

Electronically Transmitted
U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2021-01647 County: New Hanover U.S.G.S. Quad: NC-Wilmington

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: **Bradley Housing Developers, LLC**
Brad Queener
Address: **P.O. Box 526**
Aynor, SC 29511
E-mail: **brad@bradleydevelopers.com**

Size (acres)	<u>16</u>	Nearest Town	<u>Wilmington</u>
Nearest Waterway	<u>Cape Fear River</u>	River Basin	<u>Cape Fear</u>
USGS HUC	<u>03030005</u>	Coordinates	Latitude: <u>34.196388</u> Longitude: <u>-77.939694</u>

Location description: **The project area is located at 2346 Carolina Beach Road in Wilmington.**

Indicate Which of the Following Apply:

A. Preliminary Determination

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

B. Approved Determination

- There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.
- The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated. We strongly suggest

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you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

- The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on **DATE**. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Brad Shaver at 910-251-4611 or brad.e.shaver@usace.army.mil.**

C. Basis For Determination: Basis For Determination: See the approved jurisdictional determination form dated 08/04/2021.

D. Remarks: *Desktop determination.*

E. Attention USDA Program Participants

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

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

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

US Army Corps of Engineers
South Atlantic Division
Attn: Mr. Philip A. Shannin
Administrative Appeal Review Officer
60 Forsyth Street SW, Floor M9
Atlanta, Georgia 30303-8803
AND
PHILIP.A.SHANNIN@USACE.ARMY.MIL

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In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **10/03/2021**.

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



Digitally signed by Brad
Shaver
Date: 2021.08.04 15:15:23
-04'00'

Corps Regulatory Official: _____

Date of JD: **08/04/2021** Expiration Date of JD: **08/03/2026**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at <https://regulatory.ops.usace.army.mil/customer-service-survey/>.

Copy Furnished(electronic):

Kimley-Horn attn: Mackenzie Richards



Legend

-  Excluded Ditch (b)(5)
-  Excluded Wetland (b)(1)
-  Project Study Area



**U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE**

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 08/04/2021

ORM Number: SAW-2021-01647

Associated JDs: N/A

Review Area Location¹: State/Territory: NC City: Wilmington County/Parish/Borough: New Hanover

Center Coordinates of Review Area: Latitude 34.196388 Longitude -77.939694

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- There are “navigable waters of the United States” within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- There are “waters of the United States” within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).
- There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)²

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A.	N/A.	N/A.	N/A.

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters): ³			
(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A.	N/A.	N/A.	N/A.

Tributaries ((a)(2) waters):			
(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
N/A.	N/A.	N/A.	N/A.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):			
(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A.	N/A.	N/A.	N/A.

¹ Map(s)/figure(s) are attached to the AJD provided to the requestor.

² If the navigable water is not subject to the ebb and flow of the tide or included on the District’s list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.

³ A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.



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Adjacent wetlands ((a)(4) waters):			
(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
N/A.	N/A.	N/A.	N/A.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)): ⁴			
Exclusion Name	Exclusion Size	Exclusion ⁵	Rationale for Exclusion Determination
W1	0.24 acre(s)	(b)(1) Non-adjacent wetland.	Wetland W1 is a low lying, concave depression located in the northeast corner of the project site adjacent to a gravel roadway. Hydrology within wetland W1 was at the surface, with standing/ponded water present throughout the area. No potentially jurisdictional connections were observed flowing from the wetland feature nor was there any signatures on available lidar. Wetland W1 is not adjacent to an (a)(1), (2), or (3) water.
Ditch 1	733 Linear Feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1).	Ditch 1 is a manmade, constructed ditch within uplands. Ditch 1 is not a tributary under (a)(2), was not a tributary under (a)(2) when it was constructed, was not constructed in an adjacent wetland, and does not contribute surface flow to an (a)(1) water in a typical year. According to soils data the ditch was constructed in non-hydric soils, Lynchburg.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

- Information submitted by, or on behalf of, the applicant/consultant: **Title(s) and date(s)**
This information is sufficient for purposes of this AJD.
Rationale: **N/A or describe rationale for insufficiency (including partial insufficiency).**
- Data sheets prepared by the Corps: **Title(s) and/or date(s).**
- Photographs: **Select. Title(s) and/or date(s).**
- Corps site visit(s) conducted on: **Date(s).**
- Previous Jurisdictional Determinations (AJDs or PJDs): **ORM Number(s) and date(s).**
- Antecedent Precipitation Tool: **provide detailed discussion in Section III.B.**
- USDA NRCS Soil Survey: **NHC 1977**

⁴ Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.

⁵ Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.



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- USFWS NWI maps: [Title\(s\) and/or date\(s\)](#).
- USGS topographic maps: [Wilmington](#)

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	Lidar QL2

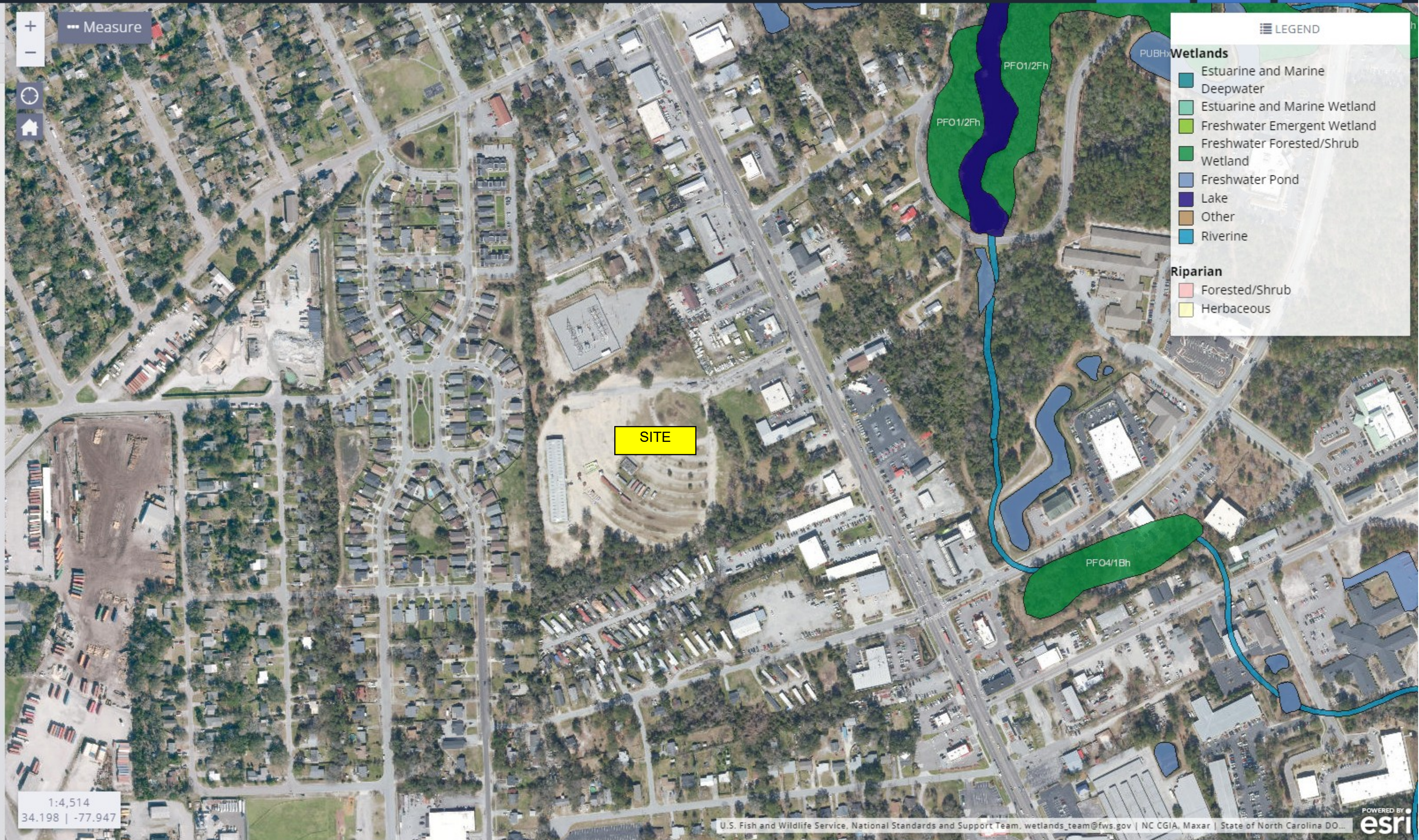
B. Typical year assessment(s): [The results of the Antecedent Precipitation Tool \(APT\) indicate that prior to the day of our detail delineation \(June 19, 2021\), the project study area and its vicinity were experiencing normal conditions.](#)

