

City of Havelock  
Addendum #1 to **Woodhaven Drive Bridge Replacement**

**Issue Date: 10/29/2021**

**Bid Opening: 11/02/2021 at 2:00 PM**

To: All Proposers

This Addendum, containing the following additions, clarifications, and/or changes, is issued prior to receipt of bids and does hereby become part of the original bid documents.

Receipt of this addendum must be acknowledged by signing in the area indicated below. Please make the follow additions, clarifications, and/or changes to the request for bid as listed below and **sign and return this addendum with your submittal package.**

The enclosed geotechnical report is provided for reference to prospective bidders.

The enclosed permit documents are provided for reference to prospective bidders.

Matthew Jones  
Associate Vice President, Hazen and Sawyer

**Sign below and return this addendum cover with your submittal response.**

---

**Proposer Name & Company:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Title:** \_\_\_\_\_



Geotechnical and Construction Materials Testing Services

March 9, 2021

Matthew Jones, P.E.  
**HAZEN & SAWYER**  
4011 Westchase Boulevard, Suite 500  
Raleigh, NC 27607

Re: Subsurface Investigation  
Woodhaven Drive Culvert Replacement  
Havelock, North Carolina  
GeoTechnologies Project No. 1-21-0125-EA

Gentlemen:

GeoTechnologies, Inc. has completed test borings for a culvert replacement project on Woodhaven Drive, near the intersection of Highway 70 in Havelock, North Carolina. It is our understand that the culvert pipes were overwhelmed during Hurricane Florence, resulting in a failure/closure of the roadway. We understand that the existing culvert pipes will be replaced with a bridge. The new bridge will include two bents, each supported by six piles with design compressive loads of about 86 tons. Sheet piling will be used to retain the area below the bents to the stream.

Soil conditions were investigated with two test borings as shown on Figure 1. The test borings were advanced with a track mounted drill rig equipped with an automatic hammer to termination depths of approximately 60 and 80 feet below site grade utilizing standard penetration test procedures at selected intervals to evaluate the consistency and density of the subsurface soils. This report presents the findings of our investigation.

### **SUBSURFACE CONDITIONS**

A generalized subsurface profile prepared from the test boring data is attached to this report as Figure 2 to graphically illustrate subsurface conditions encountered at this site. More detailed descriptions of the conditions encountered at the individual test boring locations are then presented on the attached test boring records.

Conditions in the borings consisted of surface asphalt/CABC stone in B-1, with underlying sandy to clayey fill in both borings. The fill extended to about 6 to 12 feet with penetration resistances ranging from 4 to 20 blows per foot (bpf). Below the fill, boring B-2 encountered a 2 to 3 bpf organic silt with organic contents of 10 to 20% to a depth of 18 feet. The organic silt was underlain by 2 bpf sands and clays to about 26 feet. Boring B-1 encountered 2 to 4 bpf sands and clays from 12 to 36 feet.

Beginning at depths of 26 to 36 feet, the borings encountered 10 to 42 bpf sands with some shells and cementation to depths of about 42 to 47 feet, where 15 to 25 bpf clayey sand was encountered to depths of 53 to 57 feet. Below these depths, the borings encountered 13 to 31 bpf silts and clays to the boring termination depths of 60 (B-2) and 80 (B-1) feet.

Groundwater was encountered at about 7 to 9 feet below grade at the time of boring completion. Water levels are expected to be higher during and after significant rain events.

## RECOMMENDATIONS

The following recommendations are made based upon a review of the attached test boring data. As bridge plans are developed, they should be provided to us so that our recommendations can be extended or modified as necessary.

Driven Piles. Based on the required pile capacity and the boring profiles, we recommend that primary consideration be given to using HP12x53 steel piles. We estimate that this pile section will develop an allowable (design) compressive capacity of 90 to 100 tons, primarily from skin friction, when driven to about 75 to 80 feet. We estimate an uplift capacity of about 75 tons for a similar depth.

If driven piles are used, it is recommended that two over length (90 foot) penetration test piles be driven at the start of construction to establish the pile driving criteria, and to better evaluate the required length of piling before the order is placed for the remaining production piles. The contractor should be prepared to predrill through any shallow hard layers and to re-strike the indicator piles after a seven day set-up period if the design capacity is not met during initial driving operations.

The pile driving contractor should include a GRLWEAP analysis with their submittal to indicate that the piles can be effectively driven with the selected hammer and driving system configuration. Higher capacity piles (greater than 40 tons) require some form of a load test, which typically involves using a PDA on the indicator piles. We recommend budgeting for PDA testing during the initial driving operations and during pile restrikes if necessary. The PDA results can be used to finalize the driving protocol.

Following the test pile program, decisions can be made regarding pile capacity, length, and driving criteria for the remainder of the project. Based on our borings, we recommend a minimum pile length of 65 feet, even if PDA testing indicates capacity is being achieved at shallower depths. Settlement analyses should be included as part of the final pile length assessment; however, we expect that piles driven to the recommended materials will experience settlements of 1 inch or less.

Driven Pile Vibrations. Pile driving will generate vibrations and noise which are often perceived by the public to be much more significant than they truly are. However, truly high vibrations can damage nearby buildings and infrastructure. As such, we recommend that a preconstruction survey be performed on all nearby buildings to document existing conditions in the event that a claim is filed. Additionally, vibration monitoring devices should be set at appropriate locations to continuously measure vibrations. In our experience, a vibration damage threshold of 1 to 2 inches per second is often used; however, we recommend limiting vibrations to 0.50 inches per second if possible.

Auger Cast Piles. Consideration can also be given to using a continuous flight auger cast pile. We anticipate that these piles will be drilled to about 75 to 80 feet to develop design capacities of 90 to 100 tons compression and 75 tons uplift for a 16-inch diameter pile.

We recommend that an instrumented test pile be installed for load testing to comply with the State Building Code. The pile should be outfitted with strain gauges to allow for the separation of end bearing and skin friction contributions. Settlement analyses should be included as part of the final pile length assessment; however, we expect that piles drilled to the recommended materials will experience settlements of 1 inch or less.

Lateral Analyses. We have not been provided with lateral loading details, to include the interaction between the bridge piles and the plan sheeting. Based on the test boring results, ultimate (unfactored) soil parameters are given

in the table below. If anchored sheeting is needed, we recommend that an appropriate number of test anchors be load tested to verify the design capacity.

