WETLANDS EVALUATION – 315-ACRES +/-
BATTLESHIP ROAD SITE
CAMDEN,
SOUTH CAROLINA
EAS PROJECT NO.: 23-5142

Prepared for:
Carlyle Development, LLC
11 Summit Lane
Greenville, DE 19807

Prepared By:
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Report Prepared By: Mr. Trey C. Trickett
Inspection Date: July 19th – 21st, 2023
Report Date: August 2nd, 2023

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August 2nd, 2023

Carlyle Development, LLC
11 Summit Lane
Greenville, DE 19807

Attention: Mr. Stuart Grant
sgratesq@gmail.com
Cell: (302) 528-1200

Reference: Wetland Delineation Report
315-acres +/-, Battleship Road Site
Camden, Kershaw County, South Carolina
TMS #'s 270-00-00-014 (251-acres +/-), a portion of C270-00-00-013
(Approximately 60 of 90-acres +/- total), and C270-15-00-003 (4-acres)
EAS Project No.: EAS 23-5142

Mr. Grant:

EAS Professionals, Inc. (EAS) has performed a field evaluation for potential jurisdictional features under sections 401 and 404 of the federal Clean Water Act (CWA) on an approximately 315-acres (+/-) site consisting of two entire and one partial Kershaw County tax parcels referenced above situated between the city limits of Camden, South Carolina (Appendix A; Figures 1 and 2). The goal of this evaluation was to identify potentially jurisdictional features within the project boundaries so that development plans can minimize and/or avoid impacts to these features.

The subject site was walked and evaluated for potential jurisdictional features also referred to as "waters of the United States". Waters of the United States (WOTUS) include linear features such as perennial streams and rivers as well as adjoining wetlands and open water features. Our investigation identified what we believe to be one (1) perennial stream (2,182 linear feet), three (3) intermittent streams (1,432 linear feet total), five (5) wetland areas (39.9-acres total), and one (1) open water feature (0.37-acre) located within the approximate site boundary.

Note, although we have identified on-site features as likely or potentially jurisdictional, only the US Army Corps of Engineers (USACE) has the authority to officially rule on the jurisdictional status of a feature. EAS recommends coordination with the USACE if any features identified in this report are to be impacted, including the excavated ditches observed on site.

It is important to note that at the time of this report, the USACE has suspended review of jurisdictional determinations that involve possible isolated or adjacent wetlands without direct surface water connections to other jurisdictional waters, such as those fed by precipitation runoff only, until they receive guidance on how to address the recent rulings by the Supreme Court on Sackett vs. Environmental Protection Agency (EPA). Based on desktop review of the wetland areas that continue off site without an onsite connection to a tributary (Wetland 5), and field observations, EAS believes all wetlands within the project area will be considered jurisdictional WOTUS, since evidence suggests Wetland 5 is connected to an unnamed tributary of Bolton Branch south of the site. The excavated ditches on site do not connect two WOTUS and appear to have been created entirely in upland areas. Based on the current guidance, EAS believes these features will be considered non-jurisdictional and we do not anticipate that ruling to change with the future guidance.

Sincerely,

EAS PROFESSIONALS, INC.

Report Prepared By:

Trey C. Trickett
Environmental Project Manager

Report Reviewed By:

J. Ashley Brown, PE
Senior Engineer/Biologist

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1 Site Description

The subject Site is located at 34.257913° N, 80.621750° W in Kershaw County, South Carolina. It is approximately 315 acres in size comprised of three Kershaw County tax parcels [TMS #'s 270-00-00-014 (251-acres +/-), a portion of C270-00-00-013 (Approximately 60 of 90-acres +/- total), and C270-15-00-003 (4-acres)]. Access to the Site is via Battleship Road (Appendix A; Figures 1 and 2).

The Site is depicted on the Rabon Crossroads (2020), and Camden North (2020) U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Appendix A; Figure 1). The Site is in the Atlantic & Gulf Coastal Plain physiographic region and is located within the Wateree subbasin (Hydrologic Unit Code or HUC: 03050104).

The project area consists mainly of equine facilities and their attendant features (Appendix B; Photographs 1 – 3). Both the bottomland and upland wooded areas are mainly mixed, uneven-aged, forested areas (Appendix B; Photographs 4 - 5). The southern boundary and other areas of the project site contain thick bamboo forests (*Phyllostachys* spp.). Species composition in the mixed forested areas consists mostly of overstory species such as various pine species (*Pinus* spp.), oak species (*Quercus* spp.), red maple (*Acer rubrum*) and southern magnolia (*Magnolia grandifolia*). Midstory species in the forested area consisted primarily of red maple, Chinese privet (*Ligustrum sinense*), redbay (*Persea borbonia)*, switch cane (*Arundinaria tecta*).

The topography of the Survey Area ranges from 0 to 10 percent slopes and elevations range from approximately 185 to 260 feet above mean sea level (AMSL). Surface water on the Site flows generally southward or northwestward towards Camp Creek and Bolton Branch or their unnamed tributaries (Appendix A; Figure 1).

Soils in the Survey area consist of loams, sandy loams, loamy sands, or sands with slopes ranging from 0 to 10 percent. Figure 3 shows the soil mapping units that were identified using the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) county soil survey (Appendix A; Figure 3). These soils are described as follows: Alpin sand (ApB and ApC), Norfolk loamy sand (NoB), and Wagram sand (WaB) are considered excessively well drained to moderately well drained and non-hydric. Goldsboro loamy sand (GoA) is considered moderately well drained and predominantly non-hydric with minor hydric components. Rains sandy loam (Ra) and Pantego loam (Pe) are considered somewhat poorly drained to very poorly drained and predominantly hydric (Appendix A; Figure 3).

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) indicates that there are approximately 0.23-acre of riverine wetland area, and 35.97-acres of forested wetland (PFO) area located within the approximate site boundary (Appendix A; Figure 4). The National Hydrography Dataset (NHD) indicates that there are approximately 1,382 linear feet of stream/river features within the approximate site boundary (Appendix A; Figure 4). The NWI and NHD use several sources of data to estimate the extent of these potential streams and wetland areas, but they have not been field verified so these estimates are not conclusive. The USACE relies on field verified data such as that presented in this report to establish limits of jurisdictional features.

According to the latest Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map 45045C effective May 4, 2021, there are approximately 6.89-acres of designated FEMA floodplain areas within the Site boundaries (Appendix A; Figure 5).

2 Methodology

Waters of the U.S., including wetlands, are federally protected under Section 404 of the Clean Water Act (CWA). The definition of a wetland is "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (40 Code of Federal Regulations §120.2).

EAS identified and delineated wetlands and waters of the U.S. at the Site on July 17th and July 18th, 2023. Delineations were performed in accordance with the three-parameter methodology outlined in the 1987 United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (Manual), the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic & Gulf Coastal Plain (Version 2.0), and per the most recent guidance issued jointly by the U.S. Environmental Protection Agency and the USACE that resulted from the Rapanos vs. U.S. and Carabell vs. U.S. Supreme Court decisions. These cases resulted in assigning jurisdictional status to relatively permanent waters (RPWs), wetlands, and waters with “significant nexus” to RPWs (adjacent wetlands). This guidance has since been overturned in a recent Supreme Court decision on Sackett vs. EPA regarding the connectivity between isolated and adjacent wetlands to nearby RPWs; however, updated federal guidance on how to address the ruling has yet to be issued.

The three parameters required for identifying a jurisdictional wetland are as follows:

- The presence of hydrophytic vegetation - Hydrophytic vegetation is determined by the dominant species present at any given data point, where each species is assigned a plant indicator status as to its preference/tolerance for wetland conditions. Data points having dominant species that are greater than 50 percent facultative or wetter are considered to meet the hydrophytic vegetation criterion.

- The presence of hydrology - Each data point is evaluated for evidence of wetland hydrology or persistent saturation or inundation of soils. The Manual identifies both primary and secondary hydrologic indicators, and one primary indicator or two secondary indicators must be observed in order for the sample point to meet the hydrology criterion. Indicators include saturated soils in the upper 12 inches, inundation, water marks, drift lines, sediment deposits, drainage patterns, oxidized root channels in the upper 12 inches, water-stained leaves, local soil survey data, and others.

- The presence of hydric soils - Soil in each sample plot is sampled with a sharpshooter shovel and/or soil auger to a depth of at least 20 inches, or to the B horizon, whichever appears first. The delineator obtains a profile description and identifies hydric soil indicators based on soil texture(s) and soil color(s). Soil textures are determined by manual tactile sampling. Soil colors (in a moist condition) are compared to Munsell Soil-Color charts (2009 Edition, 2015 production year, Munsell Color, Grand Rapids, MI, USA) to determine hue, value, and chroma to determine if hydric characteristics are present.

An area is classified as a wetland only in instances where all three parameters exist under normal circumstances. If one or more criteria are absent, the area is deemed upland. Completed data forms are presented in Appendix C.

Stream flow regimes (Perennial, intermittent, and ephemeral) were determined using the North Carolina Division of Water Quality (NC DWQ) Stream Identification Form Version 4.11, which is considered an industry standard for stream identification in the Southeastern United States (South Carolina does not have a published comparable standard). Completed NC DWQ Stream Identification Forms are presented in Appendix D.

To identify wetlands and waters within the Site, the area was traversed on foot or with the use of a vehicle. Data points were taken within the Site to verify or refute the presence of wetland soils, vegetation, and hydrology. Where wetland areas were confirmed through the three-parameter process, limits of these assumed wetland areas were established by spot checking soils to the perimeter of the wetland to determine where they changed from hydric to non-hydric.