C. Additional comments to support AJD: [N/A](#)

BASEMAPS >

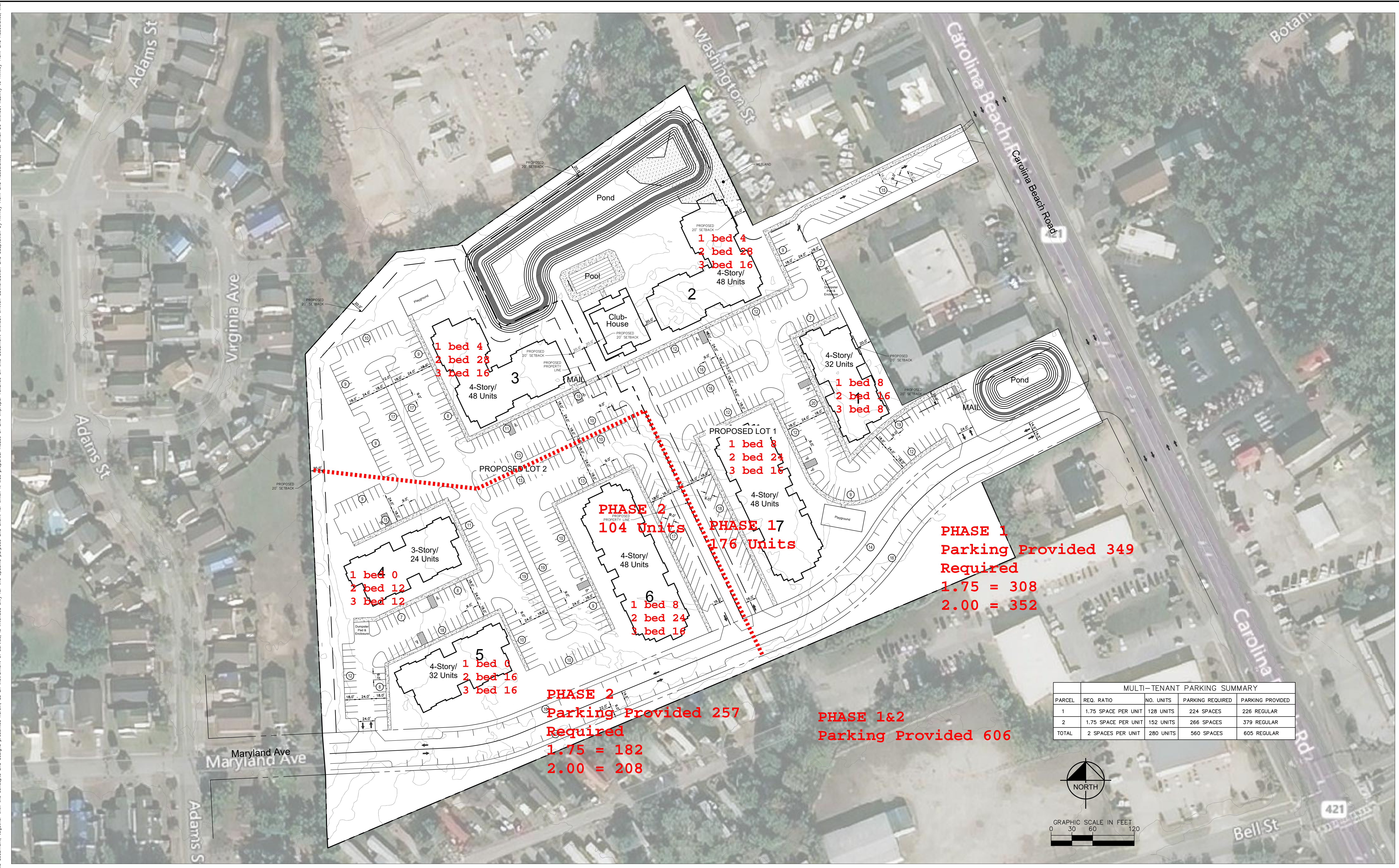
MAP LAYERS >

- Wetlands
- Riparian
- Riparian Mapping Areas
- Data Source
 - Source Type
 - Image Scale
 - Image Year
- Areas of Interest
- FWS Managed Lands
- Historic Wetland Data



1:4,514
34.198 | -77.947

Plotted By: juds, Katie Sheet: Sst-Holly Springs Retail Layout: Layout1 July 29, 2021 12:25:45pm \\kimley-horn.com\SE-RALI\REAL-DEVA\013856002 - Kimley-Horn.com\SE-RALI\REAL-DEVA\013856002 - Kelly-Wilmington\Planning\Phase 1\15-CAD-Files\Exhibits\2021-07-12 Preliminary Site Layout\2021-07-29 Wilmington MF PSD.dwg
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



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KHA PROJECT
 013856002
 DATE
 07/29/2021
 SCALE AS SHOWN
 DESIGNED BY KEJ
 DRAWN BY KEJ
 CHECKED BY COB

STARWAY VILLAGE
 2346 CAROLINA BEACH RD
 NEW HAVEN COUNTY
 NORTH CAROLINA

PRELIMINARY
 NOT FOR CONSTRUCTION

PRELIMINARY SITE LAYOUT
 PREPARED FOR
KELLEY PROPERTIES

SHEET NUMBER

PSL-1

No.	REVISIONS	DATE	BY



**STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER RESOURCES**

**STATE GENERAL PERMIT FOR IMPACTS TO ISOLATED WETLANDS AND ISOLATED WATERS
PERMIT NUMBER: IWGP100000**

**FOR PROJECTS IMPACTING LESS THAN OR EQUAL TO ONE (1) ACRE OF ISOLATED
WETLANDS OR ISOLATED OPEN WATERS AND/OR LESS THAN OR EQUAL TO THREE
HUNDRED (300) FEET OF ISOLATED STREAMS**

In accordance with the provision of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other lawful standards and regulations, including 15A NCAC 02H .1300, as amended by Session Law 2015-286, and 15A NCAC 02B .0200, promulgated and adopted by the North Carolina Environmental Management Commission, permission is hereby granted to all owners or operators of activities which impact isolated wetlands and isolated surface waters in accordance with the conditions set forth in this General Permit.

This General Permit is issued in conformity with the requirements of North Carolina Regulations in 15A NCAC 02H .1300 as amended by Session Law 2015-286 for the discharge of fill material to isolated wetlands and isolated surface waters of the State of North Carolina.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

This General Permit shall become effective on July 15, 2022.

This General Permit shall expire on July 15, 2027 or unless otherwise rescinded after public notice or until deemed appropriate by the Director of the NC Division of Water Resources.

Signed this day: July 15, 2022

By

DocuSigned by:

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for Richard E. Rogers, Jr.
Director

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Pursuant to Session Law 2015-286, this Permit shall apply only to isolated wetlands as defined in 15A NCAC 02H .1301 that are Basin Wetlands and Bogs and no other wetland types as described in the North Carolina Wetland Assessment User Manual prepared by the North Carolina Wetland Functional Assessment Team, version 4.1 October 2010.

Pursuant to 15A NCAC 02H .1305 as amended by Session Law 2015-286 impacts less than or equal to one (1) acre of isolated wetlands for the entire project in the coastal region, less than or equal to one-half (1/2) acre of isolated wetlands for the entire project in the piedmont region, or less than or equal to one-third (1/3) acre of isolated in the mountain region for the entire project are deemed to be permitted as long as they comply with 15A NCAC 02H .1305. The Coastal, Piedmont and Mountain Regions are depicted in Attachment A.

For streams that are isolated surface waters as defined in 15A NCAC 02H .1301, this Permit shall only apply to intermittent and perennial streams as determined by the most current version of the DWR Surface Water Identification Manual.

