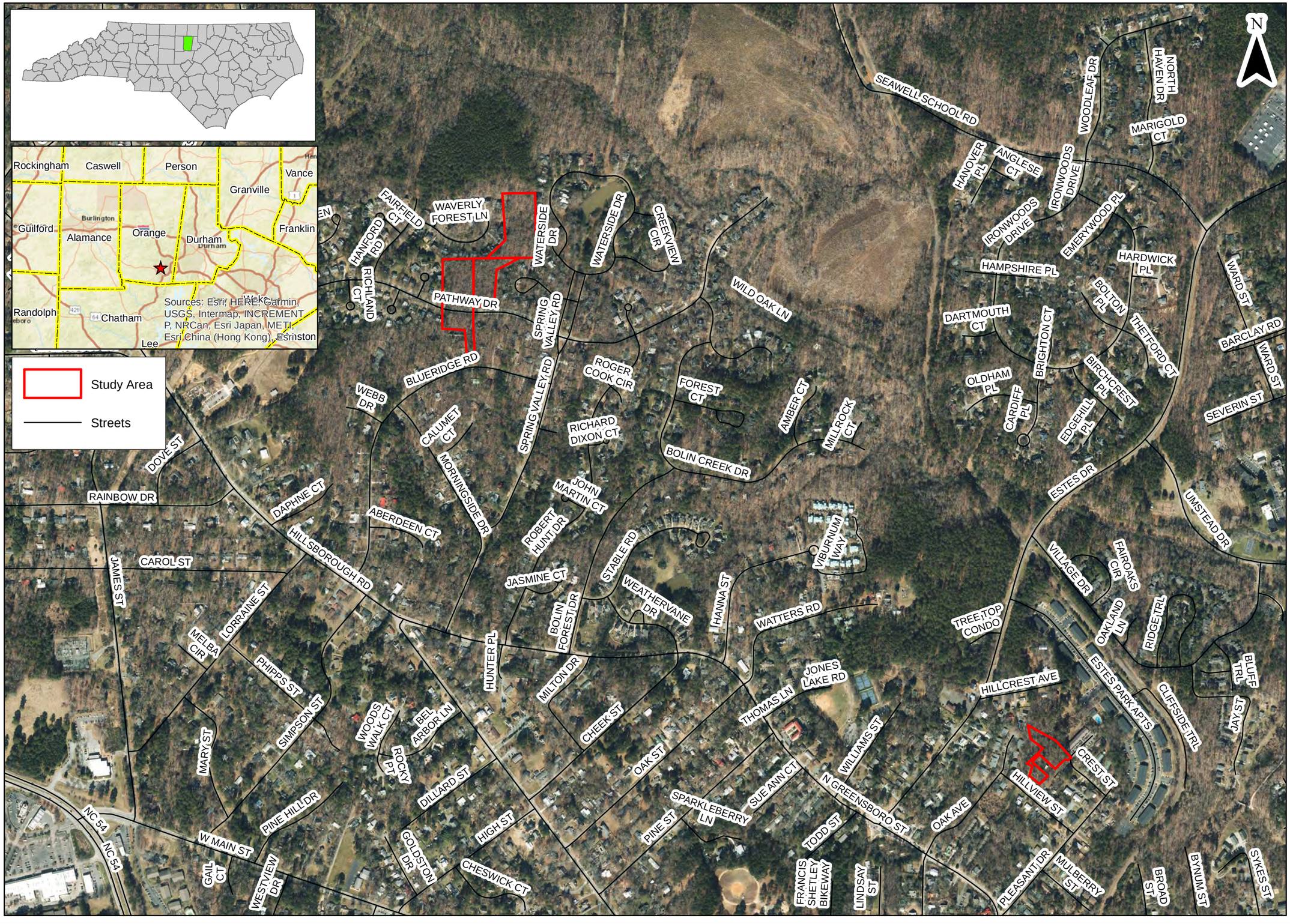
Sincerely,

Nathan Howell

Nathan Howell, PWS
Environmental Scientist/Project Manager
Three Oaks Engineering, Inc.