EAS utilized a Trimble TDC600 and Trimble DA2 Global Positioning System (GPS) to obtain coordinates for the wetland data points, wetland boundaries, and waterbody boundaries. This unit is capable of sub-meter accuracy and allows the digital data to be incorporated into drawings for mapping/design purposes.

3 Results

The field-based delineation identified one (1) perennial stream (2,182 linear feet), three (3) intermittent streams (1,432 linear feet total), five (5) wetland areas (39.9-acres total), and one (1) open water feature (0.37-acre) within the approximate site boundary (Appendix A; Figure 6). Findings are presented in Tables 3-1 and 3-2 and are described in the sections below. A photographic log is presented in Appendix B, completed Wetland Determination Data Sheets are presented in Appendix C and completed Stream Identification Forms are presented in Appendix D.

3.1 Wetlands

During the survey, EAS personnel identified what we believe to be five (5) wetland areas (39.9-acres total) within the approximate site boundary (Appendix B; Photographs 6 - 10, Appendix C). Characteristics and descriptions for the wetland area can be found below in Table 3.1.

Table 3.1: Wetlands Identified on Site

Feature	Cowardin Class	Area (Acres)	Hydrologic Indicators	Dominant Vegetation	Soil Indicator	Notes
Wetland 1	PFO1B	9.02	Saturation, water-stained leaves, oxidized rhizospheres on living roots, presence of reduced iron, drainage patterns, moss trim lines, crayfish burrows, geomorphic position, FAC-neutral test	Swamp tupelo (*Nyssa biflora*), sugarberry (*Celtis laevigata*), southern magnolia, netted chain fern (*Woodwardia areolata*), cinnamon fern (*Osmundastrum cinnamomeum*), and false nettle (*Boehmeria cylindrica*)	Depleted Matrix, Redox Depression	Bottomland hardwood wetland area bound by topography that encompasses Non-Wetland Waters A and B. An existing trail (previously placed fill material) bisects the wetland area from north to south near its eastern extent
Wetland 2	PFO1B	1.81	Saturation, drift deposits, sparsely vegetated concave surface, drainage patterns, geomorphic position	Tuliptree (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), Chinese privet, redbay, Japanese stiltgrass (*Microstegium vimineum*), false nettle, and Chinese wisteria (*Wisteria sinensis*)	Stratified layers, 5 cm Mucky mineral, Umbric surface	Bottomland hardwood wetland area encompassing Non-Wetland Water A bound by topography to the south and the property boundary to the north.
Wetland 3	PFO1B	1.31	Saturation, water-stained leaves, drainage patterns, crayfish burrows, geomorphic position, FAC-Neutral test	Water oak (*Quercus nigra*), sweetgum, tuliptree, red maple, southern magnolia, longleaf pine (*Pinus palustris*), redbay, slender woodoats (*Chasmanthium laxum*), netted chain fern, common rush (*Juncus effusus*), woodvamp (*Decumaria barbara*), muscadine (*Vitis rotundifolia*)	Umbric surface	Forested wetland area encompassing and drained by Non-Wetland Water C.

Feature	Cowardin Class	Area (Acres)	Hydrologic Indicators	Dominant Vegetation	Soil Indicator	Notes
Wetland 4	PFO1B	1.83	Saturation, water-stained leaves, drainage patterns, crayfish burrows, geomorphic position, FAC-Neutral test	Water oak, sweetgum, tuliptree, red maple (*Acer rubrum*), southern magnolia, longleaf pine (*Pinus palustris*), redbay, slender woodoats (*Chasmanthium laxum*), netted chain fern, common rush (*Juncus effusus*), woodvamp (*Decumaria barbara*), muscadine (*Vitis rotundifolia*)	Umbric surface	Forested wetland area encompassing and drained by Non-Wetland Water E.
Wetland 5	PFO1B	25.42	Saturation, crayfish burrows, geomorphic position, FAC-neutral test	Tuliptree, redmaple, southern magnolia, redbay, cinnamon fern, netted chain fern, yellow jessamine (*Gelsemium sempervirens*)	Sandy redox	Forested wetland area encompassing majority of the southwestern quadrant of the site. Surface waters flow southward towards a culvert underneath the southern-adjacent railway.
Total	-	39.39	-	-	-	-

Based on their ecological settings, all wetland areas listed in Table 3.1 above will likely be considered jurisdictional (Appendix A; Figure 6). Wetland 1 and Wetland 5 have previously installed trails/roads through their boundaries. Impacts to these areas will likely not be included in impact assessments during any future permitting activities.

3.2 Non-Wetland Waterbodies

During the survey, EAS identified one (1) perennial stream (2,182 linear feet), three (3) intermittent streams (1,432 linear feet total), and one (1) open water feature (0.37-acre) within the approximate site boundary (Appendix A; Figures 6a and 6b, Appendix B; Photographs 11 - 15, Appendix D). Characteristics and descriptions of the stream on Site can be found in Table 3.2 below.

Table 3.2: Non-Wetland Waterbodies Identified on Site

Feature	Cowardin Class	Area (Acres)	Length (Linear Feet)	Average Ordinary High Water (OHW) Mark Width (Feet)	Notes
Non-Wetland Water A	R5UB	0.247	2,182	5	An unnamed perennial tributary that enters the project area near the northwestern corner of the project site from the outfall of an off-site pond to the west. Flows underneath Carter Street and parallels the northern boundary
Non-Wetland Water B	R4SB4	0.045	448	5	An unnamed intermittent tributary that originates at a headcut within Wetland 1 and flows southeastward towards its confluence with Non-Wetland Water A
Non-Wetland Water C	R4SB4	0.047	418	5	An unnamed intermittent tributary that enters the project area from a culvert underneath Chestnut Street flowing southward before discharging into Non-Wetland Water D.
Non-Wetland Water D	PUBHx	0.37	-	-	An excavated freshwater pond (Open Water Feature) in-line with Non-Wetland Waters C and E and Wetlands 3 and 4.
Non-Wetland Water E	R4SB4	0.064	566	5	An unnamed intermittent tributary that originates at the outfall of Non-Wetland Water D flowing southward towards a culvert underneath the adjacent railway
Totals	-	Streams: 0.403 Open Water: 0.37	Streams: 3,614	-	-

Based on their ecological setting, the waterbodies listed in Table 3.2 will be considered jurisdictional (Appendix A; Figure 6).

3.3 Potentially Non-Jurisdictional Features

EAS identified three features that appear to have been excavated to drain surface waters into Wetland 5. We believe that these ditches have been excavated wholly in and drain only dry land and do not carry relatively permanent flow of water. Based on this description, these features would be considered excluded features (not WOTUS) under the most recent WOTUS definition revision, dated December 30th, 2022.

The features are roughly four feet in width and between two and four feet in depth. Soils at the bottom of the channel do exhibit hydric characteristics and there does appear to be hydrophytic vegetation within the channels (Appendix B; Photographs 16 – 18).

4 Conclusion

EAS identified what we believe to be one (1) perennial stream (2,182 linear feet), three (3) intermittent streams (1,432 linear feet total), five (5) wetland areas (39.9-acres total), and one (1) open water feature (0.37-acre) located within the approximate site boundary. These features are depicted on Figures 6, 6a, and 6b. All streams, wetlands, and open water features identified in this report will likely be considered jurisdictional under the CWA and regulated by the USACE. Further, the jurisdictional status of the excavated ditches on site should also be verified by the USACE if impacts to these features are proposed.

Although these findings were based upon a field survey utilizing USACE-approved protocols, the USACE (Charleston District) must make the official determinations on the presence or absence of jurisdictional wetlands on the Site through the jurisdictional determination process. At the time of this report, the USACE has suspended review of jurisdictional determinations that involve possible isolated, or non-jurisdictional waters until they receive guidance on how to address the recent rulings by the Supreme Court on Sackett vs. EPA; however, since we did not identify isolated or adjacent wetlands without direct surface water connections, we do not anticipate this hold to affect this project.

APPENDIX A:

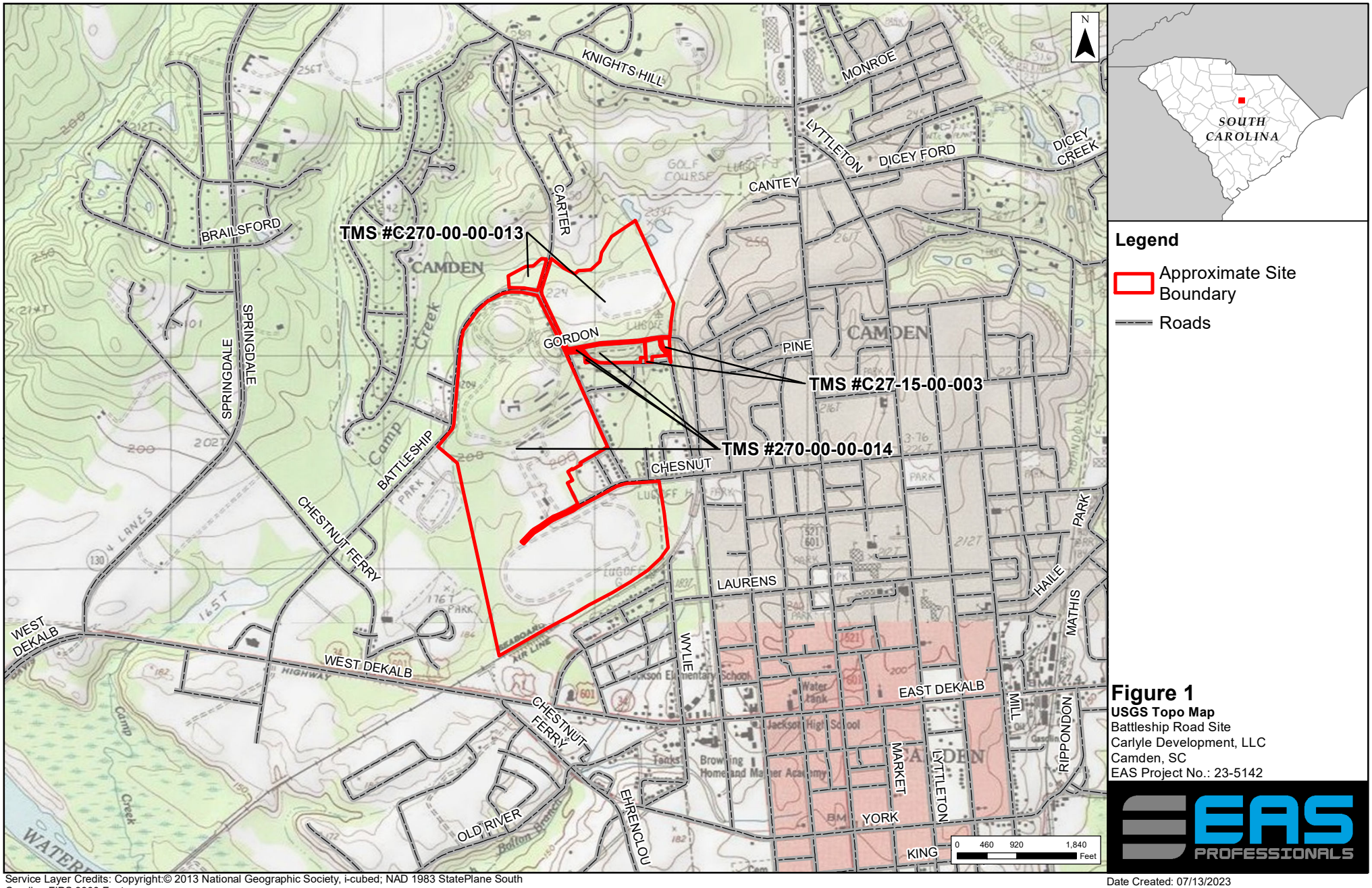

Figure 1
USGS Topo Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed; NAD 1983 StatePlane South Carolina FIPS 3900 Feet

Date Created: 07/13/2023

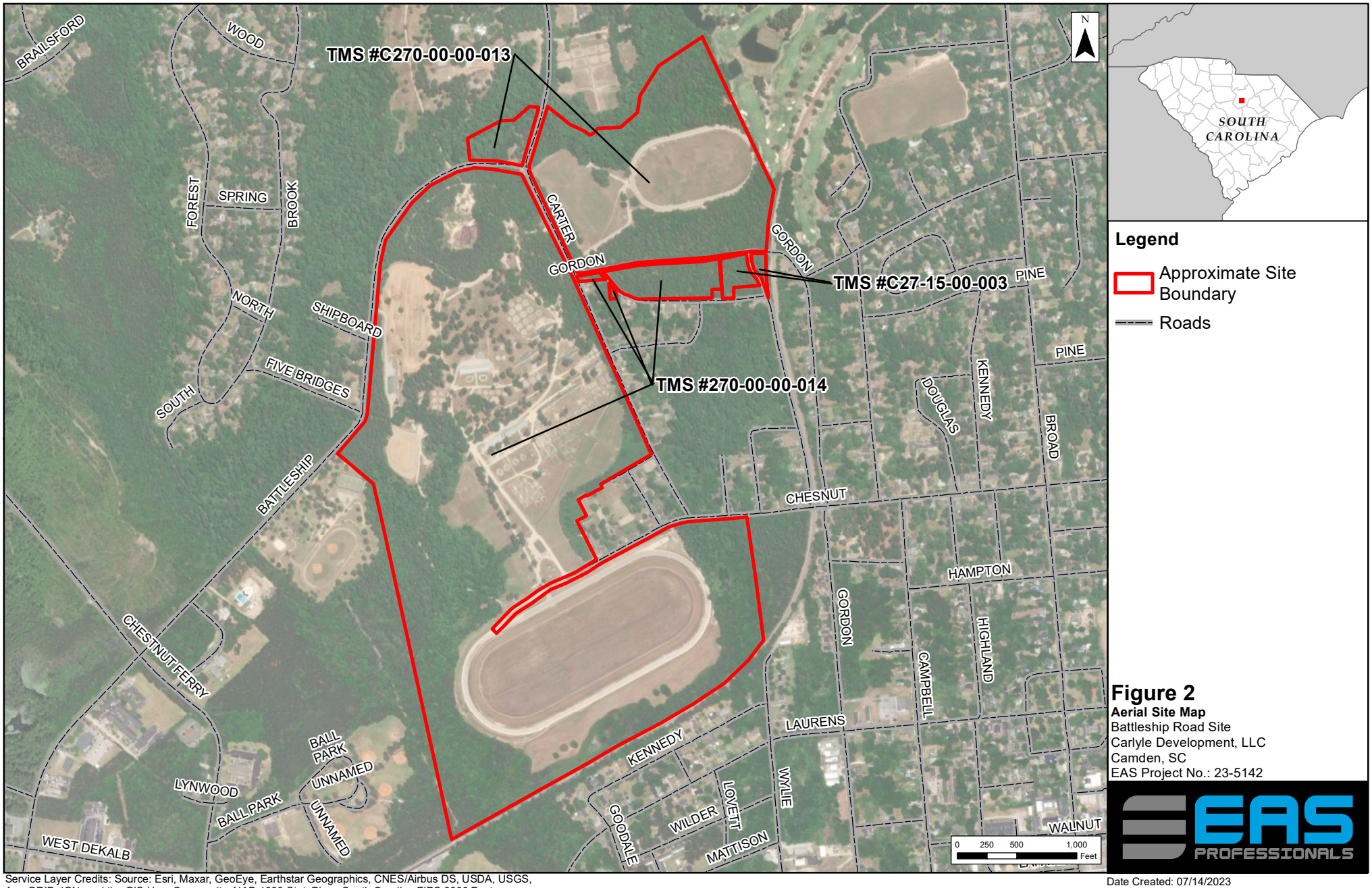

Figure 2
Aerial Site Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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Date Created: 07/14/2023

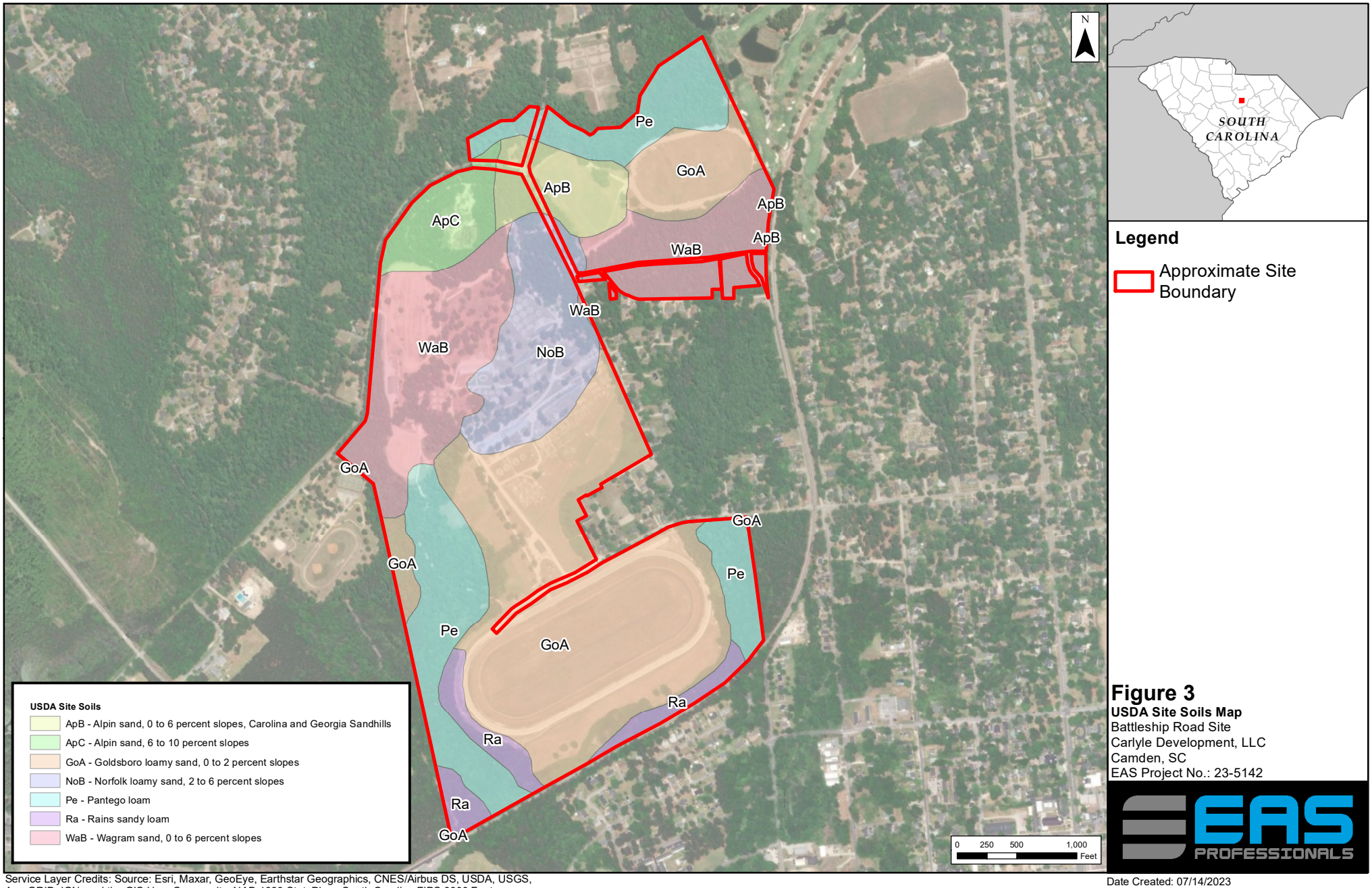

Figure 3
USDA Site Soils Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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Date Created: 07/14/2023
Soils Data Source: USDA WebSoil Survey