Activities meeting any one (1) of the following thresholds or circumstances require written approval from the Division of Water Resources (DWR):

- a) If any of the conditions of this Permit (listed below) cannot be met; or
- b) Any impacts to isolated streams from excavation or dredging other than excavation or dredging that is conducted as preparation for installing temporary or permanent fill or structures; or
- c) Any isolated stream relocation or stream restoration other than stream relocations that are conducted for the purpose of proper culvert installation, alignment, protection, repair or maintenance where the relocation length is equal to or less than 50 feet in length and the relocated stream is designed and installed based on current natural channel techniques; or
- d) Total temporary and permanent impacts to isolated streams for the entire project greater than 150 linear feet; or
- e) Total temporary and permanent impacts to isolated wetlands or isolated open waters equal to or greater than one (1) acre for the entire project in the Coastal Region;
- f) Total temporary and permanent impacts to isolated wetlands or isolated open waters equal to or greater than one-half (1/2) acre for the entire project in the Piedmont Region; or
- g) Total temporary and permanent impacts to isolated wetlands or isolated open waters equal to or greater than one-third (1/3) acre for the entire project in the Mountain Region; or
- h) Any high-density project, as defined in 15A NCAC 02H .1003(2)(a) and by the density thresholds specified in 15A NCAC 02H .1017, which;
 - i. Disturbs one acre or more of land (including a project that disturbs less than one acre of land that is part of a larger common plan of development or sale); and
 - ii. Has permanent isolated wetland, isolated stream or isolated open water impacts; and
 - iii. Is proposing new built-upon area; and

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- iv. Does not have a stormwater management plan reviewed and approved under a state stormwater program¹ or a state-approved local government stormwater program².

Projects that have vested rights, exemptions, or grandfathering from state or locally-implemented stormwater programs and projects that satisfy state or locally-implemented stormwater programs through use of community in-lieu programs require written approval;

- i) Any impacts to isolated subject water bodies and/or state regulated riparian buffers along isolated subject water bodies in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman Lake, Jordan Lake or Goose Creek Watersheds (or any other basin or watershed with State Regulated Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless*:
 - i. The activities are listed as “EXEMPT” or “DEEMED ALLOWABLE” from these rules; or
 - ii. A Buffer Authorization Certificate is issued by the NC Division of Coastal Management (DCM); or
 - iii. A Buffer Authorization Certificate, Certificate with Exception, or a Minor Variance is issued by a delegated or designated local government implementing a state riparian buffer program pursuant to 143-215.23.

Activities included in this General Permit that do not meet one of the thresholds listed above do *not* require written approval from the DWR.

In accordance with 15A NCAC 02H .1303(f), the Director of the North Carolina Division of Water Resources may require submission of a formal application for an Individual Permit for any project if it is deemed in the public’s best interest or determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or will degrade the waters so that existing uses of the waters or downstream waters are precluded.

GENERAL CONDITIONS:

1. In accordance with 15A NCAC 02H .1305(c) & (d) as amended by Session Law 2015-286 and in accordance with Session Law 2017-10, compensatory mitigation may be required for losses greater than 300 linear feet of isolated perennial streams and/or greater than one (1) acre of isolated wetland impacts in the Coastal Region, one-half (1/2) acre of isolated impacts in the Piedmont Region, and one-third (1/3) acre of isolated wetland impacts in the Mountain Region. Impacts associated with the removal of a dam shall not require mitigation when the removal complies with the requirements of Part 3 of Article 21 in Chapter 143 of the North Carolina General Statutes. Impacts to isolated wetlands shall not be combined with 404 jurisdictional wetlands for the purpose of determining when impact

¹ e.g. Coastal Counties, HQW, ORW, or state-implemented Phase II NPDES

² e.g. Delegated Phase II NPDES, Water Supply Watershed, Nutrient-Sensitive Waters, or Universal Stormwater Management Program

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thresholds trigger a mitigation requirement. Pursuant to Session Law 2015-286, mitigation requirements for impacts to isolated wetlands shall only apply to the amount of impact that exceeds the thresholds set out in this Condition. For linear publicly owned and maintained transportation projects that are not determined to be part of a larger common plan of development by the US Army Corps of Engineers, compensatory mitigation may be required for losses of greater than 300 linear feet per perennial stream. Citation: 15A NCAC 02H .1305(c)(6)

Compensatory stream and/or wetland mitigation shall be proposed and completed in compliance with G.S. 143-214.11. For applicants proposing to conduct mitigation within a project site, a complete mitigation proposal developed in accordance with the most recent guidance issued by the US Army Corps of Engineers Wilmington District shall be submitted for review and approval with the application for impacts.

2. The plans and specifications for the project are incorporated into the Certificate of Coverage by reference and are an enforceable part of the Permit. Any modifications to the project requires notification to DWR and may require submittal of an application for a modification to DWR with the appropriate fee. Citation: 15A NCAC 02H .1301; 15A NCAC 02H .1302
3. If this General Permit is used to access residential, commercial or industrial building sites, then all parcels owned by the permittee that are part of the single and complete project authorized by this General Permit must be buildable without additional impacts to streams or wetlands. Citation: 15A NCAC 02H .1302(a); 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
4. For road construction purposes, this General Permit shall only be utilized from natural high ground to natural high ground. Citation: 15A NCAC 02H .1302(a); 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
5. Deed notifications or similar mechanisms shall be placed on all lots/parcels with retained wetlands, waters, and state regulated riparian buffers within the project boundaries in order to assure compliance with NC Water Quality Certification Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), Federally Non-Jurisdictional Wetland Rules (15A NCAC 02H .1400) and/or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200). These mechanisms shall be put in place at the time of recording of the property or individual parcels, whichever is appropriate. Citation: 15A NCAC 02H .1302(a); 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
6. For all dam removal projects meeting the definition under G.S. 143-215.25 and requirements under G.S. 143-215.27 of a professionally supervised dam removal, the applicant shall provide documentation that any sediment that may be released has similar or lower level of contamination than sediment sampled from downstream of the dam in accordance with Session Law 2017-145. Citation: 15A NCAC 02H .1302; 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; S.L. 2017-145;

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7. If this General Permit is used for utility related impacts, then the following Conditions shall apply to those impacts.
- a. All sewer lines shall be designed, constructed and maintained in accordance with Title 15A NCAC Chapter 02T, applicable Minimum Design Criteria (MDC), and/or Alternative Design Criteria. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
 - b. Any utility construction corridor that is parallel to a stream or open water shall not be closer than 10 feet to the top of bank or ordinary high-water mark. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
 - c. Where there are temporary or permanent impacts from stream crossings, utility lines shall cross the stream channel at a perpendicular angle (i.e., intersect the surface water at an angle between 75 degrees and 105 degrees). Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
 - d. Construction corridors in wetlands and/or across stream channels shall be minimized to the maximum extent practicable and shall not exceed 50 feet wide for oil and gas utility lines and 40 feet wide for all other utility lines.

For construction corridors in wetlands and across stream channels, stumps shall be grubbed only as needed to install the utility and remaining stumps shall be cut off at grade level. The general stripping of topsoil within wetlands along the construction corridor is prohibited. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)

- e. Permanent maintained access corridors in wetlands and across stream channels shall be restricted to the minimum width practicable and shall not exceed 30 feet wide except at manhole locations. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
- f. For all utility lines constructed within wetlands, an anti-seep collar shall be placed at the downstream (utility line gradient) wetland boundary and every 150 feet up the gradient until the utility exits the wetland. Anti-seep collars may be constructed with class B concrete, compacted clay, PVC pipe, or metal collars. Wetland crossings that are directionally drilled, and perpendicular wetland crossings that are open cut and less than 150 feet long do not require anti-seep collars. The compacted clay shall have a specific infiltration of 1×10^{-5} cm/sec or less. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)

The following specifications shall apply to class B concrete:

- i. Minimum cement content, sacks per cubic yard with rounded coarse aggregate 5.0
- ii. Minimum cement content, sacks per cubic yard with angular coarse aggregate 5.5
- iii. Maximum water-cement ratio gallons per sack 6.8
- iv. Slump range 2" to 4"
- v. Minimum strength - 28-day psi 2,500

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- g. The permittee shall have a specific plan for restoring wetland contours to pre-construction conditions. Any excess material shall be removed to a high ground disposal area.

The mixing of topsoil and subsoils within the wetlands along utility corridors shall be minimized to the greatest extent practical. During excavation, the soils shall be placed on fabric to minimize impacts whenever possible. Topsoil excavated from utility trenches must be piled separately from subsoils and shall be backfilled into the trench only after the subsoils have been placed and compacted. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)

8. The permittee shall report to the appropriate DWR Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200], including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
9. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the impacts (including temporary impacts) established in a Certificate of Coverage for use of this General Permit. Citation: 15A NCAC 02H .1305; 15A NCAC 02H .1304(c)
10. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2B of Title 15A in the North Carolina Administrative Code. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
11. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur.

Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the North Carolina Sediment and Erosion Control Manual, or for linear transportation projects, the North Carolina Department of Transportation Sediment and Erosion Control Manual.

All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the North Carolina Surface Mining Manual. Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

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If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality Waters (HQW), or Outstanding Resource Waters (ORW), then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, Design Standards in Sensitive Watersheds. Citation: 15A NCAC 02H .1305(b)(2); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231

12. Sediment and erosion control measures shall not be installed in wetland or waters except within the footprint of temporary or permanent impacts otherwise authorized by this Certification. If placed within authorized impact areas, then placement of such measures shall not be conducted in a manner that results in dis-equilibrium of any wetlands, streambeds, or streambanks. Any silt fence installed within wetlands shall be removed from wetlands and the natural grade restored within two (2) months of the date that DEMLR or locally delegated program has released the specific area within the project to ensure wetland standards are maintained upon completion of the project. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231
13. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
14. If the project is covered by NPDES Construction Stormwater Permit Number NCG010000 or NPDES Construction Stormwater Permit Number NCG250000, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their Individual NPDES Stormwater Permit Number NCS000250. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231
15. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC Department of Transportation Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200
16. If activities must occur during periods of high biological activity (e.g. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

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Work within a designated trout watershed of North Carolina (as identified by the Wilmington District of the US Army Corps of Engineers,) or identified state or federal endangered or threatened species habitat, shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 04B .0125

17. In-stream structures installed to mimic natural channel geomorphology such as cross-vanes, sills, step-pool structures, etc. shall be designed and installed in such a manner that allow for continued aquatic life movement. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
18. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. If the width of the culvert is wider than the stream channel, the culvert shall include multiple boxes/pipes, baffles, benches and/or sills to maintain the natural width of the stream channel. If multiple culverts/pipes/barrels are used, low flows shall be accommodated in one culvert/pipe and additional culverts/pipes shall be installed such that they receive only flows above bankfull.

Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow for low flow passage of water and aquatic life. If the culvert outlet is submerged within a pool or scour hole and designed to provide for aquatic passage, then culvert burial into the streambed is not required.

For structures less than 72" in diameter/width and in area where topographic constraints dictate culvert slopes will be greater than 2.5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross-vanes, sills, baffles etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 30 calendar days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required, provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 30 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or

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wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)

19. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
20. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters. Citation: 15A 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0231; 15A NCAC 02B .0211
21. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. Citation: 15A 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200
22. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross-sectional dimensions, planform pattern, and longitudinal bed profile. All temporarily impacted sites shall be restored and stabilized with native vegetation. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
23. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams shall be installed as outlined in the most recent edition of the North Carolina Sediment and Erosion Control Planning and Design Manual or the North Carolina Surface Mining Manual or the North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities so as not to restrict stream flow or cause dis-equilibrium. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
24. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original streambed elevation and streambank contours are restored and maintained and shall consist of clean rock or masonry material free of debris or toxic pollutants. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or be installed in a manner that precludes aquatic life passage. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)

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25. Any rip-rap used for stream or shoreline stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows, and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0201
26. Rip-rap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Groins in Estuarine and Public Trust Waters and Ocean Hazard Areas) shall meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405. Citation: 15A NCAC 02H .1304(c); 15A NCAC 07H .1400 et seq.
27. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication, and general equipment maintenance shall be performed in a manner to prevent, to the maximum extent practicable, contamination of surface waters by fuels and oils. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0200
28. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance and compaction. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c); 15A NCAC 02B .0231
29. In accordance with G. S. 143-215.85(b), the permittee shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours. Citation: 15A NCAC 02H .1304(c); N.C.G.S 143-215.85(b)
30. The permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
31. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this General Permit. A copy of this General Permit shall be available at the project site during the construction and maintenance of this project. Citation: 15A NCAC 02H .1305(b); 15A NCAC 02H .1304(c)
32. This General Permit grants permission to the Director, an authorized representative of the Director, or DWR staff, upon the presentation of proper credentials, to enter the property during normal business hours. Citation: G.S. 143-215.3(a)(2)

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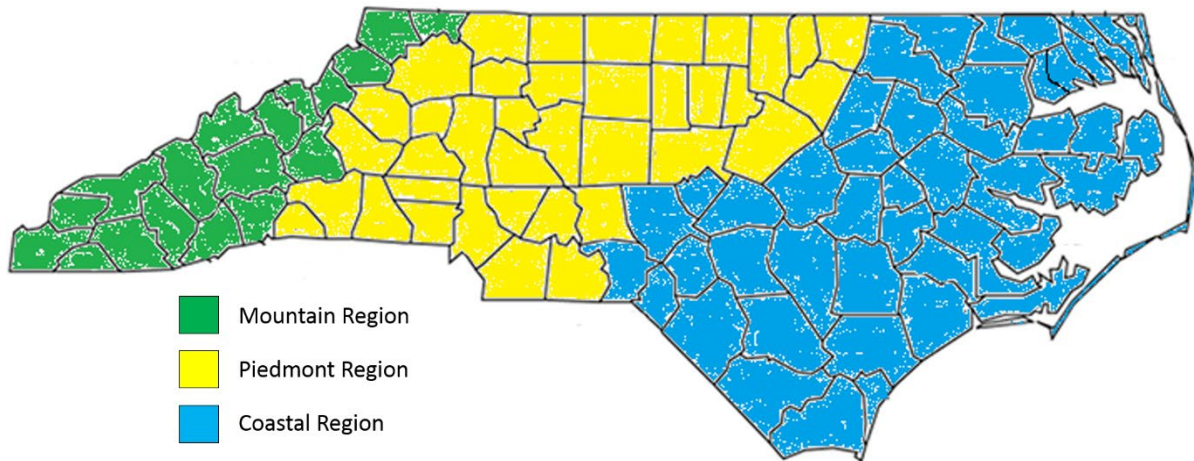
History Note: This Isolated Wetlands General Permit (IWGP100000) issued July 15, 2022 replaces IWGP100000 issued December 1, 2017; March 3, 2017; March 2, 2016; March 12, 2012; October 31, 2008; and October 3, 2003.

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Attachment A

The Coastal Region, Piedmont Region and Mountain Region shall be as follows:

- “Coastal Region” includes Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Cumberland, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Harnett, Hertford, Hoke, Hyde, Johnston, Jones, Lee, Lenoir, Martin, Moore, Nash, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Richmond, Robeson, Sampson, Scotland, Tyrrell, Washington, Wayne, and Wilson Counties.
- “Piedmont Region” includes Alamance, Alexander, Anson, Burke, Cabarrus, Caldwell, Caswell, Catawba, Chatham, Cleveland, Davidson, Davie, Durham, Forsyth, Franklin, Gaston, Granville, Guilford, Iredell, Lincoln, Mecklenburg, Montgomery, Orange, Person, Polk, Randolph, Rockingham, Rowan, Rutherford, Stanly, Stokes, Surry, Union, Vance, Wake, Warren, Wilkes, and Yadkin Counties.
- “Mountain Region” includes Alleghany, Ashe, Avery, Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Swain, Transylvania, Watauga and Yancey Counties.