**RECOMMENDED ULTIMATE STRENGTH PARAMETERS. APPROPRIATE SAFETY FACTOR SHOULD BE APPLIED.**

BORING	DEPTH (FT)	C (PSF)	$\phi'$ (DEGREES)	UNIT WEIGHT (PCF)**	E50	K (PCI)
B-1	0-12	0	32	120	NA	70
	12-27	0	30	120	NA	40
	27-36	400	0	120	0.02	NA
	36-47	0	40	130	NA	130
	47-57	0	33	125	NA	70
	57-62	2000	0	120	0.007	NA
	62-80	4000	0	125	0.005	NA
B-2	0-6	0	30	115	NA	50
	6-18	125	0	100	0.02	NA
	18-23	0	29	120	NA	25
	23-26	300	0	120	0.02	NA
	26-42	0	36	130	NA	100
	42-53	0	33	125	NA	70
	53-60	4000	0	125	0.005	NA

**\*\*USE BOUYANT UNIT WEIGHT BELOW DESIGN HIGH WATER TABLE**

Wall Backfilling/Approach Settlement. If post-installation wall backfilling is needed, we recommend backfilling with a granular material which can be easily compacted. We recommend that all backfill be compacted to 95% of the standard Proctor maximum dry density, except where the upper 24 inches should be compacted to 100% standard Proctor.

Placement of backfill on the bridge approaches to raise grade will result in settlement of the underlying soils, especially for the boring B-2 profile. Provided plans indicate that about 3 feet of new fill is needed towards the B-2 approach, and we estimate that placement of this material will result in about 6 inches of short term settlement, and 3 to 4 inches of long term settlement from the organic silt from 6 to 18 feet in B-2. As such, we recommend that this fill be placed as early in the project as possible to start the consolidation process, and that consideration be given to placing a surcharge of 5 feet in height above the new fill to reduce long term settlement. Settlement plates should be used to monitor settlement of the preload.

Even with preloading, it is possible that some (lesser) long term settlement could occur. It will be easier to make future modifications if the concrete approach slab is put in low with asphalt added over the slab so that the area can be milled and filled when needed for rideability. Alternatively, if no risk of settlement is acceptable, the organic material will have to be removed and replaced, improved, or bridged. We can provide additional recommendations regarding this issue as needed.

Re: Woodhaven Drive Culvert Replacement  
March 9, 2021  
Page: 4

GeoTechnologies, Inc. appreciates the opportunity to be of service on this phase of the project. Please contact us if you have any questions concerning this letter or if we may be of additional service on this or other projects.

Sincerely,

GeoTechnologies, Inc.

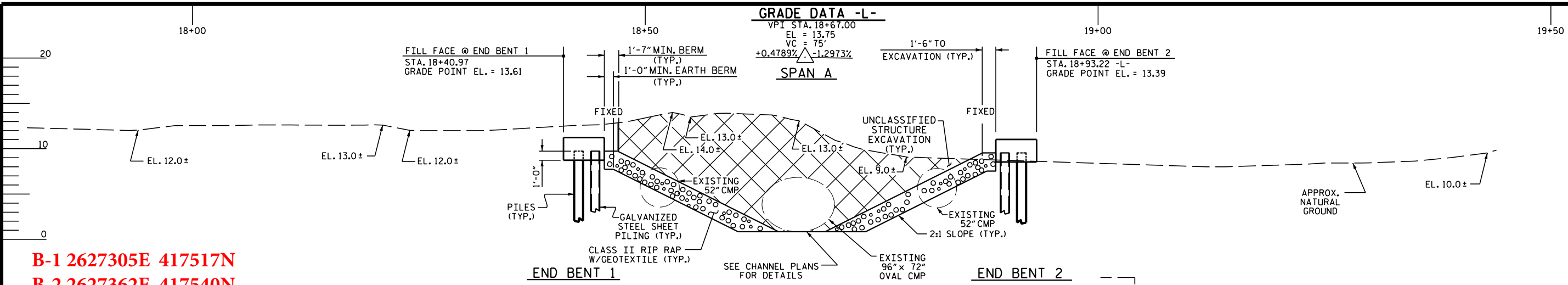


Ernest L. Stitzinger, P.E.  
NC Registration No. 25534

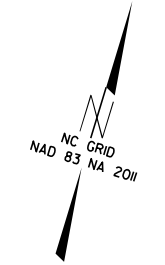
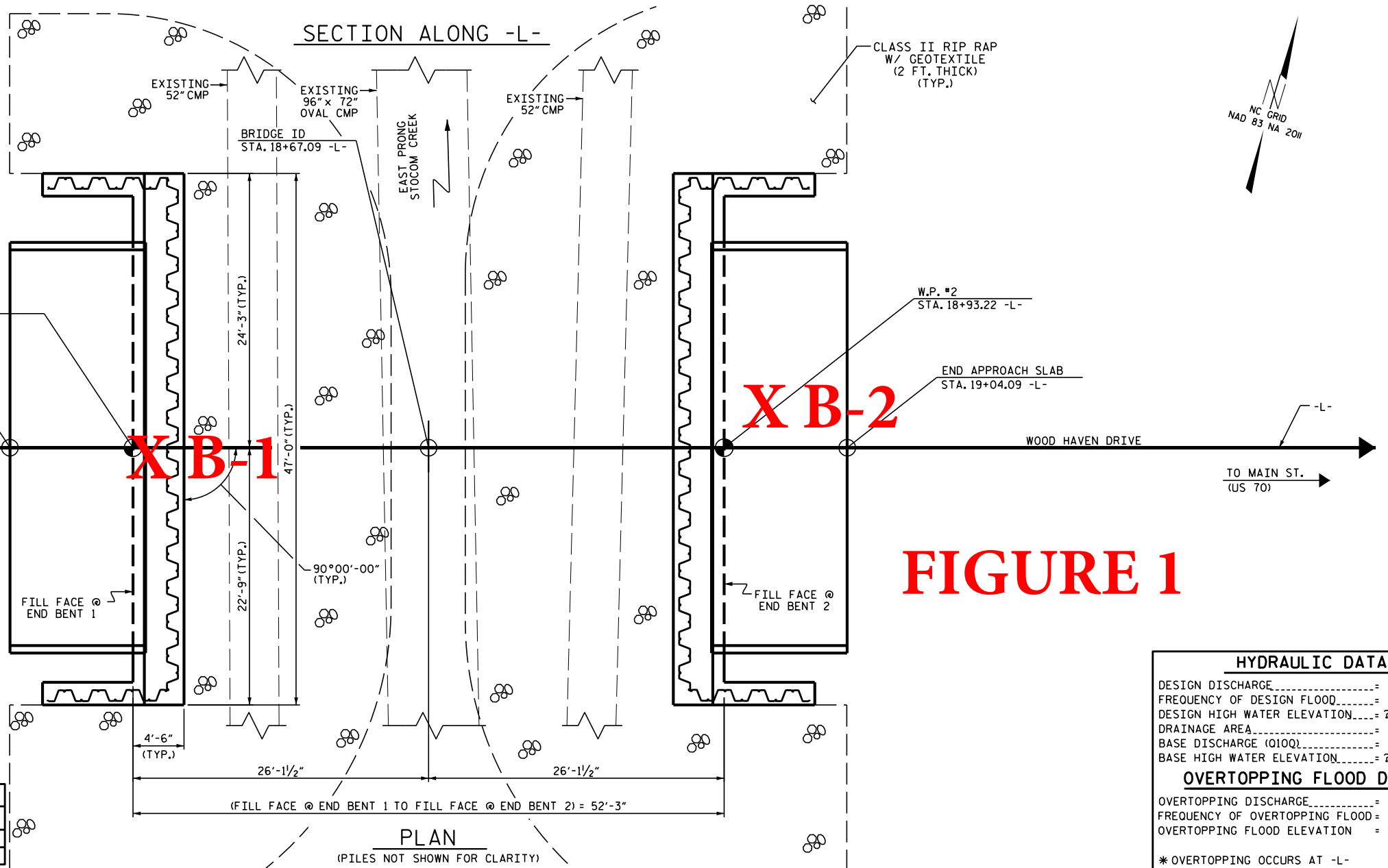


GeoTechnologies, Inc.

[www.geotechpa.com](http://www.geotechpa.com)



**B-1 2627305E 417517N**  
**B-2 2627362E 417540N**



**FIGURE 1**

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

LOW CHORD ELEVATIONS	
	ELEVATION @ C. BRG. RIGHT SIDE
END BENT 1	11.31
END BENT 2	11.11

HYDRAULIC DATA	
DESIGN DISCHARGE	= C.F.S.
FREQUENCY OF DESIGN FLOOD	= YRS.
DESIGN HIGH WATER ELEVATION	= ?
DRAINAGE AREA	= SQ. MI.
BASE DISCHARGE (1010Q)	= C.F.S.
BASE HIGH WATER ELEVATION	= ?
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= YRS.
OVERTOPPING FLOOD ELEVATION	= ?

\* OVERTOPPING OCCURS AT -L-

FILE: P:\2021\21307.02 Wood Haven Drive-HS\Structures\DCN\WOOD HAVEN PGD.dgn  
 MODEL: DeFault  
 PLOT DRW: STR\_PDF - HalfSize.pltctfg  
 DATE/TIME: 12/9/2020 4:05 PM


REVISIONS			
NO.	DATE	DESCRIPTION	BY

**WOOD HAVEN DR.**  
**CITY OF HAVELOCK, N.C.**  
**PRELIMINARY GENERAL DRAWING**  
 (1 OF 2)

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

PROJECT ENGINEER \_\_\_\_\_  
 DATE \_\_\_\_\_

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

  
**WETHERILL ENGINEERING**  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 License No. F-0377

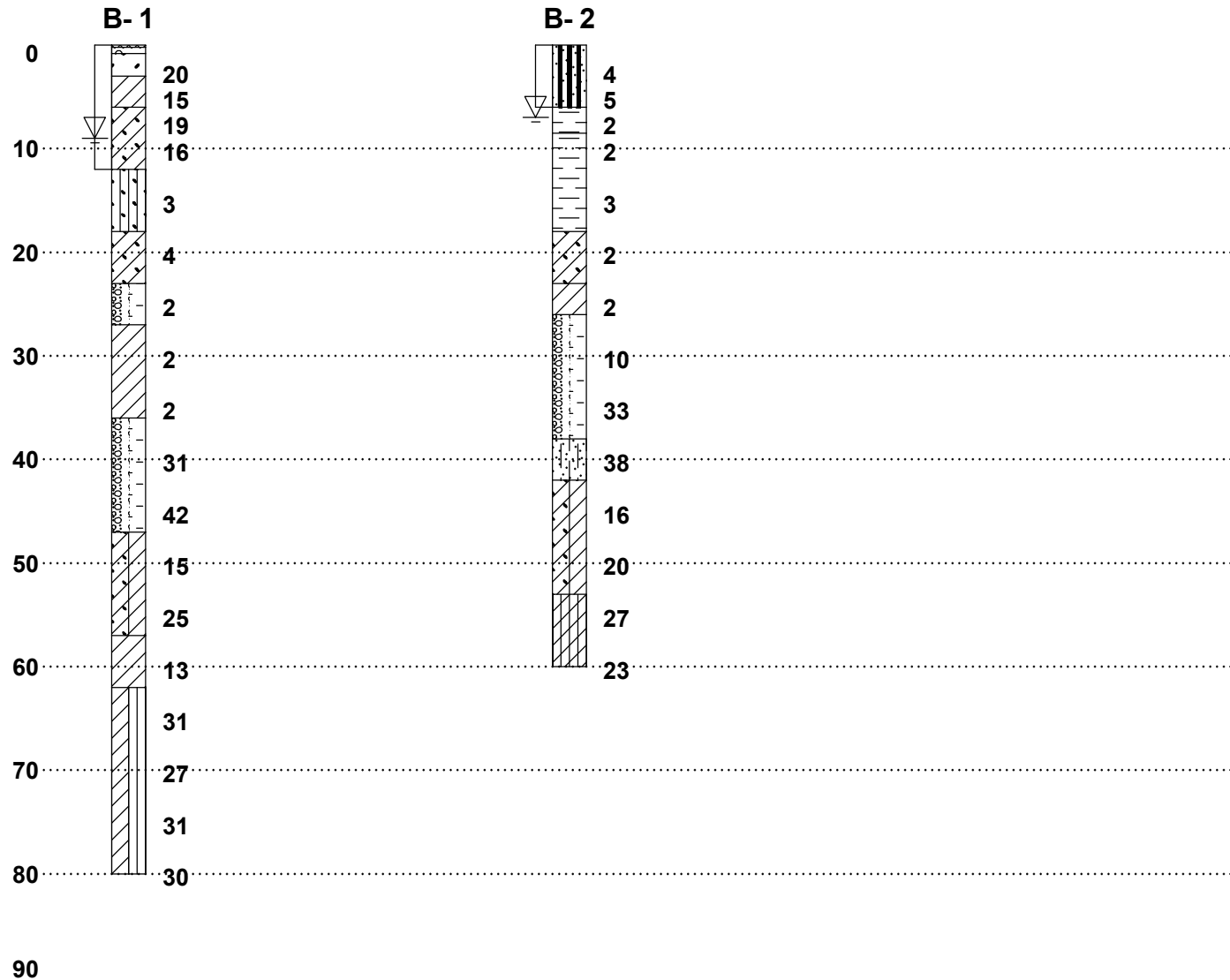
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

DATE:	12-20
SCALE:	NTS
DRAWN:	JCP
CHECKED:	JTD
PROJ. NO.:	21317.02
SHEET:	PGD1

Depth (Feet)

### GENERALIZED SUBSURFACE PROFILE

### LEGEND



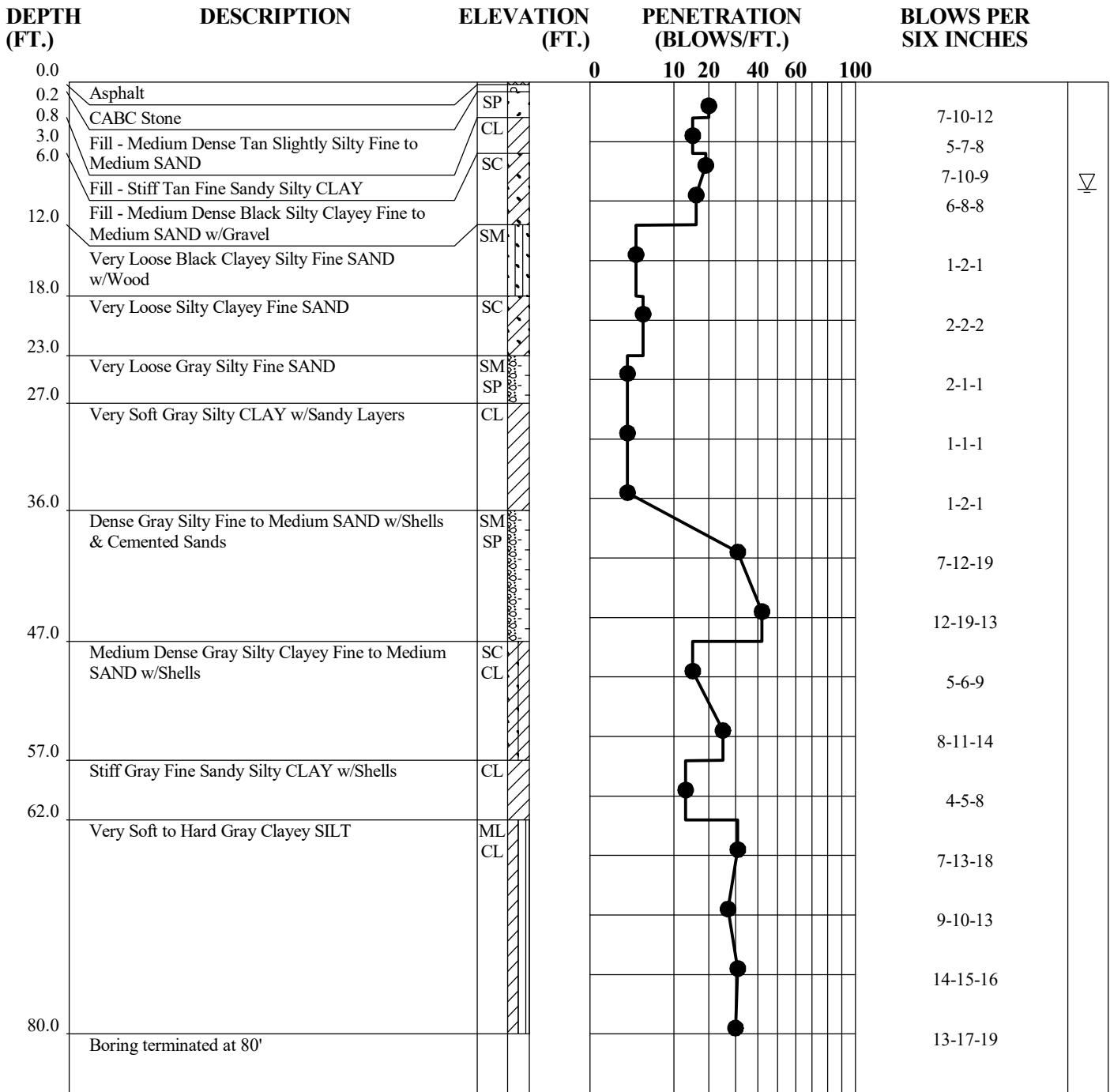
- Asphalt
- CABC Stone
- Poorly-graded Sand
- Low Plasticity Clay
- Clayey Sand
- Silty Sand
- Slightly Silty Sand
- Clayey Sand - Sandy Clay
- Low Plasticity Silt to Clay
- Silty and Clayey Sand
- Organic Silt or Clay
- Poorly-graded Sand with Silt
- Fill
- Standard Penetration Resistance
- Groundwater at Time of Boring

**PROJECT:**  
Woodhaven Dr. Culvert Replacement  
Havelock, North Carolina



**SCALE:** As Shown  
**JOB No:** 1-21-0125-EA  
**FIGURE No:** 2

# TEST BORING RECORD



GTI\_MAIN 210125.GPJ GTI.GDT 3/5/21

Groundwater encountered at 9' at time of boring.

**JOB NUMBER**    1-21-0125-EA  
**BORING NUMBER**    B- 1  
**DATE**    3-3-21





# TEST BORING RECORD

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	PENETRATION (BLOWS/FT.)	BLOWS PER SIX INCHES	
			0    10   20   40   60   100		
0.0	Fill - Very Loose to Loose Tan Clayey Silty Fine to Medium SAND	SM SC	●	3-2-2	
6.0			●	1-1-4	
8.5	Very Soft Black Organic Clayey SILT	OL	●	1-1-1	▽ 9.9% ORGANIC
	Very Soft Black Organic Clayey SILT	OL	●	1-1-1	20.1% ORGANIC
			●	1-1-2	10.5% ORGANIC
18.0	Very Loose Gray Silty Clayey Fine SAND	SC	●	1-1-1	
23.0	Very Soft Gray Fine Sandy Silty CLAY	CL	●	1-1-1	
26.0	Loose to Dense Gray Silty Fine to Coarse SAND w/Shells & Cemented Sands	SM SP	●	2-3-7	
			●	10-15-18	
38.0	Dense Gray Slightly Silty Fine to Medium SAND w/Shells	SP SM	●	11-17-21	
42.0	Medium Dense Gray Silty Clayey Fine to Medium SAND w/Shells	SC CL	●	7-7-9	
			●	8-10-10	
53.0	Very Stiff Gray Fine Sandy Silty CLAY w/Shells	CL ML	●	11-13-14	
60.0	Boring terminated at 60'		●	12-10-13	

GTI\_MAIN 210125.GPJ GTI.GDT 3/5/21

Groundwater encountered at 7' at time of boring.

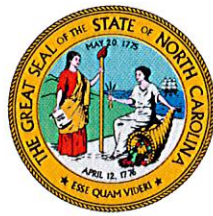
**JOB NUMBER**    1-21-0125-EA  
**BORING NUMBER**    B- 2  
**DATE**                3-3-21



ROY COOPER  
Governor

ELIZABETH S. BISER  
Secretary

BRIAN WRENN  
Director



NORTH CAROLINA  
Environmental Quality

July 27, 2021

## LETTER OF APPROVAL WITH MODIFICATIONS

City of Havelock  
Attn: Mr. William L. Lewis, Jr., Mayor  
P.O. Box 368  
Havelock, NC 28532

RE: Project Name: Woodhaven Drive Bridge Replacement      Acres Approved: 1.74  
Project ID: Crave-2021-037  
County: Craven  
City: Havelock  
Address: Woodhaven Drive  
River Basin: Neuse  
Date Received by LQS: July 26, 2021  
Submitted By: Hazen and Sawyer  
Plan Type: Revised

Dear Sir,

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable and hereby issue this Letter of Approval. The enclosed Certificate of Approval must be posted at the job site. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

As of April 1, 2019, all new construction activities are required to complete and submit an electronic Notice of Intent (eNOI) form requesting a Certificate of Coverage (COC) under the NCG010000 Construction General Permit. After the form is reviewed and found to be complete, you will receive a link with payment instructions for the \$100 annual permit fee. After the fee is received, you will receive the COC via email. You MUST obtain the COC prior to commencement of any land disturbing activity. The eNOI form may be accessed at [deq.nc.gov/NCG01](http://deq.nc.gov/NCG01). Please direct questions about the eNOI form to Annette Lucas at [Annette.lucas@ncdenr.gov](mailto:Annette.lucas@ncdenr.gov) or Paul Clark at [Paul.clark@ncdenr.gov](mailto:Paul.clark@ncdenr.gov). If the owner/operator of this project changes in the future, the new responsible party is required to apply for his/her own COC.

Title 15A NCAC 4B .0118(a) and the NCG01 permit require that the following documentation be kept on file at the job site:



North Carolina Department of Environmental Quality | Division of Energy, Mineral and Land Resources  
Washington Regional Office | 943 Washington Square Mall | Washington, North Carolina 27889  
252.946.6481

1. The approved E&SC plan as well as any approved deviation.
2. The NCG01 permit and the COC, once it is received.
3. Records of inspections made during the previous 30 days.

Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to ensure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Act is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to insure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you provided. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project.

Please be advised that a rule to protect and maintain existing buffers along watercourses in the Neuse River Basin became effective on July 22, 1997. The Neuse River Riparian Area Protection and Maintenance Rule (15A NCAC 2B.0233) applies to the 50-foot wide zone directly adjacent to surface waters (intermittent streams, perennial streams, lakes, ponds, and estuaries) in the Neuse River Basin. For more information about this riparian area rule, please contact the Division of Water Resources Wetland/401 Unit at 919-807-6300, or DWR in our regional office at 252-946-6481.

Sincerely,

A handwritten signature in blue ink, appearing to read "Samir Dumpor, PE". To the right of the signature is a small, stylized blue mark that looks like the letters "For".

Samir Dumpor, PE  
Regional Engineer

cc w/o enc: William L. Lewis, Jr., City of Havelock (email)  
Patrick Lee, City of Havelock (email)  
Laura Saleeby, PE, Hazen and Sawyer (email)  
WaRO Division of Water Resources (email)

1. The developer is responsible for the control of sediment on-site. If the approved erosion and sedimentation control measures prove insufficient, the developer must take those additional steps necessary to stop sediment from leaving this site (NCGS 113A-57(3)). Each sediment storage device must be inspected after each storm event (NCGS 113A-54.1(e)). Maintenance and/or clean out is necessary anytime the device is at 50% capacity. All sediment storage measures will remain on site and functional until all grading and final landscaping of the project is complete (15A NCAC 04B .0113).
2. The developer is responsible for obtaining all permits and approvals necessary for the development of this project prior to the commencement of this land disturbing activity. This could include our agency's Stormwater regulations and the Division of Water Resources' enforcement requirements within Section 401 of the Clean Water Act, the U.S. Army Corps of Engineers' jurisdiction of Section 404 of the Clean Water Act, the Division of Coastal Management's CAMA requirements, the Division of Solid Waste Management's landfill regulations, the Environmental Protection Agency and/or The U.S. Army Corps of Engineers jurisdiction of the Clean Water Act, local County or Municipalities' ordinances, or others that may be required. This approval cannot supersede any other permit or approval.
3. Adequate and appropriate measures must be properly installed downstream, within the limits of disturbance, of any land disturbing activity to prevent sediment from leaving the limits of disturbance, entering existing drainage systems, impacting an on-site natural watercourse or adjoining property. (NCGS 113A-57)

# PROJECT INFORMATION SHEET

APPROVAL DATE: July 27, 2021

RESPONSIBLE PARTY: City of Havelock

PROJECT NAME: Woodhaven Drive Bridge Replacement

COUNTY: Craven NO.: Crave-2021-037

OFF-SITE BORROW  
AND/OR DISPOSAL SITE: \_\_\_\_\_ NO.: \_\_\_\_\_

START-UP DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

ON-SITE CONTACT: \_\_\_\_\_

ON-SITE PHONE NO.: \_\_\_\_\_

OFFICE PHONE NO.: \_\_\_\_\_

**COMPLETE & RETURN THIS FORM  
PRIOR TO THE START OF CONSTRUCTION TO:**

**N.C.D.E.Q.  
LAND QUALITY SECTION  
ATTN: *James Edwards*  
943 WASHINGTON SQUARE MALL  
WASHINGTON, NORTH CAROLINA 27889  
[james.edwards@ncdenr.gov](mailto:james.edwards@ncdenr.gov)**



# CERTIFICATE OF PLAN APPROVAL



The posting of this certificate certifies that an erosion and sedimentation control plan has been approved for this project by the North Carolina Department of Environmental Quality in accordance with North Carolina General Statute 113A - 57 (4) and 113A - 54 (d) (4) and North Carolina Administrative Code, Title 15A, Chapter 4B.0107 (c). This certificate must be posted at the primary entrance of the job site before construction begins and until establishment of permanent groundcover as required by North Carolina Administrative Code Title 15A, Chapter 4B.0127 (b). **Woodhaven Drive Bridge Replacement,**

**Woodhaven Drive Craven County**

Project Name and Location

**7/27/21**

Date of Plan Approval

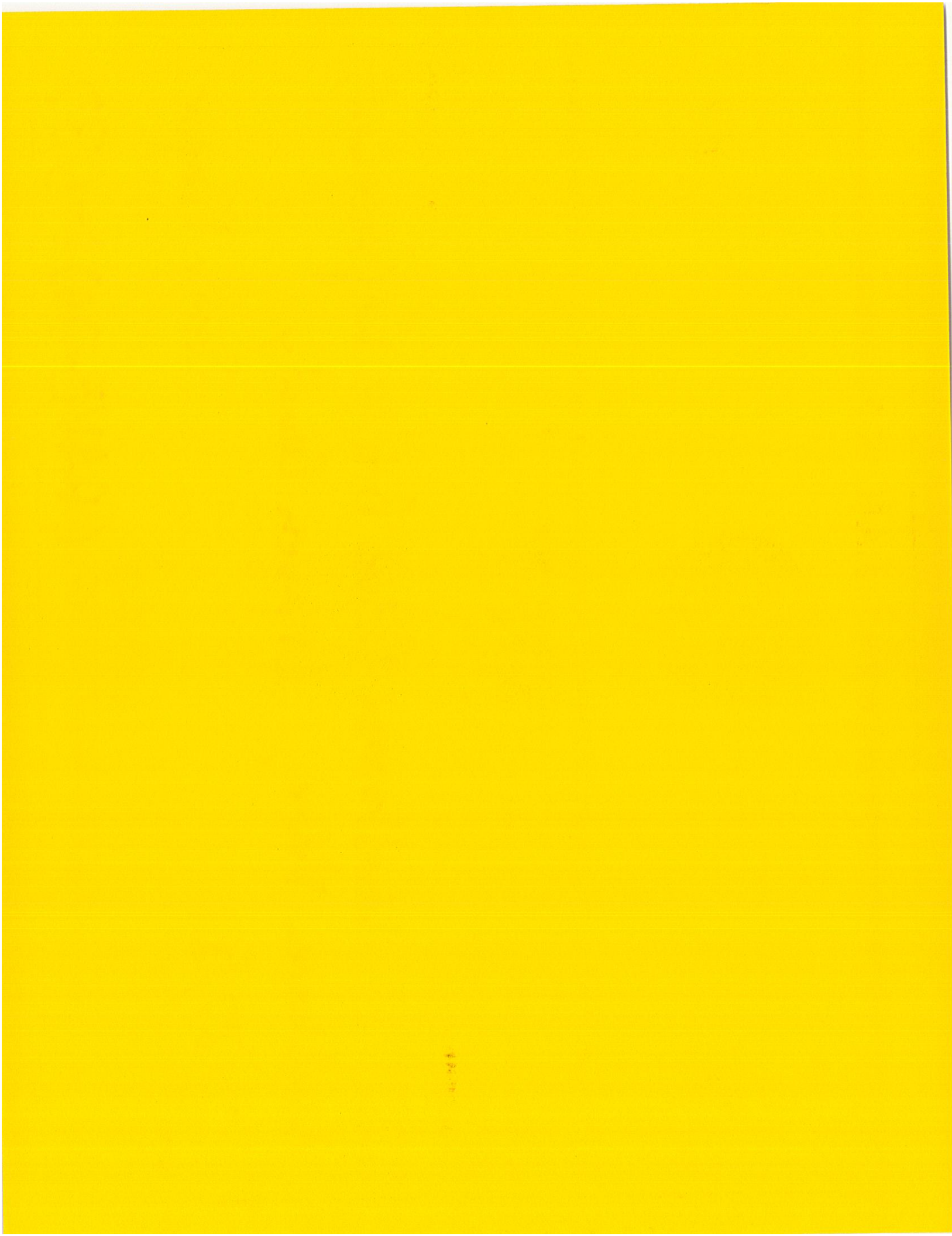
**Samir Durgor**  
Regional Engineer



**CRAVE-2021-037**

Certificate of Coverage Number





**U.S. ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT**

Action Id. SAW-2021-00956 County: Craven U.S.G.S. Quad: NC-Havelock

**GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION**

Permittee: City of Havelock  
Mr. Frank Bottorff (City Manager)  
Address: Post Office Box 368  
Havelock, North Carolina 28532  
Telephone Number: 252-444-6401  
E-mail: fbottorff@havelocknc.us

Size (acres)	<u>1.7</u>	Nearest Town	<u>Havelock</u>
Nearest Waterway	<u>East Prong Slocum Creek</u>	River Basin	<u>Neuse</u>
USGS HUC	<u>03020204</u>	Coordinates	Latitude: <u>34.879178</u> Longitude: <u>-76.907873</u>

Location description: The project is located at the East Prong Slocum Creek road crossing on Wood Haven Drive between Belltown Road and East Main Street in Havelock, NC.

Description of projects area and activity: This verification authorizes the replacement of the culverted crossing on Wood Haven Drive damaged during Hurricane Florence with a concrete slab bridge. The project will permanently impact 0.098 acres of wetlands and 41 linear feet of East Prong Slocum Creek to grade and fill to tie the fill-slope and stream channel to the existing topography. Temporary impacts include impacts to 0.097 acres of wetlands associated with equipment access and 44 linear feet of stream impacts associated with dewatering during construction. The existing 12-inch water line located under Wood Haven Drive exposed during the Hurricane will be replaced with a new water line within a cradle along the north side of the proposed bridge. The 8-inch gravity sanitary sewer line that crossed through one of the culverts will be buried during construction.

Applicable Law(s):  Section 404 (Clean Water Act, 33 USC 1344)  
 Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: **NWP 14. Linear Transportation Projects**

**SEE ATTACHED NWP GENERAL, REGIONAL, AND/OR SPECIAL CONDITIONS**

**Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the enclosed Conditions, your application signed and dated 5/5/2021, and the enclosed plans Jurisdictional Waters Impact Map and Wood Haven Drive Bridge Replacement received 5/5/2021. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.**

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 919-807-6300) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management **Morehead City, NC, at (252) 808-2808.**

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.



If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Emily B. Thompson** at **(910)251-4629** or **Emily.B.Thompson@usace.army.mil**.

Corps Regulatory Official: *Emily B. Thompson* Date: **6/23/2021**  
Expiration Date of Verification: **03/18/2022**

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 the Customer Satisfaction Survey located at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=136:4:0](http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0)

Copy furnished (via e-mail):

Agent: **Hazen and Sawyer**  
**Ms. Linda Diebolt**  
Address: **4011 West Chase Boulevard; Suite 500**  
**Raleigh, North Carolina 27607**  
Telephone Number: **919-906-1775**  
E-mail: **ldiebolt@hazenandsawyer.com**

Action ID Number: SAW-2021-00956 County: Craven

Permittee: City of Havelock, Mr. Frank Bottorff (City Manager)

Project Name: Wood Haven Drive Bridge Replacement/City of Havelock/Craven

Date Verification Issued: 6/23/2021

Project Manager: Emily B. Thompson

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:











US ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT  
Attn: Emily B. Thompson  
Washington Regulatory Office  
U.S Army Corps of Engineers  
2407 West Fifth Street  
Washington, North Carolina 27889  
or  
Emily.B.Thompson@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

-  Proposed Limits of Disturbance
-  Stream Pump Around System
-  Stream Cofferd Dam
-  Proposed Topography
-  East Prong Slocum Creek
-  Jurisdictional Wetland
-  Permanent Stream Impact
-  Permanent Wetland Impact
-  Temporary Stream Impact
-  Temporary Wetland Impact

W1 - Wetland A  
 Permanent Impact: 0.021 acre  
 - Minor grading and fill to tie the fill slope and stream channel to the existing topography

W2 - Wetland A  
 Temporary Impacts: 0.058 acre  
 - Equipment access for coffer dam and pump around system, and stream channel and berm work

S1 - Stream Pump Around System  
 East Prong Slocum Creek - Perennial  
 Temporary Impacts: 34 feet (15 feet wide)

S2 - Minor grading and excavation to tie the existing and new stream channels together  
 East Prong Slocum Creek - Perennial  
 Permanent Impacts: 20 feet (15 feet wide)

Concrete Slab Bridge

Concrete Approach Slab

Water line to be relocated (aerial)

Wood Haven Road

Sanitary sewer line to be relocated (buried)

W4 - Wetland A  
 Temporary Impacts: 0.047 acre  
 - Equipment access for coffer dam and pump around system, and stream channel and berm work

S3 - Minor grading and excavation to tie the existing and new stream channels together  
 East Prong Slocum Creek - Perennial  
 Permanent Impacts: 21 feet (21 feet wide)

Net Increase in Stream Length: 100 feet (15 feet wide)  
 Three culverts will be removed from segment of East Prong Slocum Creek under Wood Haven Drive

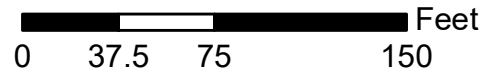
W2 - Wetland A  
 Permanent Impacts: 0.081 acre  
 - Minor grading and fill to tie the fill slope and stream channel to the existing topography

S4 - Cofferd dam and stream pump around system  
 East Prong Slocum Creek - Perennial  
 Temporary Impacts: 10 feet (14 feet wide)

**JURISDICTIONAL WATERS IMPACT SUMMARY**  
 Wetlands | Riverine Swamp Forest -  
 Temporary Impacts: 0.097 acre  
 Permanent Impacts: 0.098 acre  
 Perennial Stream | East Prong Slocum Creek -  
 New Stream Length: 100 feet (15 feet wide)  
 Temporary Impacts: 44 feet  
 Permanent Impacts: 41 feet



1 inch equals 75 feet



**JURISDICTIONAL WATERS IMPACT MAP**

**Wood Haven Drive Bridge Replacement  
 City of Havelock, Craven County, NC**

ROY COOPER

*Governor*

ELIZABETH S. BISER

*Secretary*

S. DANIEL SMITH

*Director*

July 22, 2021  
 Craven County  
 NCDWR Project No. 20210696  
 Wood Haven Drive

**APPROVAL of 401 WATER QUALITY CERTIFICATION and NEUSE BUFFER AUTORIZATION with ADDITIONAL CONDITIONS**

Mr. Frank Bottorff  
 City of Havelock  
 P.O. Box 368  
 Havelock, NC 28532

Dear Mr. Bottorff:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of replacing three corrugated metal pipes with a bridge over East Prong Slocum Creek on Wood Haven Drive in Havelock in Craven County:

**Wetland and Stream Impacts in the Neuse River Basin**

Site	Wetland Fill Permanent (ac)	Wetland Fill Temporary (ac)	Stream Permanent (lf)	Stream Temporary (lf)
Woodhaven Dr.	0.098	0.097	41	44
Total	0.195		85	

**Buffer Impacts in the Neuse River Basin**

Site	Buffer Zone 1 (sq ft)	Buffer Zone 2 (sq ft)
Woodhaven Dr.	5,061	2,900
Total	7,961	

The project shall be constructed in accordance with your application dated received June 3, 2021. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 4135. This certification corresponds to the Nationwide Permit 14 issued by the Corps of Engineers. This approval is also valid for the Neuse Riparian Buffer Rules (15A NCAC 2B.0714). In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 300 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC 2B.0714. For this approval to remain valid, you must adhere to the conditions listed in the attached certification(s) and any additional conditions listed below.





**Condition(s) of Certification:**

1. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
2. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
3. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
4. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]
5. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]
6. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]
7. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]
8. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
9. 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. [15A NCAC 02H .0506{b)(3) and (c)(3) and 15A NCAC 02B.0200]
  - a. 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 *NCDOT Sediment and Erosion Control Manual*.
  - b. 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.
10. Sediment and erosion control measures shall not be placed in wetlands or surface waters or within 5 feet of the top of bank without prior approval from DWR. [15A NCAC 02H.0506(b)(3) and (c)(3)]
11. Erosion control matting in riparian areas shall not contain a plastic or nylon mesh grid which can impinge and entrap small animals. Matting should be secured in place by staples, stakes, or wherever possible live stakes of native trees. Riparian areas are defined as a distance 25 feet from top of stream bank. [15A NCAC 02B.0201]
12. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed from wetlands and waters and the



natural grade restored within two (2) months of the date that the Division of Energy, Mining and Land Resources (DEMLR) or locally delegated program has released the specific area within the project. [15A NCAC 02H.0506(b)(3) and (c)(3)]

13. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) where possible before entering the stream. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
14. All bridge construction shall be performed from the existing roadway, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water. [15A NCAC 02H .0506(b)(3)]
15. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first. [15A NCAC 02H.0506(b)(2)]
16. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
17. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]
18. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly. [15A NCAC 02H .0506(b)(3)]
19. Pursuant to 15A NCAC 2B.0714(11), temporary sediment and erosion control devices are allowed with this authorization in Zone 1 and Zone 2 of the riparian buffer provided that the disturbed area is restored to preconstruction topographic and hydrologic conditions and replanted with comparable vegetation within two months of when construction is complete.
20. All riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated. Maintained buffers shall be permanently revegetated with non-woody species by the end of the growing season following completion of construction. For the purpose of this condition, maintained buffer areas are defined as areas within the transportation corridor that will be subject to regular NCDOT maintenance activities including mowing. The area with non-maintained buffers shall be permanently revegetated with native woody species before the next growing season following completion of construction. (15A NCAC 2B.0714)
21. All stormwater runoff shall be directed as sheetflow through stream buffers at non-erosive velocities, unless otherwise approved by this certification. [15A NCAC 2B.0714(9)]
22. Stormwater conveyances through the riparian buffer are allowable provided they do not erode through the riparian buffer and do not cause erosion to the receiving waterbody and meet the other requirements specified in 15A NCAC 2B.0714(9).
23. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0506(b)(2)]
24. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
25. The permittee and its authorized agents shall conduct its 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. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being



violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]

26. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
27. Upon completion of the project (including any impacts at associated borrow or waste sites), the applicant shall complete the "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]
28. A copy of this Water Quality Certification shall be maintained on the construction site at all times. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:


Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Bill F. Lane, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center

This letter completes the review of the Division of Water Resources under Section 401 of the Clean Water Act. If you have any questions, please contact Garcy Ward at (252)948-3917 or [garcy.ward@ncdenr.gov](mailto:garcy.ward@ncdenr.gov).

Sincerely,

DocuSigned by:  
  
9C9886312DCD474...  
Division of Water Resources

Electronic copy only distribution:

Emily Thompson, US Army Corps of Engineers, Washington Field Office  
Frank Bottorf, [fbottorf@havelocknc.us](mailto:fbottorf@havelocknc.us)  
Linda Diebolt, Hazen and Sawyer, [ldiebolt@hazenandsawyer.com](mailto:ldiebolt@hazenandsawyer.com)  
Garcy Ward, NC Division of Water Resources Washington Regional Office  
File Copy







# North Carolina Department of Public Safety

## Emergency Management

Roy Cooper, Governor  
Erik A. Hooks, Secretary

Michael A. Sprayberry, Executive Director

July 23, 2021

Katrina F. Marshall, AICP  
Director of Planning and Code Enforcement  
City of Havelock, North Carolina

Subject: No-Rise Certification Study for Proposed Woodhaven Drive Culvert Replacement Project, City of Havelock, North Carolina

Dear Ms. Marshall:

The North Carolina Department of Public Safety Division of Emergency Management Risk Management National Flood Insurance Program (NCNFIP) staff has reviewed the Engineering No-Rise Study Report and Certification for the proposed Woodhaven Drive Culvert Replacement Project on East Prong Slocum Creek located in City of Havelock, North Carolina. The Report was prepared by Harminder Singh, P.E., dated on June 8, 2021. The report was received in this office on June 30, 2021.

Based on the information provided, the NCNFIP review indicates the report meets the requirements of the Federal Emergency Management Agency's (FEMA) guidance for a no-rise certification. The NCNFIP finds no objection to the conclusion of no increase in base flood elevation or floodway elevation as contained in the certification.

The no-rise study indicates a substantial drop in base flood elevation due to the proposed culvert replacement project. In accordance with 44 CFR 65.3, within six months following construction, a Letter of Map Revision (LOMR) should be filed to document the changes in flood levels along East Prong Slocum Creek. This is to assure that the risk premium rates for local residents and businesses and floodplain management requirements are based on current physical conditions at the site.

The No-Rise Certification Study is used to measure impacts due to the proposed culvert replacement project only. It should not be used to establish base flood elevations until after a Letter of Map Revision is approved and effective.

A Floodplain Development Permit will be required prior to construction.

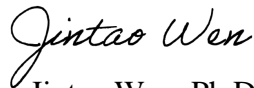
**MAILING ADDRESS:**  
4218 Mail Service Center  
Raleigh, NC 27699-4218  
flood.nc.gov



**OFFICE LOCATION:**  
4105 Reedy Creek Rd.  
Raleigh, NC 27607  
Telephone: (919) 715-5711  
Fax (919) 715-0408

If you have any questions or concerns with the items herein, please contact me at (919) 825-2317, by email at [jintao.wen@ncdps.gov](mailto:jintao.wen@ncdps.gov) or at the address shown on the footer of this document.

Sincerely,

A handwritten signature in cursive script that reads "Jintao Wen".

Jintao Wen, Ph.D., P.E.

NC NFIP Engineer

NC Emergency Management

cc: Eryn Futral, CFM, NC NFIP Eastern Branch Planner  
Steve Garrett, CFM, NC NFIP Coordinator

File