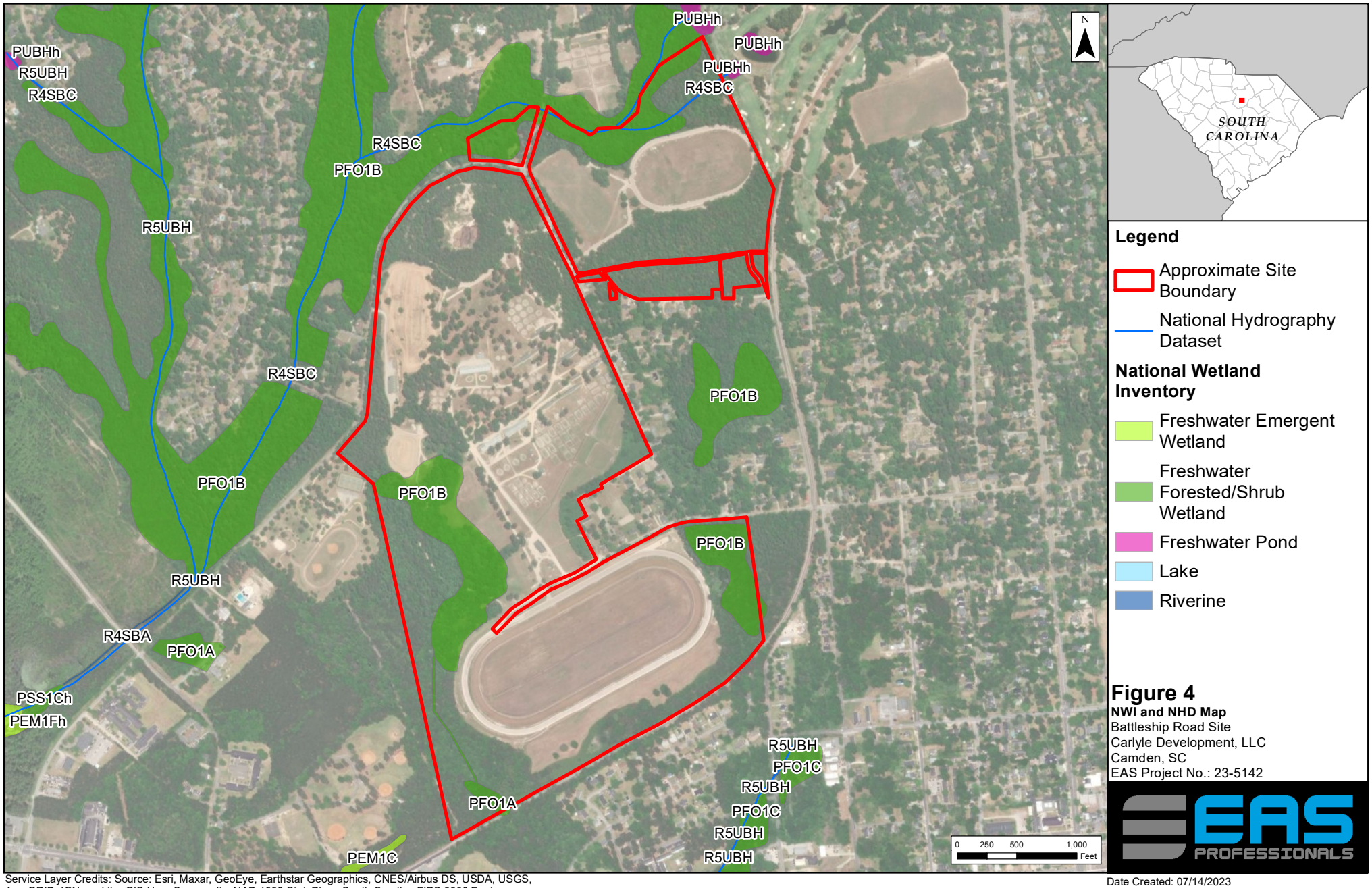

Figure 4
NWI and NHD Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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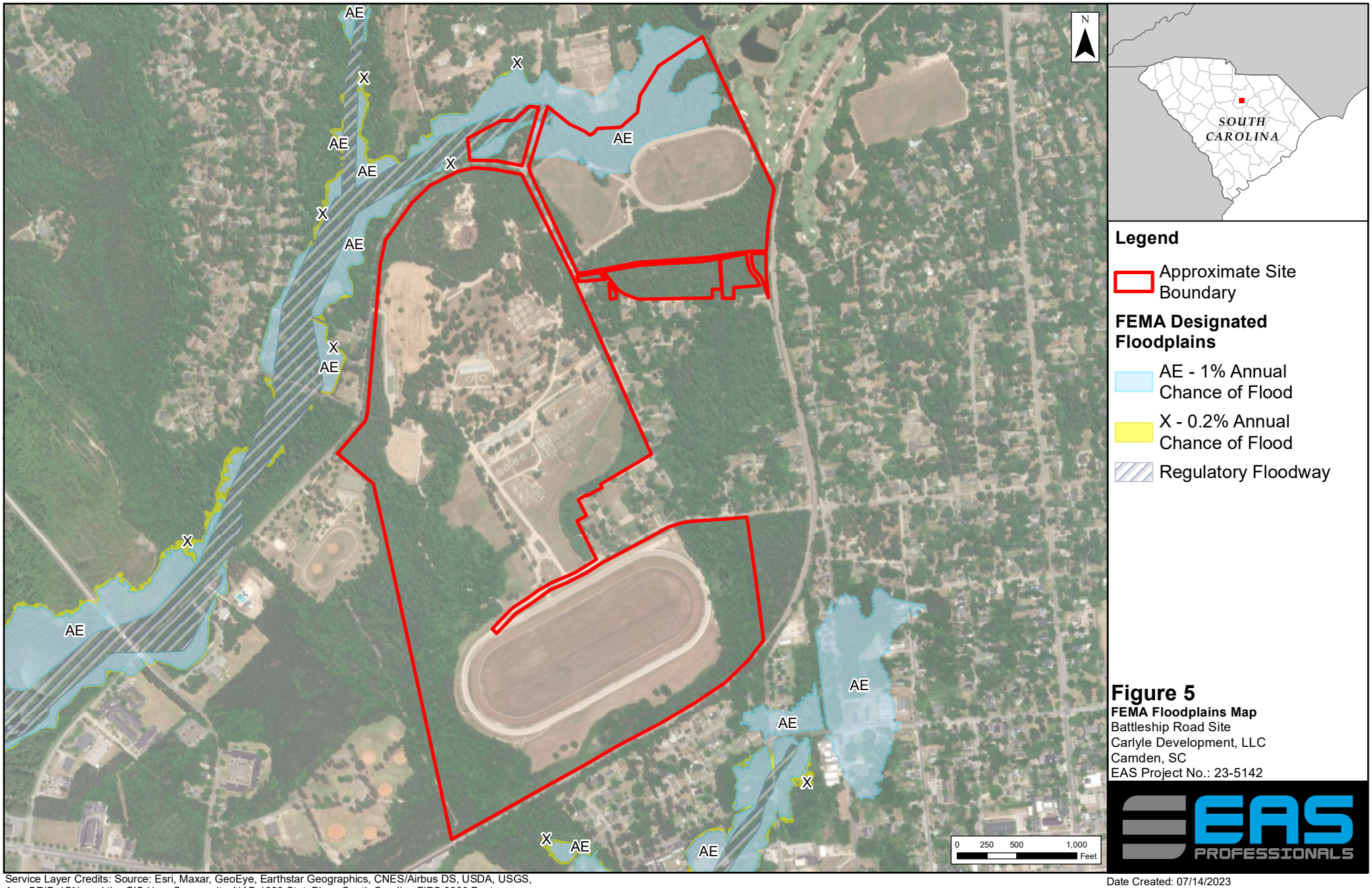

Legend

- Approximate Site Boundary

FEMA Designated Floodplains

- AE - 1% Annual Chance of Flood
- X - 0.2% Annual Chance of Flood
- Regulatory Floodway