When a landowner believes their property is not in the correct region for purposes of regulating impacts to isolated wetlands under Title 15A NCAC 02H .1305(d)(2), they may have a soil scientist conduct a site-specific evaluation to determine the soil series. The soil scientist shall be an individual who is currently licensed or authorized to practice soil science under G.S. 89F by the North Carolina Board for Licensing of Soil Scientists. The landowner shall submit the soil report to the Division of Water Resources. Soil series that occur in North Carolina have been categorized by the Natural Resources Conservation Service of the US Department of Agriculture as follows:

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Attachment A

Mountains						
Alarka	Chandler	Cullowhee	Hayesville	Maymead	Saluda	Thurmont
Anakeesta	Cheoah	Dellwood	Heintooga	Micaville	Santeetlah	Toccoa
Arkaqua	Chester	Dillard	Hemphill	Nantahala	Saunook	Toecane
Ashe	Chestnut	Dillsboro	Hiwassee	Nikwasi	Sauratown	Toxaway
Balsam	Chestoa	Ditney	Horsetrough	Northcove	Shinbone	Transylvania
Bandana	Chiltoskie	Edneytown	Hunt Dale	Nowhere	Skyuka	Trimont
Biltmore	Cleveland	Edneyville	Iotla	Oconaluftee	Smokemont	Tsali
Braddock	Clifffield	Ela	Jeffrey	Ostin	Snowbird	Tuckasegee
Bradson	Clifford	Ellijay	Junaluska	Oteen	Soco	Tusquitee
Brasstown	Clifton	Elsinboro	Kanuga	Peaks	Spivey	Unaka
Breakneck	Clingman	Evard	Keener	Pigeonroost	Statler	Unicoi
Brevard	Codorus	Fannin	Kinkora	Pineola	Stecoah	Unison
Brownwood	Colvard	Farner	Lauada	Pinnacle	Suches	Walnut
Buladean	Comus	Fontaflora	Leatherwood	Plott	Swannanoa	Watauga
Burton	Cowee	French	Longhope	Porters	Sylco	Wayah
Cades	Craggey	Greenlee	Lonon	Pullback	Sylva	Wesser
Calvin	Crossnore	Guyot	Lostcove	Rabun	Tanasee	Whiteoak
Cashiers	Cruso	Harmiller	Luftee	Reddies	Tate	Whiteside
Cataloochee	Cullasaja	Hatboro	Mars Hill	Rosman	Thunder	Zillicoa
Cataska						

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Attachment A

Piedmont						
Alamance	Cecil	Exway	Leaksville	Nathalie	Riverview	Turbeville
Altavista	Chewacla	Fairview	Lignum	Oak Level	Ronda	Tussahaw
Appling	Cid	Georgeville	Lloyd	Oakboro	Rowan	Uwharrie
Appomattox	Claycreek	Goldston	Louisa	Orange	Saw	Vance
Armenia	Cliffside	Granville	Louisburg	Ostin	Secrest	Wadesboro
Ashlar	Clover	Green Level	Madison	Pacolet	Sedgefield	Wake
Augusta	Colfax	Grover	Mandale	Pactolus	Siloam	Warne
Ayersville	Congaree	Gwinnett	Masada	Peakin	Skyuka	Wate
Badin	Coronaca	Halifax	Mattaponi	Peawick	Spartanburg	Wateree
Banister	Creedmoor	Hallison	Mayodan	Penhook	Spray	Wedowee
Bannertown	Cullen	Haw River	McQueen	Pfafftown	Spriggs	Wehadkee
Belews Lake	Dan River	Helena	Meadowfield	Picture	Starr	Westfield
Bentley	Danripple	Herndon	Mecklenburg	Pilot Mountain	Stoneville	White Store
Bethera	Davidson	Hibriten	Merry Oaks	Pinkston	Stott Knob	Wickham
Bethlehem	Davie	Hiwassee	Misenheimer	Pinoka	Tarrus	Wilkes
Biscoe	Delila	Hornsboro	Mocksville	Pittsboro	Tatum	Winnsboro
Brickhaven	Devotion	Hulett	Monacan	Poindexter	Tillery	Woolwine
Buncombe	Dorian	Iredell	Moncure	Polkton	Toast	Worsham
Callison	Durham	Jackland	Montonia	Poplar Forest	Toccoa	Wynott
Carbonton	Elbert	Kinkora	Mooshaunee	Rasalo	Tomlin	Yadkin
Cartecay	Enon	Kirksey	Nanford	Rhodhiss	Totier	Zion
Casville	Enott	Lackstown	Nason	Rion		

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Attachment A

Coastal						
Acredale	Butters	Dogue	Hydeland	McColl	Paxville	Tarboro
Ailey	Byars	Dorovan	Icaria	Meggett	Peakin	Tetotum
Alaga	Cainhoy	Dothan	Invershiel	Mooshaunee	Pelion	Thursa
Alpin	Candor	Dragston	Johns	Muckalee	Pender	Toisnot
Arapahoe	Cape Fear	Duckston	Johnston	Munden	Perquimans	Tomahawk
Argent	Cape Lookout	Dunbar	Kalmia	Murville	Pettigrew	Tomotley
Augusta	Caroline	Duplin	Kenansville	Myatt	Plummer	Torhunta
Autryville	Carteret	Echaw	Kinston	Nahunta	Pocalla	Troup
Aycock	Centenary	Emporia	Kureb	Nakina	Polawana	Uchee
Backbay	Chapanoke	Engelhard	Lakeland	Nankin	Ponzer	Valhalla
Ballahack	Charleston	Exum	Leaf	Nawney	Portsmouth	Varina
Barclay	Chastain	Faceville	Lenoir	Neeses	Pungo	Vaucluse
Bayboro	Chenneby	Foreston	Leon	Newhan	Rains	Wagram
Baymeade	Chesapeake	Fork	Liddell	Newholland	Rimini	Wahee
Belhaven	Chipleby	Fortescue	Lillington	Nimmo	Roanoke	Wakulla
Bertie	Chowan	Fripp	Longshoal	Nixonton	Roper	Wando
Bethera	Conaby	Fuquay	Lucy	Noboco	Rumford	Wasda
Bibb	Conetoe	Gertie	Lumbee	Norfolk	Rutlege	Weeksville
Bladen	Corolla	Gilead	Lynchburg	Ocilla	Scuppernong	Wilbanks
Blaney	Cowarts	Goldsboro	Lynn Haven	Onslow	Seabrook	Winton
Blanton	Coxville	Grantham	Mandarin	Orangeburg	Seagate	Woodington
Bohicket	Craven	Grifton	Mantachie	Osier	Shellbluff	Wrightsboro
Bojac	Croatan	Gritney	Marlboro	Ousley	Stallings	Wysocking
Bolling	Currituck	Gullrock	Marvyn	Pactolus	State	Yaupon
Bonneau	Dare	Hobonny	Masontown	Pamlico	Stockade	Yeopim
Bragg	Deloss	Hobucken	Maxton	Pantego	Suffolk	Yonges
Brookman	Delway	Hyde	Mayodan	Pasquotank		

Dichotomous Key to General North Carolina Wetland Types

Accompanies NC WAM User Manual Version 5

Before using this key, the assessor should read and become familiar with descriptions of the general wetland types. The assessor should use best professional judgment to verify that the wetland type determined with the use of this key matches the written description (see User Manual page number following wetland type name).

The following rule should be used to assist in the selection of the most appropriate general wetland type. Narrative descriptions are also available to assist in this choice (see User Manual Section 3.1).

Wetlands with alterations (man-made or natural) should generally be classified as the original, naturally occurring type if this determination can be made. However, if the full range of stable, existing, wetland parameters (vegetation, hydrology, and soils) better resembles another wetland type because of long-established, permanent alterations, the wetland should be classified as this current, more appropriate type.

If there is evidence suggesting the wetland is a type other than the keyed type, the wetland may be classified as the evidenced type. Also, if the wetland does not appear to conform to any of the following general types, the site should be evaluated based on what the assessor believes is the closest wetland type. If the wetland is “intensively managed” or “intensively disturbed,” the assessor should note this fact on the field assessment form and then select the most appropriate general wetland type based on the guidance provided above.