Appendix A

Figures



THREE OAKS ENGINEERING

Prepared For:

SUMMIT DESIGN AND ENGINEERING SERVICES

Proposed Site Development

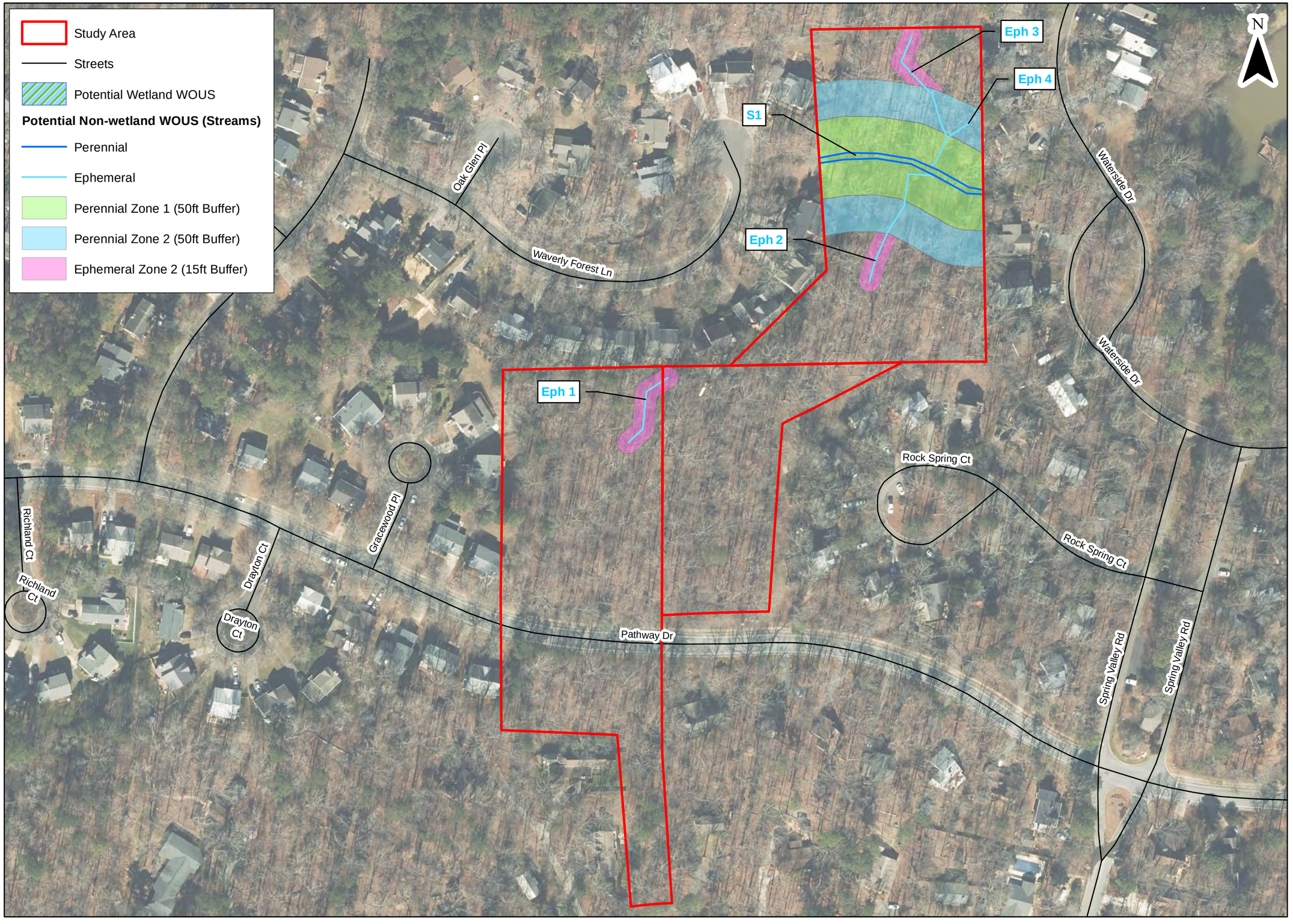
Project Vicinity Map

Orange County North Carolina

Date:	April 2024
Scale:	0 300 600 Ft
Job No.:	24-611
Drawn By:	NDH
Checked By:	JSM

Figure

1



THREE OAKS ENGINEERING

Prepared For:

SUMMIT DESIGN AND ENGINEERING SERVICES

Proposed Site Development

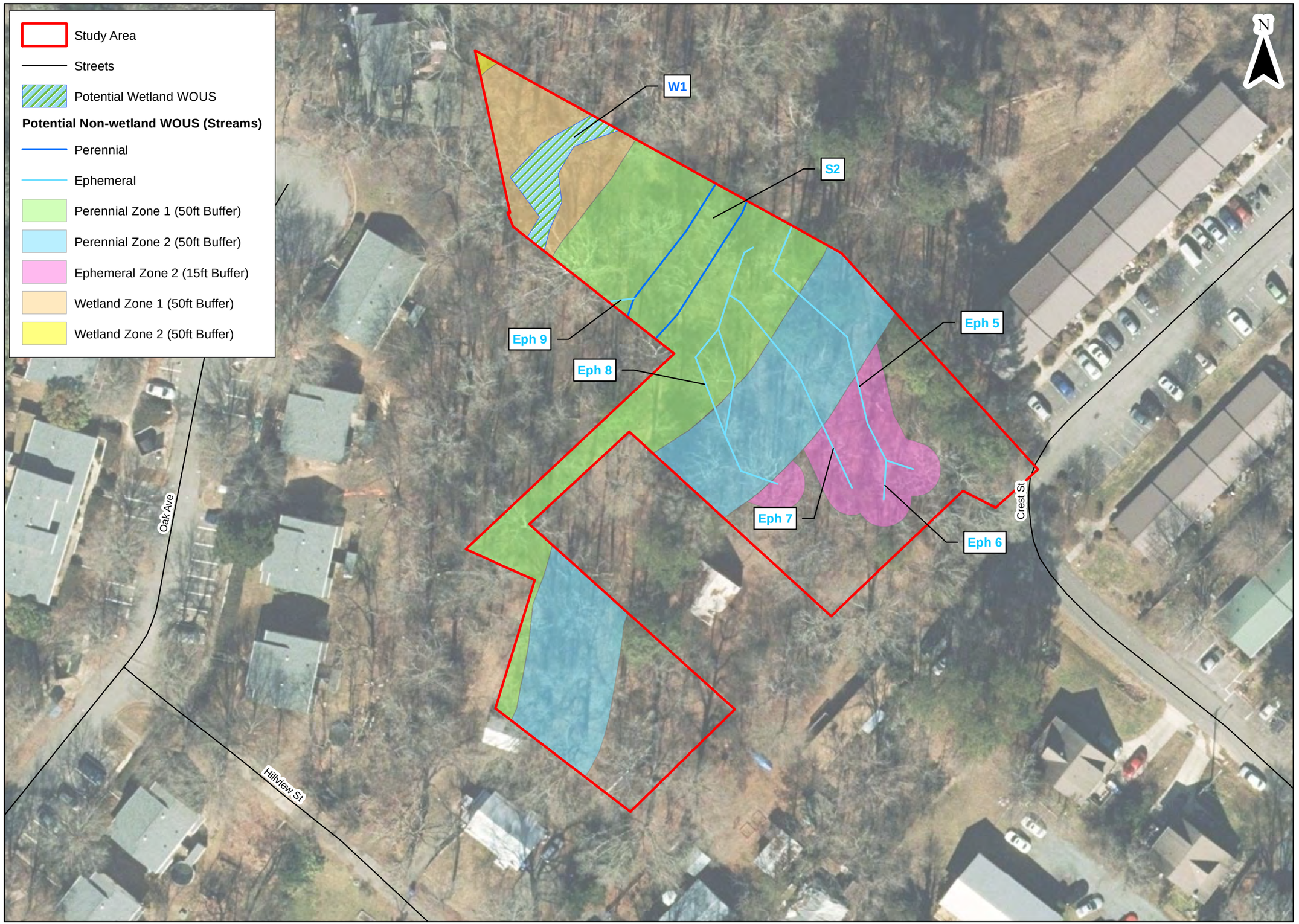
Water Resources Map

Orange County North Carolina

Date:	May 2024
Scale:	0 50 100 Ft
Job No.:	24-611
Drawn By: NDH	Checked By: JSM

Figure

2a



THREE OAKS ENGINEERING

Prepared For:

SUMMIT DESIGN AND ENGINEERING SERVICES

Proposed Site Development

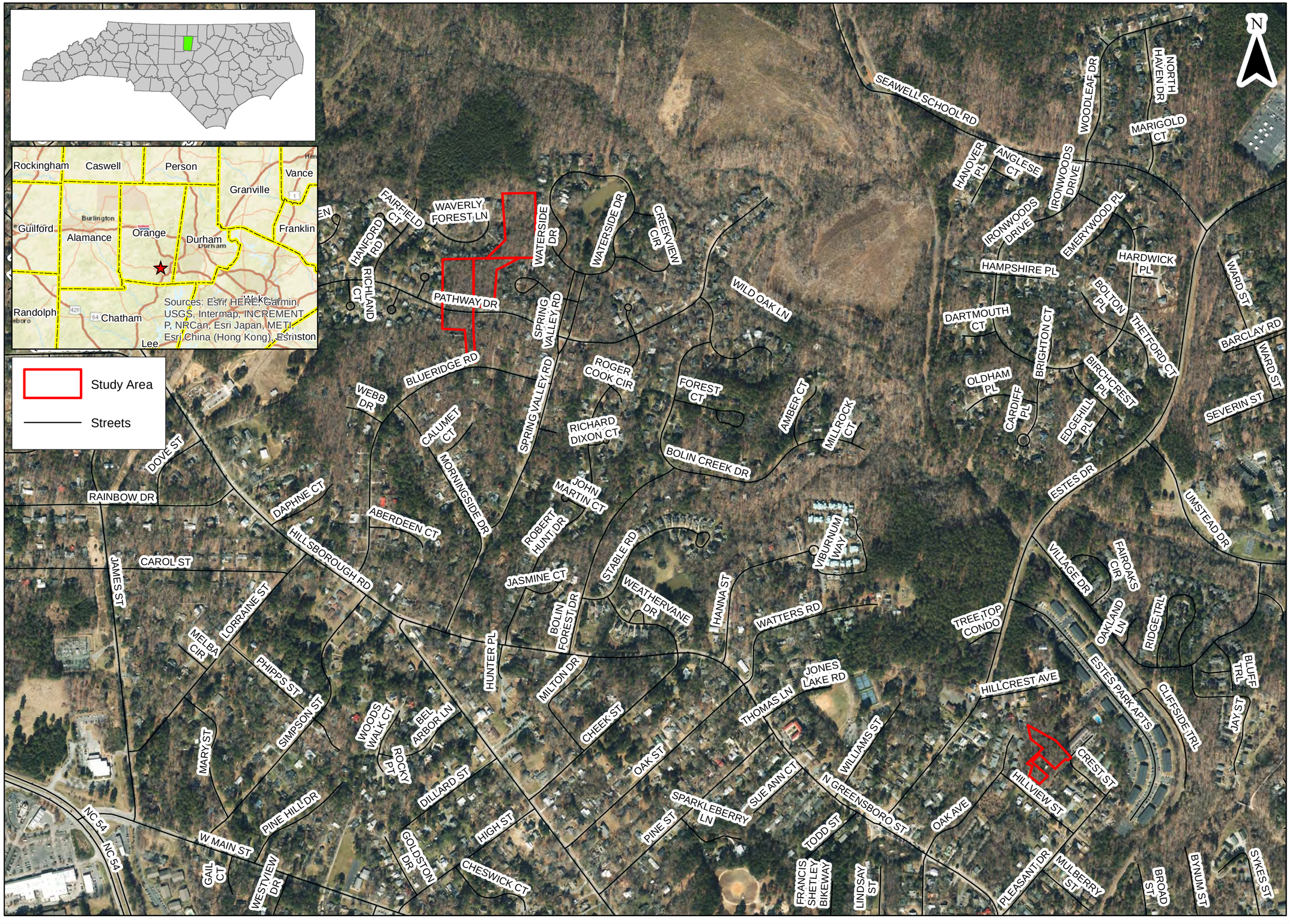
Water Resources Map

Orange County North Carolina

Date:	May 2024
Scale:	0 25 50 Ft
Job No.:	24-611
Drawn By:	NDH
Checked By:	JSM

Figure

2b



THREE OAKS ENGINEERING

Prepared For:

SUMMIT DESIGN AND ENGINEERING SERVICES

Proposed Site Development

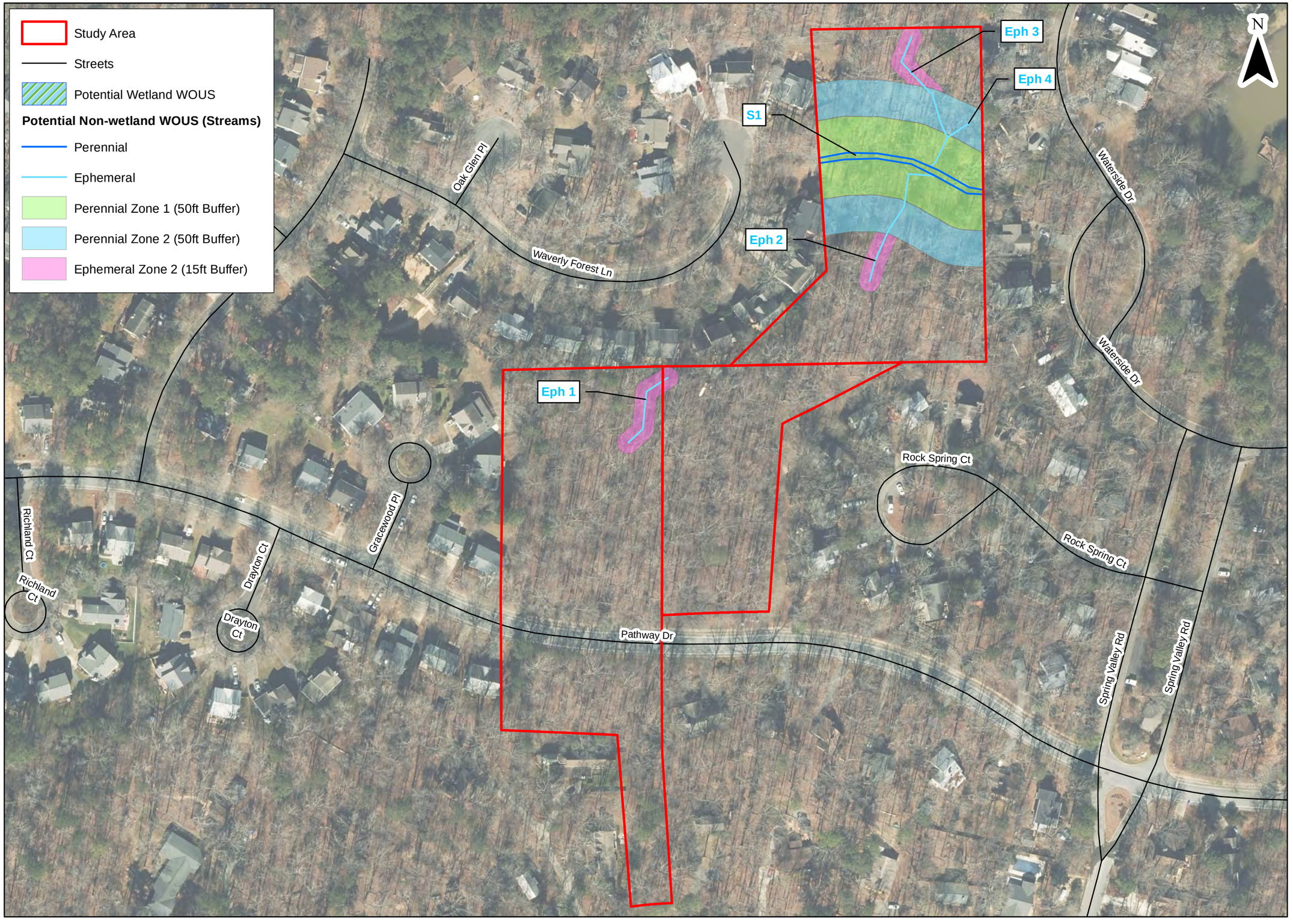
Project Vicinity Map

Orange County North Carolina

Date:	April 2024
Scale:	0 300 600 Ft
Job No.:	24-611
Drawn By:	NDH
Checked By:	JSM

Figure

1



THREE OAKS ENGINEERING

Prepared For:

SUMMIT DESIGN AND ENGINEERING SERVICES

Proposed Site Development

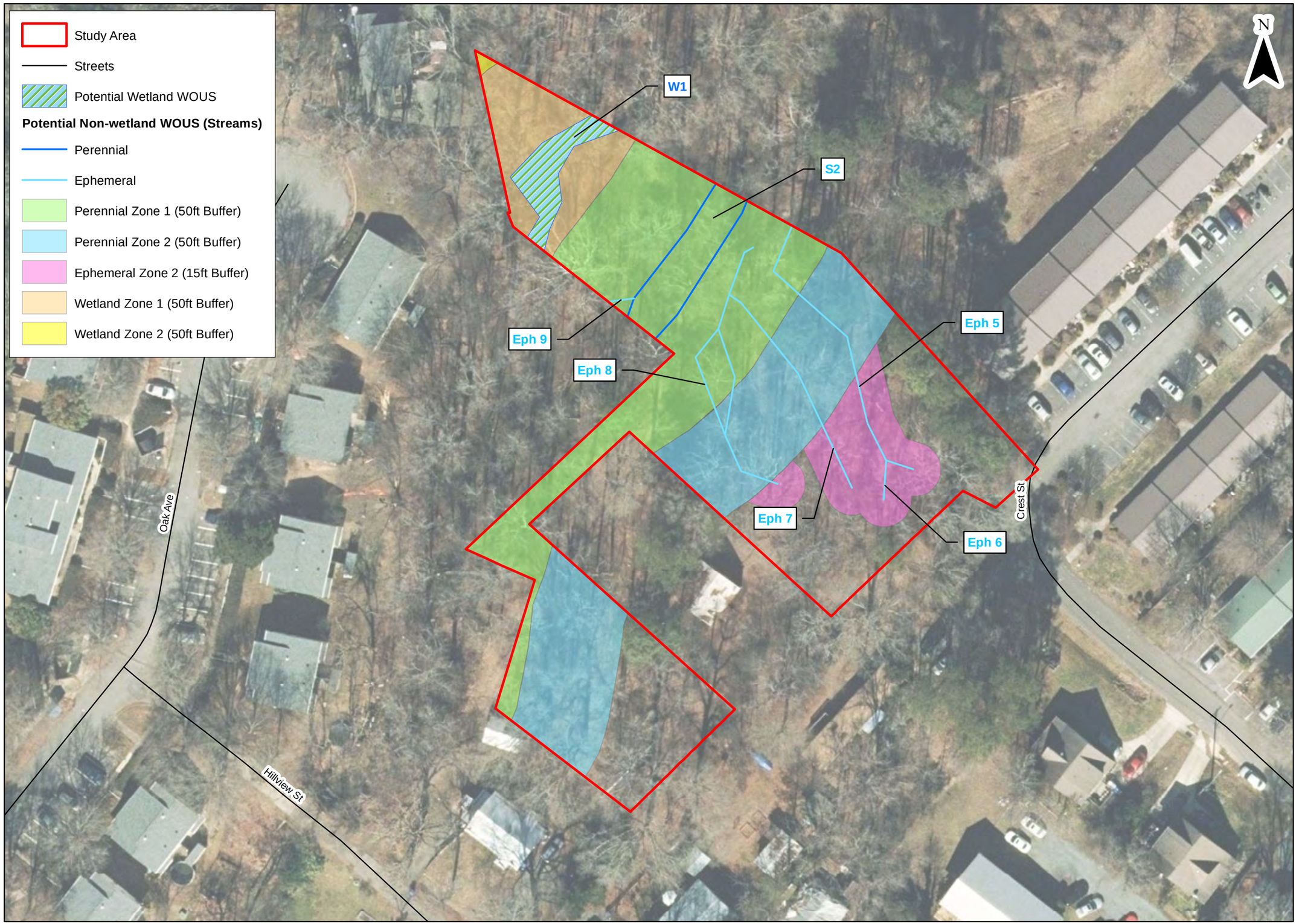
Water Resources Map

Orange County North Carolina

Date:	May 2024
Scale:	0 50 100 Ft
Job No.:	24-611
Drawn By: NDH	Checked By: JSM

Figure

2a



THREE OAKS ENGINEERING

Prepared For:

SUMMIT DESIGN AND ENGINEERING SERVICES

Proposed Site Development

Water Resources Map

Orange County North Carolina

Date:	May 2024
Scale:	0 25 50 Ft
Job No.:	24-611
Drawn By:	NDH
Checked By:	JSM

Figure

2b