Figure 5

FEMA Floodplains Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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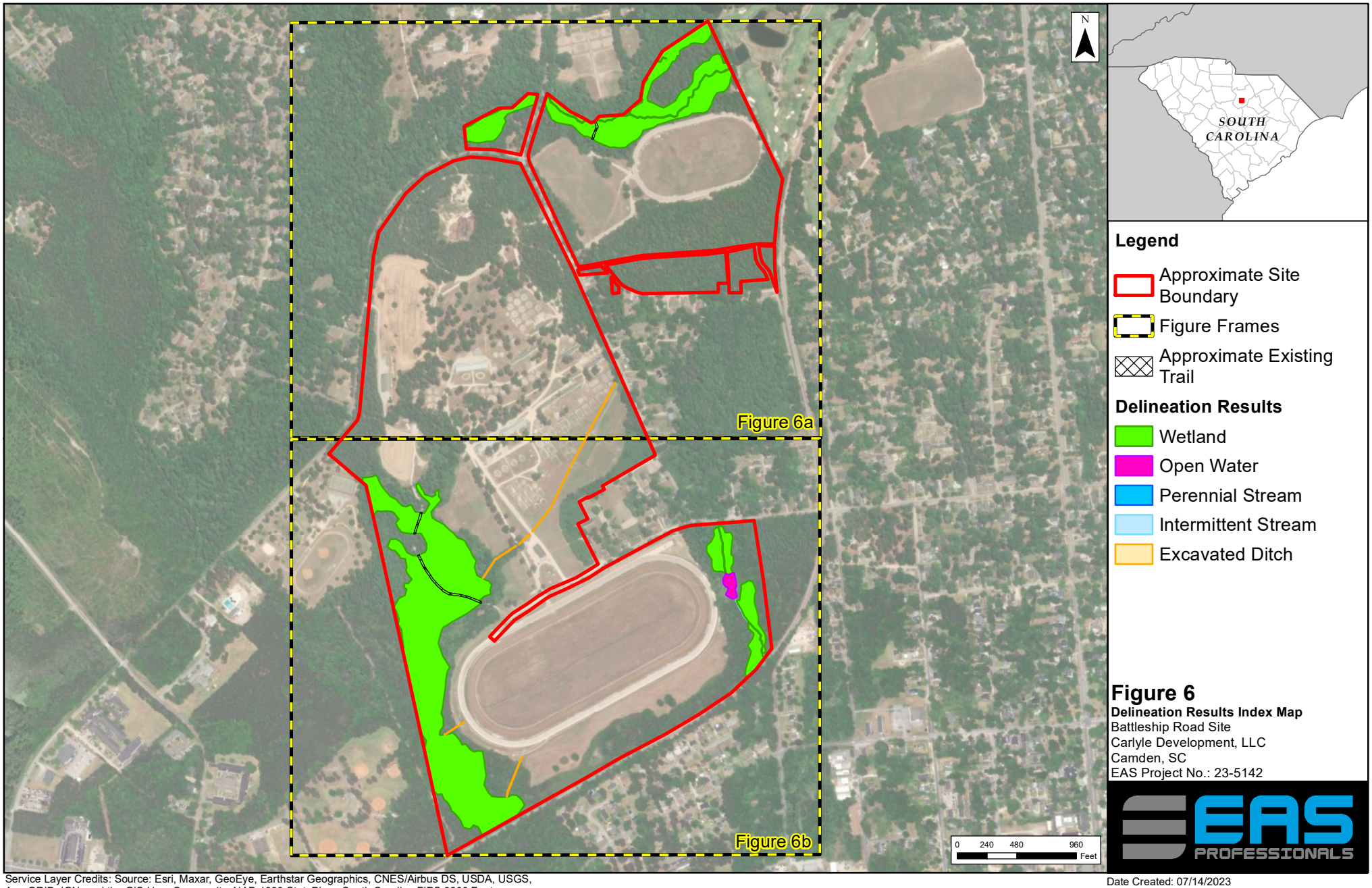

Legend

- Approximate Site Boundary
- Figure Frames
- Approximate Existing Trail

Delineation Results

- Wetland
- Open Water
- Perennial Stream
- Intermittent Stream
- Excavated Ditch

Figure 6

Delineation Results Index Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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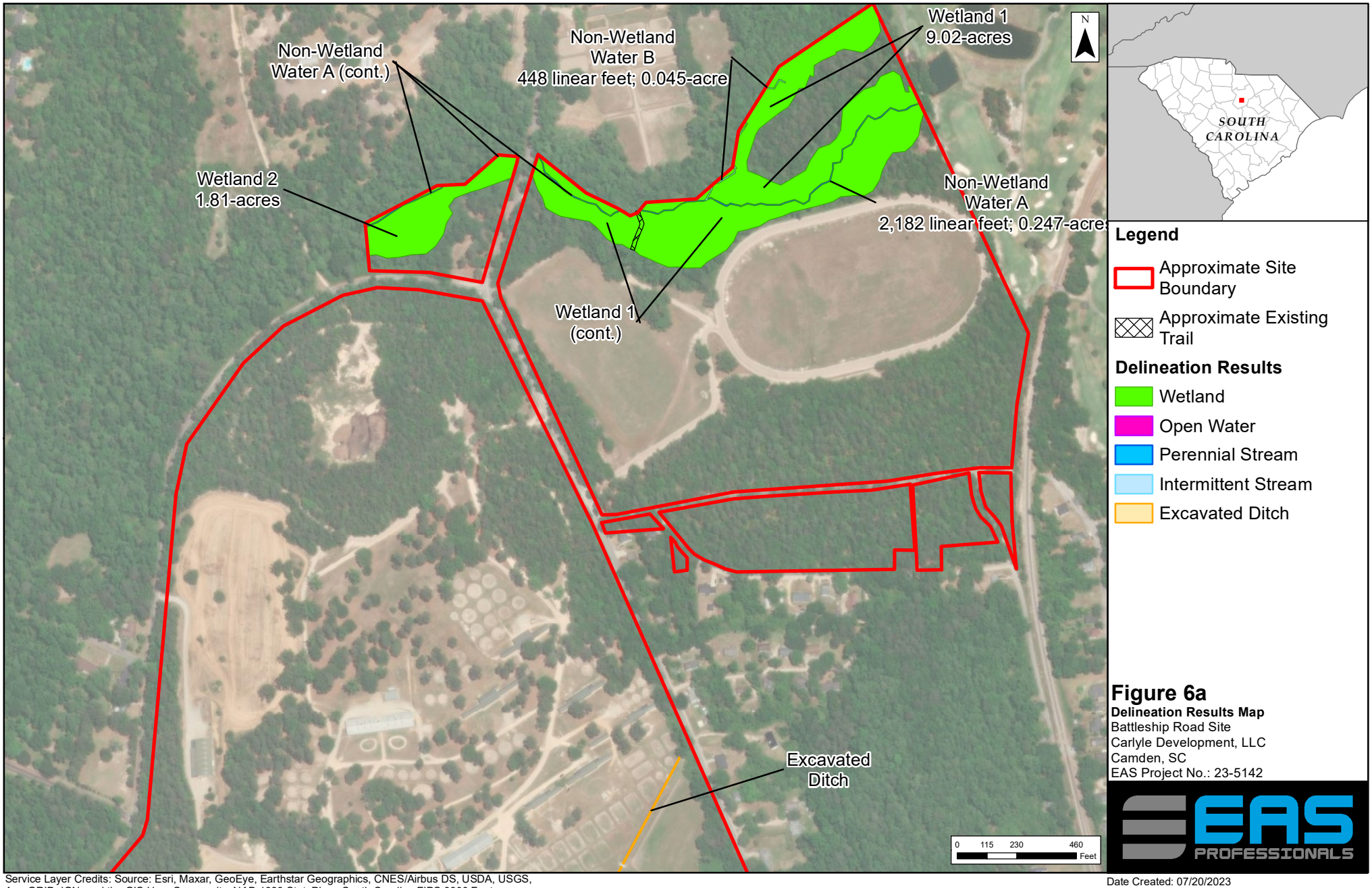

Figure 6a
Delineation Results Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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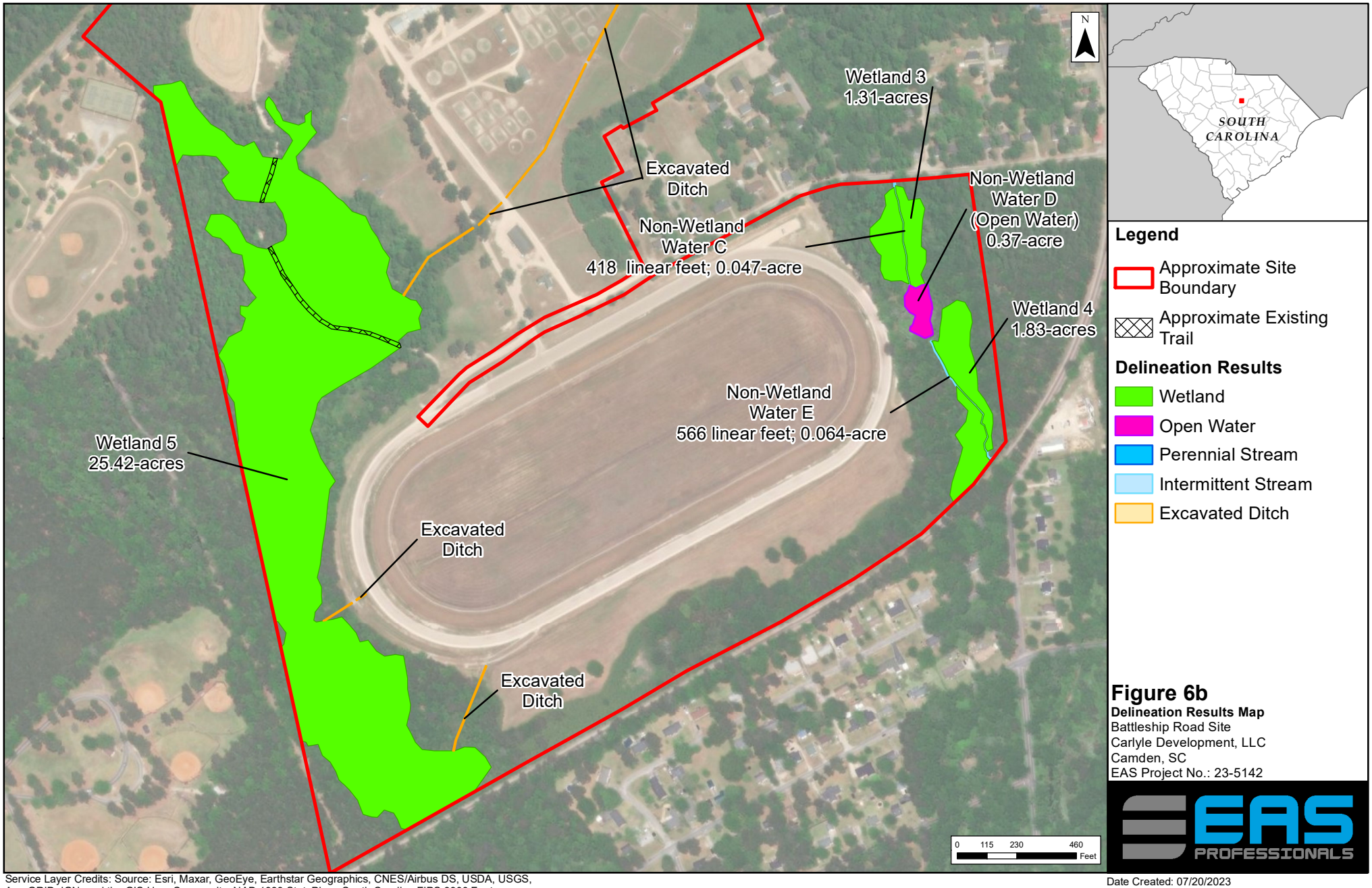