- I. Wetland affected by lunar or wind tide, may include woody areas contiguous with tidal marsh
 - A. Wetland affected, at least occasionally, by brackish or salt water
 - i. Dominated by herbaceous vegetation – **Salt/Brackish Marsh** (p. 12)
 - ii. Dominated by woody vegetation – **Estuarine Woody Wetland** (p. 15)
 - B. Wetland primarily affected by freshwater
 - i. Dominated by herbaceous vegetation – **Tidal Freshwater Marsh** (p. 17)
 - ii. Dominated by woody vegetation – **Riverine Swamp Forest** (p. 19)
- II. Wetland not affected by tides
 - A. Not in a geomorphic floodplain or a natural topographic crenulation and not contiguous with an open water 20 acres or larger
 - i. On a side slope – **Seep** (p. 24)
 - ii. On interstream divides or on a coastal island
 1. Flats on interstream divides in Coastal Plain ecoregions
 - a. Dominated by deciduous trees
 - i. Seasonally saturated to seasonally inundated (typically dominated by sweetgum and oaks) – **Hardwood Flat** (p. 26)
 - ii. Seasonally to semi-permanently inundated (typically dominated by cypress and black gum) – **Non-Riverine Swamp Forest** (p. 28)
 - b. Dominated by evergreens
 - i. Dominated by dense, waxy shrub species (typically include gallberries, fetterbushes, honeycup, greenbriar); canopy may include pond pine, Atlantic white cedar, and bays – **Pocosin** (p. 30)
 - ii. Not dominated by dense, waxy shrub species
 1. Dominated by long-leaf or pond pine and wire grass – **Pine Savanna** (p. 32)
 2. Dominated by loblolly or slash pines – **Pine Flat** (p. 33)
 2. In depressions surrounded by uplands anywhere in the state (mafic depressions, lime sinks, Carolina bays) or contiguous with an open water

Dichotomous Key to General NC Wetland Types, Continued

2. In depressions surrounded by uplands anywhere in the state (mafic depressions, lime sinks, Carolina bays) or contiguous with an open water (repeated from the previous page)
 - a. Dominated by dense, waxy shrub species (typically include gallberries, fetterbushes, honeycup, greenbriar); canopy may include pond pine, Atlantic white cedar, and bays and not characterized by clay-based soils– **Pocosin** (p. 30)
 - b. Not dominated by dense, waxy shrub species and not characterized by a peat-filled bay – **Basin Wetland** (p. 35)
- B. In a geomorphic floodplain or a natural topographic crenulation or contiguous with an open water 20 acres or larger
 - i. Northern Inner Piedmont or Blue Ridge Mountains ecoregions and dense herbaceous or mixed shrub/herbaceous vegetation with characteristic bog species (see wetland type description), with or without tree canopy; at least semi-permanent saturation; typically on organic or mucky soils; sphagnum moss commonly present – **Bog** (p. 37)
 - ii. Anywhere in the state and not Bog
 1. Dominated by herbaceous vegetation. At least semi-permanently inundated or saturated. Includes lacustrine and riparian fringe and beaver ponds with dense herbaceous vegetation; sphagnum moss scarce or absent – **Non-Tidal Freshwater Marsh** (p. 40)
 2. Dominated by woody vegetation. Trees may be present on edges or hummocks.
 - a. Localized depression and semi-permanently inundated – **Floodplain Pool** (p. 43)
 - b. Not “a”
 - i. Less than second-order stream or in a topographic crenulation without a stream. Diffuse surface flow and groundwater more important than overbank flooding.
 1. Seasonally to semi-permanently saturated and/or only intermittently inundated – **Headwater Forest** (p. 45)
 2. Seasonally to semi-permanently inundated – **Riverine Swamp Forest** (p. 19)
 - ii. Second-order or greater stream or contiguous with an open water 20 acres or larger
 1. Intermittently to seasonally inundated (may be dominated by sweetgum, ash, sycamore, and oaks) – **Bottomland Hardwood Forest** (p. 49)
 2. Seasonally to semi-permanently inundated (may be dominated by cypress and blackgums in Coastal Plain and ash, overcup oak, and elms in Piedmont and Mountains) – **Riverine Swamp Forest** (p. 19)

¹See stream order schematic diagrams in User Manual Appendix F.

3.1.11 Basin Wetland

Basin Wetlands occur throughout the state in depressions surrounded by uplands (usually on interstream flats or in localized depressions). This wetland type may also occur on the fringe of small open waters (less than 20 acres in size). Wetlands fringing larger water bodies are subject to hydrology more closely matching riparian conditions and are therefore considered Riverine Swamp Forest or Non-Tidal Freshwater Marsh. The size threshold used to determine small versus large open waters was taken from Cowardin et al. (1979). Basin Wetlands are seasonally to semi-permanently inundated but may lose surface hydrology during later portions of the growing season. Sources of water are perched groundwater, groundwater discharge, overland runoff, and precipitation. Seasonal waterlines are often apparent on the vegetation. Basin Wetlands generally occur on mineral soils. Basin Wetlands may be characterized by a variety of mineral soil types ranging in particle size and type from sandy soils associated with Coastal Plain lime sinks and inter-dune swales to clay-based soils underlying mafic depressions. Vegetation structure within this wetland type may vary widely from forest in mafic depressions and ephemeral pools, to primarily herbaceous or emergent in lime sinks, man-excavated depressions, and along the shorelines of small open waters.

Reference wetlands (see Section 3.2) are available for some forms of this wetland type, but since this wetland type is so heterogeneous, an assessor must recognize that an appropriate reference must be considered on a case-by-case basis. Sub-types of Basin Wetland that are considered to have reference wetlands include mafic depressions and Carolina bays. Non-reference Basin Wetlands most frequently include the wetland edges of excavated farm ponds. Basin Wetlands vary in size based on the variable landscape positions that they may occupy. This wetland type is generally surrounded by uplands, but may occasionally transition to Pine Savanna, Pocosin, or Pine Flat.

Basin Wetland comprises NCNHP types Vernal Pool, Cypress Savanna, Upland Depression Swamp Forest, Small Depression Pond, Inner Dune Pond, and Upland Pool. This wetland type is not separately identified in the NCDWM methodology, but would likely be included in the Swamp Forest (non-riverine) and Freshwater Marsh in some cases. Basin Wetland corresponds to the HGM classes Depression (sub-classes Isolated Groundwater, Isolated Precipitation, and Human Impounded or Excavated) and Estuarine (sub-class Impounded). Appendix D provides a cross-reference of wetland types across three classification systems.

NC WAM Wetland Rating Sheet
Accompanies User Manual Version 5.0

Wetland Site Name Wetland A (0.24 ac) Date 8/31/2022
 Wetland Type Basin Wetland Assessor Name/Organization C. Daves (S&ME)

Notes on Field Assessment Form (Y/N) YES
 Presence of regulatory considerations (Y/N) NO
 Wetland is intensively managed (Y/N) YES
 Assessment area is located within 50 feet of a natural tributary or other open water (Y/N) NO
 Assessment area is substantially altered by beaver (Y/N) NO
 Assessment area experiences overbank flooding during normal rainfall conditions (Y/N) NO
 Assessment area is on a coastal island (Y/N) NO

Sub-function Rating Summary

Function	Sub-function	Metrics	Rating
Hydrology	Surface Storage and Retention	Condition	<u>NA</u>
		Sub-Surface Storage and Retention	<u>NA</u>
Water Quality	Pathogen Change	Condition	<u>NA</u>
		Condition/Opportunity	<u>NA</u>
		Opportunity Presence? (Y/N)	<u>NA</u>
	Particulate Change	Condition	<u>NA</u>
		Condition/Opportunity	<u>NA</u>
		Opportunity Presence? (Y/N)	<u>NA</u>
	Soluble Change	Condition	<u>NA</u>
		Condition/Opportunity	<u>NA</u>
		Opportunity Presence? (Y/N)	<u>NA</u>
	Physical Change	Condition	<u>NA</u>
		Condition/Opportunity	<u>NA</u>
		Opportunity Presence? (Y/N)	<u>NA</u>
Pollution Change	Condition	<u>HIGH</u>	
	Condition/Opportunity	<u>HIGH</u>	
	Opportunity Presence? (Y/N)	<u>NO</u>	
Habitat	Physical Structure	Condition	<u>MEDIUM</u>
	Landscape Patch Structure	Condition	<u>LOW</u>
	Vegetation Composition	Condition	<u>LOW</u>

Function Rating Summary

Function	Metrics/Notes	Rating
Hydrology	Condition	<u>HIGH</u>
Water Quality	Condition	<u>HIGH</u>
	Condition/Opportunity	<u>HIGH</u>
	Opportunity Presence? (Y/N)	<u>NO</u>
Habitat	Condition	<u>LOW</u>

Overall Wetland Rating HIGH

NC WAM WETLAND ASSESSMENT FORM
Accompanies User Manual Version 5

USACE AID#: SAW-2021-01647		NCDWR #:	
Project Name <u>Starway Village Apts.</u>		Date of Evaluation <u>8/31/2022</u>	
Applicant/Owner Name <u>Starway Village Apts. I/II LLC</u>		Wetland Site Name <u>Wetland A (0.24 ac)</u>	
Wetland Type <u>Basin Wetland</u>		Assessor Name/Organization <u>C. Daves (S&ME)</u>	
Level III Ecoregion <u>Middle Atlantic Coastal Plain</u>		Nearest Named Water Body <u>Greenfield Lake</u>	
River Basin <u>Cape Fear</u>		USGS 8-Digit Catalogue Unit <u>03030005 (Cape Fear)</u>	
County <u>New Hanover</u>		NCDWR Region <u>Wilmington</u>	
<input checked="" type="radio"/> Yes <input type="radio"/> No Precipitation within 48 hrs?		Latitude/Longitude (dec-degrees) <u>34.1973°N/-77.9393°W</u>	

Evidence of stressors affecting the assessment area (may not be within the assessment area)

Please circle and/or make note on last page if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, approximately within 10 years). Noteworthy stressors include, but are not limited to the following.

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)

Is the assessment area intensively managed? Yes No

Regulatory Considerations - Were regulatory considerations evaluated? Yes No If Yes, check all that apply to the assessment area.

- Anadromous fish
- Federally protected species or State endangered or threatened species
- NCDWR riparian buffer rule in effect
- Abuts a Primary Nursery Area (PNA)
- Publicly owned property
- N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
- Abuts a stream with a NCDWQ classification of SA or supplemental classifications of HQW, ORW, or Trout
- Designated NCNHP reference community
- Abuts a 303(d)-listed stream or a tributary to a 303(d)-listed stream

What type of natural stream is associated with the wetland, if any? (check all that apply)

- Blackwater
- Brownwater
- Tidal (if tidal, check one of the following boxes) Lunar Wind Both

Is the assessment area on a coastal island? Yes No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? Yes No

Does the assessment area experience overbank flooding during normal rainfall conditions? Yes No

1. Ground Surface Condition/Vegetation Condition – assessment area condition metric

Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual). If a reference is not applicable, then rate the assessment area based on evidence of an effect.

GS VS

- A A Not severely altered
- B B Severely altered over a majority of the assessment area (ground surface alteration examples: vehicle tracks, excessive sedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], hydrologic alteration)

2. Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric

Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. A ditch \leq 1 foot deep is considered to affect surface water only, while a ditch $>$ 1 foot deep is expected to affect both surface and sub-surface water. Consider tidal flooding regime, if applicable.

Surf Sub

- A A Water storage capacity and duration are not altered.
- B B Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).
- C C Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: draining, flooding, soil compaction, filling, excessive sedimentation, underground utility lines).

3. Water Storage/Surface Relief – assessment area/wetland type condition metric (skip for all marshes)

Check a box in each column for each group below. Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

AA WT

- 3a. A A Majority of wetland with depressions able to pond water $>$ 1 foot deep
- B B Majority of wetland with depressions able to pond water 6 inches to 1 foot deep
- C C Majority of wetland with depressions able to pond water 3 to 6 inches deep
- D D Depressions able to pond water $<$ 3 inches deep
- 3b. A Evidence that maximum depth of inundation is greater than 2 feet
- B Evidence that maximum depth of inundation is between 1 and 2 feet
- C Evidence that maximum depth of inundation is less than 1 foot

4. **Soil Texture/Structure – assessment area condition metric (skip for all marshes)**

Check a box from each of the three soil property groups below. Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the 12 inches. Use most recent National Technical Committee for Hydric Soils guidance for regional indicators.

- 4a. A Sandy soil
 B Loamy or clayey soils exhibiting redoximorphic features (concentrations, depletions, or rhizospheres)
 C Loamy or clayey soils not exhibiting redoximorphic features
 D Loamy or clayey gleyed soil
 E Histosol or histic epipedon
- 4b. A Soil ribbon < 1 inch
 B Soil ribbon ≥ 1 inch
- 4c. A No peat or muck presence
 B A peat or muck presence

5. **Discharge into Wetland – opportunity metric**

Check a box in each column. Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

- | Surf | Sub | |
|------------------------------------|------------------------------------|---|
| <input checked="" type="radio"/> A | <input checked="" type="radio"/> A | Little or no evidence of pollutants or discharges entering the assessment area |
| <input type="radio"/> B | <input type="radio"/> B | Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area |
| <input type="radio"/> C | <input type="radio"/> C | Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation, odor) |

6. **Land Use – opportunity metric (skip for non-riparian wetlands)**

Check all that apply (at least one box in each column). Evaluation involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont ecoregions and 30 feet wide in the Blue Ridge Mountains ecoregion.

- | WS | 5M | 2M | |
|----------------------------|----------------------------|----------------------------|--|
| <input type="checkbox"/> A | <input type="checkbox"/> A | <input type="checkbox"/> A | ≥ 10% impervious surfaces |
| <input type="checkbox"/> B | <input type="checkbox"/> B | <input type="checkbox"/> B | Confined animal operations (or other local, concentrated source of pollutants) |
| <input type="checkbox"/> C | <input type="checkbox"/> C | <input type="checkbox"/> C | ≥ 20% coverage of pasture |
| <input type="checkbox"/> D | <input type="checkbox"/> D | <input type="checkbox"/> D | ≥ 20% coverage of agricultural land (regularly plowed land) |
| <input type="checkbox"/> E | <input type="checkbox"/> E | <input type="checkbox"/> E | ≥ 20% coverage of maintained grass/herb |
| <input type="checkbox"/> F | <input type="checkbox"/> F | <input type="checkbox"/> F | ≥ 20% coverage of clear-cut land |
| <input type="checkbox"/> G | <input type="checkbox"/> G | <input type="checkbox"/> G | Little or no opportunity to improve water quality. Lack of opportunity may result from little or no disturbance in the watershed <u>or</u> hydrologic alterations that prevent damage <u>and/or</u> overbank flow from affectio the assessment area. |

7. **Wetland Acting as Vegetated Buffer – assessment area/wetland complex condition metric (skip for non-riparian wetlands)**

7a. Is assessment area within 50 feet of a tributary or other open water?

- Yes No If Yes, continue to 7b. If No, skip to Metric 8.

7b. How much of the first 50 feet from the bank is wetland? (Wetland buffer need only be present on one side of the water body. Make buffer judgment based on the average width of wetland. Record a note if a portion of the buffer has been removed or disturbed.)

- A ≥ 50 feet
 B From 30 to < 50 feet
 C From 15 to < 30 feet
 D From 5 to < 15 feet
 E < 5 feet or buffer bypassed by ditches

7c. Tributary width. If the tributary is anastomosed, combine widths of channels/braids for a total width.

- ≤ 15-foot wide > 15-foot wide Other open water (no tributary present)

7d. Do roots of assessment area vegetation extend into the bank of the tributary/open water?

- Yes No

7e. Is tributary or other open water sheltered or exposed?

- Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.
 Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

8. **Wetland Width at the Assessment Area – wetland type/wetland complex condition metric (evaluate WT for all marshes and Estuarine Woody Wetland only; evaluate WC for Bottomland Hardwood Forest, Headwater Forest, and Riverine Swamp Forest only)**

Check a box in each column. Select the average width for the wetland type at the assessment area (WT) and the wetland complex at the assessment area (WC). See User Manual for WT and WC boundaries.

- | WT | WC | |
|-------------------------|-------------------------|-----------------------|
| <input type="radio"/> A | <input type="radio"/> A | ≥ 100 feet |
| <input type="radio"/> B | <input type="radio"/> B | From 80 to < 100 feet |
| <input type="radio"/> C | <input type="radio"/> C | From 50 to < 80 feet |
| <input type="radio"/> D | <input type="radio"/> D | From 40 to < 50 feet |
| <input type="radio"/> E | <input type="radio"/> E | From 30 to < 40 feet |
| <input type="radio"/> F | <input type="radio"/> F | From 15 to < 30 feet |
| <input type="radio"/> G | <input type="radio"/> G | From 5 to < 15 feet |
| <input type="radio"/> H | <input type="radio"/> H | < 5 feet |

9. Inundation Duration – assessment area condition metric (skip for non-riparian wetlands)

Answer for assessment area dominant landform.

- A Evidence of short-duration inundation (< 7 consecutive days)
 B Evidence of saturation, without evidence of inundation
 C Evidence of long-duration inundation or very long-duration inundation (7 to 30 consecutive days or more)

10. Indicators of Deposition – assessment area condition metric (skip for non-riparian wetlands and all marshes)

Consider recent deposition only (no plant growth since deposition).

- A Sediment deposition is not excessive, but at approximately natural levels.
 B Sediment deposition is excessive, but not overwhelming the wetland.
 C Sediment deposition is excessive and is overwhelming the wetland.

11. Wetland Size – wetland type/wetland complex condition metric

Check a box in each column. Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the wetland complex (WC), and the size of the forested wetland (FW) (if applicable, see User Manual). See the User Manual for boundaries of these evaluation areas. If assessment area is clear-cut, select "K" for the FW column.

- | WT | WC | FW (if applicable) |
|------------------------------------|------------------------------------|---|
| <input type="radio"/> A | <input type="radio"/> A | <input type="radio"/> A ≥ 500 acres |
| <input type="radio"/> B | <input type="radio"/> B | <input type="radio"/> B From 100 to < 500 acres |
| <input type="radio"/> C | <input type="radio"/> C | <input type="radio"/> C From 50 to < 100 acres |
| <input type="radio"/> D | <input type="radio"/> D | <input type="radio"/> D From 25 to < 50 acres |
| <input type="radio"/> E | <input type="radio"/> E | <input type="radio"/> E From 10 to < 25 acres |
| <input type="radio"/> F | <input type="radio"/> F | <input type="radio"/> F From 5 to < 10 acres |
| <input type="radio"/> G | <input type="radio"/> G | <input type="radio"/> G From 1 to < 5 acres |
| <input type="radio"/> H | <input type="radio"/> H | <input type="radio"/> H From 0.5 to < 1 acre |
| <input checked="" type="radio"/> I | <input checked="" type="radio"/> I | <input type="radio"/> I From 0.1 to < 0.5 acre |
| <input type="radio"/> J | <input type="radio"/> J | <input type="radio"/> J From 0.01 to < 0.1 acre |
| <input type="radio"/> K | <input type="radio"/> K | <input checked="" type="radio"/> K < 0.01 acre <u>or</u> assessment area is clear-cut |

12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)

- A Pocosin is the full extent (≥ 90%) of its natural landscape size.
 B Pocosin is < 90% of the full extent of its natural landscape size.

13. Connectivity to Other Natural Areas – landscape condition metric

13a. Check appropriate box(es) (a box may be checked in each column). Involves a GIS effort with field adjustment. This evaluates whether the wetland is well connected (Well) and/or loosely connected (Loosely) to the landscape patch, the contiguous naturally vegetated area and open water (if appropriate). Boundaries are formed by four-lane roads, regularly maintained utility line corridors the width of a four-lane road or wider, urban landscapes, fields (pasture open and agriculture), or water > 300 feet wide.

- | Well | Loosely | |
|------------------------------------|------------------------------------|--|
| <input type="radio"/> A | <input type="radio"/> A | ≥ 500 acres |
| <input type="radio"/> B | <input type="radio"/> B | From 100 to < 500 acres |
| <input type="radio"/> C | <input type="radio"/> C | From 50 to < 100 acres |
| <input type="radio"/> D | <input type="radio"/> D | From 10 to < 50 acres |
| <input type="radio"/> E | <input type="radio"/> E | < 10 acres |
| <input checked="" type="radio"/> F | <input checked="" type="radio"/> F | Wetland type has a poor or no connection to other natural habitats |

13b. Evaluate for marshes only.

- Yes No Wetland type has a surface hydrology connection to open waters/stream or tidal wetlands.

14. Edge Effect – wetland type condition metric (skip for all marshes and Estuarine Woody Wetland)

May involve a GIS effort with field adjustment. Estimate distance from wetland type boundary to artificial edges. Artificial edges include non-forested areas ≥ 40 feet wide such as fields, development, roads, regularly maintained utility line corridors and clear-cuts. Consider the eight main points of the compass. Artificial edge occurs within 150 feet in how many directions? If the assessment area is clear-cut, select option "C."

- A 0
 B 1 to 4
 C 5 to 8

15. Vegetative Composition – assessment area condition metric (skip for all marshes and Pine Flat)

- A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.
 B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.
 C Vegetation severely altered from reference in composition, or expected species are unnaturally absent (planted stands of non-characteristic species or at least one stratum inappropriately composed of a single species), or exotic species are dominant in at least one stratum.

16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)

- A Vegetation diversity is high and is composed primarily of native species (<10% cover of exotics).
 B Vegetation diversity is low or has > 10% to 50% cover of exotics.
 C Vegetation is dominated by exotic species (>50% cover of exotics).

17. Vegetative Structure – assessment area/wetland type condition metric

17a. Is vegetation present?

- Yes No If Yes, continue to 17b. If No, skip to Metric 18.

17b. Evaluate percent coverage of assessment area vegetation for all marshes only. Skip to 17c for non-marsh wetlands.

- A ≥ 25% coverage of vegetation
 B < 25% coverage of vegetation

17c. Check a box in each column for each stratum. Evaluate this portion of the metric for non-marsh wetlands. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

- | | AA | WT | |
|-----------|------------------------------------|------------------------------------|--|
| Canopy | <input type="radio"/> A | <input type="radio"/> A | Canopy closed, or nearly closed, with natural gaps associated with natural processes |
| | <input type="radio"/> B | <input type="radio"/> B | Canopy present, but opened more than natural gaps |
| | <input checked="" type="radio"/> C | <input checked="" type="radio"/> C | Canopy sparse or absent |
| Mid-Story | <input type="radio"/> A | <input type="radio"/> A | Dense mid-story/sapling layer |
| | <input type="radio"/> B | <input type="radio"/> B | Moderate density mid-story/sapling layer |
| | <input checked="" type="radio"/> C | <input checked="" type="radio"/> C | Mid-story/sapling layer sparse or absent |
| Shrub | <input type="radio"/> A | <input type="radio"/> A | Dense shrub layer |
| | <input checked="" type="radio"/> B | <input checked="" type="radio"/> B | Moderate density shrub layer |
| | <input type="radio"/> C | <input type="radio"/> C | Shrub layer sparse or absent |
| Herb | <input type="radio"/> A | <input type="radio"/> A | Dense herb layer |
| | <input type="radio"/> B | <input type="radio"/> B | Moderate density herb layer |
| | <input checked="" type="radio"/> C | <input checked="" type="radio"/> C | Herb layer sparse or absent |

18. Snags – wetland type condition metric (skip for all marshes)

- A Large snags (more than one) are visible (> 12-inches DBH, or large relative to species present and landscape stability).
 B Not A

19. Diameter Class Distribution – wetland type condition metric (skip for all marshes)

- A Majority of canopy trees have stems > 6 inches in diameter at breast height (DBH); many large trees (> 12 inches DBH) are present.
 B Majority of canopy trees have stems between 6 and 12 inches DBH, few are > 12-inch DBH.
 C Majority of canopy trees are < 6 inches DBH or no trees.

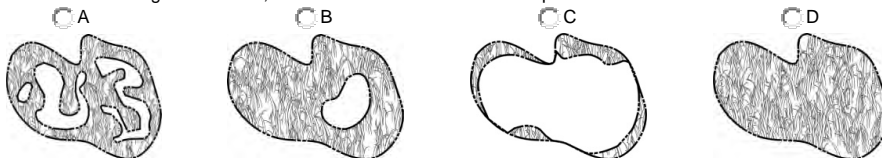
20. Large Woody Debris – wetland type condition metric (skip for all marshes)

Include both natural debris and man-placed natural debris.

- A Large logs (more than one) are visible (> 12 inches in diameter, or large relative to species present and landscape stability).
 B Not A

21. Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)

Select the figure that best describes the amount of interspersion between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.



22. Hydrologic Connectivity – assessment area condition metric (evaluate for riparian wetlands and Salt/Brackish Marsh only)

Examples of activities that may severely alter hydrologic connectivity include intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaver dams, and stream incision. Documentation required if evaluated as B, C, or D.

- A Overbank and overland flow are not severely altered in the assessment area.
 B Overbank flow is severely altered in the assessment area.
 C Overland flow is severely altered in the assessment area.
 D Both overbank and overland flow are severely altered in the assessment area.

Notes

Wetland is routinely mowed and maintained. Invasives such as Chinese tallow (*Triadica sebifera*) and common reed (*Phragmites australis*) observed in non-mowed area. Depressional, basin-like wetland that appears to collect stormwater runoff from surrounding Starway Flea Market property and commercial business directly to the east and northeast.



1 Wetland area (Basin) on northern portion of the site facing east.



2 Wetland area (Basin) on northern portion of the site facing west.



3 Wetland area (Basin) on northern portion of the site facing north along the eastern edge.



4 Typical sandy soils observed along wetland margins.



Site Photographs
Starway Village Apartments
Wilmington, New Hanover County, North Carolina

S&ME Project No. 21610025

Taken by: CD

Date: August 31, 2022