Figure 6b
Delineation Results Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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Date Created: 07/20/2023
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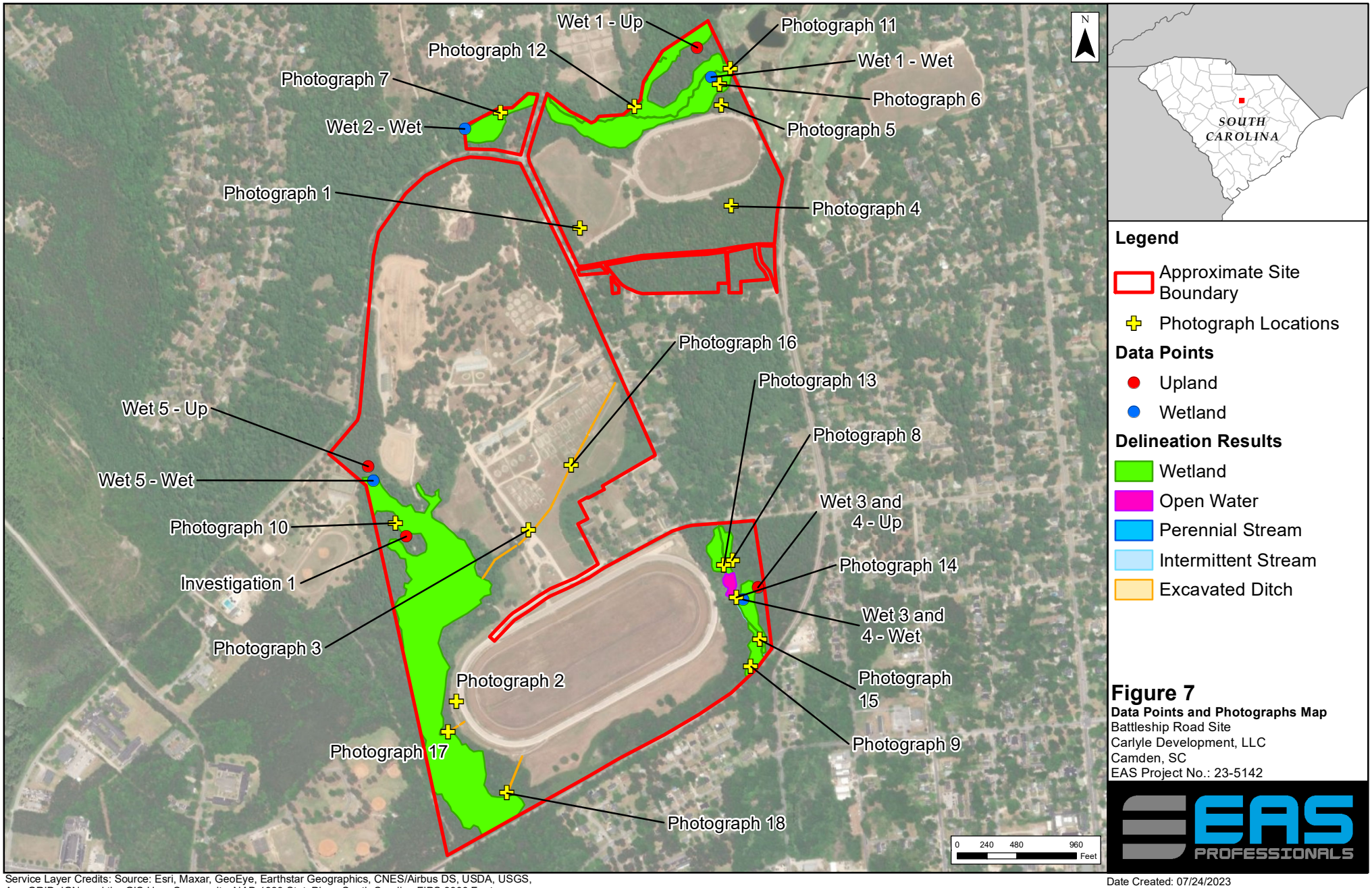

Figure 7
Data Points and Photographs Map
Battleship Road Site
Carlyle Development, LLC
Camden, SC
EAS Project No.: 23-5142

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This depiction contains GPS Data of potential jurisdictional features by EAS Professionals but is not valid until approved by the U.S. Army Corps of Engineers

Date Created: 07/24/2023
GPS Data Collected: 7/19/2023 - 7/21/2023
EAS Professionals, Inc.

APPENDIX B:

PHOTOGRAPHIC LOG

Photograph 1: A northeastern facing photograph of the equine facilities in the northwest parcel.

Photograph 2: An eastern facing photograph of the equine facilities in the southern portion of the site.

Photograph 3: A northwestern facing photograph of the equine facilities in the middle portion of the site.

Photograph 4: A representative photograph of the mixed uneven-aged upland forested areas facing south.

Photograph 5: A representative photograph of the bottomland hardwood forested area facing north.

Photograph 6: A representative photograph of Wetland 1 facing north.

Photograph 7: A representative photograph Wetland 2 on either side of Non-Wetland Water A facing west.

Photograph 8: A representative photograph of Wetland 3 facing west.

Photograph 9: A representative photograph of Wetland 4 facing northwest.

Photograph 10: A representative photograph of Wetland 5 facing east.

Photograph 11: A representative photograph of Non-Wetland Water A facing northeast.

Photograph 12: A representative photograph of Non-Wetland Water B facing northeast.

Photograph 13: A representative photograph of Non-Wetland Water C facing north.

Photograph 14: A representative photograph of Non-Wetland Water D facing north.

Photograph 15: A representative photograph of Non-Wetland Water E facing northwest.

Photograph 16: A representative photograph an excavated ditch facing northeast.

Photograph 17: A representative photograph an excavated ditch outside of Wetland 5 facing east.

Photograph 18: A representative photograph of an excavated ditch outside of Wetland 5 facing northeast.

APPENDIX C:

WETLAND DETERMINATION DATA FORMS

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 7/17/2023

Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 1 - Up

Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 2-6

Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.266518 Long: -80.617889 Datum: NAD 83

Soil Map Unit Name: Pe - Pantego loam NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 1 - Up

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda*	60	Yes	FAC
2. *Magnolia grandiflora*	60	Yes	FAC
3. *Liquidambar styraciflua*	40	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	160	=Total Cover	
50% of total cover: 80	20% of total cover: 32		
Sapling/Shrub Stratum (Plot size: 30)			
1. *Persea borbonia*	10	Yes	FACW
2. *Ligustrum lucidum*	10	Yes	FAC
3. *Quercus nigra*	5	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	25	=Total Cover	
50% of total cover: 13	20% of total cover: 5		
Herb Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30)			
1. *Vitis rotundifolia*	20	Yes	FAC
2.			
3.			
4.			
5.			
	20	=Total Cover	
50% of total cover: 10	20% of total cover: 4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 1 - Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Sandy	
3-20	10YR 5/4	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 7/17/2023
Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 1 - Wet
Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:
Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-2
Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.265869 Long: -80.617519 Datum: NAD 83
Soil Map Unit Name: Pe - Pantego Loam NWI classification: R4SBC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 1 - Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nyssa biflora*	30	Yes	OBL
2. *Celtis laevigata*	30	Yes	FACW
3. *Magnolia grandiflora*	30	Yes	FAC
4. *Liriodendron tulipifera*	25	No	FACU
5. *Acer negundo*	25	No	FAC
6.			
7.			
8.			
	140	=Total Cover	
50% of total cover: 70		20% of total cover: 28	
Sapling/Shrub Stratum (Plot size: 30)			
1. *Ligustrum sinense*	60	Yes	FAC
2. *Prunus caroliniana*	20	Yes	FACU
3. *Elaeagnus pungens*	10	No	UPL
4.			
5.			
6.			
7.			
8.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover: 18	
Herb Stratum (Plot size: 30)			
1. *Woodwardia areolata*	30	Yes	OBL
2. *Osmundastrum cinnamomeum*	15	Yes	FACW
3. *Boehmeria cylindrica*	15	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover: 12	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 1 - Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	95	7.5YR 5/8	5	C	PL	Loamy/Clayey	Prominent redox concentrations
6-20	10YR 5/1	95	5Y 3/1	5	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

The presence of a reduced matrix within 12" of the soil surface indicates that this soil is hydric based on the hydric soil definition: "a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part".

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date:

Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 2 - Wet

Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:

Landform (hillside, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.264745 Long: -80.624080 Datum: NAD 83

Soil Map Unit Name: Pe - Pantego loam NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- X Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15) **(LRR U)**
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 2 - Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	40	Yes	FACU
2. *Liquidambar styraciflua*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 =Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 30)			
1. *Ligustrum sinense*	80	Yes	FAC
2. *Persea borbonia*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	100 =Total Cover		
50% of total cover: 50	20% of total cover: 20		
Herb Stratum (Plot size: 30)			
1. *Microstegium vimineum*	40	Yes	FAC
2. *Boehmeria cylindrica*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 =Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30)			
1. *Wisteria sinensis*	80	Yes	UPL
2.			
3.			
4.			
5.			
	80 =Total Cover		
50% of total cover: 40	20% of total cover: 16		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 2 - Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Loamy/Clayey	
3-20	10YR 2/1	100					Mucky Loam/Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- _X_ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- _X_ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- _X_ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- _Z_ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _X_ **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 07/18/2023
Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 3 and 4 - Up
Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:
Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2-6
Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.254594 Long: -80.616330 Datum: NAD 83
Soil Map Unit Name: Pe - Pantego loam NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 3 and 4 - Up

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	30	Yes	FAC
2. *Quercus nigra*	30	Yes	FAC
3. *Magnolia grandiflora*	30	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover:	18
Sapling/Shrub Stratum (Plot size: 30)			
1. *Ligustrum sinense*	20	Yes	FAC
2. *Magnolia grandiflora*	20	Yes	FAC
3. *Callicarpa americana*	20	Yes	FACU
4. *Ilex vomitoria*	10	No	FAC
5.			
6.			
7.			
8.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover:	14
Herb Stratum (Plot size: 30)			
1. *Rubus argutus*	15	Yes	FAC
2. *Parthenocissus quinquefolia*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	=Total Cover	
50% of total cover: 13		20% of total cover:	5
Woody Vine Stratum (Plot size: 30)			
1. *Vitis rotundifolia*	10	Yes	FAC
2. *Gelsemium sempervirens*	10	Yes	FAC
3.			
4.			
5.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover:	4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 3 and 4 - Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Sandy	
3-20	10YR 4/2	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 07/18/2023
Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 3 and 4 - Wet
Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:
Landform (hillside, terrace, etc.): Bottomland Local relief (concave, convex, none): concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.254330 Long: -80.616723 Datum: NAD 83
Soil Map Unit Name: Pe - Pantego loam NWI classification: NAD 83
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 3 and 4 - Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus nigra*	30	Yes	FAC
2. *Liquidambar styraciflua*	30	Yes	FAC
3. *Liriodendron tulipifera*	30	Yes	FACU
4. *Acer rubrum*	30	Yes	FAC
5. *Magnolia grandiflora*	15	No	FAC
6.			
7.			
8.			
	135	=Total Cover	
50% of total cover: 68	20% of total cover: 27		
Sapling/Shrub Stratum (Plot size: 30)			
1. *Magnolia grandiflora*	20	Yes	FAC
2. *Pinus palustris*	15	Yes	FAC
3. *Persea borbonia*	15	Yes	FACW
4. *Nyssa biflora*	5	No	OBL
5.			
6.			
7.			
8.			
	55	=Total Cover	
50% of total cover: 28	20% of total cover: 11		
Herb Stratum (Plot size: 30)			
1. *Chasmanthium laxum*	40	Yes	FACW
2. *Woodwardia areolata*	15	Yes	OBL
3. *Juncus effusus*	15	Yes	OBL
4. *Rhexia virginica*	10	No	FACW
5. *Microstegium vimineum*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30)			
1. *Decumaria barbara*	10	Yes	FACW
2. *Vitis rotundifolia*	10	Yes	FAC
3.			
4.			
5.			
	20	=Total Cover	
50% of total cover: 10	20% of total cover: 4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 91.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 3 and 4 - Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- X Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 07/18/2023

Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 5 - Up

Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:

Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 2-6

Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.257299 Long: -80.626682 Datum: NAD 83

Soil Map Unit Name: GoA - Goldsboro loamy sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 5 - Up

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus nigra*	30	Yes	FAC
2. *Liquidambar styraciflua*	30	Yes	FAC
3. *Pinus taeda*	20	Yes	FAC
4. *Magnolia grandiflora*	15	No	FAC
5.			
6.			
7.			
8.			
	95	=Total Cover	
50% of total cover: 48		20% of total cover:	19
Sapling/Shrub Stratum (Plot size: 30)			
1. *Ilex opaca*	30	Yes	FAC
2. *Magnolia grandiflora*	30	Yes	FAC
3. *Quercus nigra*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	75	=Total Cover	
50% of total cover: 38		20% of total cover:	15
Herb Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Woody Vine Stratum (Plot size: 30)			
1. *Smilax rotundifolia*	20	Yes	FAC
2. *Gelsemium sempervirens*	20	Yes	FAC
3. *Vitis rotundifolia*	20	Yes	FAC
4.			
5.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover:	12

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)
Prevalence Index = B/A =		

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 5 - Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/3	100					Sandy	
3-20	10YR 6/3	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 07/18/2023
Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Wet 5 - Wet
Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:
Landform (hillside, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 2-6
Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.256983 Long: -80.626549 Datum: NAD 83
Soil Map Unit Name: GoA - Goldsboro loamy sand NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Wet 5 - Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	60	Yes	FACU
2. *Acer rubrum*	40	Yes	FAC
3. *Magnolia grandiflora*	40	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	140	=Total Cover	
50% of total cover: 70		20% of total cover:	28
Sapling/Shrub Stratum (Plot size: 30)			
1. *Acer rubrum*	30	Yes	FAC
2. *Persea borbonia*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	50	=Total Cover	
50% of total cover: 25		20% of total cover:	10
Herb Stratum (Plot size: 30)			
1. *Osmundastrum cinnamomeum*	40	Yes	FACW
2. *Woodwardia areolata*	20	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover:	12
Woody Vine Stratum (Plot size: 30)			
1. *Gelsemium sempervirens*	20	Yes	FAC
2.			
3.			
4.			
5.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover:	4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)
Prevalence Index = B/A =		

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Wet 5 - Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/3	100					Loamy/Clayey	
1-14	10YR 2/2	95	10YR 5/8	5	C	PL	Sandy	Prominent redox concentrations
14-20	10YR 4/1	80	10YR 2/1	20	C	M	Sandy	Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Battleship Road Site City/County: Kershaw County Sampling Date: 07/18/2023
Applicant/Owner: Carlyle Development, LLC State: SC Sampling Point: Investigation 1
Investigator(s): EAS Professionals, Inc. - TCT Section, Township, Range:
Landform (hillside, terrace, etc.): bottomland hardwood Local relief (concave, convex, none): convex Slope (%): 0-2
Subregion (LRR or MLRA): LRR P, MLRA 137 Lat: 34.255753 Long: -80.625671 Datum: NAD 83
Soil Map Unit Name: Pe - Pantego loam NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Investigation 1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Magnolia grandiflora*	40	Yes	FAC
2. *Quercus nigra*	30	Yes	FAC
3. *Liquidambar styraciflua*	15	No	FAC
4. *Pinus taeda*	15	No	FAC
5.			
6.			
7.			
8.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover:	20
Sapling/Shrub Stratum (Plot size: 30)			
1. *Callicarpa americana*	15	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15	=Total Cover	
50% of total cover: 8		20% of total cover:	3
Herb Stratum (Plot size: 30)			
1. *Microstegium vimineum*	10	Yes	FAC
2. *Asplenium platyneuron*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15	=Total Cover	
50% of total cover: 8		20% of total cover:	3
Woody Vine Stratum (Plot size: 30)			
1. *Vitis rotundifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover:	2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	120	x 3 =	360
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	140 (A)		440 (B)
Prevalence Index = B/A =			3.14

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Investigation 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Sandy	
3-20	10YR 5/6	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

APPENDIX D:

NC DWQ STREAM IDENTIFICATION FORMS

NC DWQ Stream Identification Form Version 4.11

Date: 7/17/2023	**Project/Site:** Battleship Road Site	**Latitude:** 34.265219°
Evaluator: TCT - EAS Professionals	**County:** Kershaw County, SC	**Longitude:** -80.620037°
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 42	**Stream Determination (circle one)** **Perennial**	**Other** *e.g. Quad Name*: Non-Wetland Water A

A. Geomorphology (Subtotal = 20.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0 ○	1 ○	2 ◉	3 ○
2. Sinuosity of channel along thalweg	0 ○	1 ○	2 ○	3 ◉
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0 ○	1 ◉	2 ○	3 ○
4. Particle size of stream substrate	0 ○	1 ○	2 ◉	3 ○
5. Active/relict floodplain	0 ○	1 ○	2 ○	3 ◉
6. Depositional bars or benches	0 ○	1 ◉	2 ○	3 ○
7. Recent alluvial deposits	0 ○	1 ○	2 ◉	3 ○
8. Headcuts	0 ○	1 ◉	2 ○	3 ○
9. Grade control	0 ○	0.5 ○	1 ◉	1.5 ○
10. Natural valley	0 ○	0.5 ○	1 ○	1.5 ◉
11. Second or greater order channel	No = 0 ○		Yes = 3 ◉	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0 ○	1 ○	2 ○	3 ◉
13. Iron oxidizing bacteria	0 ◉	1 ○	2 ○	3 ○
14. Leaf litter	1.5 ○	1 ◉	0.5 ○	0 ○
15. Sediment on plants or debris	0 ○	0.5 ◉	1 ○	1.5 ○
16. Organic debris lines or piles	0 ○	0.5 ○	1 ◉	1.5 ○
17. Soil-based evidence of high water table?	No = 0 ○		Yes = 3 ◉	

C. Biology (Subtotal = 13)				
18. Fibrous roots in streambed	3 ○	2 ◉	1 ○	0 ○
19. Rooted upland plants in streambed	3 ◉	2 ○	1 ○	0 ○
20. Macrobenthos (note diversity and abundance)	0 ○	1 ○	2 ◉	3 ○
21. Aquatic Mollusks	0 ◉	1 ○	2 ○	3 ○
22. Fish	0 ○	0.5 ○	1 ◉	1.5 ○
23. Crayfish	0 ○	0.5 ○	1 ◉	1.5 ○
24. Amphibians	0 ○	0.5 ○	1 ◉	1.5 ○
25. Algae	0 ○	0.5 ○	1 ○	1.5 ◉
26. Wetland plants in streambed	FACW = 0.75 ○	OBL = 1.5 ◉	Other = 0 ○	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Lizards Tail and broadleaf arrowhead in channel

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 7/17/2023	**Project/Site:** Battleship Road Site	**Latitude:** 34.265665°
Evaluator: TCT - EAS Professionals	**County:** Kershaw County, SC	**Longitude:** -80.619274°
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 25.5	**Stream Determination (circle one)** **Intermittent**	**Other** *e.g. Quad Name*: Non-Wetland Water B

A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0 ○	1 ◉	2 ○	3 ○
2. Sinuosity of channel along thalweg	0 ○	1 ○	2 ◉	3 ○
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0 ◉	1 ○	2 ○	3 ○
4. Particle size of stream substrate	0 ○	1 ◉	2 ○	3 ○
5. Active/relict floodplain	0 ○	1 ○	2 ○	3 ◉
6. Depositional bars or benches	0 ◉	1 ○	2 ○	3 ○
7. Recent alluvial deposits	0 ○	1 ◉	2 ○	3 ○
8. Headcuts	0 ○	1 ○	2 ◉	3 ○
9. Grade control	0 ◉	0.5 ○	1 ○	1.5 ○
10. Natural valley	0 ○	0.5 ○	1 ◉	1.5 ○
11. Second or greater order channel	No = 0 ◉		Yes = 3 ○	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 6.5)				
12. Presence of Baseflow	0 ○	1 ◉	2 ○	3 ○
13. Iron oxidizing bacteria	0 ◉	1 ○	2 ○	3 ○
14. Leaf litter	1.5 ○	1 ○	0.5 ◉	0 ○
15. Sediment on plants or debris	0 ○	0.5 ◉	1 ○	1.5 ○
16. Organic debris lines or piles	0 ○	0.5 ○	1 ○	1.5 ◉
17. Soil-based evidence of high water table?	No = 0 ○		Yes = 3 ◉	

C. Biology (Subtotal = 8)				
18. Fibrous roots in streambed	3 ○	2 ◉	1 ○	0 ○
19. Rooted upland plants in streambed	3 ◉	2 ○	1 ○	0 ○
20. Macrobenthos (note diversity and abundance)	0 ○	1 ◉	2 ○	3 ○
21. Aquatic Mollusks	0 ◉	1 ○	2 ○	3 ○
22. Fish	0 ◉	0.5 ○	1 ○	1.5 ○
23. Crayfish	0 ○	0.5 ○	1 ◉	1.5 ○
24. Amphibians	0 ○	0.5 ○	1 ◉	1.5 ○
25. Algae	0 ◉	0.5 ○	1 ○	1.5 ○
26. Wetland plants in streambed	FACW = 0.75 ○	OBL = 1.5 ○	Other = 0 ○	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 7/18/2023	**Project/Site:** Battleship Road Site	**Latitude:** 34.255463°
Evaluator: TCT - EAS Professionals	**County:** Kershaw County, SC	**Longitude:** -80.617272°
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21.5	**Stream Determination (circle one)** **Intermittent**	**Other** *e.g. Quad Name*: Non-Wetland Water C

A. Geomorphology (Subtotal = 8)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0 ○	1 ○	2 ◉	3 ○
2. Sinuosity of channel along thalweg	0 ○	1 ◉	2 ○	3 ○
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0 ◉	1 ○	2 ○	3 ○
4. Particle size of stream substrate	0 ○	1 ◉	2 ○	3 ○
5. Active/relict floodplain	0 ○	1 ◉	2 ○	3 ○
6. Depositional bars or benches	0 ○	1 ◉	2 ○	3 ○
7. Recent alluvial deposits	0 ◉	1 ○	2 ○	3 ○
8. Headcuts	0 ○	1 ◉	2 ○	3 ○
9. Grade control	0 ○	0.5 ◉	1 ○	1.5 ○
10. Natural valley	0 ○	0.5 ◉	1 ○	1.5 ○
11. Second or greater order channel	No = 0 ◉		Yes = 3 ○	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5.5)				
12. Presence of Baseflow	0 ◉	1 ○	2 ○	3 ○
13. Iron oxidizing bacteria	0 ◉	1 ○	2 ○	3 ○
14. Leaf litter	1.5 ○	1 ○	0.5 ◉	0 ○
15. Sediment on plants or debris	0 ○	0.5 ◉	1 ○	1.5 ○
16. Organic debris lines or piles	0 ○	0.5 ○	1 ○	1.5 ◉
17. Soil-based evidence of high water table?	No = 0 ○		Yes = 3 ◉	

C. Biology (Subtotal = 8)				
18. Fibrous roots in streambed	3 ○	2 ◉	1 ○	0 ○
19. Rooted upland plants in streambed	3 ◉	2 ○	1 ○	0 ○
20. Macrobenthos (note diversity and abundance)	0 ○	1 ◉	2 ○	3 ○
21. Aquatic Mollusks	0 ◉	1 ○	2 ○	3 ○
22. Fish	0 ◉	0.5 ○	1 ○	1.5 ○
23. Crayfish	0 ○	0.5 ○	1 ◉	1.5 ○
24. Amphibians	0 ○	0.5 ○	1 ◉	1.5 ○
25. Algae	0 ◉	0.5 ○	1 ○	1.5 ○
26. Wetland plants in streambed	FACW = 0.75 ○	OBL = 1.5 ○	Other = 0 ○	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 7/18/2023	**Project/Site:** Battleship Road Site	**Latitude:** 34.253676°
Evaluator: TCT - EAS Professionals	**County:** Kershaw County, SC	**Longitude:** -80.616468°
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21.5	**Stream Determination (circle one)** **Intermittent**	**Other** *e.g. Quad Name*: Non-Wetland Water E

A. Geomorphology (Subtotal = 8)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0 ○	1 ○	2 ◉	3 ○
2. Sinuosity of channel along thalweg	0 ○	1 ◉	2 ○	3 ○
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0 ◉	1 ○	2 ○	3 ○
4. Particle size of stream substrate	0 ○	1 ◉	2 ○	3 ○
5. Active/relict floodplain	0 ○	1 ◉	2 ○	3 ○
6. Depositional bars or benches	0 ○	1 ◉	2 ○	3 ○
7. Recent alluvial deposits	0 ◉	1 ○	2 ○	3 ○
8. Headcuts	0 ○	1 ◉	2 ○	3 ○
9. Grade control	0 ○	0.5 ◉	1 ○	1.5 ○
10. Natural valley	0 ○	0.5 ◉	1 ○	1.5 ○
11. Second or greater order channel	No = 0 ◉		Yes = 3 ○	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5.5)				
12. Presence of Baseflow	0 ◉	1 ○	2 ○	3 ○
13. Iron oxidizing bacteria	0 ◉	1 ○	2 ○	3 ○
14. Leaf litter	1.5 ○	1 ○	0.5 ◉	0 ○
15. Sediment on plants or debris	0 ○	0.5 ◉	1 ○	1.5 ○
16. Organic debris lines or piles	0 ○	0.5 ○	1 ○	1.5 ◉
17. Soil-based evidence of high water table?	No = 0 ○		Yes = 3 ◉	

C. Biology (Subtotal = 8)				
18. Fibrous roots in streambed	3 ○	2 ◉	1 ○	0 ○
19. Rooted upland plants in streambed	3 ◉	2 ○	1 ○	0 ○
20. Macrobenthos (note diversity and abundance)	0 ○	1 ◉	2 ○	3 ○
21. Aquatic Mollusks	0 ◉	1 ○	2 ○	3 ○
22. Fish	0 ◉	0.5 ○	1 ○	1.5 ○
23. Crayfish	0 ○	0.5 ○	1 ◉	1.5 ○
24. Amphibians	0 ○	0.5 ○	1 ◉	1.5 ○
25. Algae	0 ◉	0.5 ○	1 ○	1.5 ○
26. Wetland plants in streambed	FACW = 0.75 ○	OBL = 1.5 ○	Other = 0 ○	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch: