

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

October 3, 2022

MEMORANDUM TO: Mr. Wright R. Archer, III, P.E.

Division 7 Division Engineer

FROM: Michael A. Turchy, ECAP Group Leader

Environmental Analysis Unit

SUBJECT: Environmental Permits for the Widening of I-40 from US 15/501 to I-85

in Orange County, Division 7, TIP: I-3306 A.

Please find enclosed the following permits for this project:

Agency	Permit Type	Permit Expiration
US Army Corps of Engineers Section 404 Clean Water Act Permit	Regional General Permit 50	May 25, 2025
NC Division of Water Resources Section 401 Water Quality Certification	General Certification No. 4135 [RGP50]	May 25, 2025
NC Division of Water Resources Buffer Certification	Neuse River and Jordan Lake Water Supply Riparian Buffer Certification	August 17, 2027

Telephone: (919) 707-6000

Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Please feel free to contact our Unit for any questions.

ec:

NCDOT Permit Website (https://xfer.services.ncdot.gov/pdea/PermIssued/)

Project Commitments

Orange County
I-3306A I-40 Widening
Federal Project No. IMS-040-4(148)259
WBS No. 34178.1.3
TIP No. I-3306A

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Changes to existing commitments or new commitments are shown in *italics*.

Hydraulics Unit - FEMA Coordination

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This commitment is still valid.

NCDOT Division Construction - FEMA Coordination

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

This commitment is still valid.

<u>Traffic Noise Group – Noise Walls</u>

Four noise walls were considered feasible and reasonable in the Traffic Noise Report for the project. Those locations will be further evaluated during the final design phase.

This commitment is still valid.

A Traffic Noise Report Addendum will be completed in accordance with NCDOT's Traffic Noise Policy to evaluate the proposed design revision along I-40 west of Dimmocks Mill Road overpass.

This is a new commitment.

NCDOT Environmental Coordination & Permitting (ECAP)

Construction Authorization will not be requested until Section 7 Concurrence is received from the US Fish and Wildlife Service.

This is a new commitment.

NCDOT Roadside Environmental Unit/ NCDOT Division Construction Unit

Design Standards in Sensitive Watersheds shall apply to this project.

This is a new commitment.

NCDOT Roadside Environmental Unit/ NCDOT Division Construction Unit

Programmatic Conference Opinion (PCO) for Atlantic Pigtoe Neuse River Waterdog

Environmentally Sensitive Areas shall also be designated and defined as a 50-foot buffer zone within the right-of-way (and any easements required for construction) on both sides of New Hope Creek measured from top of streambank.

Within Environmentally Sensitive Areas the following shall apply:

- The contractor may perform clearing operations but not grubbing operations until immediately prior to beginning grading operations.
- Once grading operations begin in identified Environmentally Sensitive Areas, work shall progress in a continuous manner until complete.
- Erosion control devices shall be installed immediately following the clearing operation.
- Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment.
- Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope or greater than two acres in area, whichever is less.
- No heavy equipment will be placed in the streams.
- Special sediment control fence (NCDOT Standard No. 1606.01) or a combination of special sediment control fence and standard silt fence will be installed between the top of the streambank and bridge embankment. Once the disturbed areas of the project draining to these areas have been stabilized, the special sediment control fence and/or silt fence and all built up sediment adjacent to these devices will be removed to natural ground and stabilized with a native grass mix.
- All appropriate sedimentation and erosion control measures, throughout the project limits, will be maintained to ensure proper function following NCDOT Erosion and Sediment Control Design and Construction Manual and NCDOT Best Management Practices for Construction and Maintenance Activities.
- Coir fiber matting or clean riprap (underlain with geotextile) will be installed on the footprint of unclassified structure excavation near the streambanks.
- Embankment construction and grading shall be managed in such a manner as to prevent surface runoff/drainage from discharging untreated into the riparian buffer. All interim surfaces will be graded to drain to temporary erosion control devices. Temporary berms, ditches, etc. will be incorporated, as necessary, to treat runoff before discharging into the riparian buffer (as specified in NCDOT BMP manuals).

All sedimentation and erosion control measures will be appropriately maintained following NCDOT standards to ensure proper function of the measures. The NCDOT adheres to the permit conditions of General Permit NCG 010000 to Discharge Stormwater under the National Pollutant Discharge Elimination System for Construction Activities. NCDOT is required to "select, install, implement and maintain best management practices (BMPs) and control measures that minimize pollutants in the discharge to meet the requirements of this permit." Among other conditions, the permit requires:

- 1) all erosion and sedimentation control measures must be inspected at least once every seven calendar days and
- 2) within 24 hours after any storm event of greater than 1.0 inch of rain per 24-hour period. It is understood that these requirements and implementation of other appropriate BMPs are monitored through multiple layers of oversight. At a minimum, the following personnel monitor erosion control measures:
 - Contractor Project Manager
 - NCDOT Division Environmental Officers and Environmental Specialists.

This is a new commitment. The 6/10/21 version corrects the relevant species.

Division 7 – Northwood Neighborhood Steering Committee Coordination

The Northwood Neighborhood Steering Committee has identified several concerns related to the proposed project concerning safety and speed issues within the neighborhood. NCDOT Division 7 will review those concerns and coordinate further with the Committee.

This commitment is still valid and applies only to the I-3306AC project which will be let separately from the I-3306A Design Build project.

<u>Project Management Unit/Design-Build Team/NCDOT Division 7 – Town of Chapel Hill Coordination</u>

NCDOT will coordinate with the Town of Chapel Hill concerning accommodation of the proposed Bus Rapid Transit System, emergency service, and other concerns during the final design phase.

This commitment is still valid; to clarify, the Bus Rapid Transit coordination will be the responsibility of the NCDOT Project Management Unit/Division 7 and applies only to the I-3306AC project, which will be let separately from the I-3306A Design Build project. The remainder of the coordination will be a shared responsibility of the Design-Build Team and Division 7 for I-3306A and for PMU/Division 7 for I-3306AC.

Division of Planning and Programming

NCDOT will revise the 2020-2029 State Transportation Improvement Program (STIP) to include Project I-3306AC (NC 86 Upgrade to Superstreet from Northwood Drive to Ramp C/D at I-40 Interchange). This portion of the I-3306A project has been delayed at the request of the Town of Chapel Hill. The project break will be re-added to the STIP to schedule the Superstreet component for separate letting in FY 2026 as a Design-Bid-Build project.

This is a new commitment.

Division 7 / Project Management Unit

During the PE Phase of the I-3306AC project, NCDOT will reevaluate the I-3306AC Interchange Access Request (IAR). FHWA must approve the updated IAR prior to the authorization of federal funds for I-3306AC Right of Way and Construction.

The NC 86 Superstreet component was included in the I-3306AC IAR analysis. The IAR was approved by FHWA on December 31, 2019. The IAR must be reevaluated because an IAR is only valid for three years (expires December 31, 2022).

This is a new commitment.

<u>Transportation Program Management Unit – Sidewalk</u>

NCDOT will coordinate with the Town of Chapel Hill concerning cost-share and the maintenance agreement for sidewalk construction.

This applies only to the I-3306AC project which will be let separately from the I-3306A Design Build project.

This commitment is still valid.

COMMITMENTS FROM PERMITTING

No additional commitments were developed during project permitting.

404 Permit

U.S. ARMY CORPS OF ENGINEERS

WILMINGTON DISTRICT

Action Id. SAW-2013-00201 County: Orange U.S.G.S. Quad: NC-Efland/Hillsborough/Chapel Hill

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: NC Department of Transportation

Address:

Attn: Michael Turchy 1000 Birch Ridge Drive Raleigh, NC 27610

Size (acres) ~202 Nearest Town Hillsborough/Chapel Hill

Nearest Waterway
USGS HUC
USGS HUC
USGS HUC
Nearest Waterway
Location description:

The project area is located along Interstate Highway 40 (I-40), from the Interstate Highway 85 (I-85) interchange near Hillsborough to the Durham County line, in Orange County, North Carolina.

Description of projects area and activity: This verification authorizes the construction of NCDOT TIP I-3306A, the widening of I-40 from a four-lane facility to a six-lane facility, predominantly within the existing median, with 12 foot paved outside shoulders, a 22 foot median, and improvements to existing interchanges. This authorization consists of 32 distinct crossing sites (projects):

- 1) Site 1 (Rocky Run, Wetlands WA) requires the permanent discharge of fill material into 0.02 acre of wetlands and the temporary discharge of fill material into 67 linear feet (0.03 acre) of stream channel, for construction access and dewatering [Permit Drawing Sheets 2-5];
- 2) Site 2 (Stream SA, Wetland WE) requires the permanent discharge of fill material (not a loss of waters) into 102 linear feet (0.03 acre) of stream channel and 0.37 acre of wetlands, and the temporary discharge of fill material into 20 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, floodplain bench, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 6-9];
- 3) Site 3 (Streams SA, SB, and SC, and Wetlands WB and WC) requires the permanent discharge of fill material (loss of waters) into 40 linear feet (<0.01 acre) of stream channel and 0.053 acre of wetlands, the permanent discharge of fill material (not a loss of waters) into 146 linear feet (<0.05 acre) of stream channel, and the temporary discharge of fill material into 109 linear feet (<0.05 acre) of stream channel, for installation of supplemental culvert pipes, channel realignment, floodplain bench, channel bed and bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 6, 7, and 10-17];
- 4) Site 4 (Stream SC, Wetland WM) requires the permanent discharge of fill material (loss of waters) into 110 linear feet (<0.02 acre) of stream channel and 0.0304 acre of wetlands, and the temporary discharge of fill material into 26 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 10, 11, and 18-20];
- 5) Site 5 (Wetland WD) requires the permanent discharge of fill material into 0.013 acre of wetlands for installation of noise wall [Permit Drawing Sheets 21-23];
- 6) Site 6 (Stream SD) requires the permanent discharge of fill material (not a loss of waters) into 40 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 12 linear feet (<0.01 acre) of stream channel, for bank stabilization and associated construction access and dewatering [Permit Drawing Sheets 24-25];
- 7) Site 7 (Stream S5) requires the permanent discharge of fill material (loss of waters) into 78 linear feet (<0.02 acre) of stream channel and 0.205 acre of wetlands, the permanent discharge of fill material (not a loss of waters) into 16 linear feet (0.01 acre) of stream channel, and the temporary discharge of fill material into 37 linear feet (<0.02 acre) of stream channel, for installation of supplemental culvert pipes, channel realignment, channel bed and bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 26-31];
- 8) Site 8 (Stream SE) requires the permanent discharge of fill material (loss of waters) into 8 linear feet (<0.01 acre) of stream channel, the permanent discharge of fill material (not a loss of waters) into 13 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 11 linear feet (<0.01 acre) of stream channel, for extension of an existing culvert pipe, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 26, 27, and 32];
- 9) Site 9 (Streams SJ and SK) requires the permanent discharge of fill material (loss of waters) into 105 linear feet (<0.02 acre) of stream channel, the permanent discharge of fill material (not a loss of waters) into 20 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 30 linear feet (<0.02 acre) of stream channel, for installation of supplemental culvert pipes, channel realignment, channel bed and bank stabilization, and associated

- construction access and dewatering [Permit Drawing Sheets 33-35];
- 10) Site 10 (Streams SL, SM, and SR) requires the permanent discharge of fill material (loss of waters) into 52 linear feet (<0.02 acre) of stream channel, the permanent discharge of fill material (not a loss of waters) into 25 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 109 linear feet (<0.03 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, channel bed stabilization, and associated construction access and dewatering [Permit Drawing Sheets 36-38];
- 11) Site 11 (Stream SL) requires the permanent discharge of fill material (not a loss of waters) into 26 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 33 linear feet (0.01 acre) of stream channel, for installation of a supplemental culvert pipe, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 36-37];
- 12) Site 12 (Stream SL) requires the permanent discharge of fill material (not a loss of waters) into 42 linear feet (0.02 acre) of stream channel, and the temporary discharge of fill material into 21 linear feet (<0.01 acre) of stream channel, for installation of a supplemental culvert pipe, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 39-40];
- 13) Site 13 (Stream SL) requires the temporary discharge of fill material into 15 linear feet (<0.01 acre) of stream channel, for removal of an existing culvert pipe and associated construction access and dewatering [Permit Drawing Sheets 39-40];
- 14) Site 14 (Streams SL and SN) requires the permanent discharge of fill material (not a loss of waters) into 92 linear feet (0.03 acre) of stream channel, and the temporary discharge of fill material into 194 linear feet (<0.05 acre) of stream channel, for installation of a supplemental culvert pipe, floodplain bench, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 41-43];
- 15) <u>Site 15 (Stream SN)</u> requires the temporary discharge of fill material into 25 linear feet (<0.01 acre) of stream channel, for removal of an existing culvert pipe and associated construction access and dewatering [Permit Drawing Sheets 44-46];
- 16) Site 16 (Streams SS and SBB, and Wetland WU) requires the permanent discharge of fill material (loss of waters) into 93 linear feet (<0.02 acre) of stream channel and 0.019 acre of wetlands, and the temporary discharge of fill material into 38 linear feet (<0.03 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 47-50];
- 17) Site 17 (Stream SYY) requires the permanent discharge of fill material (loss of waters) into 20 linear feet (<0.01 acre) of stream channel and the temporary discharge of fill material into 10 linear feet (<0.01 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 51-52];
- 18) Site 18 (New Hope Creek) requires the permanent discharge of fill material (not a loss of waters) into 30 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 10 linear feet (<0.01 acre) of stream channel, for bank stabilization and associated construction access and dewatering [Permit Drawing Sheets 53-54];
- 19) Site 19 (Stream SV and Wetland WT) requires the permanent discharge of fill material (loss of waters) into 94 linear feet (<0.02 acre) of stream channel and 0.01 acre of wetlands, and the temporary discharge of fill material into 10 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 55-57];
- 20) Site 20 (Stream SX) requires the permanent discharge of fill material (loss of waters) into 89 linear feet (0.02 acre) of stream channel and the temporary discharge of fill material into 15 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 58-60];
- 21) Site 21 (Old Field Creek and Wetland WS) requires the permanent discharge of fill material (loss of waters) into 0.031 acre of wetlands, the permanent discharge of fill material (not a loss of waters) into 34 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 40 linear feet (0.02 acre) of stream channel, for installation of roadway fill, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 61-64];
- 22) <u>Site 22 (Stream SAA)</u> requires the permanent discharge of fill material (not a loss of waters) into 10 linear feet (<0.01 acre) of stream channel and the temporary discharge of fill material into 10 linear feet (<0.01 acre) of stream channel, for bank stabilization and associated construction access and dewatering [Permit Drawing Sheets 65-67];
- 23) Site 23 (Stream SCC) requires the permanent discharge of fill material (loss of waters) into 90 linear feet (<0.02 acre) of stream channel and the temporary discharge of fill material into 26 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 68-70];
- 24) Site 24 (Wetland WW) requires the temporary discharge of fill material into 0.005 acre of wetlands for construction of a roadway cut [Permit Drawing Sheets 68, 69, and 71];
- 25) Site 25 (Stream SDD and Wetland WK) requires the permanent discharge of fill material (loss of waters) into 39 linear feet (<0.01 acre) of stream channel and 0.011 acre of wetlands, the permanent discharge of fill material (not a loss of

- waters) into 24 linear feet (<0.01 acre) of stream channel, and the temporary discharge of fill material into 28 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, bank stabilization, and associated construction access and dewatering [Permit Drawing Sheets 72-74];
- 26) Site 26 (Wetland WJ) requires the temporary discharge of fill material into 0.004 acre of wetlands for construction of a roadway cut [Permit Drawing Sheets 75-77];
- 27) Site 27 (Stream SEE) requires the permanent discharge of fill material (not a loss of waters) into 20 linear feet (<0.01 acre) of stream channel, for channel bed stabilization [Permit Drawing Sheets 78-79];
- 28) Site 28 (Streams SEE and SGG and Wetland WAA) requires the permanent discharge of fill material (loss of waters) into 54 linear feet (<0.02 acre) of stream channel and 0.05 acre of wetlands, and the temporary discharge of fill material into 59 linear feet (<0.02 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 80-83];
- 29) <u>Site 29 (Stream SEE) requires the permanent discharge of fill material (not a loss of waters) into 17 linear feet (<0.01 acre) of stream channel and the temporary discharge of fill material into 20 linear feet (<0.01 acre) of stream channel, for bank stabilization and associated construction access and dewatering [Permit Drawing Sheets 84-85];</u>
- 30) Site 30 (Stream SEE and Wetland WCC) requires the permanent discharge of fill material (loss of waters) into 123 linear feet (0.05 acre) of stream channel and 0.04 acre of wetlands, and the temporary discharge of fill material into 45 linear feet (<0.02 acre) of stream channel, for installation of roadway fill, a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 86-89];
- 31) Site 31 (Stream SHH) requires the permanent discharge of fill material (loss of waters) into 34 linear feet (<0.01 acre) of stream channel and the temporary discharge of fill material into 5 linear feet (<0.01 acre) of stream channel, for installation of a supplemental culvert pipe, channel realignment, and associated construction access and dewatering [Permit Drawing Sheets 90-91];
- 32) <u>Site 32 (Stream SII) requires the permanent discharge of fill material (not a loss of waters) into 12 linear feet (<0.01 acre) of stream channel and the temporary discharge of fill material into 15 linear feet (<0.01 acre) of stream channel, for bank stabilization and associated construction access and dewatering [Permit Drawing Sheets 92-93].</u>

Authorization:	Regional General Permit 50. NCDOT Bridges, Road Widenings and Interchanges
	☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Applicable Law(s):	Section 404 (Clean Water Act, 33 USC 1344)

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 attached Conditions, your application signed and dated <u>6/28/2022</u>, additional information submitted via email on <u>7/28, 8/3, 8/4, 8/8, 8/20, 9/6 and 9/12/2022</u>, and the enclosed plans <u>"I-3306A Surface Water and Wetland Impact"</u>, <u>Permit Drawing Sheets 1 through 97</u>. 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 and/or regional general permit authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide and/or regional general 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 and/or regional general 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 and/or regional general permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide and/or regional general 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.

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 <u>David E. Bailey</u> at (919) 817-2436 or <u>David.E.Bailey2@usace.army.mil</u>.

Expiration Date of Verification: <u>5/25/2025</u>

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 https://regulatory.ops.usace.army.mil/customer-service-survey/.

Date: <u>9/15/2022</u>

Copy furnished electronically: Ryan Conchilla, NCDEQ-DWR

SPECIAL CONDITIONS

- 1. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Forms (4). The requirements of these forms, including any special conditions listed on these forms, are hereby incorporated as special conditions of this permit authorization.
- 2. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (PBO) titled, "NCDOT Program Effects on the Northern Long-eared Bat in Divisions 1-8", dated November 6, 2020, contains agreed upon conservation measures for the NLEB. As noted in the PBO, applicability of these conservation measures varies depending on the location of the project. Your authorization under this Department of the Army permit is conditional upon your compliance with all applicable conservation measures in the PBO, which are incorporated by reference in this permit. Failure to comply with the applicable conservation measures would constitute noncompliance with your Department of the Army permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PBO, and with the ESA.
- 3. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological/Conference Opinion (PBO/PCO) titled "Bridge and Culvert Replacements/Repairs/Rehabilitations in Eastern North Carolina, NCDOT Divisions 1-8)," dated September 11, 2019, including the June 1, 2021 Addendum for Yellow Lance (*Elliptio lanceolata*), contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the PBO/PCO. Your authorization under this Corps permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the PBO/PCO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the PBO/PCO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PBO/PCO, and with the ESA.
- 4. The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Conference Opinion (PCO) titled "Bridge and Culvert Replacements/Repair/Rehabilitation Effects on Carolina Madtom and Neuse River Waterdog In NCDOT Divisions 2, 4, 5, and 7" dated May 7, 2020, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the PCO. The USFWS adopted the PCO as the Programmatic Biological Opinion (PBO) for the effects of this action on August 3, 2021. Your authorization under this Corps permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the PBO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the PBO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PBO, and with the ESA.

Corps Regulatory Official: ________ Date: 2022.09.15 12:59:06 _________ Date: 9/15/2022

Expiration Date of Verification: <u>5/25/2025</u>

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: NC Department of Transportation, Attn: Michael Turchy

Project Name: NCDOT / I-3306A / I-40 widening from I-85 to the Durham County line

County: Orange

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: 8-digit HUC and Basin: 03020201, Neuse River Basin

		. 0	0			
Strea	Stream Impacts (linear feet)		Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
437						

^{*}If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: 8-digit HUC and Basin: 03020201, Neuse River Basin

			0	-		
Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
778						

Mitigation Site Debited: EBX-Neuse I - Neu-Con Umbrella Mitigation Bank, Buffalo Branch site

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

ensure compliance associated with the mitigation requirements.	
Mitigation Sponsor Name:	
Name of Sponsor's Authorized Representative:	
Signature of Sponsor's Authorized Representative	Date of Signature

Page 1 of 2 Form Date July 7, 2020

USACE Wilmington District Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the District is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the District is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. When NCDMS provides mitigation for authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the District Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to
 the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina
 Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance
 and a new version of this form must be completed and included in the District administrative records for both the permit
 and the Bank/ILF Instrument.

Comments/Additional Conditions:

- NCDOT provided documentation in the PCN submittal that they had reserved these stream credits from the bank sponsor.
- The compensatory mitigation required includes 341 lf stream impacts at 2:1, and 96 lf stream impacts at 1:1.

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. *Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil)*. Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: David E. Bailey

USACE Field Office: Raleigh Regulatory Office

US Army Corps of Engineers

3331 Heirtage Tade Drive, Suite 105 Wake Forest, North Carolina 27587 David.E.Bailey2@usace.army.mil

Date: 2022.09.15 13:07:34 -04'00'

Wilmington District Project Manager Signature

September 15, 2022

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

Email:

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: NC Department of Transportation, Attn: Michael Turchy

Project Name: NCDOT / I-3306A / I-40 widening from I-85 to the Durham County line

County: Orange

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: 8-digit HUC and Basin: 03020201, Neuse River Basin

_			. 0					
	Strear	Stream Impacts (linear feet)		Wetland Impacts (acres)				
ſ	Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal	
ſ					0.3434			

^{*}If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: 8-digit HUC and Basin: 03020201, Neuse River Basin

· · · · · ·								
Stream Mitigation (credits)			Wetland Mitigation (credits)					
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal		
				0.6868				

Mitigation Site Debited: Restoration Systems - Pancho Stream & Wetland Mitigation Bank

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

ensure compliance associated with the mitigation requirements.							
Mitigation Sponsor Name:							
Name of Sponsor's Authorized Representative:							
Signature of Sponsor's Authorized Representative	Date of Signature						

Page 1 of 2 Form Date July 7, 2020

USACE Wilmington District Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the District is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the District is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. When NCDMS provides mitigation for authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the District Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to
 the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina
 Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance
 and a new version of this form must be completed and included in the District administrative records for both the permit
 and the Bank/ILF Instrument.

Comments/Additional Conditions:

- NCDOT provided documentation in the PCN submittal that they had reserved these stream credits from the bank sponsor.
- The compensatory mitigation required includes 0.3434 acre riparian non-riverine wetland impacts at 2:1.

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil). Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: David E. Bailey

Date Bo

USACE Field Office: Raleigh Regulatory Office

US Army Corps of Engineers

3331 Heirtage Tade Drive, Suite 105 Wake Forest, North Carolina 27587

Email: David.E.Bailey2@usace.army.mil

Date: 2022.09.15 13:09:06 -04'00'

Wilmington District Project Manager Signature

September 15, 2022

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: NC Department of Transportation, Attn: Michael Turchy

Project Name: NCDOT / I-3306A / I-40 widening from I-85 to the Durham County line

County: Orange

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: 8-digit HUC and Basin: 03030002, Cape Fear River Basin

	<u> </u>			, , , , , , , , , , , , , , , , , , ,		
Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
768						

^{*}If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: 8-digit HUC and Basin: 03030002, Cape Fear River Basin

	<u> </u>			, , , , , , , , , , , , , , , , , , ,		
Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
1459						

Mitigation Site Debited: Restoration Systems - Cape Fear 02 Umbrella Mitigation Bank, Benton Branch site

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

ensure compliance associated with the mitigation requirements.	
Mitigation Sponsor Name:	
Name of Sponsor's Authorized Representative:	
Signature of Sponsor's Authorized Representative	Date of Signature

Page 1 of 2 Form Date July 7, 2020

USACE Wilmington District Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the District is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
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- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

- NCDOT provided documentation in the PCN submittal that they had reserved these stream credits from the bank sponsor.
- The compensatory mitigation required includes 691 lf stream impacts at 2:1, and 77 lf stream impacts at 1:1.

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. *Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil)*. Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: David E. Bailey

Dut E Bo

USACE Field Office: Raleigh Regulatory Office

US Army Corps of Engineers

3331 Heirtage Tade Drive, Suite 105 Wake Forest, North Carolina 27587

Email: David.E.Bailey2@usace.army.mil

Date: 2022.09.15 13:08:03 -04'00'

Wilmington District Project Manager Signature

September 15, 2022

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: NC Department of Transportation, Attn: Michael Turchy

Project Name: NCDOT / I-3306A / I-40 widening from I-85 to the Durham County line

County: Orange

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

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Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: 8-digit HUC and Basin: 03030002, Cape Fear River Basin

Stream Impacts (linear feet)		Wetland Impacts (acres)				
Warm	Cool	Cold	Riparian Riverine Riparian Non-Riverine Non-Riparian			Coastal
				0.1453	0.045	

^{*}If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: 8-digit HUC and Basin: 03030002, Cape Fear River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
				0.2906	0.09	

Mitigation Site Debited: NCDMS

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

ensure compliance associated with the mitigation requirements.	
Mitigation Sponsor Name:	
Name of Sponsor's Authorized Representative:	
Signature of Sponsor's Authorized Representative	Date of Signature

Page 1 of 2 Form Date July 7, 2020

USACE Wilmington District Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

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 responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the District is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. When NCDMS provides mitigation for authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative
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 Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

- A letter from **NCDMS**, confirming they are willing and able to accept the applicant's compensatory mitigation responsibility, dated **9/12/2022**, was included with the preconstruction notification.
- The compensatory mitigation required includes 0.1453 acre riparian non-riverine wetland impacts and 0.045 acre non-riparian wetland impacts at 2:1.
- The Corps understands and accepts that NCDMS does not have the amount of non-riparian wetland credits in this HUC necessary to cover all non-riparian impacts at 2:1, and so will use riparian non-riverine credits for the remainder of this requirement after all available non-riparian credits have been exhausted.

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. *Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil)*. Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: David E. Bailey

Dail & Bily

USACE Field Office: Raleigh Regulatory Office

US Army Corps of Engineers

3331 Heirtage Tade Drive, Suite 105 Wake Forest, North Carolina 27587 David.E.Bailey2@usace.army.mil

Email:

Date: 2022.09.15 13:08:31 -04'00'

September 15, 2022

Wilmington District Project Manager Signature Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

Action ID Number: <u>SAW-2013-00201</u>	County: Orange
Permittee: NC Department of Transportation, Attn: Michael Turchy	
Project Name: NCDOT / I-3306A / I-40 widening from I-85 to the Durham County	<u>y line</u>
Date Verification Issued: <u>9/15/2022</u>	
Project Manager: <u>David E. Bailey</u>	
Upon completion of the activity authorized by this permit and any mitigation requisign this certification and return it to the following address:	iired by the permit,
US ARMY CORPS OF ENGINEERS WILMINGTON DISTRICT Attn: David E. Bailey Raleigh Regulatory Office U.S Army Corps of Engineers 3331 Heritage Trade Drive, Suite 105 Wake Forest, North Carolina 27587 or David.E.Bailey2@usace.army.mil Please note that your permitted activity is subject to a compliance inspection by a Engineers representative. Failure to comply with any terms or conditions of this a	· -
result in the Corps suspending, modifying or revoking the authorization and/or iss administrative penalty, or initiating other appropriate legal action.	•
I hereby certify that the work authorized by the above referenced permit has been accordance with the terms and condition of the said permit, and required mitigati accordance with the permit conditions.	_
Signature of Permittee Date	-

SAW-2013-00201

A. Determination of Jurisdiction:

1.	There are waters, including wetlands on the above-described project area 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). 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. Please note, if work is authorized by either a general or nationwide permit, and you wish to request an appeal of an approved JD, the appeal must be received by the Corps and the appeal process concluded prior to the commencement of any work in waters of the United States and prior to any work that could alter the hydrology of waters of the United States.
2.	There are Navigable Waters of the United States within the above-described project area 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). This determination may be relied upon for a period not to exceed five years from the date of this notification, provided there is no change in law or our published regulations or new information that warrants revision of this determination.
3.	There are waters, including wetlands within the above-described project area that are subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). This determination may be relied upon for a period not to exceed five years from the date of this notification, provided there is no change in law or our published regulations or new information that warrants revision of this determination.
4.	A jurisdiction determination was not completed with this request. Therefore, this is not an appealable action. However, you may

- 4. A jurisdiction determination was not completed with this request. Therefore, this is not an appealable action. However, you may request an approved JD, which is an appealable action, by contacting the Corps for further instruction.
- 5. The jurisdictional areas within the above-described project area have been identified under a previous action. Please reference jurisdictional determination issued 8/5/2015. Action ID: SAW-2013-00201.

DEPARTMENT OF THE ARMY Wilmington District, Corps of Engineers 69 Darlington Avenue

Wilmington, North Carolina 28403-1343

Regional General Permit No. SAW-2019-02350 (RGP 50)

Name of Permittee: North Carolina Department of Transportation

Effective Date: May 26, 2020 Expiration Date: May 25, 2025

DEPARTMENT OF THE ARMY REGIONAL GENERAL PERMIT

A regional general permit (RGP) to perform work in or affecting navigable waters of the United States and waters of the United States, upon recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403), and Section 404 of the Clean Water Act (33 U.S.C. 1344), is hereby issued by authority of the Secretary of the Army by the

District Commander U.S. Army Engineer District, Wilmington Corps of Engineers 69 Darlington Avenue Wilmington, North Carolina 28403-1343

TO AUTHORIZE THE DISCHARGE OF DREDGED OR FILL MATERIAL IN WATERS OF THE UNITED STATES (U.S.), INCLUDING WETLANDS, ASSOCIATED WITH MAINTENANCE, REPAIR, AND CONSTRUCTION PROJECTS CONDUCTED BY THE VARIOUS DIVISIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT), INCLUDING THE NCDOT DIVISION OF HIGHWAYS, RAIL, BICYCLE/PEDESTRIAN, ETC.

Activities authorized by this RGP:

- a. (1) Road widening, and/or (2) construction, maintenance, and/or repair of bridges. For bridge projects, work can include the approaches.
- b. (1) Improvement of interchanges or intersections, or (2) construction of interchanges or intersections over, or on, existing roads.

Full descriptions/terms of "a" and "b":

a. (1) Road widening, and/or (2) construction, maintenance, and/or repair of bridges. For bridge projects, work can include the approaches.

Permanent impacts that result in a loss of waters of the U.S., <u>excluding stream relocation(s)</u>, must be less than or equal to 500 linear feet (lf) of stream and/or one (1) acre of wetland/open water for each single and complete linear project.

Single and complete linear project. As noted in 33 CFR 330.2(i), for linear projects, the "single and complete project" (i.e., single and complete crossing) will apply to each crossing of a separate water of the U.S. (i.e., single waterbody) at that location; except that for linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly-shaped wetland or lake, etc., are not separate waterbodies and crossing of such features cannot be considered separately.

Also authorized under "a": (1) stream relocation(s) and (2) temporary impacts, such as those from temporary structures, fills, dewatering, and other work necessary to conduct the activities listed under "a". Stream relocation(s) and temporary impacts will be evaluated independently and are not limited to the permanent loss limits of 500 lf of stream and/or 1 acre of wetland/open water (i.e., stream relocations and/or temporary impacts do not factor into these limits) for each single and complete linear project; however, if the Corps determines that the proposed stream relocation(s) and/or temporary impacts are of such magnitude that they cannot be authorized under this section ("a") of RGP 50, even if the permanent losses from road widening, and/or construction, maintenance, and repair of bridges do not exceed the impact limits for this section ("a") of RGP 50, an Individual Permit will be required.

If the Corps determines, on a case-by-case basis, that the concerns for the aquatic environment so indicate, he/she may exercise discretionary authority to override this RGP and require an Individual Permit.

b. (1) Improvement of interchanges or intersections, or (2) construction of interchanges or intersections, over or, on existing roads.

For activities authorized under "b", the limits for permanent impacts that result in a loss of waters of the U.S. depend on the location of the impacts, as described below:

• In the coastal plain of North Carolina (both inner coastal plain and outer coastal plain) - permanent impacts that result in a loss of waters of the U.S., excluding stream relocation(s), must be less than or equal to 1,000 lf of stream and/or 3 acres of wetland/open water for the entire interchange or intersection project.

• All other areas of North Carolina - permanent impacts that result in a loss of waters of the U.S., excluding stream relocation(s), must be less than or equal to 1,000 lf of stream and/or 2 acres of wetland/open water for the entire interchange or intersection project.

<u>Coastal plain</u> – See http://saw-reg.usace.army.mil/JD/LRRs_PandT.pdf for Land Resource Areas LRRP (inner coastal plain) and LRRT (outer coastal plain).

When proposed impacts to waters of the U.S. are located both inside AND outside of the coastal plain, the Corps will determine, based on the location(s) of proposed impacts to waters of the U.S., if a project is a "coastal plain project".

<u>Single and complete project</u>. For permitting purposes, each interchange or intersection is considered to be one single and complete project. For example, an interchange project cannot result in a permanent loss (excluding stream relocation), of (1) greater than 1,000 lf of stream and/or 3 acres of wetland/open water in the coastal plain <u>OR</u> (2) greater than 1,000 lf of stream and/or 2 acres of wetland/open water in all other areas of North Carolina.

Approach fills may be considered to be part of an interchange or intersection project if the Corps determines that inclusion of these areas meet the terms of this section ("b") of RGP 50. Early coordination with the Corps is encouraged.

Intersections, regardless of the mode of transportation (e.g., railroad, other roadways, etc.), may be at grade or grade separated if the Corps determines that the project would meet the terms of this section ("b") of RGP 50. Early coordination with the Corps is encouraged.

Also authorized under "b": (1) stream relocation(s) and (2) temporary impacts, such as those from temporary structures, fills, dewatering, and other work necessary to conduct the activities listed under "b". Stream relocation(s) and temporary impacts will be evaluated independently and are not limited to the permanent loss limits of (1) 1,000 lf of stream and/or 3 acres of wetland/open water in the coastal plain <u>OR</u> (2) 1,000 lf of stream and/or 2 acres of wetland/open water in all other areas of North Carolina (i.e., stream relocations and/or temporary impacts do not factor into these limits) for each interchange or intersection project; however, if the Corps determines that the proposed stream relocation(s) and/or temporary impacts are of such magnitude that they cannot be authorized under this section ("b") of RGP 50, even if the permanent losses from improvement of interchanges or intersections, or construction of interchanges or intersections over, or on, existing roads do not exceed the impact limits for this section ("b") of RGP 50, an Individual Permit will be required.

If the Corps determines, on a case-by-case basis, that the concerns for the aquatic environment so indicate, he/she may exercise discretionary authority to override this RGP and require an Individual Permit.

1. Special Conditions.

- a. The prospective permittee must submit a pre-construction notification (PCN) and applicable supporting information to the District Engineer and receive written verification from the Corps that the proposed work complies with this RGP prior to commencing any activity authorized by this RGP.
- b. If the project will not impact a designated "Area of Environmental Concern" (AEC) in the twenty* (20) counties of North Carolina covered by the North Carolina Coastal Area Management Act (CAMA) ("CAMA counties"), a consistency submission is not required. If the project will impact a designated AEC and meets the definition of "development", the prospective permittee must obtain the required CAMA permit. Development activities shall not commence until a copy of the approved CAMA permit is furnished to the appropriate Corps Regulatory Field Office (Wilmington Field Office 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office 2407 West 5th Street, Washington, NC 27889).

*The 20 CAMA counties in North Carolina include Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.

- c. No work shall be authorized by this RGP within the 20* CAMA counties without prior consultation with the National Oceanic and Atmospheric Administration's (NOAA) Habitat Conservation Division. For each activity reviewed by the Corps where it is determined that the activity may affect Essential Fish Habitat (EFH) for federally managed species, an EFH Assessment shall be prepared by the prospective permittee and forwarded to the Corps and NOAA Fisheries for review and comment prior to authorization of work.
- d. Culverts and pipes. The following conditions [(1)-(8)] apply to the construction of culverts/pipes, and work on existing culverts/pipes.

Additionally, if the proposed work would affect an existing culvert/pipe (e.g., culvert/pipe extensions), the prospective permittee must include actions (in the PCN) to correct any existing deficiencies that are located:

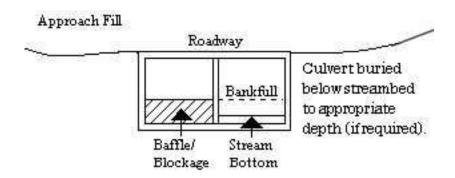
- At the inlet and/or outlet of the existing culvert/pipe, IF these deficiencies are/were caused by the existing culvert/pipe, or
- Near the inlet or outlet of the existing culvert/pipe, IF these deficiencies are/were caused by the existing culvert/pipe.

These deficiencies may include, but are not limited to, stream over-widening, bank erosion, streambed scour, perched culvert/pipes, and inadequate water depth in culvert(s). Also note if the proposed work would address the existing deficiency or eliminate it – e.g., bank erosion on left bank, but the culvert extension will be placed in this eroded area. If the prospective permittee is unable to correct the deficiencies caused by the existing culvert/pipe, they must document the reasons in the PCN for Corps consideration.

- (1) No activity may result in substantial, permanent disruption of the movement of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area. Measures will be included that will promote the safe passage of fish and other aquatic organisms.
- (2) The dimension, pattern, and profile of the stream above and below a culvert/pipe shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. It is acceptable to use rock vanes at culvert/pipe outlets to ensure, enhance, or maintain aquatic passage. Pre-formed scour holes are acceptable when designed for velocity reduction. The width, height, and gradient of a proposed opening shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow will be determined from gauge data, if available. In the absence of such data, bankfull flow will be used as a comparable level.
- (3) Burial/depth specifications: If the project is located within any of the 20* CAMA counties, culvert/pipe inverts will be buried at least one foot below normal bed elevation when they are placed within the Public Trust AEC and/or the Estuarine Waters AEC as designated by CAMA. If the project is located outside of the 20* CAMA counties, culvert/pipe inverts will be buried at least one foot below the bed of the stream for culverts/pipes that are greater than 48 inches in diameter. Culverts/pipes that are 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, to include passage during drought or low flow conditions. Every effort shall be made to maintain the existing channel slope. A waiver from the burial/depth specifications in this condition may be requested in writing. The prospective permittee is encouraged to request agency input about waiver requests as early as possible, and prior to submitting the PCN for a specific project; this will allow the agencies time to conduct a site visit, if necessary, and will prevent time delays and potential project revisions for the prospective permittee. The waiver will only be issued by the Corps if it can be demonstrated that the impacts of complying with burial requirements would result in more adverse impacts to the aquatic environment.
- (4) Appropriate actions to prevent destabilization of the channel and head cutting upstream shall be incorporated in the design and placement of culverts/pipes.
- (5) Culverts/pipes placed within riparian and/or riverine wetlands must be installed in a manner that does not restrict the flow and circulation patterns of waters of the U.S. Culverts/pipes placed across wetland fills purely for the purposes of equalizing surface

water do not have to be buried, but must be of adequate size and/or number to ensure unrestricted transmission of water.

(6) Bankfull flows (or less) shall be accommodated through maintenance of the existing bankfull channel cross sectional area in no more than one culvert/pipe or culvert/pipe barrel. Additional culverts/pipes or barrels at such crossings shall be allowed only to receive flows exceeding the bankfull flow. A waiver from this condition may be requested in writing; this request must be specific as to the reason(s) for the request. The waiver will be issued if it can be demonstrated that it is not practicable to comply with this condition.



- (7) Where adjacent floodplain is available, flows exceeding bankfull will be accommodated by installing culverts/pipes at the floodplain elevation. When multiple culverts/pipes are used, baseflow must be maintained at the appropriate width and depth by the construction of floodplain benches, sills, and/or construction methods to ensure that the overflow culvert(s)/pipe(s) is elevated above the baseflow culvert(s)/pipe(s).
- (8) The width of the baseflow culvert/pipe shall be comparable to the width of the bankfull width of the stream channel. If the width of the baseflow culvert/pipe is wider than the stream channel, the culvert/pipe shall include baffles, benches and/or sills to maintain the width of the stream channel. A waiver from this condition may be requested in writing; this request must be specific as to the reason(s) for the request. The waiver will be issued if it can be demonstrated that it is not practicable or necessary to include baffles, benches or sills.

See the remaining special conditions for additional information about culverts/pipes in specific areas.

e. Discharges into waters of the U.S. designated by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are prohibited during the period between February 15th and June 30th, without prior written approval from the Corps and the appropriate wildlife agencies (NCDMF, NCWRC, and/or the National Marine Fisheries Service (NMFS)). Discharges into waters of the U.S. designated by NCWRC as primary nursery areas in inland waters are prohibited during the period between February 15th and September 30th, without prior written approval from the Corps and the appropriate wildlife agencies. Discharges into waters of the U.S. designated by NCDMF as primary nursery areas shall be coordinated with NCDMF prior to being authorized by

this RGP. Coordination with NCDMF may result in a required construction moratorium during periods of significant biological productivity or critical life stages.

The prospective permittee should contact:

NC Division of Marine Fisheries
3441 Arendell Street
Habitat Conservation Division
Horehead City, NC 28557
Telephone 252-726-7021
Raleigh, NC 27699-1721
Telephone (919) 707-0220

- f. This permit does not authorize the use of culverts in areas designated as anadromous fish spawning areas by the NCDMF or the NCWRC.
- g. No in-water work shall be conducted in Waters of the U.S. designated as Atlantic sturgeon critical habitat during the periods between February 1st and June 30th. No in-water work shall be conducted in Waters of the U.S. in the Roanoke River designated as Atlantic sturgeon critical habitat during the periods between February 1st and June 30th, and between August 1st to October 31st, without prior written approval from NMFS.
- h. Before discharging dredged or fill material into waters of the U.S. in designated trout watersheds in North Carolina, the PCN will be sent to the NCWRC and the Corps concurrently. See https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx for the designated trout watersheds. The PCN shall summarize alternatives to conducting work in waters of the U.S. in trout watersheds that were considered during the planning process and detail why alternatives were or were not selected. For proposals where (1) a bridge in a trout stream will be replaced with a culvert, or (2) a culvert will be placed in a trout stream, the PCN must also include a compensatory mitigation plan for all loss of stream bed, and details of any on-site evaluations that were conducted to determine that installation of a culvert will not adversely affect passage of fish or other aquatic biota at the project site. The evaluation information must include factors such as the proposed slope of the culvert and determinations of how the slope will be expected to allow or impede passage, the necessity of baffles and/or sills to ensure passage, design considerations to ensure that expected baseflow will be maintained for passage and that post-construction velocities will not prevent passage, site conditions that will or will not allow proper burial of the culvert, existing structures (e.g., perched culverts, waterfalls, etc.) and/or stream patterns up and downstream of the culvert site that could affect passage and bank stability, and any other considerations regarding passage. The level of detail for this information shall be based on site conditions (i.e., culverts on a slope over 3% will most likely require more information than culverts on a slope that is less than 1%, etc.). Also, in order to evaluate potential impacts, the prospective permittee will describe bedforms that will be impacted by the proposed culvert – e.g., pools, glides, riffles, etc. The NCWRC will respond to both the prospective permittee and the Corps.

- i. For all activities authorized by this RGP that involve the use of riprap material for bank stabilization, the following measures shall be applied:
- (1) Where bank stabilization is conducted as part of an activity, natural design, bioengineering, and/or geoengineering methods that incorporate natural durable materials, native seed mixes, and native plants and shrubs are to be utilized, as appropriate to site conditions, to the maximum extent practicable.
- (2) Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters; however, the prospective permittee may request a waiver from this requirement. The waiver request must be in writing. The Corps will only issue a waiver if the prospective permittee demonstrates that the impacts of complying with this requirement would result in greater adverse impacts to the aquatic environment. Note that filter fabric is not required if the riprap will be pushed or "keyed" into the bank of the waterbody.
- (3) The placement of riprap shall be limited to the areas depicted on submitted work plan drawings.
 - (4) Riprap shall not be placed in a manner that prevents or impedes fish passage.
- (5) Riprap shall be clean and free from loose dirt or any pollutant except in trace quantities that will not have an adverse environmental effect.
- (6) Riprap shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.
- (7) Riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.
- j. Discharges of dredged or fill material into waters of the U.S., including wetlands, must be minimized or avoided to the maximum extent practicable.
- k. Generally, off-site detours are preferred to avoid and minimize impacts to the human and natural environment; however, if an off-site detour is considered impracticable, then an onsite detour may be considered as a necessary component of the actions authorized by this RGP. Impacts from the detour may be considered temporary and may not require compensatory mitigation if the impacted area is restored to pre-construction elevations and contours after construction is complete. The permittee shall also restore natural hydrology and stream corridors (if applicable), and reestablish native vegetation/riparian corridors. If the construction of a detour (on-site or off-site) includes standard undercutting methods, removal of all material and backfilling with suitable material is required. See special condition "s" for additional information.
 - 1. All activities authorized by this RGP shall, to the maximum extent practicable, be

conducted "in the dry", with barriers installed between work areas and aquatic habitat to protect that habitat from sediment, concrete, and other pollutants. Where concrete is utilized, measures will be taken to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with waters of the U.S. until the concrete has set and cured. All water in the work area that has been in contact with concrete shall only be returned to waters of the U.S. when it no longer poses a threat to aquatic organisms (concrete is set and cured).

- m. In cases where new alignment approaches are to be constructed and the existing approach fill in waters of the U.S. is to be abandoned and no longer maintained as a roadway, the abandoned fill shall be removed and the area will be restored to pre-construction elevations and contours. The permittee shall also restore natural hydrology and stream corridors (if applicable), and reestablish native vegetation/riparian corridors, to the extent practicable. This activity may qualify as compensatory mitigation credit for the project and will be assessed on a case-by-case basis in accordance with Special Conditions "q" and "r" in this document. Any proposed on-site wetland restoration area must be void of utility conflicts and/or utility maintenance areas. A restoration plan detailing this activity will be required with the submittal of the PCN.
- n. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
- o. The project must be implemented and/or conducted so that all reasonable and practicable measures to ensure that equipment, structures, fill pads, and work associated with the project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, scour, flooding, and/or shoreline/streambank erosion. During construction, the permittee shall routinely monitor for these effects, cease all work if/when detected, take initial corrective measures to correct actively eroding areas, and notify the Corps immediately. Permanent corrective measures may require additional authorization from the Corps.
- p. All PCNs will describe sedimentation and erosion control structures and measures proposed for placement in waters of the U.S. To the maximum extent practicable, structures and measures will be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams. In addition, appropriate soil and erosion control measures must be established and maintained during construction. All fills, temporary and permanent, must be adequately stabilized at the earliest practicable date to prevent erosion of fill material into adjacent waters or wetlands.

- q. Compensatory mitigation will be required for permanent impacts resulting in a loss of waters of the U.S. due to culvert/pipe installation and other similar activities. Mitigation may be required for stream relocation projects (see Special Condition "r" below). When compensatory mitigation is required, the prospective permittee will attach a proposed mitigation plan to the PCN. Compensatory mitigation proposals will be written in accordance with currently approved Wilmington District guidance and Corps mitigation regulations, unless the purchase of mitigation credits from an approved mitigation bank or the North Carolina Division of Mitigation Services (NCDMS) is proposed to address all compensatory mitigation requirements. The Corps Project Manager will make the final determination concerning the appropriate amount and type of mitigation.
- r. Stream Relocations (non-tidal only) for the purposes of permitting, stream relocations are considered a loss of waters of the U.S. Depending on the condition and location of (1) the existing stream, and (2) the relocated channel, stream relocation(s) may provide a functional uplift. The Corps will determine if an uplift is possible based on the information submitted with the PCN. If the anticipated uplift(s) occurs, it may offset, either partially or fully, the loss associated with a stream relocation(s) (i.e., due to the uplift, either no compensatory mitigation would be required for the stream relocation itself, or compensatory mitigation would be required at a reduced ratio).

Because the amount of potential uplift is dependent upon the condition (or quality) of the channel to be relocated, there is no pre-determined amount of uplift needed to satisfy the requirements for a successful relocation project. After performing the evaluation(s) noted in this document, the prospective permittee will propose a certain amount of uplift potential and the Corps project manager will make the final determination. Baseline conditions and subsequent monitoring must show that the relocated channel is providing/will provide aquatic function at, or above, the level provided by the baseline (pre-project) condition. If the required uplift is not achieved, the work will not be in compliance with this special condition of RGP 50 and remediation will be required through repair (and continued monitoring), or by the permittee providing compensatory mitigation (e.g., mitigation credit through an approved bank, mitigation credit through NCDMS, etc.).

Compensatory mitigation, in addition to the stream relocation activity, may be required if the Corps determines that (a) no uplift in stream function is achievable, (b) the proposed uplift in stream function is not sufficient, by itself, (c) the risks associated with achieving potential uplifts in stream function are excessive, and/or (d) the time period for achieving the potential uplifts/functional success is too great.

On-site compensatory mitigation is not the same as stream relocation. While stream relocation simply moves a stream to a nearby, geographically similar area, it does not generate mitigation credits. If NCDOT proposes to generate compensatory mitigation on a project site, NCDOT must submit a mitigation plan that complies with 33 CFR 332.4.

The prospective permittee is required to submit the following information for any proposed project that involves stream relocation, regardless of the size/length of the stream relocation (note that 1-5 below only apply to stream relocations and <u>not</u> to compensatory mitigation):

- (1) A statement detailing why relocating the stream is unavoidable. In order to ensure that this action is separate from a compensatory mitigation project, the need for the fill must be related to road/interchange/intersection construction or improvement, and the project must meet the requirements set forth in the full descriptions/terms of "a" and "b" on pages 2 and 3 of this permit.
- (2) An evaluation of effects on the relocated stream and buffer from utilities, or potential for impact from utility placement in the future.
- (3) An evaluation of the baseline condition of the stream to be relocated. In order to demonstrate a potential uplift, the prospective permittee must provide the baseline (pre-impact) condition of the stream that is proposed for relocation. The prospective permittee will document the baseline condition of the stream by using the Corps' (Wilmington District's) current functional assessment method e.g., the North Carolina Stream Assessment Method (NCSAM). The functional assessment must be used to identify specific areas where an uplift would reasonably be expected to occur, and also show important baseline functions that will remain after the relocation.
- (4) An evaluation of the potential uplifts to stream function for the relocated channel. The amount of detail required in the plan will be commensurate with the functional capacity of the original stream and proposed uplift(s). Low functional capacity will warrant less monitoring and less detail in the plan in order to ensure that the relocated channel provides the same, or better/increased, suite of aquatic functions as the existing channel.
- (5) A proposed monitoring plan for the relocated channel (and buffer, if applicable), will be prepared in accordance with current District guidance. The level of detail needed in the plan will be directly related to the quality of baseline functions and the anticipated uplift, therefore it is recommended that a pre-application discussion occur with the Corps Project Manager as early as possible. For example, if the risk for achieving the anticipated functional uplift is moderate or low, or if there is a low amount of proposed uplift, less information and monitoring will be required in the proposed relocation plan; similar to the requirements found in the "2003 Stream Mitigation Guidelines". If the risk for uplift is higher, or if there is a high amount of proposed uplift, additional monitoring and information will be required, trending toward the prescriptions found in the most recent Wilmington District Compensatory Mitigation Guidance e.g., the 2016 Wilmington District Stream and Wetland Compensatory Mitigation Update. All monitoring will be for at least 5 years unless the Corps project manager determines that (a) a specific project requires less than 5 years due to site conditions or limited risk/uplift potential, and/or complexity (or simplicity) of the existing channel and/or the

relocation work, or (b) the Corps project manager determines (during the monitoring period) that the 5 years of monitoring may be reduced (or that no further monitoring is required) based on monitoring information received once the stream relocation has been completed.

- s. Upon completion of any work authorized by this RGP, all temporary fills (to include culverts, pipes, causeways, etc.) will be completely removed from waters of the U.S. and the areas will be restored to pre-construction elevations and contours. The permittee shall also restore natural hydrology and stream corridors (if applicable), and reestablish native vegetation/riparian corridors. This work will be completed within 60 days of completion of project construction. If this timeframe occurs while a required moratorium of this permit is in effect, the temporary fill shall be removed in its entirety within 60 days of the moratorium end date. If vegetation cannot be planted due to the time of the year, all disturbed areas will be seeded with a native mix appropriate for the impacted area, and vegetation will be planted during the next appropriate time frame. A native seed mix may contain non-invasive small grain annuals (e.g. millet and rye grain) to ensure adequate cover while native vegetation becomes established. The PCN must include a restoration plan showing how all temporary fills and structures will be removed and how the area will be restored to pre-project elevations and contours.
- t. Once the authorized work in waters of the U.S. is complete, the permittee shall sign and return the compliance certificate that is attached to the RGP verification letter.
- u. The District Engineer will consider any comments from Federal and/or State agencies concerning the proposed activity's compliance with the terms and conditions of this RGP.
- v. The Corps may place additional special conditions, limitations, or restrictions on any verification of the use of RGP 50 on a project-by-project basis.

2. General Conditions.

- a. Except as authorized by this RGP or any Corps approved modification to this RGP, no excavation, fill or mechanized land-clearing activities shall take place within waters or wetlands, at any time during construction or maintenance of the project. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with the project.
- b. Authorization under this RGP does not obviate the need to obtain other federal, state, or local authorizations.
- c. All work authorized by this RGP must comply with the terms and conditions of the applicable CWA Section 401 Water Quality Certification for this RGP issued by the North Carolina Division of Water Resources (NCDWR).

- d. The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside of the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).
- e. The activities authorized by this RGP must not interfere with the public's right to free navigation on all navigable waters of the U.S. No attempt will be made by the permittee to prevent the full and free use by the public of all navigable waters at, or adjacent to, the authorized work for a reason other than safety.
- f. The permittee understands and agrees that if future operations by the U.S. require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.
- g. The permittee, upon receipt of a notice of revocation of this RGP for the verified individual activity, may apply for an individual permit, or will, without expense to the U.S. and in such time and manner as the Secretary of the Army or his/her authorized representative may direct, restore the affected water of the U.S. to its former conditions.
- h. This RGP does not authorize any activity that would conflict with a federal project's congressionally authorized purposes, established limitations or restrictions, or limit an agency's ability to conduct necessary operation and maintenance functions. Per Section 14 of the Rivers and Harbors Act of 1899, as amended (33 U.S.C. 408), no project that has the potential to take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, or obstruct a federally constructed work or project, including, but not limited to, levees, dams, jetties, navigation channels, borrow areas, dredged material disposal sites, flood control projects, etc., shall be permitted unless the project has been reviewed and approved by the appropriate Corps approval authority. Permittees shall not begin the activity authorized by this RGP until notified by the Corps that the activity may proceed.
- i. The permittee shall obtain a Consent to Cross Government Easement from the appropriate Corps District's Land Use Coordinator prior to any crossing of a Corps easement and/or prior to commencing construction of any structures, authorized dredging, or other work within the right-of-way of, or in proximity to, a federally designated disposal area.

- j. The permittee will allow the Wilmington District Engineer or his/her representative to inspect the authorized activity at any time deemed necessary to ensure that the activity is being performed or maintained in strict accordance with the Special and General Conditions of this permit.
 - k. This RGP does not grant any property rights or exclusive privileges.
 - 1. This RGP does not authorize any injury to the property or rights of others.
- m. This RGP does not authorize the interference with any existing or proposed federal project.
- n. In issuing this permit, the Federal Government does not assume any liability for the following:
- (1) Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- (2) Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest.
- (3) Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - (4) Design or construction deficiencies associated with the permitted work.
- (5) Damage claims associated with any future modification, suspension, or revocation of this permit.
- o. Authorization provided by this RGP may be modified, suspended or revoked in whole, or in part, if the Wilmington District Engineer, acting for the Secretary of the Army, determines that such action would be in the best public interest. The term of this RGP shall be five (5) years unless subject to modification, suspension, or revocation. Any modification, suspension, or revocation of this authorization will not be the basis for any claim for damages against the U.S. Government.
- p. No activity may occur in a component of the National Wild and Scenic Rivers System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or "study river" (e.g., National Park Service, U.S. Forest Service, etc.).

q. Endangered Species.

- (1) No activity is authorized under this RGP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under this RGP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.
- (2) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal prospective permittees (and when FHWA is the lead federal agency) must provide the District Engineer with the appropriate documentation to demonstrate compliance with those requirements. The District Engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the RGP activity, or whether additional ESA consultation is necessary.
- (3) Non-federal prospective permittees for activities that might affect federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The District Engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat. In cases where the non-federal prospective permittee has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the prospective permittee shall not begin work until the Corps has provided notification that the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.
- (4) As a result of formal or informal consultation with the U.S. Fish and Wildlife Service (USFWS) or NMFS, the District Engineer may add species-specific endangered species conditions to the RGP verification letter for a project.
- (5) Authorization of an activity by a RGP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the NMFS, the ESA prohibits any person subject to the jurisdiction of the U.S. to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

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(6) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS in North Carolina at the addresses provided below, or from the USFWS and NMFS via their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

USFWS offices in North Carolina:

The Asheville USFWS Office covers all NC counties west of, and including, Anson, Stanly, Davidson, Forsyth and Stokes Counties.

US Fish and Wildlife Service Asheville Field Office 160 Zillicoa Street Asheville, NC 28801 Telephone: (828) 258-3939

The Raleigh USFWS Office covers all NC counties east of, and including, Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

US Fish and Wildlife Service Raleigh Field Office Post Office Box 33726 Raleigh, NC 27636-3726 Telephone: (919) 856-4520

r. The Wilmington District, USFWS, NCDOT, and the FHWA have conducted programmatic Section 7(a)(2) consultation for a number of federally listed species and habitat, and programmatic consultation concerning other federally listed species and/or habitat may occur in the future. The result of completed programmatic consultation is a Programmatic Biological Opinion (PBO) issued by the USFWS. These PBOs contain mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" of whichever species or critical habitat is covered by a specific PBO. Authorization under RGP 50 is conditional upon the permittee's compliance with all the mandatory terms and conditions associated with incidental take of the applicable PBO (or PBOs), which are incorporated by reference in RGP 50. Failure to comply with the terms and conditions associated with incidental take of an applicable PBO, where a take of the federally listed species occurs, would constitute an unauthorized take by the permittee, and would also constitute permittee non-compliance with the authorization under RGP 50. If the terms and conditions of a specific PBO (or PBOs) apply to a project, the Corps will include this/these requirements in any RGP 50 verification that may be issued for a project. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its PBO, and with the ESA.

- s. Northern long-eared bat (NLEB) (Myotis septentrionalis). Standard Local Operating Procedures for Endangered Species (SLOPES) for the NLEB have been approved by the Corps and the U.S. Fish and Wildlife Service. See http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/ESA/. This SLOPES details how the Corps will make determinations of effect to the NLEB when the Corps is the lead federal agency for an NCDOT project that is located in the western 41 counties of North Carolina. This SLOPES does not address NCDOT projects (either federal or state funded) in the eastern 59 counties in North Carolina. Note that if another federal agency is the lead federal agency for a project in the western 41 counties, procedures for satisfying the requirements of Section 7(a)(2) of the ESA will be dictated by that agency and will not be applicable for consideration under the SLOPES; however, information that demonstrates the lead federal agency's (if other than the Corps) compliance with Section 7(a)(2) / 4(d) Rule for the NLEB, will be required in the PCN. Note that at the time of issuance of RGP 50, the federal listing status of the NLEB as "Threatened" is being litigated at the National level. If, as a result of litigation, the NLEB is federally listed as "Endangered", this general condition ("s") will no longer be applicable because the 4(d) Rule, and this NLEB SLOPES, will no longer apply/be valid.
- t. For proposed activities the sixteen (16) counties listed below, prospective permittees must provide a copy of the PCN to the USFWS, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the USFWS and the Corps Project Manager for that specific county.

The 16 counties with tributaries that drain to designated critical habitat that require notification to the Asheville USFWS are: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

u. If the permittee discovers or observes any live, damaged, injured or dead individual of an endangered or threatened species during construction, the permittee shall immediately notify the Wilmington District Engineer so that required coordination can be initiated with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service.

v. Historic Properties.

- (1) In cases where the District Engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places (NRHP), the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.
- (2) Federal prospective permittees (or when FHWA is the lead federal agency) should follow their own procedures for complying with the requirements of Section 106 of the NHPA. Federal prospective permittees must provide the District Engineer with the appropriate documentation to demonstrate compliance with those requirements; this includes copies of correspondence sent to all interested, federally recognized tribes and a summary statement about

tribal consultation efforts or, if the Corps enters into a Programmatic Agreement (PA) with the FHWA/NCDOT, documentation that the FHWA/NCDOT has complied with PA requirements. The District Engineer will review the documentation and determine whether it is sufficient to address Section 106 compliance for this RGP activity, or whether additional Section 106 consultation is necessary.

- (3) Non-federal prospective permittees the PCN must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO), as appropriate, and the NRHP (see 33 CFR 330.4(g)). When reviewing PCNs, the District Engineer will comply with the current procedures for addressing the requirements of Section 106 of the NHPA. The District Engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the District Engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties.
- (4) Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)).
- (5) Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to a prospective permittee who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit will relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the prospective permittee. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the prospective permittee, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.
- w. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this general permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

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- x. Permittees are advised that development activities in or near a floodway may be subject to the National Flood Insurance Program that prohibits any development, including fill, within a floodway that results in any increase in base flood elevations. This general permit does not authorize any activity prohibited by the National Flood Insurance Program.
- y. The permittee must install and maintain, at his/her expense, any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities. For further information, the permittee should contact Coast Guard Sector North Carolina at (910) 772-2191 or email Coast Guard Fifth District at cgd5waterways@uscg.mil.
- z. The permittee must maintain any structure or work authorized by this general permit in good condition and in conformance with the terms and conditions of this general permit. The permittee is not relieved of this requirement if the permittee abandons the structure or work. Transfer in fee simple of the work authorized by this general permit will automatically transfer this general permit to the property's new owner, with all of the rights and responsibilities enumerated herein. The permittee must inform any subsequent owner of all activities undertaken under the authority of this general permit and provide the subsequent owner with a copy of the terms and conditions of this general permit.
- aa. At his or her sole discretion, any time during the processing cycle, the Wilmington District Engineer may determine that this general permit will not be applicable to a specific proposal. In such case, the procedures for processing an individual permit in accordance with 33 CFR 325 will be available.
- bb. Except as authorized by this general permit or any Corps approved modification to this general permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.
- cc. Except as authorized by this general permit or any Corps approved modification to this general permit, all excavated material will be disposed of in approved upland disposal areas.
- dd. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon this general permit will remain authorized provided the activity is completed within twelve months of the date of the general permit's expiration, modification, or revocation. Activities completed under the authorization of this general permit that were in effect at the time the activity was completed continue to be authorized by the general permit.
- ee. The permittee is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.

- ff. The activity must comply with applicable FEMA approved state or local floodplain management requirements.
- gg. There will be no unreasonable interference with navigation or the right of the public to riparian access by the existence or use of activities authorized by this RGP.
- hh. Unless authorization to fill those specific wetlands or mudflats has been issued by the Corps, heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
- ii. This RGP will not be applicable to proposed construction when the Wilmington District Engineer determines that the proposed activity will significantly affect the quality of the human environment and determines that an EIS must be prepared.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

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Robert J. Clark Colonel, U. S. Army **District Commander**

401 & Buffer Certification

ROY COOPER Governor ELIZABETH S. BISER Secretary RICHARD E. ROGERS, JR. Director



August 17, 2022 Orange County NCDWR Project No. 20220880 NCDOT TIP Project: I-3306A Widening of I-40 from US 15/501 to I-85

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Mr. Michael Turchy – Environmental Coordination and Permitting (ECAP) Group Leader North Carolina Department of Transportation 1000 Birch Ridge Drive Raleigh, North Carolina 27610

Dear Mr. Turchy:

You have our approval, in accordance with the conditions listed below, for the following impacts regarding the proposed widening of I-40 from US 15/501 to I-85 in Orange County to the Durham County line with four interchange modifications, including the I-40/NC86 Interchange.

Stream Impacts in the Neuse River and Cape Fear River Basin

Site	Permanent Fill in Perennial Stream (linear ft)	Perennial Stream Impact				
1	0	67	67			
2A	63	10	73			
2B	39	10	49			
3A	52	10	62			
3B	63	79	142			
3C	40	10	50			
3D	31	10	41			
4A	60	16	76			
4B	50	10	60			
6	40	12	52			
7A	70	29	99			
7B	40	8	48			
8	21	11	32			

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22 10 10 20	
23A 33 22 55	
23B 57 4 61	
25A 39 18 57	
25B 0 10 10	
27 20 0 20	



Site	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
28A	23	14	37	
28B	34	45	79	
29	17	20	37	
30A	47	35	82	
30B	76	10	86	
31	34	5	39	
32	12	15	27	
Totals	1,735	1,050	2,785	

Total Stream Impacts: 2,785 linear feet

Wetland Impacts in the Neuse River and Cape Fear River Basin

Site	Perm. Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
1			0.017	0.017	0.017
2B			0.037	0.037	0.037
3B/WB		0.003	0.04	0.043	0.043
3B/WC			0.01	0.01	0.01
4		0.0004	0.018	0.0184	0.0184
5	0.001	0.004	0.008	0.013	0.013
7A	0.04	0.01	0.057	0.107	0.107
7B	0.009	0.006	0.083	0.098	0.098
16B		0.01	0.009	0.019	0.019
19A		0.0003	0.03	0.0303	0.0303
21B	0.007	0.013	0.011	0.031	0.031
24			0.005	0.005	0.005
25A		0.001	0.01	0.011	0.011
26		0.001	0.003	0.004	0.004
28A		0.05		0.05	0.05
30C	0.01		0.03	0.04	0.04



Totals	0.07	0.10	0.36	0.53	0.53
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Total Wetland Impacts: 0.53 acres

This approval is valid solely for the purpose and design described in your application dated June 28, 2022. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 4135. This certification corresponds to the General Permit 50 issued by the Corps of Engineers. 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. No other impacts are approved, including incidental impacts. [15A NCAC 02H .0506(b)] The permittee shall report to DWR any noncompliance with, 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.

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 perennial 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). For this approval to remain valid, you must adhere to the conditions listed in the General Certification 4135, and any additional conditions listed below.

Conditions of Certification:

Project Specific Conditions

- 1. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams, shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)].
- 2. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage. [15A NCAC 02H.0506(b)(2)]
- 3. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]
- 4. For all streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]
- 5. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)]



- 6. For projects impacting waters classified by the NC Environmental Management Commission as High Quality Waters (HQW), or Water Supply I or II (WSI, WSII) stormwater shall be directed to vegetated buffer areas, grasslined ditches or other means appropriate to the site for the purpose of pre-treating storm water runoff prior to discharging directly into streams. Mowing of existing vegetated buffers is strongly discouraged.
- 7. The permittee is required to use Design Standards in Sensitive Watersheds (15A NCAC 4B.0124[a]-[e]) in areas draining to WS-I, WS-II, and HQW waters. However, due to the size of the project, the NCDOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
- 8. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.
- 9. Compensatory mitigation for impacts to 0.20 acres of wetlands in the Cape Fear River Basin is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated June 21, 2022 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.
- 10. Compensatory mitigation of 0.33 acres for the approved wetland impacts in the Neuse River Basin shall be required. We understand that you have chosen to perform compensatory mitigation for impacts to protected wetlands through purchase of 0.33 Mitigation credits from the Pancho Wetland Mitigation Bank, operated by EBX. Mitigation for unavoidable impacts to wetlands shall be provided in the Cape Fear River Basin and done in accordance with [15A NCAC 2H.0506(h)]. The mitigation bank has indicated in a letter dated February 21, 2018 that they have available credits for satisfying the compensatory mitigation requirements for the above-referenced project. No impacts to wetlands can occur until NC Division of Water Resources receives a copy of payment receipt for these credits purchased from the wetland Mitigation Bank.

General Conditions

- 1. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]
- 2. 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)]
- 3. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]
- 4. 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)]
- 5. 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)]
- 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. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]



- 8. 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)]
- 9. 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)]
- 10. Discharging hydroseed mixtures and washing out hydro seeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
- 11. 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]
- 12. 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)]
- 13. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
- 14. 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]
- 15. 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.
- 16. 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)]
- 17. Upon completion of the project (including any impacts at associated borrow or waste sites), NCDOT project engineer (or appointee) shall complete and return the enclosed "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]
- 18. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities. [15A NCAC 02H.0506(b)(3) and (c)(3)]
- 19. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3]):
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.



- c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
- 20. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)].
- 21. 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]
- 22. 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*. 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.
- 23. 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.
- 24. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, Trout, WS-1, WS-11, High Quality Waters (HQW), Outstanding Resource Waters (ORW), or 303(d) Impaired Waters, then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watershed*. [15A NCAC 02H.0506(b)(3) and (c)(3); GC 4135].

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 Ryan Conchilla at ryan.conchilla@ncdenr.gov.

Sincerely,

Docusigned by:

Omy Chapman

Richard 25.8 Rogers 7Jr., Director Division of Water Resources

Electronic copy only distribution:

David Bailey, US Army Corps of Engineers, Raleigh Field Office Jerry Parker, Division 7 Environmental Supervisor Beth Harmon, Division of Mitigation Services Erin Davis, NCDWR Mitigation Bank Coordinator



ROY COOPER Governor ELIZABETH S. BISER Secretary RICHARD E. ROGERS, JR. Director



August 17, 2022 Orange County NCDWR Project No. 20220880 NCDOT TIP Project: I-3306A Widening of I-40 from US 15/501 to I-85

APPROVAL of Neuse River and Jordan Lake Water Supply Riparian Buffer Impacts with Additional Conditions

for:

NCDOT TIP Project I-3306A, Widening of I-40 from US 15/501 to I-85 in Orange County.

Rocky Run in the Neuse River (NR201); Index No. 27-2-6-2-(2); Water Supply II, HWQ, NSW, CA; UT to Eno River in the Neuse River (NR201); Index No. 27-2-(7); Water Supply V, NSW; UT to Cates Creek in the Neuse River (NR201); Index No. 27-2-8; Water Supply V, NSW; UT to New Hope Creek in the Cape Fear River (CPF02); Index No. 16-41-1-(0.5); Water Supply V, NSW.

Dear Mr. Turchy:

You have our approval for the impacts listed below for the purpose described in your application dated June 28, 2022, received by the Division of Water Resources. These impacts are covered by Neuse River and Jordan Lake Water Supply Watershed Riparian Buffer Protection Rules and the Conditions listed below. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

The following impacts are hereby approved, provided that, all the conditions listed below, and all the conditions of the Neuse River and Jordan Lake Water Supply Watershed Riparian Buffer Rules are met. No other impacts are approved, including incidental impacts. (15A NCAC 02B.0267 and .0714).

Neuse River and Jordan Lake Water Supply Watershed Riparian Buffer Impacts

Site	Zone 1 Impact (sq ft)	Zone 1 Buffer Mitigation Required (3:1 ratio)	Zone 2 Impact (sq ft)	Zone 2 Buffer Mitigation Required (1.5:1 ratio)
1	3055		2204	
2A	2195		1363	
2B	3164		2219	
3A	3110		1629	
3B	4675		1439	
3C	2626		1884	
3D	4037		1156	

Site	Zone 1 Impact (sq ft)	Zone 1 Buffer Mitigation Required (3:1 ratio)	Zone 2 Impact (sq ft)	Zone 2 Buffer Mitigation Required (1.5:1 ratio)
4A	4260		2667	
4B	4311		3196	
6	2952		2015	
7A	5216		2193	
7B	2647		1542	
8	571	1713		
9A	3752		1119	
9B	2932			
10A	4675			
10B	1291		852	
11	986			
12	2332		1359	
14A	5798			
14B	3212		1628	
15	530			
16A	2426		2269	
16B	3152		2071	
16C	3237		1668	
17	1902		845	
18	1716		1070	
19A	2477		1434	
19B	3565		2356	
20A	3463		1489	
20B	3385		2016	
21A	2330		1646	
22	858		778	
23A	3326		2375	
23B	2903		2082	
25A	2674		1928	
25B	1550		614	
27	564		367	
28A	2465		1488	
28B	2320		1803	
29	2164		2335	
30A	4649		2803	
30B	4895		1493	
31	2682		1938	
32	3119		1978	
Totals	129,578	1,713	67,311	

Total Buffer Impact for Project: 196,889 square feet.

The project shall be constructed in accordance with your application dated received on June 28, 2022. This approval is valid for the Neuse River and Jordan Lake Riparian Buffer Rules (15A NCAC 2B.0267 and .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 is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Authorization Certificate. If you change your project, you must notify the Division and you may be required to submit a new application package. If the property is sold, the new owner must be given a copy of this Authorization Certificate and is responsible for complying with all conditions. 15A NCAC 02B .0611(b)(2). The permittee shall report any noncompliance with the conditions of this Authorization Certificate and/or any violation of state regulated riparian buffer rules (15A NCAC 02B.0267 and .0714).

If you are unable to comply with any of the conditions below, you must notify Ryan Conchilla with the Transportation Permitting Branch at Ryan.Conchilla@ncdenr.gov within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

Additional Conditions:

- 1. All stormwater runoff shall be directed as sheetflow through stream buffers at non-erosive velocities, unless otherwise approved by this Certification. (15A NCAC 02B .0267 and .0714)
- 2. 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 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 02B .0267 and .0714)
- 3. Pursuant to 15A NCAC 2B.0267 and .0714, sediment and erosion control devices shall not be placed in Zone 1 of any Neuse River or Jordan Lake Water Supply Watershed Riparian Buffer without prior approval by NCDWR. At this time, NCDWR has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised, and that discharge is released as diffuse flow. There are several stream in the project area which are class WS-IV; NSW waters of the State.
- 4. The NCDWR is very concerned with sediment and erosion impacts that could result from this project. The NCDWR recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Rocky Run. Post-construction stormwater BMPs should, to the MEP, be selected and designed to reduce nutrients. Projects within the Jordan or Falls Lake watersheds must implement NCDOT's GREEN Program.
- 5. Compensatory mitigation for impacts to 571 square feet of protected riparian buffers in Zone 1 shall be required. We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP). Mitigation for unavoidable impacts to Neuse River Riparian Buffers shall be provided in the Neuse (Upper Falls Lake) River Basin and done in accordance with 15A NCAC .02B .0714. The DMS has indicated in a letter dated June 22, 2022 that they will assume responsibility for satisfying the compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed June 14, 2016.

6. Tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters in prohibited. Riparian areas are defined as a distance 25 feet landward from top of stream bank.

This approval and its conditions are final and binding unless contested. [G.S. 143-215.5]

This Authorization Certificate can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) within sixty (60) calendar days. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at http://www.ncoah.com/ or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

William F. Lane, General Counsel **Department of Environmental Quality** 1601 Mail Service Center Raleigh, NC 27699-1601

This Authorization shall expire five (5) years from the date of this letter.

This letter completes the review of the Division under the Neuse River and Jordan Lake Water Supply Watershed Riparian Buffer Protection Rules as described in 15A NCAC 02B. 0267 and .0714. Please contact Ryan Conchilla at Ryan.Conchilla@ncdenr.gov if you have any questions or concerns.

Sincerely,

DocuSigned by: Richard E. Rogers Jr., Director

Division of Water Resources

Cc:

David Bailey, US Army Corps of Engineers, Raleigh Field Office Jerry Parker, Division 7 Environmental Supervisor Beth Harmon, Division of Mitigation Services Erin Davis, NCDWR Mitigation Bank Coordinator



Permitted Drawings



Highway Stormwater Program STORMWATER MANAGEMENT PLAN



Version 3.00; Released August 2021)

FOR NCDOT PROJECTS WBS Element: 34178.3.GV3 TIP/Proj No: I-3306A / W-5707C County(ies): Orange Page **General Project Information** WBS Element: 34178.3.GV3 TIP Number: I-3306A / W-5707C Project Type: Roadway Widening Date: 5/13/2022 NCDOT Contact: Ron McCollum, PE Contractor / Designer: HDR Engineering / James Rice, PE Address: 555 Fayetteville Street, Suite 900 Address: 1000 Birch Ridge Drive Raleigh, NC 27601 Raleigh, NC 27610 Phone: (919) 232-6621 Phone: (919) 707-6616 Email: remccollum@ncdot.gov Email: james.rice@hdrinc.com Orange City/Town: Hillsborough County(ies): CAMA County? River Basin(s): Neuse Cape Fear No Yes Wetlands within Project Limits? **Project Description** Low density urban and rural residential 11.40 miles Surrounding Land Use: Project Length (lin. miles or feet): **Proposed Project Existing Site** Project Built-Upon Area (ac.) 202.0 140.0 Typical Cross Section Description: 6 lane divided highway with a 22' variable median: (2) 14 foot outside paved shoulders, 4 lane divided highway with a 38 foot grass median: (2) 5 foot outside paved (6) 12 foot travel lanes, (2) 11 foot paved median shoulders - total width of 122' shoulders, (4) 12 foot travel lanes, (2) 4 foot paved median shoulders - total width of Annual Avg Daily Traffic (veh/hr/day): Year: 2040 Design/Future: 106.000 Existina: 68.200 Year: 2019 Project Description: **General Project Narrative:** (Description of Minimization of Water The proposed project (I-3306A) widens I-40 from I-85 in Orange County to the Durham County line with four interchange modifications, including the I-40 / NC-86 interchange. Quality Impacts) Neuse River Basin and Jordan Lake buffer rules apply to the project. Jurisdictional streams, ponds and wetlands have been identified within project limits. Major receiving streams along the project are Rocky Run, Cates Creek, New Hope Creek, Old Field Creek, and Unnamed Tributary to Eno River. Box culverts and circular pipe culverts are used to convey all jurisdictional stream crossings through the project. Impact Minimization Efforts: The Design-Build Team (DBT) utilized guardrail with 2:1 slopes were used throughout the project to minimize impacts to streams and wetlands. Ditches and pipes that outlet adjacent to wetlands have been designed to have non-erosive velocities and rip rap pads will be used to dissipate energy and help provide diffused flow. There are no bridge deck drains that directly discharge storm water into any receiving waters. The permanent drainage easement (PDE) will be set to have as little impacts as possible. Impact minimization efforts started with the DBT proposal plans. The DBT plans saw significant impact reductions compared to the preliminary plans by utilizing 1.5:1 rock plated fill slopes at seven locations through the project. Steepening the slopes at four of those locations eliminated all potential impacts with roadway fill. The seven sites are summarized below: --YRPD- 65+00 to 70+00 LT (Site 1) rock plated slopes and a proposed headwall extension reduced roadway fill impacts to Rocky Run and wetlands WA. •-Y2RPB- 16+00 to 17+00 LT eliminates culvert extension and approximately 70 LF of roadway fill impacts to stream SF. --Y2RPC- 10+00 to 11+50 RT eliminates approximately 40 LF of roadway fill impacts to stream SF. Removes all impacts. •-L- 125+00 to 128+00 RT (Site 9) reduces approximately 40 LF of impacts to stream SJ and SK and over 6,000 sf buffer impacts associated with roadway fill. •-L- 193+50 to 195+50 LT (Site 14) eliminates more than 230 LF of channel change impacts to stream SN and approximately 15,000 sf of buffer impacts associated with roadway fill and channel change. •-Y9RPB- 13+50 to17+00 LT (Site 21) rock plated slopes and a proposed headwall extension reduced 18 LF of roadway fill impacts to Old Field Creek and wetlands WS. Design also avoids impacts to Duke Energy facilities. •-L- 507+00 to 508+50 LT (Site 30) reduces impacts to Stream SEE. (Project Narrative Continues on page 2)



Version 3.00; Released August 2021)

North Carolina Department of Transportation

Highway Stormwater Program STORMWATER MANAGEMENT PLAN



FOR NCDOT PROJECTS



Additional General Project Information

General Project Narrative: (Description of Minimization of Water Quality Impacts)

The DBT also proposed a Value Engineering Study (VE Study) to NCDOT Hydraulics Unit and NCDOT Design Build Unit that examined five existing major crossings looking at several alternative pipe designs. Through this VE Study process the DBT was able to eliminate three proposed supplemental pipes and reduced a dual pipe crossing to a single pipe crossing. Removing the three crossing eliminates all stream impacts associated with bank stabilization and constructing the flood benches on the upstream and downstream banks.

The VE Study impacts are summarized below:

- --YFLYA- 50+00 Reduce proposed crossing from 2@60" to 1@84" along steam SA.
- •-L- 61+50 Eliminated 72" supplemental pipe along Cates Creek. Removes all impacts.
- •-L- 91+30 Eliminated 72" supplemental pipe along stream SF. Removes all impacts.
- •-L- 343+00 (Site 20) Eliminated 84" supplemental pipe along Old Field Creek.

The DBT reviewed potential impacts associated with trenchless pipe installation bore pits for each of the proposed cross pipes. At each site, the DBT goals was to avoid impacts to wetlands. There are three sites that wetlands are impacted by bore pits are Site 3, Site 7, and Site 16. The bore pit impacts are accounted for as Mech Clearing and plan to use a native wetland seed mix when being restored.

The DBT field investigation efforts have also identified many locations at existing culvert and other jurisdiction features that currently have existing rip rap on banks and/or in the channel. Based on existing stream conditions, these locations may be reviewed for to require a lower mitigation ratio in areas the proposed design calls to utilizes rip rap bank stabilization or stream bed protection in areas of existing rip rap.

Stormwater BMP Measures:

The DBT has taken an approach to eliminate as many direct discharges as possible from the existing conditions by rerouting the drainage systems. The design removes 34 existing direct discharge outlets that were inside the buffer zones to locations outside the buffer zones. The design attempts to achieve grass swale credit where possible. The DBT has flattened ditches where possible to keep them as grass even the ditches do not get swale credit which may still provide some treatment. After the 4C meeting the DBT was able to review and revise an additional seven proposed outfalls to outlet outside buffers. Three of the locations were able to utilize grass lined ditches to provide some treatment although do not get swale credit. The seven revised outfalls are summarized below:

- --Y2RPC- 13+80 RT and 18+10 RT were rerouted to the inside of the interchange to flow through a grass lined ditch
- •-L- 176+15 LT was rerouted to flow through a grass lined ditch
- •-L- 197+00 RT was rerouted to discharge outside the buffer into an existing ditch
- •-L- 354+30 RT was rerouted to the inside of the interchange to grass lines ditch
- •-L- at station 472+60 was rerouted to discharge outside the buffer
- •-L- at station 398+50 was rerouted to discharge outside the buffer.

Project Challenges:

The biggest challenge is that the natural terrain is very steep throughout the project and is not conducive to basins or swales. The project is widening to the inside and there is not much existing ROW to work within. The project RFP says, "No additional right of way will be acquired solely for stormwater management". The DBT looked at a minimum stormwater basin size of 30'X90' (considering maintenance berms and tying back into the existing terrain) and were not able to contain any basins inside the existing ROW. The DBT also looked at trying to include basins in the interchanges but there is no significant drainage that could be rerouted for treatment. The natural terrain in all guadrants of the 40/I-85 interchange are steep and the roadway grades are mostly greater than 2% which are not conducive to grass swales.







Highway Stormwater Program STORMWATER MANAGEMENT PLAN

STORMWATER MANAGEMENT P

Version 3.00; Released August 2021)

FOR NCDOT PROJECTS

WBS Element: 34178.3.GV3 **TIP/Proj No.:** I-3306A / W-5707C County(ies): Orange Page of **General Project Information Waterbody Information** Surface Water Body (1): NCDWR Stream Index No.: 27-2-6-2-(2) Rocky Run Primary Classification: Water Supply II (WS-II) NCDWR Surface Water Classification for Water Body Supplemental Classification: High Quality Waters (HQW) (NSW) Other Stream Classification: Impairments: Aquatic T&E Species? No Comments: NRTR Stream ID: Buffer Rules in Effect: Rocky Run Neuse Project Includes Bridge Spanning Water Body? Deck Drains Discharge Over Buffer? Dissipator Pads Provided in Buffer? (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) Surface Water Body (2): Cates Creek NCDWR Stream Index No.: 27-2-8 Primary Classification: Water Supply V (WS-V) Class C NCDWR Surface Water Classification for Water Body Nutrient Sensitive Waters (NSW Supplemental Classification: Other Stream Classification: Impairments: None Aquatic T&E Species? No Comments: NRTR Stream ID: Cates Creek Buffer Rules in Effect: Neuse Project Includes Bridge Spanning Water Body? Dissipator Pads Provided in Buffer? Deck Drains Discharge Over Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) Surface Water Body (3): NCDWR Stream Index No.: 27-2-(7) UT to Eno River **Primary Classification:** Class C NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW Other Stream Classification: Impairments: None Aquatic T&E Species? No Comments: NRTR Stream ID: SA, SB, SC, SXX Buffer Rules in Effect: Neuse Dissipator Pads Provided in Buffer? Project Includes Bridge Spanning Water Body? Deck Drains Discharge Over Buffer? N/A N/A No (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative)



Highway Stormwater Program STORMWATER MANAGEMENT PLAN

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(Version 3.00; Released August 2021)			FOR NCDOT F								
WBS Element: 34178.3.GV3	TIP No.:	I-3306A / W-57	• • •			Page	4	of	7		
	1		Additional Waterbo								
Surface Water Body (4):		UT to Ca	tes Creek	NCDWR Stream Index No.:		27-2-8					
NCDWR Surface Water Classification fo	r Water Body		Primary Classification:	Class C							
			Supplemental Classification:	Nutrient Sensitive Waters (NSW)							
Other Stream Classification:											
Impairments:	No	ne									
Aquatic T&E Species?	No	Comments:									
NRTR Stream ID:	SD, SE, SF, SG				Buffer Rules in Effect:		N	Veuse			
Project Includes Bridge Spanning Water	r Body?	No	Deck Drains Discharge Over Bu		Dissipator Pads Provided			N/A			
Deck Drains Discharge Over Water Body	y?	N/A	(If yes, provide justification in	the General Project Narrative)	(If yes, describe in the Ge			, justify ir	the		
(If yes, provide justification in the	General Project Na	arrative)			Gene	eral Project Narra	ative)				
Surface Water Body (5):		UT to Seve	nmile Creek	NCDWR Stream Index No.:		27-2-6-(1.5)					
• • •	- Mata - D - 1		Primary Classification:	Water Supply II (WS-II)							
NCDWR Surface Water Classification for	r water Body		Supplemental Classification:	High Quality Waters (HQW)	(NSW)			1			
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Other Stream Classification:											
Impairments:	No	ne						/			
Aquatic T&E Species?	No	Comments:									
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Project Includes Bridge Spanning Water		No	Deck Drains Discharge Over Bu	iffer? N/A	Dissipator Pads Provided	in Ruffer?		N/A			
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Surface Water Redy (6):		LIT to Now	Hope Creek	NCDWR Stream Index No.:		16 /1 1 /0 5					
Surface Water Body (6):		OTTONEW				16-41-1-(0.5)					
NCDWR Surface Water Classification for	r Water Body		Primary Classification:	Water Supply V (WS-V)				A			
			Supplemental Classification:	Nutrient Sensitive Waters (NSW)				A			
Other Stream Classification:								A			
Impairments:	No										
Aquatic T&E Species?	No	Comments:									
			SS, ST, SU, SBB, SEE, SFF, SGG,	SHH, SII, SJJ, SKK, SLL, SMM,	· ·						
	SNN, SOO, SRR,				Buffer Rules in Effect:		N	Veuse			
Project Includes Bridge Spanning Water		No	Deck Drains Discharge Over Bu		Dissipator Pads Provided		rrativa, if no	N/A	the		
Deck Drains Discharge Over Water Body		N/A	(ii yes, provide justilication in	the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)						
(If yes, provide justification in the	General Project Na	arrative)			OCIN	crairi rojecti vari	auve)				
	T										
Surface Water Body (7):		New Ho	pe Creek	NCDWR Stream Index No.:		16-41-1-(0.5)					
NCDWR Surface Water Classification for	r Water Body		Primary Classification:	Water Supply V (WS-V)							
			Supplemental Classification:	Nutrient Sensitive Waters (NSW)							
Other Stream Classification:											
Impairments:	No	ne									
Aquatic T&E Species?	No	Comments:									
NRTR Stream ID:	New Hope Creek				Buffer Rules in Effect:	Neuse					
Project Includes Bridge Spanning Water		No	Deck Drains Discharge Over Bu	iffer? N/A	Dissipator Pads Provided in Buffer? N/A						
Deck Drains Discharge Over Water Body	-	N/A		the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the						
(If yes, provide justification in the			1	-		eral Project Narra		- •			
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Highway Stormwater Program STORMWATER MANAGEMENT PLAN Version 3.00; Released August 2021) FOR NCDOT PROJECTS **WBS Element:** 34178.3.GV3 TIP No.: I-3306A / W-5707C County(ies): Orange Page 5 of **Additional Waterbody Information** Surface Water Body (8): UT to Old Field Creek NCDWR Stream Index No.: 16-41-1-7 Primary Classification: Water Supply V (WS-V) NCDWR Surface Water Classification for Water Body Supplemental Classification: **Nutrient Sensitive Waters (NSW** Other Stream Classification: Impairments: Aquatic T&E Species? No Comments: NRTR Stream ID: SV, SW, SX, SY, SZ, SAA, SCC, SDD, STT, SUU Buffer Rules in Effect: Neuse Project Includes Bridge Spanning Water Body? Dissipator Pads Provided in Buffer? Deck Drains Discharge Over Buffer? (If yes, describe in the General Project Narrative; if no, justify in the (If yes, provide justification in the General Project Narrative) Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) Surface Water Body (9): Old Field Creek NCDWR Stream Index No.: 16-41-1-7 Primary Classification: Water Supply V (WS-V) NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW Other Stream Classification: Impairments: None Aquatic T&E Species? No Comments: NRTR Stream ID: Old Field Creek Buffer Rules in Effect: Neuse Dissipator Pads Provided in Buffer? Project Includes Bridge Spanning Water Body? Deck Drains Discharge Over Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the N/A Deck Drains Discharge Over Water Body? General Project Narrative) (If yes, provide justification in the General Project Narrative) Surface Water Body (10): Sevenmile Creek NCDWR Stream Index No.: 27-2-6-(1.5) Primary Classification: Water Supply II (WS-II) NCDWR Surface Water Classification for Water Body Supplemental Classification: High Quality Waters (HQW) (NSW) Other Stream Classification: Impairments: None Aquatic T&E Species? No Comments: NRTR Stream ID: Buffer Rules in Effect: Sevenmile Creek Neuse Project Includes Bridge Spanning Water Body? Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? General Project Narrative) (If yes, provide justification in the General Project Narrative)



(Version 3.00; Released August 2021)

North Carolina Department of Transportation

Highway Stormwater Program STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

WBS Element: 34178.3.GV3 County(ies): Orange TIP/Proj No.: I-3306A / W-5707C

Pag

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											Swale								
								Front	Back	Drainage	Recommended	Actual	Longitudinal					Rock	ВМР
Sheet			Location				Base Width	Slope	Slope	Area	Treatm't Length	Length	Slope	Q2	V2	Q10	V10	Checks	Associated w/
No.	Line	Station	(LT,RT,CL)	Latitude	Longitude	Surface Water Body	(ft)	(H:1)	(H:1)	(ac)	(ft)	(ft)	(%)	(cfs)	(fps)	(cfs)	(fps)	Used	Buffer Rules?
6	YFLYA	30+50	RT	36.05772	-79.12464	(3)UT to Eno River	0.0	6.0	6.0	0.4	38	350	2.80%	0.7	1.8	0.9	1.9		Yes
7	YFLYA	18+00	LT	36.0546625	-79.1237442	(3)UT to Eno River	0.0	6.0	4.0	1.0	96	239	1.28%	2.2	1.9	2.8	2.0		Yes
10	-L-	40+23	RT	36.0440275	-79.1142318	(4)UT to Cates Creek	0.0	6.0	4.0	0.3	25	148	2.36%	0.4	1.5	0.5	1.6		Yes
10	L	41+28	RT	36.04385	-79.11404	(4)UT to Cates Creek	0.0	6.0	4.0	0.1	13	105	2.45%	0.4	1.6	0.5	1.7		Yes
12	-L-	72+00	RT	36.03804	-79.10658	(4)UT to Cates Creek	0.0	6.0	4.0	0.4	36	128	1.55%	0.5	1.4	0.6	1.5		Yes
14	Y2RPA	19+00	RT	36.0362513	-79.0948226	(2)Cates Creek	0.0	6.0	6.0	0.5	54	75	2.48%	0.7	1.7	0.9	1.8		Yes
14	-Y2RPC-	17+50	LT	36.0370541	-79.0994215	(2)Cates Creek	0.0	6.0	6.0	1.3	125	150	0.51%	2.3	1.3	2.9	1.4		Yes
14	-Y2RPC-	22+92	LT	36.0362808	-79.0978865	(2)Cates Creek	0.0	6.0	3.0	2.2	223	468	0.71%	5.1	1.9	6.5	2.0		Yes
15	-L-	115+50	LT	36.0347	-79.09302	(6)UT to New Hope Creek	0.0	6.0	4.0	0.4	43	150	0.31%	0.6	0.8	0.8	0.8		Yes
15	-L-	116+50	LT	36.03433	-79.09261	(6)UT to New Hope Creek	0.0	4.0	3.0	0.4	43	100	0.84%	0.6	1.3	8.0	1.4		Yes
15	-L-	119+50	RT	36.0333008	-79.0923532	(6)UT to New Hope Creek	0.0	6.0	4.0	1.3	131	467	0.37%	3.6	1.3	4.6	1.4		Yes
16	-L-	131+22	RT	36.03028	-79.09042	(6)UT to New Hope Creek	0.0	6.0	4.0	0.3	34	128	1.02%	1.0	1.4	1.3	1.5		Yes
20	-L-	184+69	RT	36.0158	-79.08714	(6)UT to New Hope Creek	0.0	6.0	4.0	0.6	63	428	0.82%	1.4	1.4	1.8	1.5		Yes
20	-L-	192+30	RT	36.01425	-79.08668	(6)UT to New Hope Creek	0.0	6.0	4.0	0.6	60	333	0.75%	1.4	1.3	1.7	1.4		Yes
21	Y3RPA	12+00	RT			(6)UT to New Hope Creek	0.0	6.0	4.0	1.0	104	116	0.50%	1.9	1.2	2.4	1.3		Yes
22	-L-	228+00	RT	36.0050558	-79.0818132	(6)UT to New Hope Creek	0.0	6.0	4.0	0.7	70	372	0.99%	2.1	1.7	2.7	1.8		Yes
24	-L-	253+50	RT	35.998834	-79.0777677	(6)UT to New Hope Creek	0.0	6.0	4.0	0.5	45	250	0.93%	1.3	1.4	1.6	1.5		Yes
26	-L-	281+75	LT	35.99181	-79.07522	(8)UT to Old Field Creek	0.0	4.0	6.0	1.3	126	225	0.48%	3.6	1.5	4.6	1.5		Yes
26	-L-	284+00	LT	35.99124	-79.07524	(8)UT to Old Field Creek	0.0	4.0	6.0	1.3	126	400	0.65%	3.6	1.6	4.6	1.7		Yes
26 28	-L- -L-	287+50 319+50	RT RT	35.98979 35.9814903	-79.07584 -79.0729198	(8)UT to Old Field Creek (8)UT to Old Field Creek	0.0	6.0	4.0	0.6 0.5	60 52	294 326	0.92% 1.33%	1.1 1.4	1.4	1.4 1.8	1.5 1.8		Yes Yes
29	-L-	331+00	RT	35.9814903	-79.0729198	(9)Old Field Creek	0.0	6.0	4.0	1.1	107	880	0.85%	2.5	1.6	3.1	1.7		Yes
30	-L-	335+02	LT	35.97772	-79.07095	(9)Old Field Creek	0.0	6.0	6.0	1.1	113	579	0.85%	3.6	1.5	4.6	1.6		Yes
30	-L-	347+03	RT	35.97451	-79.07007	(9)Old Field Creek	0.0	6.0	6.0	0.4	36	544	0.84%	0.5	1.0	0.6	1.0		Yes
30	-L-	340+50	RT	35.976285	-79.0698315	(9)Old Field Creek	0.0	6.0	4.0	0.4	24	70	1.43%	0.8	1.5	1.0	1.6		Yes
31	-L-	370+67	LT	35.97135	-79.06231	(8)UT to Old Field Creek	0.0	6.0	4.0	0.6	55	313	0.82%	1.3	1.4	1.6	1.4		Yes
31	i	373+80	LT	35.97063	-79.06059	(8)UT to Old Field Creek	0.0	6.0	4.0	0.8	77	420	0.68%	1.8	1.4	2.2	1.5		Yes
31	ī	363+56	RT	35.97145	-79.06364	(8)UT to Old Field Creek	0.0	6.0	4.0	0.9	85	434	0.95%	1.6	1.5	2.0	1.6		Yes
31	ī	370+12	RT	35.9708214		(8)UT to Old Field Creek	0.0	6.0	4.0	1.2	120	400	0.79%	1.9	1.5	2.4	1.6		Yes
31	L	374+12	RT	35.9703	-79.06093	(8)UT to Old Field Creek	0.0	6.0	4.0	3.8	383	687	0.59%	6.1	1.8	7.8	1.9		Yes
31	Y9RPB	24+50	LT	35.97472	-79.06573	(8)UT to Old Field Creek	0.0	4.0	6.0	0.6	58	350	1.96%	1.3	1.9	1.7	2.0		Yes
31	Y9A	16+72	RT	35.9732998		(8)UT to Old Field Creek	0.0	6.0	4.0	0.5	51	315	0.32%	0.9	0.9	1.2	0.9		Yes
31	Y9A	23+75	RT	35.97216	-79.06159	(8)UT to Old Field Creek	0.0	6.0	4.0	0.4	38	388	0.60%	0.7	1.0	0.9	1.1		Yes
31	Y9A	14+46	LT	35.9738598		(8)UT to Old Field Creek	0.0	6.0	4.0	1.1	109	637	1.15%	2.0	1.7	2.5	1.8		Yes
31	Y9	26+88	LT	35.97062	-79.06257	(8)UT to Old Field Creek	0.0	6.0	6.0	0.5	51	388	1.84%	0.7	1.5	0.9	1.6		Yes
31	Y9	25+45	RT	35.9706155	-79.0621836	(8)UT to Old Field Creek	0.0	6.0	6.0	0.8	82	284	2.49%	1.3	2.0	1.7	2.1		Yes
31	Y9RPD	22+45	RT	35.9698332	-79.0611773	(8)UT to Old Field Creek	0.0	6.0	4.0	0.5	52	81	0.60%	1.4	1.3	1.8	1.3		Yes
				Continues on	next page														
											ditional Commont								

Additional Comments

The challenges to gain swale credit is greatly impacted by the steep natural terrain. The project maintains the existing I-40 roadway profiles and the rolling terrain pushes many roadway ditch computations slightly outside of achieving swale credit. Many swale credit issues were indicated by a slightly higher Q2> 2.0 fps (i.e. 2.13 fps or 2.26 fps). During design the DBT was able to review to see if ditch grades could be flattened to meet grass swale criteria to most practical extent. Although swale credit could not be achieved in many locations those locations were able to utilize grass ditches to provide some treatment before entering the buffer zones. With the loss of the median ditch due to widening, the DBT was asked if a pervious pavement or similar alternative to provide treatment was an option or considered. Through follow up coronations it was determined additional pavement options are not available.



(Version 3.00; Released August 2021)

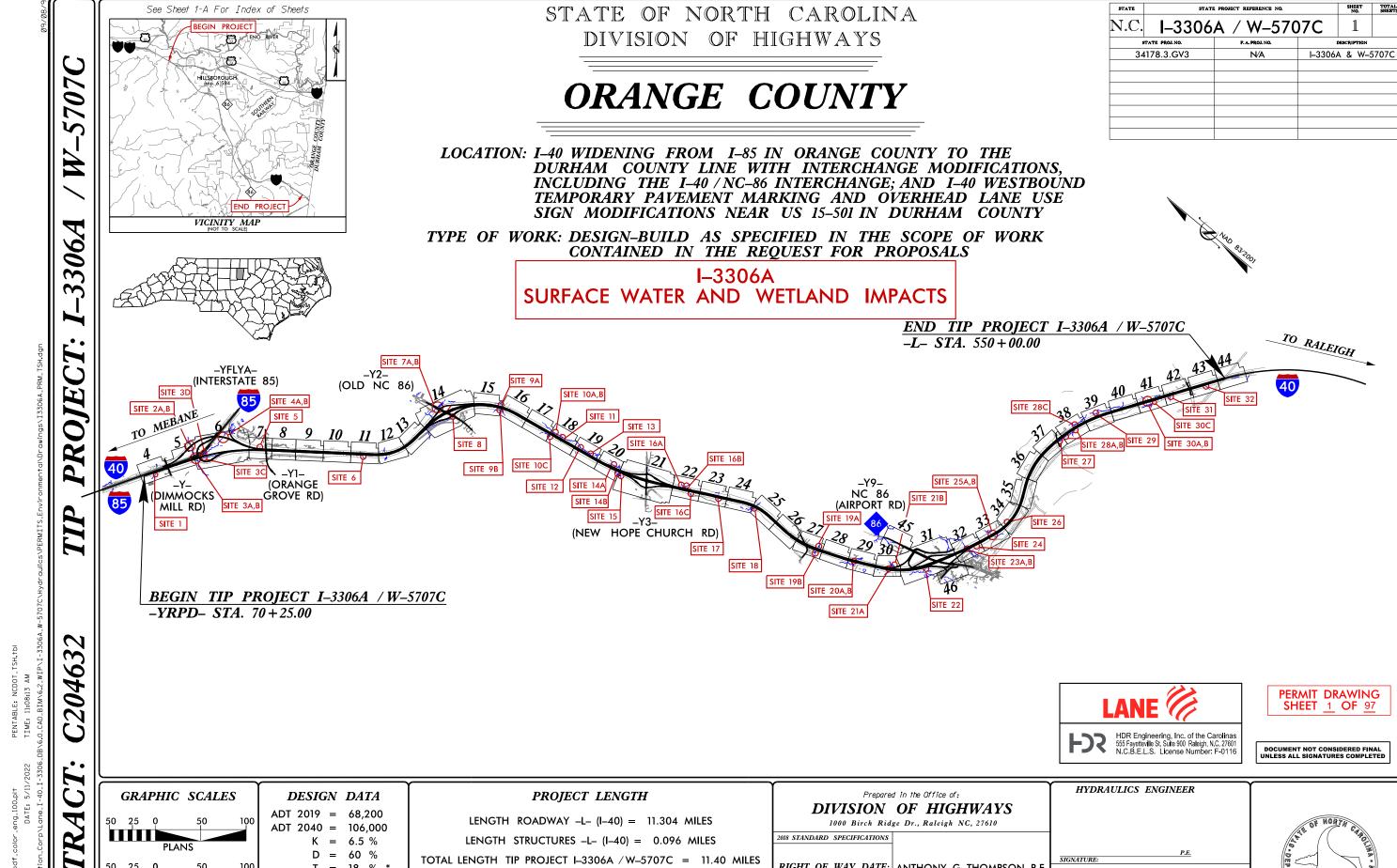
North Carolina Department of Transportation

Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS

WBS Element: 34178.3.GV3 TIP No.: I-3306A / W-5707C County(ies): Orange Page

Sheet No. Line Station Location Line Station Location Locat											(Swales								
No. Line Station (LT,RT,CL) Latitude Longitude Surface Water Body (ft) (H:1) (H:1) (ac) (ft) (ft) (ft) (%) (cfs) (fps) (cfs) (fps) (2 transparent of the control of the con									Front	Back	Drainage	Recommended	Actual	Longitudinal					Rock	ВМР
No. Line Station (LT,RT,CL) Latitude Longitude Surface Water Body (ft) (H:1) (H:1) (ac) (ft) (ft) (ft) (%) (cfs) (fps) (cfs) (fps) (2 transparent of the control of the con	Sheet			Location				Base Width	Slope	Slope	Area	Treatm't Length	Length	Slope	Q2	V2	Q10	V10	Checks	Associated w/
32 L 378+60 LT 35.9703 -79.05953 (8)UT to Old Field Creek 2.0 4.0 4.0 0.7 66 75 0.49% 1.5 1.0 1.9 1.1 32 L 379+28 LT 35.97011 -79.05902 (8)UT to Old Field Creek 0.0 6.0 4.0 0.7 66 322 0.70% 1.5 1.3 1.9 1.4 32 L 385+62 LT 35.96929 -79.05705 (8)UT to Old Field Creek 0.0 6.0 6.0 4.0 0.5 48 260 0.66% 1.1 1.2 1.4 1.2 1.5 1.3 1.9 1.6 33 L 395+39 LT 35.96920 -79.05629 (8)UT to Old Field Creek 0.0 6.0 6.0 1.4 135 663 0.65% 3.1 1.5 3.9 1.6 33 L 397+07 RT 35.96826 -79.05629 (8)UT to Old Field Creek 0.0 6.0 4.0 0.5 50 282 0.66% 1.1 1.2 1.5 1.3 33 L 397+07 RT 35.96768 -79.05356 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 893 1.03% 1.8 1.6 2.2 1.7 34 L 406+00 RT 35.9671 -79.0511 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 350 0.66% 1.8 1.4 2.2 1.4 34 L 409+80 RT 35.96698 -79.04979 (8)UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% 1.2 1.1 1.6 1.2 35 L 424+30 RT 35.96821 -79.0437 (8)UT to Old Field Creek 0.0 6.0 4.0 0.4 41 41 410 0.53% 0.6 0.9 0.7 1.0 35 L 428+50 RT 35.96831 -79.0437 (8)UT to Old Field Creek 0.0 6.0 4.0 0.7 66 420 1.10% 1.8 1.7 2.3 1.8	No.	Line	Station		Latitude	Longitude	Surface Water Body	(ft)			(ac)					(fps)		(fps)	Used	Buffer Rules?
32 L 385+62 LT 35.96929 -79.05705 (8)UT to Old Field Creek 0.0 6.0 6.0 0.5 48 260 0.66% 1.1 1.2 1.4 1.2 32 L 388+48 LT 35.96902 -79.05629 (8)UT to Old Field Creek 0.0 6.0 6.0 1.4 135 663 0.65% 3.1 1.5 3.9 1.6 33 L 395+39 LT 35.96826 -79.05405 (8)UT to Old Field Creek 0.0 6.0 4.0 0.5 50 282 0.66% 1.1 1.2 1.5 1.3 33 L 397+07 RT 35.96768 -79.05405 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 893 1.03% 1.8 1.6 2.2 1.7 34 L 406+00 RT 35.9678 -79.05411 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 350 0.66% 1.8 1.4 2.2 1.4 34 L 409+80 RT 35.96688 -79.04979 (8)UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% 1.2 1.1 1.6 1.2 35 L 424+30 RT 35.9678 -79.04496 (8)UT to Old Field Creek 0.0 6.0 4.0 0.4 41 410 0.53% 0.6 0.9 0.7 1.8 1.6 1.2 35 L 428+50 RT 35.96831 -79.04496 (8)UT to Old Field Creek 0.0 6.0 4.0 0.4 41 410 0.53% 0.6 0.9 0.7 1.8 1.7 2.3 1.8	32	L	378+60	LT	35.9703	-79.05953	(8)UT to Old Field Creek		4.0	4.0			75	0.49%	1.5		1.9	1.1		Yes
32 L 388+48 LT 35.96902 -79.05629 (8)UT to Old Field Creek 0.0 6.0 1.4 135 663 0.65% 3.1 1.5 3.9 1.6 33 L 395+39 LT 35.96826 -79.05405 (8)UT to Old Field Creek 0.0 6.0 4.0 0.5 50 282 0.66% 1.1 1.2 1.5 1.3 33 L 397+07 RT 35.96788 -79.05356 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 893 1.03% 1.8 1.6 2.2 1.7 34 L 409+80 RT 35.96698 -79.04979 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 350 0.66% 1.8 1.4 2.2 1.4 34 L 409+80 RT 35.96698 -79.04996 (8)UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% <t< td=""><td>32</td><td>L</td><td>379+28</td><td>LT</td><td>35.97001</td><td></td><td></td><td></td><td></td><td>4.0</td><td>0.7</td><td>66</td><td>322</td><td>0.70%</td><td>1.5</td><td></td><td>1.9</td><td></td><td></td><td>Yes</td></t<>	32	L	379+28	LT	35.97001					4.0	0.7	66	322	0.70%	1.5		1.9			Yes
33 L 395+39 LT 35.96826 -79.05405 (8)UT to Old Field Creek 0.0 6.0 4.0 0.5 50 282 0.66% 1.1 1.2 1.5 1.3 33 L 397+07 RT 35.96768 -79.05356 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 893 1.03% 1.8 1.6 2.2 1.7 34 L 406+00 RT 35.9671 -79.0479 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 350 0.66% 1.8 1.4 2.2 1.4 34 L 409+80 RT 35.96698 -79.04979 (8)UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% 1.2 1.1 1.6 1.2 1.1 1.6 1.2 1.1 1.6 1.2 1.1 1.6 1.2 1.1 1.6 1.2 1.1 1.6 1.2 1.1	32	L																		Yes
33 L 397+07 RT 35.96768 -79.05356 (6)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 893 1.03% 1.8 1.6 2.2 1.7 34 L 406+00 RT 35.9671 -79.0511 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 350 0.66% 1.8 1.4 2.2 1.4 4.0 4.0 4.0 RT 35.96698 -79.04979 (8)UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% 1.2 1.1 1.6 1.2 35 L 424+30 RT 35.96782 -79.04496 (8)UT to Old Field Creek 0.0 6.0 4.0 0.4 41 410 0.53% 0.6 0.9 0.7 1.0 35 L 428+50 RT 35.96831 -79.0437 (8)UT to Old Field Creek 0.0 6.0 4.0 0.7 66 420 1.10% 1.8 1.7 2.3 1.8		L																		Yes
34 L 406+00 RT 35.9671 -79.0511 (8)UT to Old Field Creek 0.0 6.0 4.0 1.3 128 350 0.66% 1.8 1.4 2.2 1.4 34 L 409+80 RT 35.96698 -79.04979 (8)UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% 1.2 1.1 1.6 1.2 35 L 424+30 RT 35.96782 -79.04496 (8)UT to Old Field Creek 0.0 6.0 4.0 0.4 41 410 0.53% 0.6 0.9 0.7 1.0 35 L 428+50 RT 35.96831 -79.0437 (8)UT to Old Field Creek 0.0 6.0 4.0 0.7 66 420 1.10% 1.8 1.7 2.3 1.8		L																		Yes
34 L 409+80 RT 35.96698 -79.04979 (6) UT to Old Field Creek 0.0 6.0 4.0 0.9 89 1040 0.46% 1.2 1.1 1.6 1.2 35 L 424+30 RT 35.96782 -79.04496 (8) UT to Old Field Creek 0.0 6.0 4.0 0.4 41 410 0.53% 0.6 0.9 0.7 1.0 35 L 428+50 RT 35.96831 -79.0437 (8) UT to Old Field Creek 0.0 6.0 4.0 0.7 66 420 1.10% 1.8 1.7 2.3 1.8																				Yes
35 L 424+30 RT 35.96782 -79.04496 (8)UT to Old Field Creek 0.0 6.0 4.0 0.4 41 410 0.53% 0.6 0.9 0.7 1.0 35 L 428+50 RT 35.96831 -79.0437 (8)UT to Old Field Creek 0.0 6.0 4.0 0.7 66 420 1.10% 1.8 1.7 2.3 1.8																				Yes
35 L 428+50 RT 35.96831 -79.0437 (8)UT to Old Field Creek 0.0 6.0 4.0 0.7 66 420 1.10% 1.8 1.7 2.3 1.8		L																		Yes
		L																		Yes
4.344 L 5.39+20 L1 30.96897 -1-9.010100 (8)0 10 00 rield creek		L																		Yes Yes
	43/44	L	539+20	LI	35.958907	-79.0101067	(8)UT to Old Field Creek	0.0	6.0	4.0	0.3	21	133	1.14%	0.6	1.3	0.8	1.4		Yes

Additional Comments



PROFILE (HORIZONTAL)

PROFILE (VERTICAL)

T = 18 % *

V = 70 MPH*TTST = 11% DUAL = 3% FUNC CLASS =

INTERSTATE STATEWIDE TIER

RON McCOLLUM, P.E. NCDOT CONTACT: DESIGN-BUILD ASSISTANT MANAGER

RIGHT OF WAY DATE: ANTHONY G. THOMPSON, P.E AUGUST 17, 2021

LETTING DATE: CALVIN MOODY, P.E. AUGUST 17, 2021

ROADWAY DESIGN **ENGINEER**

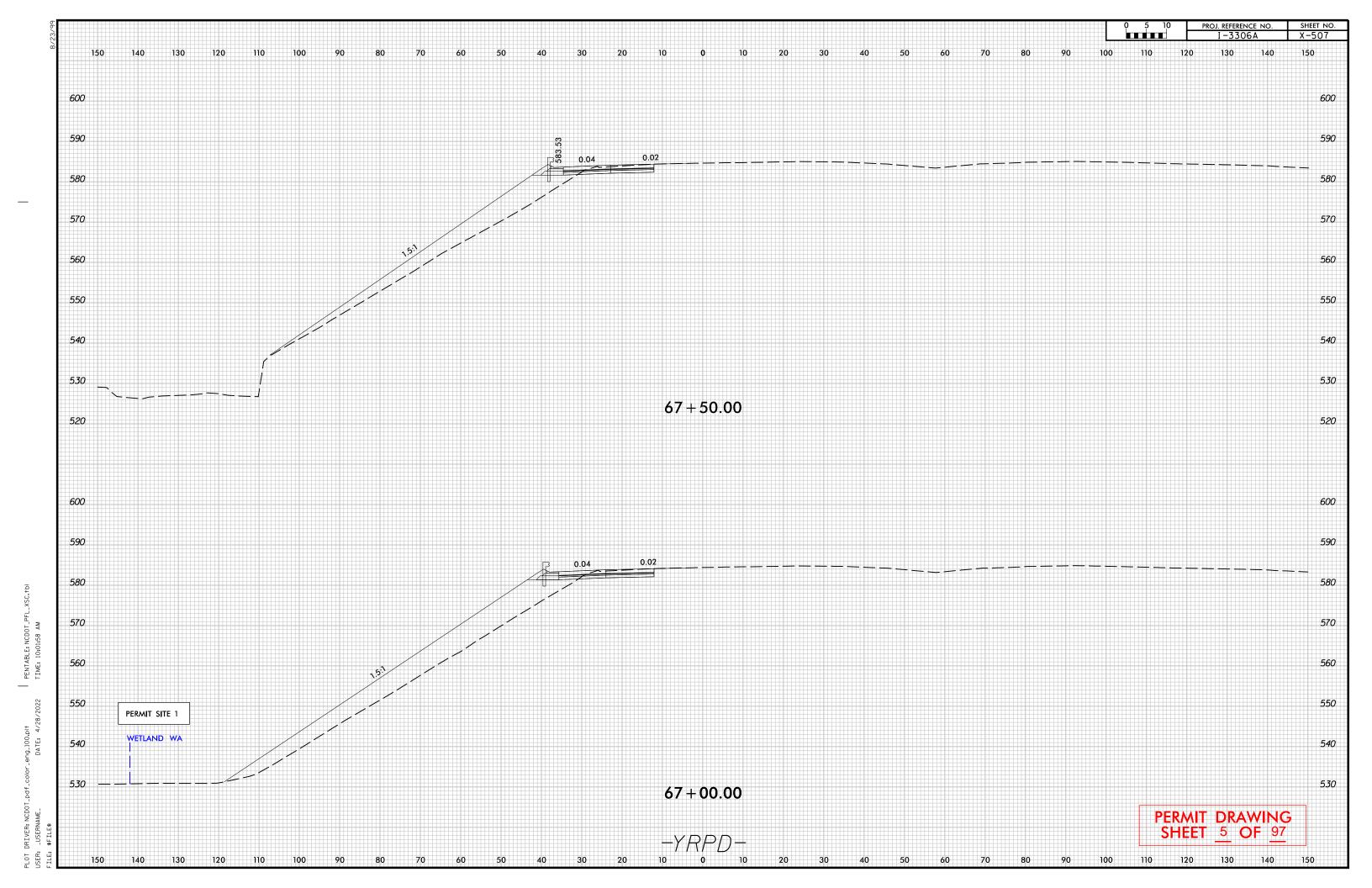
SIGNATURE



50 25 0 PROJECT REFERENCE NO. SHEET NO. **NOTES:** I-3306A / W-5707C R/W SHEET NO. GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES BORE PIT (TYP) DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 CONSERVATION EASEME DB 5339 PG 53 PB IIO PG 7 **LEGEND** <u>-Y - PC Sta. 17+46.74</u> denotes temporary impacts in surface water WOODED DENOTES MECHANIZED CLEARING 120 130 <u>-YRPD- PT Sta. 69+57.75</u> 1-40 WB/1-85 SB 94' BST 1-40 WB/I-85 SB 84' BS7 SHEET MATCHLINE STA. 60+00, SEE ⇒ 5> I-40 EB/I-85 NB 71 BST -YRPD-65 -YRPD- POT Sta. 72+85.89 = -185- POT Sta. 188+66.36 (50,04' RT) WOODED CLASS 'B' RIP RAP — L=110', W=6' EST. 45 TONS 75 SY GEOTEXTILE SEE DETAIL C WETLAND WA SITE 1 ROCKY RUN PERMIT DRAWING SHEET 2 OF 97

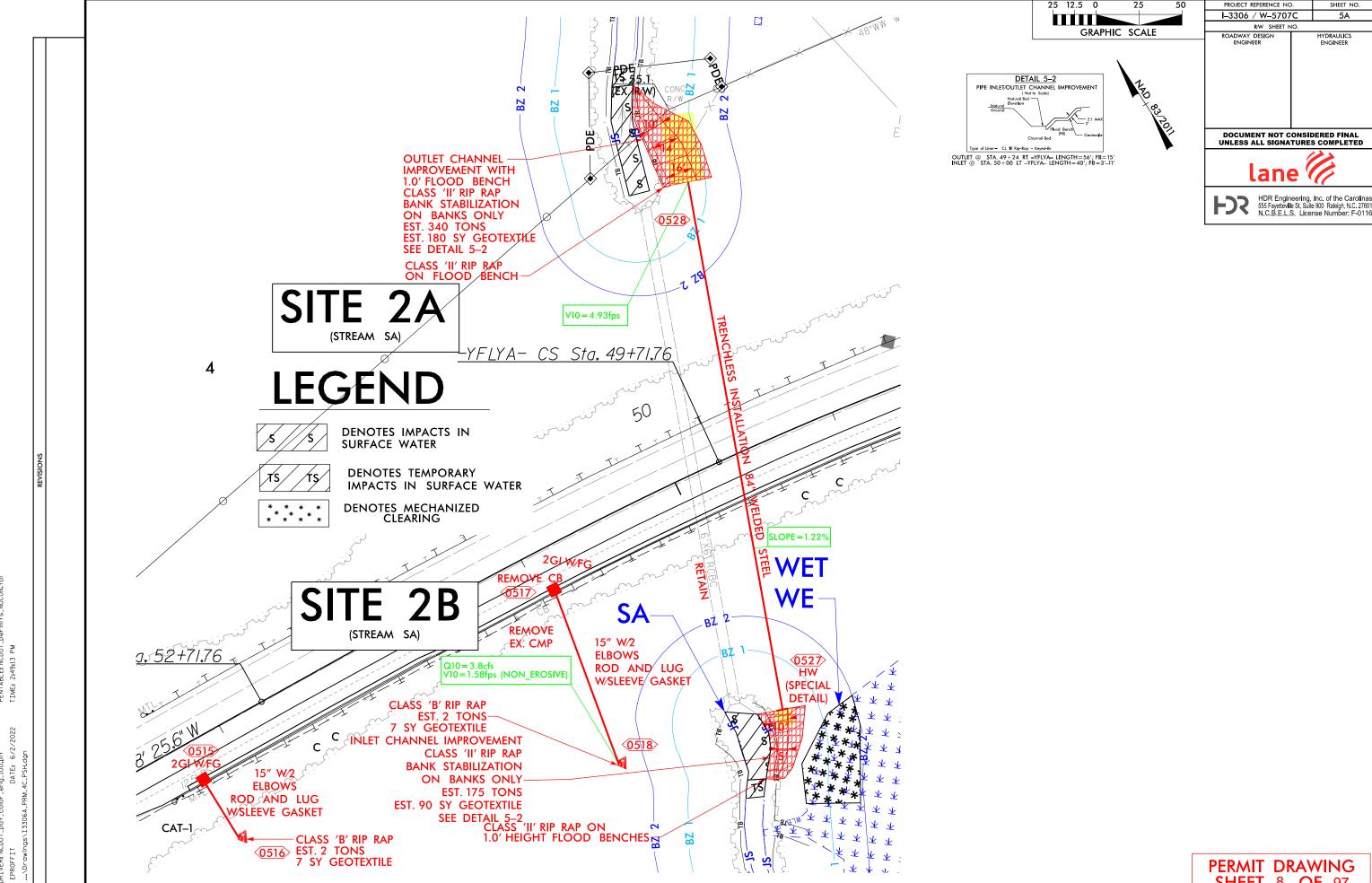
PROJECT REFERENCE NO. SHEET NO. **NOTES:** I-3306A / W-5707C RW SHEET NO. GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES BORE PIT (TYP) DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 **LEGEND** <u>-Y - PC Sta. 17 +46.74</u> DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DENOTES MECHANIZED CLEARING 120 1=40 WB/1-85 SB 84' BS SHEET MATCHLINE STA. 60+00, SEE ⇒ 5> 1-40 EB/1-85 NB_71 BST -YRPD--YRPD- PC Sto. 67+17.05 SITE 1 ROCKY RUN PERMIT DRAWING SHEET 3 OF 97

PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 SITE 1 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED 100′ 200′ 0 100' 200′ 300' Q STA 66+84 -YRPD-RETAIN EXISTING 8'x7' RCBC GP ELEY: =584.33 SKEW= 60 DEGREES SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 580 1.5:1 NORMAL PROP ROCK PLATING W/CLASS 'II" RIP RAP EXISTING GROUND ALONG EXISTING RCBC CENTERLINE 570 560 550 540 530 520 PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET <u>4</u> OF <u>97</u>



PROJECT REFERENCE NO. SHEET NO. I-3306A / W-57070 RW SHEET NO GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 2A SEEN PERMITADRAWNOUT
SHEET 8 OF STATE FOR ENLARGEMENT VELVE SHEET 6 <u> FLYA- CS Sta. 49+71.76</u> lane 🅢 LEGEND HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 DENOTES IMPACTS IN SURFACE WATER OUTLET @ STA. 145+67 LT -185- LENGTH=37';FB=15' denotes temporary impacts in surface water DETAIL 5-2
PIPE INLET/OUTLET CHANNEL IMPROVEMENT
(Not to Scale) DENOTES MECHANIZED CLEARING 19 × 25 SITE 2B WE-OUTLET @ STA. 49+24 RT -YFLYA- LENGTH=56'; FB=0'-15'
INLET @ STA. 50+00 LT -YFLYA- LENGTH=40'; FB=0'-15'
OUTLET @ STA. 145+67 LT -185- LENGTH=37'; FB=0'-15' \<u>-YFLYA- TS Sta. 54+74.37</u> END CONSTRUCTION <u>-YFLYA- SC Sta. 58+74.37</u> -YFLYA- POT Sta. 62 + 60.14 -185- TS Sta. 142+66.80 <u>-YFLYA- CS Sta. 63+61.52</u> SHEET 135 MATCHLINE A. 46+00, SEE \Rightarrow \Rightarrow \Rightarrow CHLINE)+00, SE STA. MT(60 -YRPD-RPD 15" W/2— ELBOWS ROD AND LUG W/SLEEVE GASKET <u>-YRPD- PC Sta. 50+54.J7</u> <u>-YRPD- PT Sta. 56+41.38</u> WETLAND-WB SITE 3B æ æ PERMIT DRAWING END WWF + 57.5 (EX. R/W) **SHEET** <u>6</u> **OF** <u>97</u>

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-57070 RW SHEET NO GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 2A DETAIL 6-6
PIPE INLET/OUTLET CHANNEL IMPROVEMENT VELYEE SHEET 6 ENT SHI FLYA- CS Sta. 49+71.76 lane W LEGEND HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 DENOTES IMPACTS IN SURFACE WATER OUTLET @ STA. 145+67 LT -185- LENGTH=37';FB=15' DENOTES TEMPORARY IMPACTS IN SURFACE WATER DETAIL 5-2
PIPE INLETOUTLET CHANNEL IMPROVEMENT
Natural Bed
Natural Bed
Ground
Ground DENOTES MECHANIZED CLEARING 10 x 10 x SITE 2B OUTLET @ STA. 49+24 RT -YFLYA- LENGTH=56'; FB=0'-15'
NILET @ STA. 50+00 LT -YFLYA- LENGTH=40'; FB=0'-15'
OUTLET @ STA. 145+67 LT -185- LENGTH=37'; FB=0'-15' \<u>-YFLYA- TS/Sta.54+74.37</u> END CONSTRUCTION <u>-YFLYA- SC Sta. 58+74.37</u> -YFLYA- POT Sta. 62 + 60.14 -185 - TS Sta. 142+66.80 -YFLYA- CS Sta. 63+61.52 9 SHEET /35 MATCHLINE A. 46+00, SEE R \Rightarrow \Rightarrow MATCHLINE FA. 60+00, SEE J STĂ. -YRPD-RPD -YRPD- PC Sta. 50+54.17 <u>-YRPD- PT Sta. 56+41.38</u> WETLAND-**WB** SITE 3B PERMIT DRAWING END WWF +57.5 (EX. R/W) SHEET <u>7</u> OF <u>97</u>



SHEET 8 OF 97

PROJECT REFERENCE NO.

SHEFT NO.

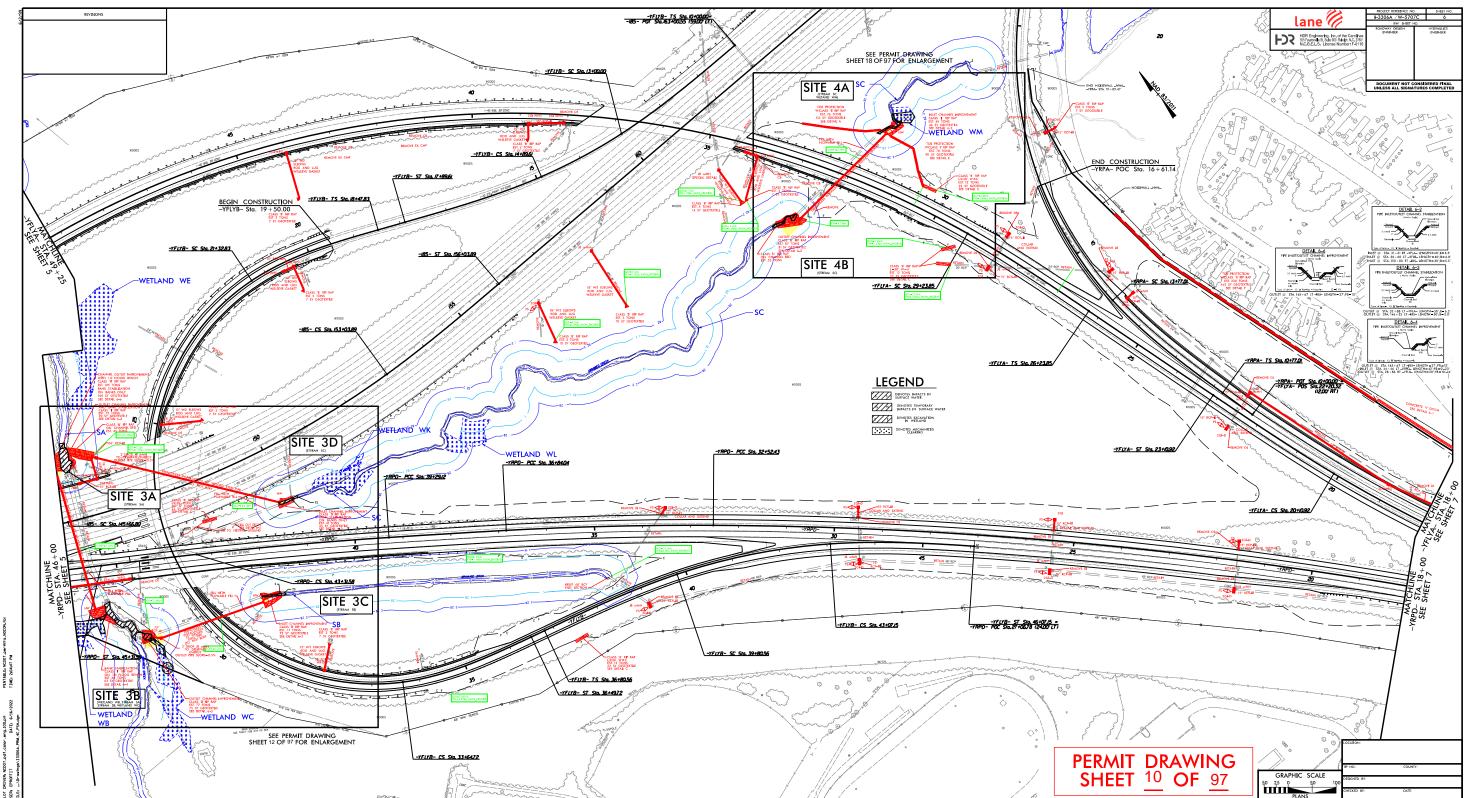
PROJECT REFERENCE NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 2A,B 300' 200' 100' 0 100' 200′ 300' SCALE: ' =50' HORIZONTAL 1" =10' VERTICAL G STA 50+00 -YFLYA-GP ELEV. = 595.41 SKEW 105 DEGREES 595 585 575 EXISTING GROUND ALONG
EXISTING CULVERT CENTERLINE 565 555 EXISTING LEFT FLOOD BENCH EXCAVATION 30 CY 545 EXISTING RIGHT TOP OF BANK
NORMAL WS
ELEV. = 535.0
DATE: V22/2022 RETAIN EXISTING 6'X6' RCBC 84" WELDED STEEL PIPE EXISTING LEFT TOP OF BANK EXISTING RIGHT 535 EXCAVATE 49 CY - TAPERED INLET NV=534.00 INV=532.21 SLOPE=0.020ft/ft INV=531.21 SLOPE=0.020ft/ft PROPOSED FLOOD BENCH WCLASS (II' RIP RAP AND GEOTEXTILE V INV=535.00 INV=528.00 -INV=529.00 -PROFILE ALONG STRUCTURE

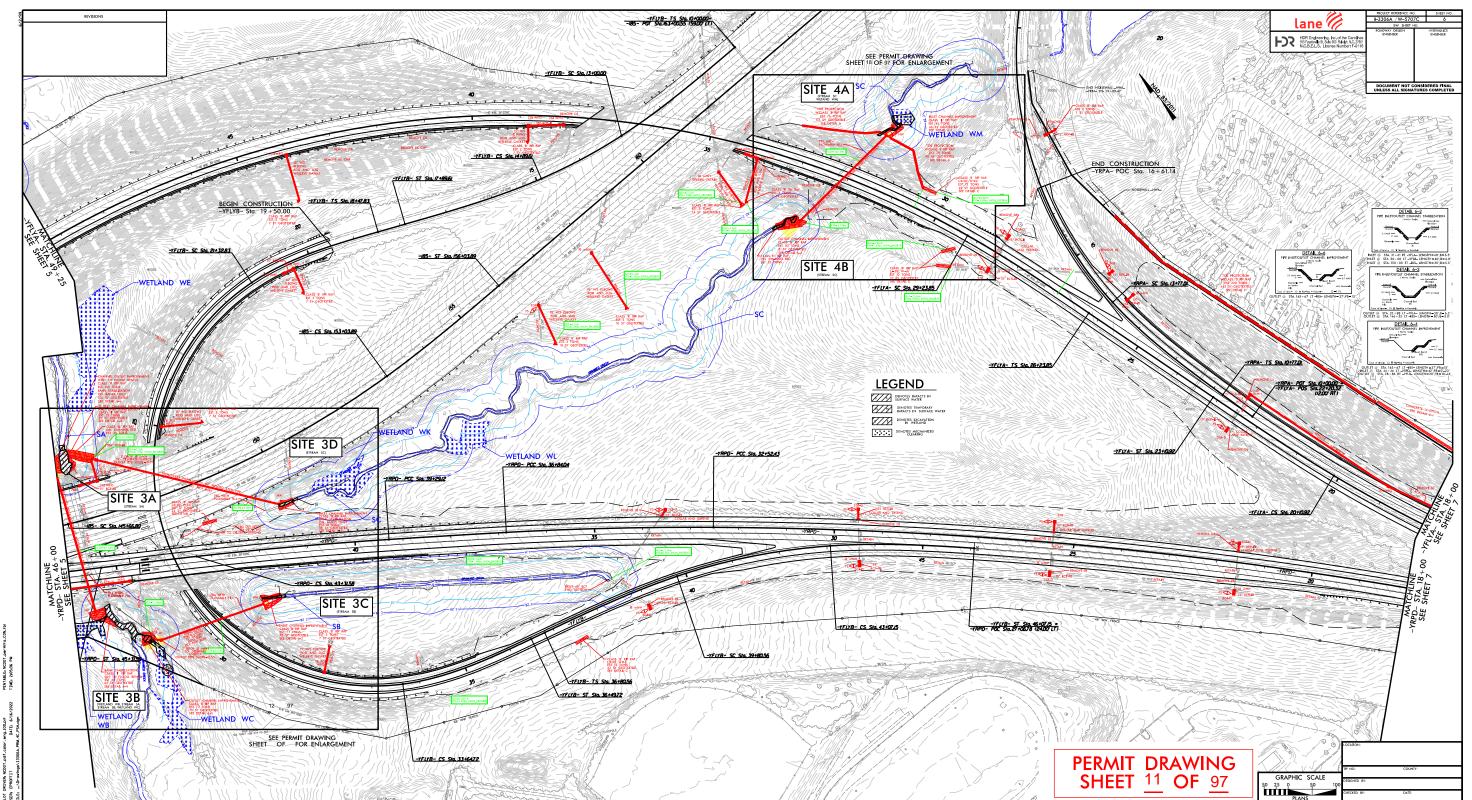
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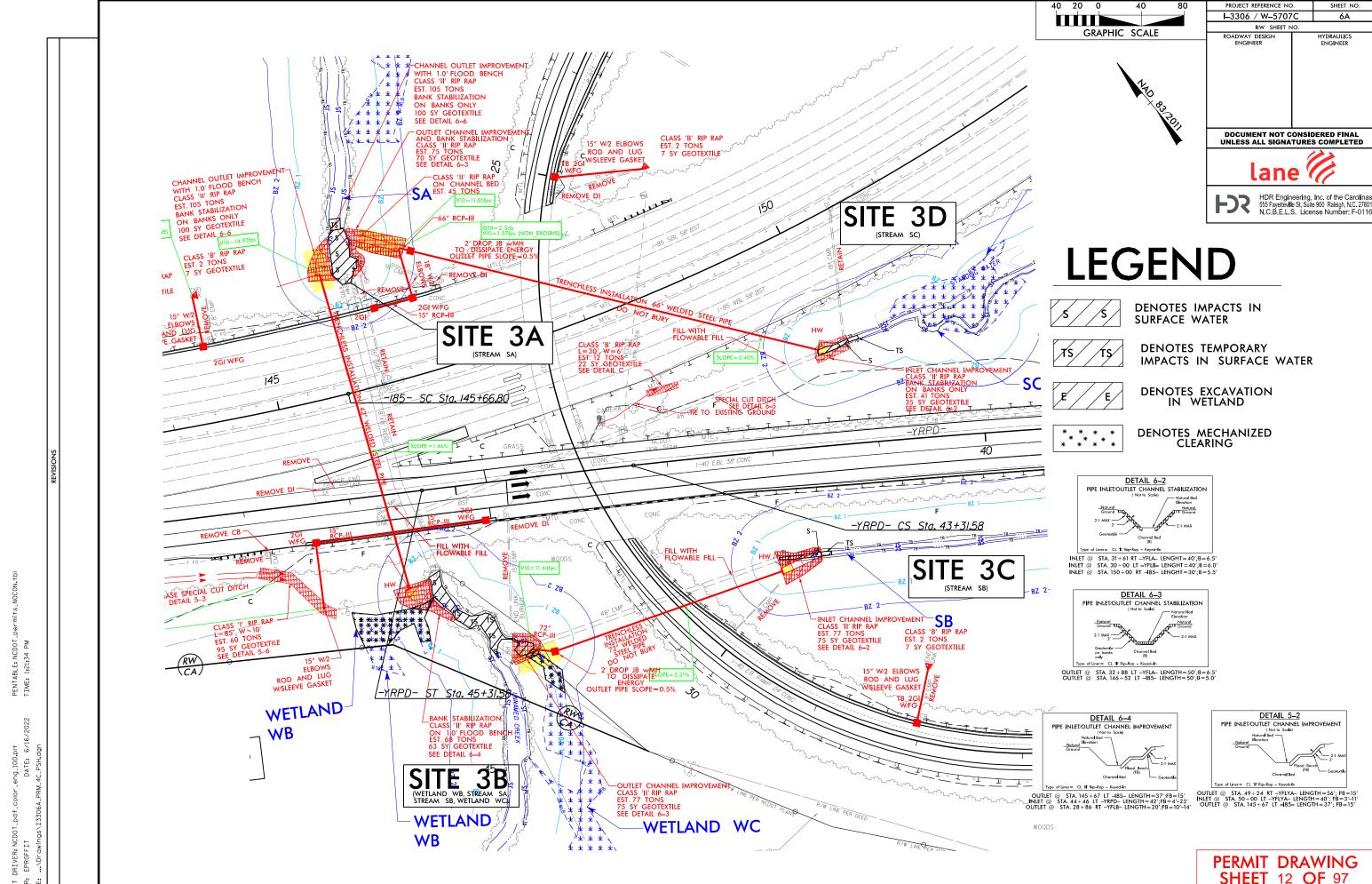
PERMIT DRAWING **SHEET** 9 **OF** 97

SHEET NO.

HYDRAULICS ENGINEER







SHEET 12 **OF** 97

PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane // DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 3A,B 300′ 200′ 100' 0 100′ 200′ 300' SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 580 Ç -185- STA 145+91 ¬ 570 - NATURAL GROUND ALONG PROPOSED 42"WSP CENTERLINE NATURAL GROUND ALONG EXISTING RCBC CENTERLINE 560 FLOOD BENCH EXCAVATION EST 80 CY FLOOD BENCH EXCAVATION EST 10 CY 550 TOP BANK LEFT
TOP BANK RIGHT TOP BANK LEFT TOP BANK RIGHT 540 42" WSP INV=655.56 ~ SLOPE=0.0125frft INV=541.39 FLOOD BENCH WCLASS II RIP RAP 1 INV=537.25 INV=542.39 NORMAL WS ELEV. = 641.9 DATE: 12/13/21 STREAM BED NV=538.25 TRENCHLESS INSTALL 42" WSP 530 FLOOD BENCH WCLASS II RIP RAP PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET <u>13</u> OF <u>97</u>

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I3306A_PRM_4C_YRPD_4550_Slte 4.dgn

SITE 3B,C 200′ 100' 0 100′ 200′ 300' Q -YFLYB- STA 29+41 72" WELDED STEEL GP ELEV.=594.66 -SKEW= 115 DEGREES 600 SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 590 - EXISTING GROUND ALONG EXISTING RCBC CENTERLINE 580 570 JB WMH USED TO DISSIPATE ENERGY г 72″ RCP-IV 560 INLET CHANNEL IMPROCLASS 'II' RIP RAP
EST. 77 TONS
75 SY GEOTEXTILE 550 NORMAL WS — ELEV. = 557.8' DATE: 12/13/21 S=0.0573ft/ft DO NOT BURY 540 INV = 544.49' PROFILE ALONG STRUCTURE

PERMIT DRAWING SHEET 14 OF 97

PROJECT REFERENCE NO.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY DESIGN ENGINEER

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

lane 🦷

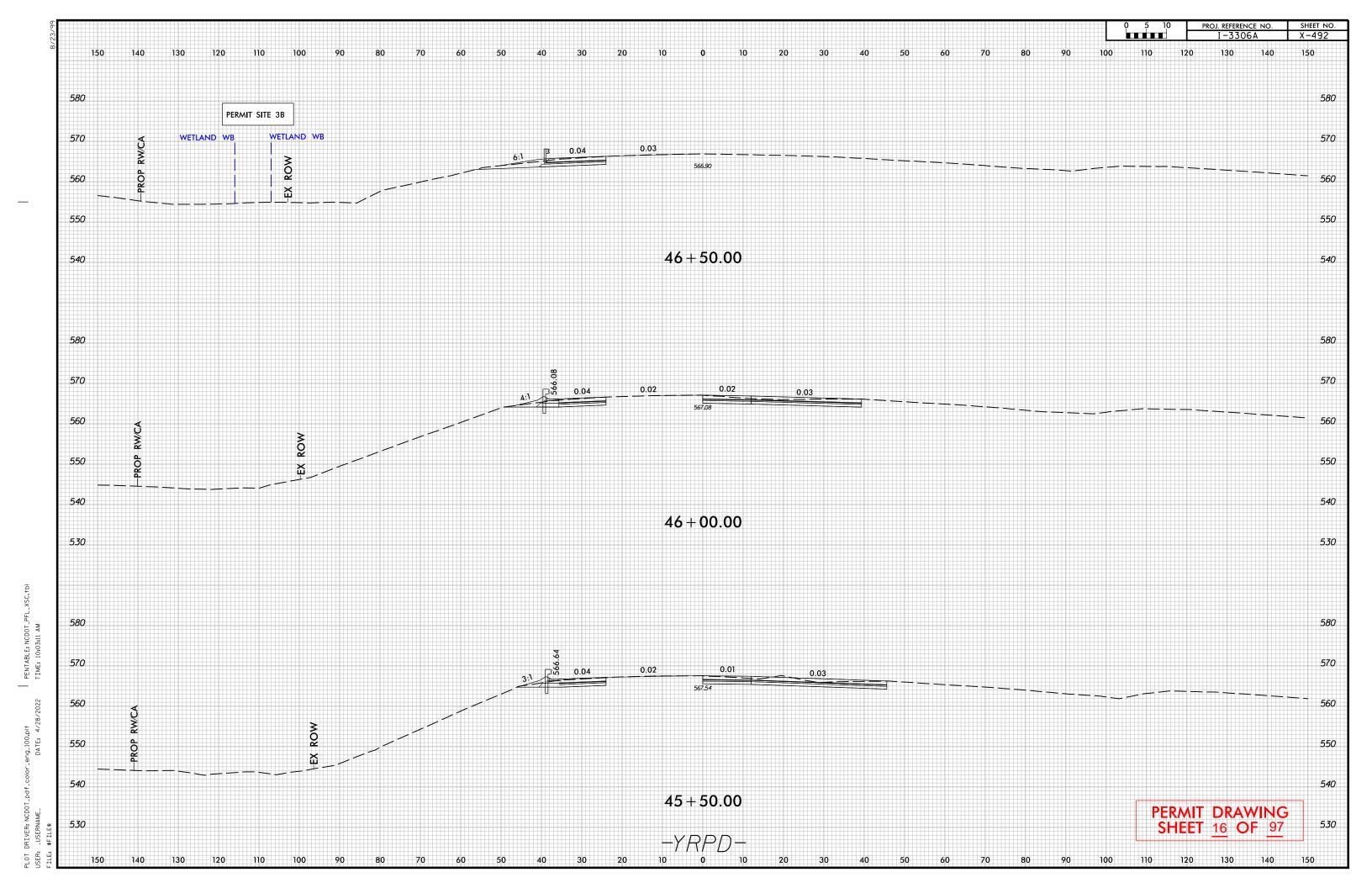
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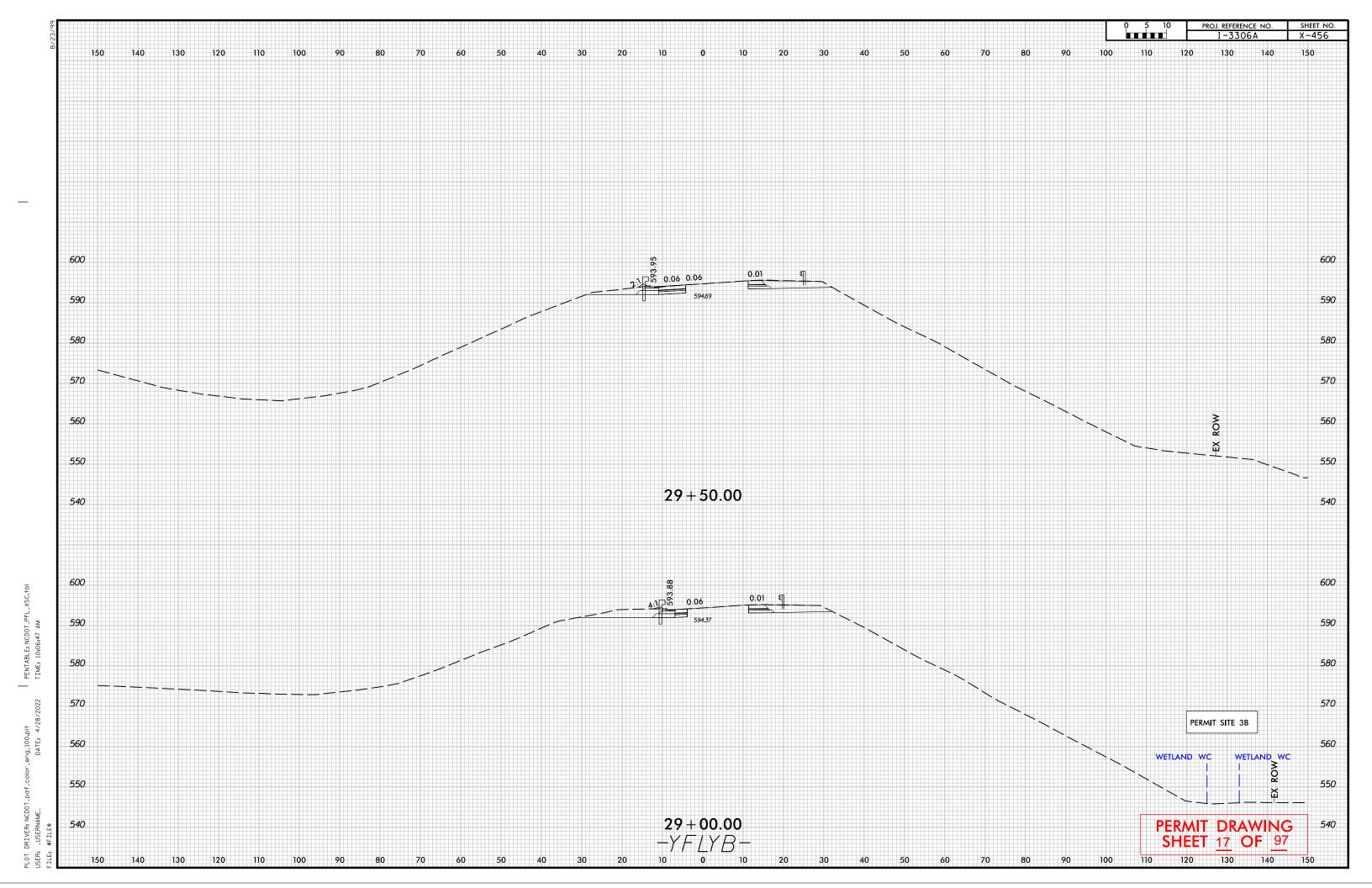
HYDRAULICS ENGINEER

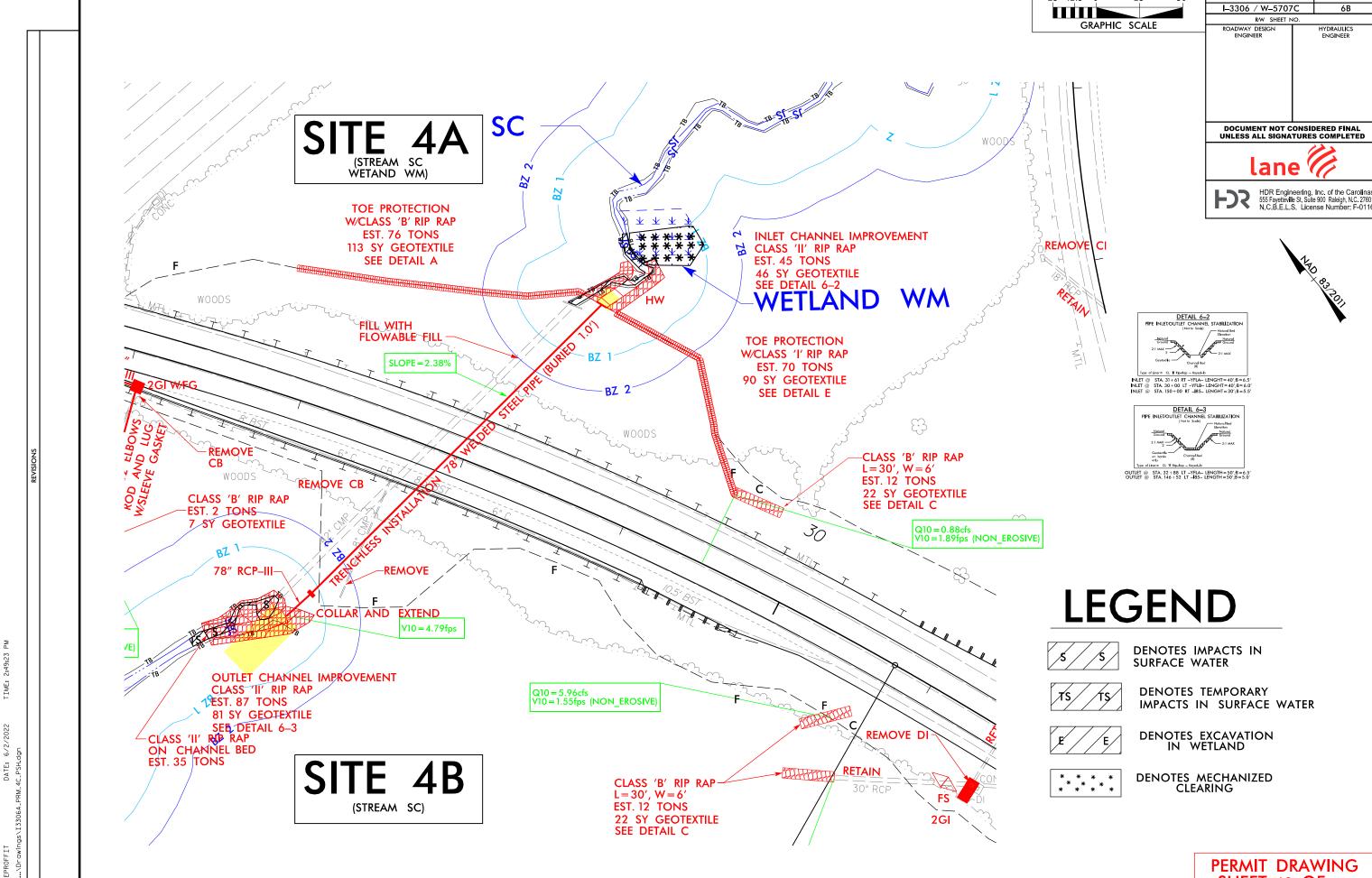
PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 3A,D 200′ 100' 0 100′ 200′ 300′ SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 570 —— Ç —I85— STA 148+42 560 66" WELDED STEEL PIPE r 66" RCP-IV 550 NORMAL WS — ELEV. = 551.79' DATE: 12/13/21 SLOPE = 0.0340ft/ft = DO NOT BURY 540 INV=537.00′ -530 PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET 15 OF 97

PENTABLE: NCDOT_PFL_XSC.+bi TIME: 10:23:54 AM

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SHEET 18 **OF** 97

PROJECT REFERENCE NO.

SHEFT NO.

SITE 4A,B 200′ 100′ 100′ 200′ 0 300' SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL EXISTING GROUND ALONG PROPOSED 78" WELDED STEEL PIPE CENTERLINE 640 630 ~ 2:1 NORMAL 620 PROPOSED PIPE COLLAR 610 78" WELDED STEEL PIPE (BURIED 1 FOOT) 600 INLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 45 TONS 46 SY GEOTEXTILE SLOPE = 0.0238 ft/ft -590 NORMAL WS — ELEV. = XXX.X DATE: 12/13/21 PROFILE ALONG STRUCTURE

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27801 N.C.B.E.L.S. License Number: F-0116

ROADWAY DESIGN ENGINEER

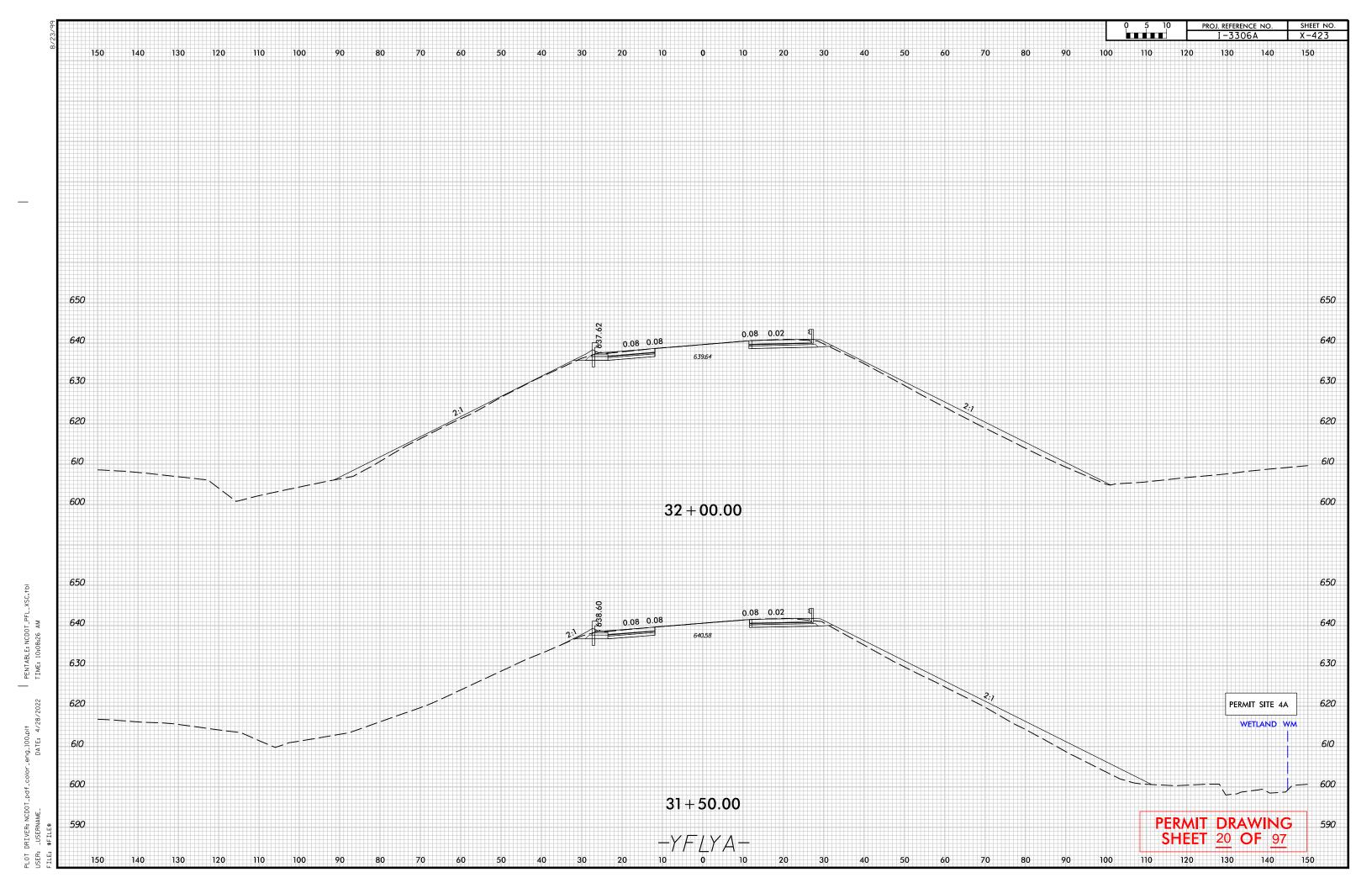
ROADWAY DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 19 OF 97

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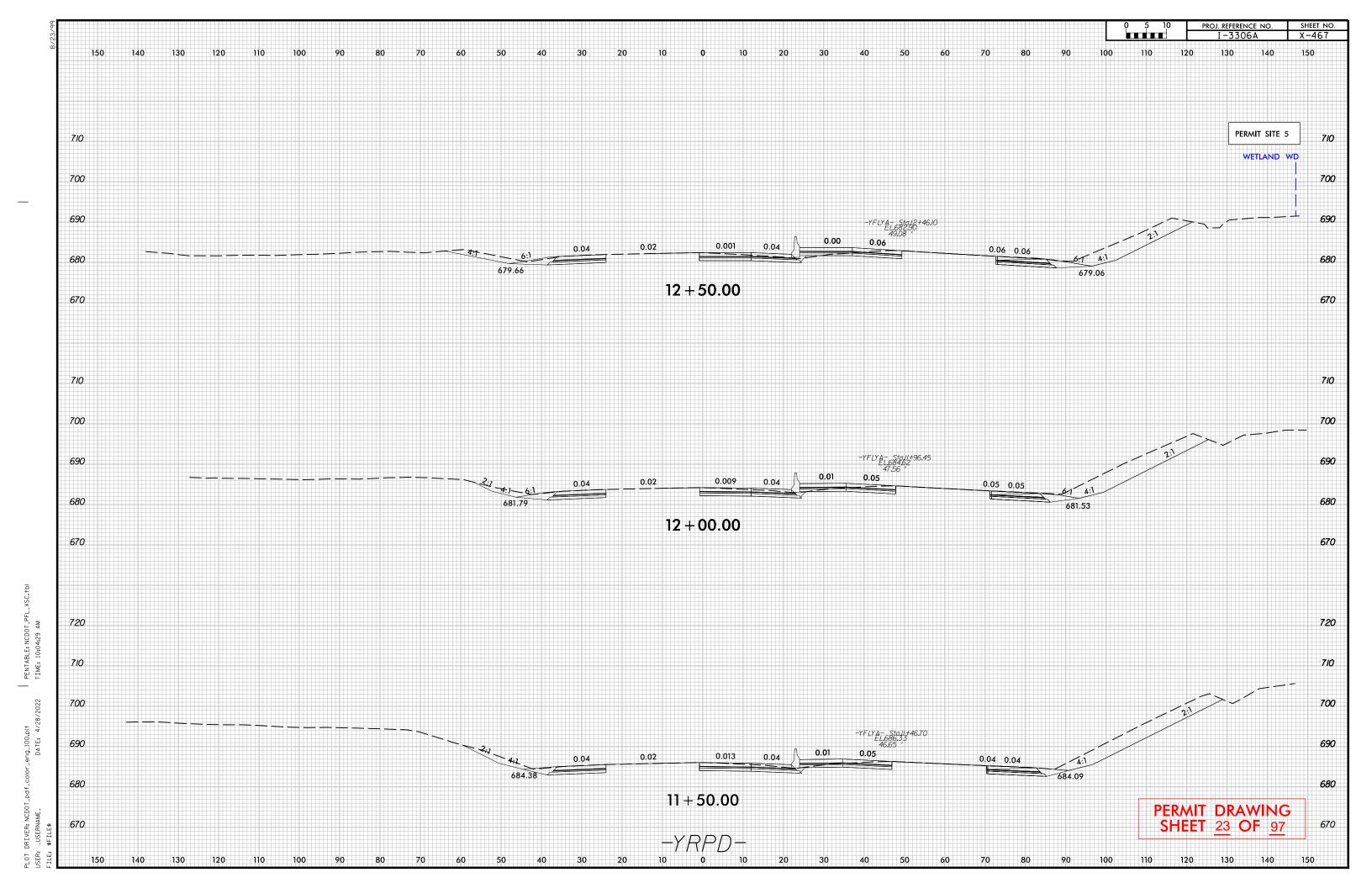
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PROJECT REFERENCE NO. SHEET NO. I-3306A / W-57070 R/W SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER 1 #### | Min. D = 1 Ft. | Max. Type of Liner = Class 'B' Rip-Rap
FROM STA, 11+22 -YFLYA- R
TO STA, 00+58 -L- LT **LEGEND** FROM STA. 12+49 TO STA. 14+18 -YFLYA- RT 양 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES EXCAVATION DENOTES MECHANIZED CLEARING lane W 앉 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 <u>-YI- PC Sta. 27+49.J9</u> WETLAND WD SITE 5 CONCRETE 'V' DITCH SEE DETAIL 7-3 -2' BASE LATERAL DITCH WCLASS 'B' RIP RAP EST. 78 TONS 221 S.Y. GEOTEXTILE SEE DETAIL 7-1 NOISEWALL -NW6-00 BDO END WOVEN WIRE FENCE STANDARD 2' BASE DITCH -W CLASS 'B' RIP RAP EST. 62 TONS 175 SY GEOTEXTILE MATCHLINE LYA- STA: 18+ SEE SHEET 6 WOODS 25 /-40 WBL 38' CON 8 MATCHLINE -YRPD- STA. 18+ SEE SHEET 6 RETAIN 36" RCP MATCHLINE 48" WW FENCE -YRPD- SC Sta. 14+47.21 -YRPD- TS Sta. 12+47.21 -L- POT Sta. 00+39.81 = -YFLYA- TS Sta. 10+00.00 (23.00° LT) -YRPD- POT Sta. 10+03.00 (23.00° RT) END WWF +71.4 (EX. RW) -YI- ST Sta. 20+13.83 20 PERMIT DRAWING SHEET 21 OF 97

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C R/W SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER (Da) B Min. D=1 Ft. Max. d=1 Ft. B=2 Ft. /BB(3 Type of Liner = Closs 'B' Rip-Rap

FROM STA. 11+22 -YFLYA- I
TO STA. 00+58 -L- LT **LEGEND** FROM STA. 12 + 49 TO STA. 14 + 18 -YFLYA- RT DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES EXCAVATION DENOTES MECHANIZED CLEARING lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 -YI- PC Sta. 27+49.19 WETLAND WD SITE 5 CONCRETE 'V' DITCH SEE DETAIL 7-3 2' BASE LATERAL DITCH W/CLASS '/B' RIP' RAP' EST. 78 TONS 221 S.Y. GEOTEXTILE SEE DETAIL 7-1 NOISEWALL -NW6-00₊ END WOVEN WIRE FENCE STANDARD 2' BASE DITCH W CLASS 'B' RIP RAP EST. 62 TONS 175 SY GEOTÈXTILE -YELYA- STA. 18+ SEE SHEET 6 SHEET 25 8 MATCHLINE -YRPD- STA. 18+ SEE SHEET 6 MATCHLINE 48" WW FENCE -YRPD- SC Sta. 14+47.21 -YRPD-| TS Sta. 12+47.21 -L- POT Sta. 00+39.81 = -YFLYA- TS Sta. 10+00.00 (23.00° LT) -YRPD- POT Sta. 10+03.00 (23.00° RT) -YI- ST Sta. 20+13.83 20 PERMIT DRAWING **SHEET 22 OF 97**



50 25 0 PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER **LEGEND** DENOTES IMPACTS IN SURFACE WATER | Min. D = 3 Ft. | Max. d = 5 Ft. | Max. d = 5 Ft. | Max. d = 5 Ft. | Max. d = 7 Ft. | Max. Min. D=2 Ft.

Mox. d=2 Ft.

When B is < 6.0' B=4 Ft.

ype of Liner — CLASS 'II' Rip-Rap b=5 Ft. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER FROM STA. 48+82 TO STA. 50+38 -L- RT FROM STA. 46+75 TO STA. 48+82 -L- RT DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 50 55 TOE PROTECTION — W/CLASS 'I' RIP RAP EST. 105 TONS 222 SY GEOTEXTILE SEE DETAIL A -L- TS Sta. 54+68.96 SHET 48" WW FENCE CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE 띯 28 STA. 1-40 EBL 38' CONC MATCHLINE 15" W/2 ELBOWS ROD AND LUG W/SLEEVE GASKET CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE 48" WW FENCE SITE 6 SD (STREAM SD) WETLAND WLL PERMIT DRAWING SHEET 24 OF 97

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER **LEGEND** DENOTES IMPACTS IN SURFACE WATER Min. D=2 Ft.

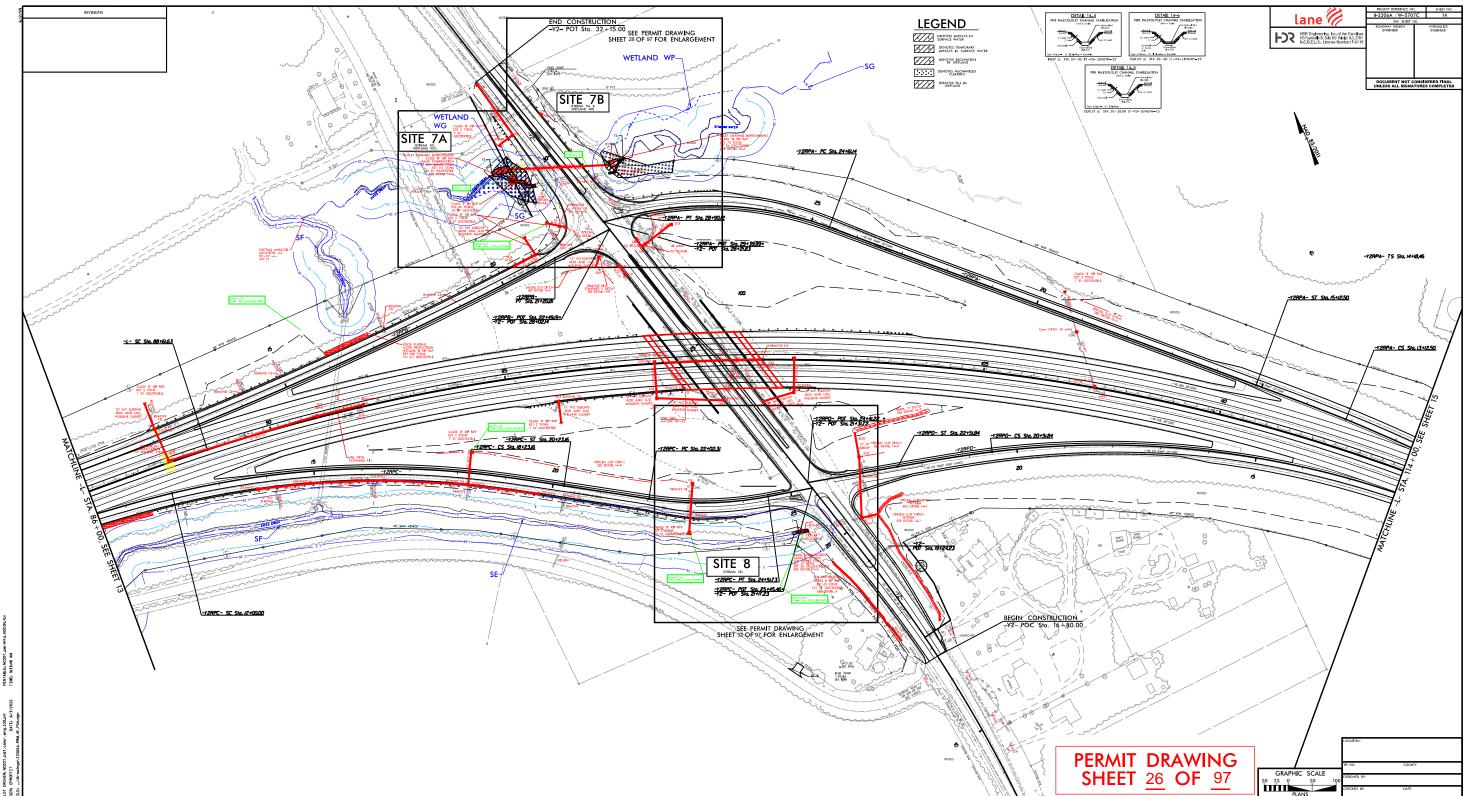
When B is < 6.0'

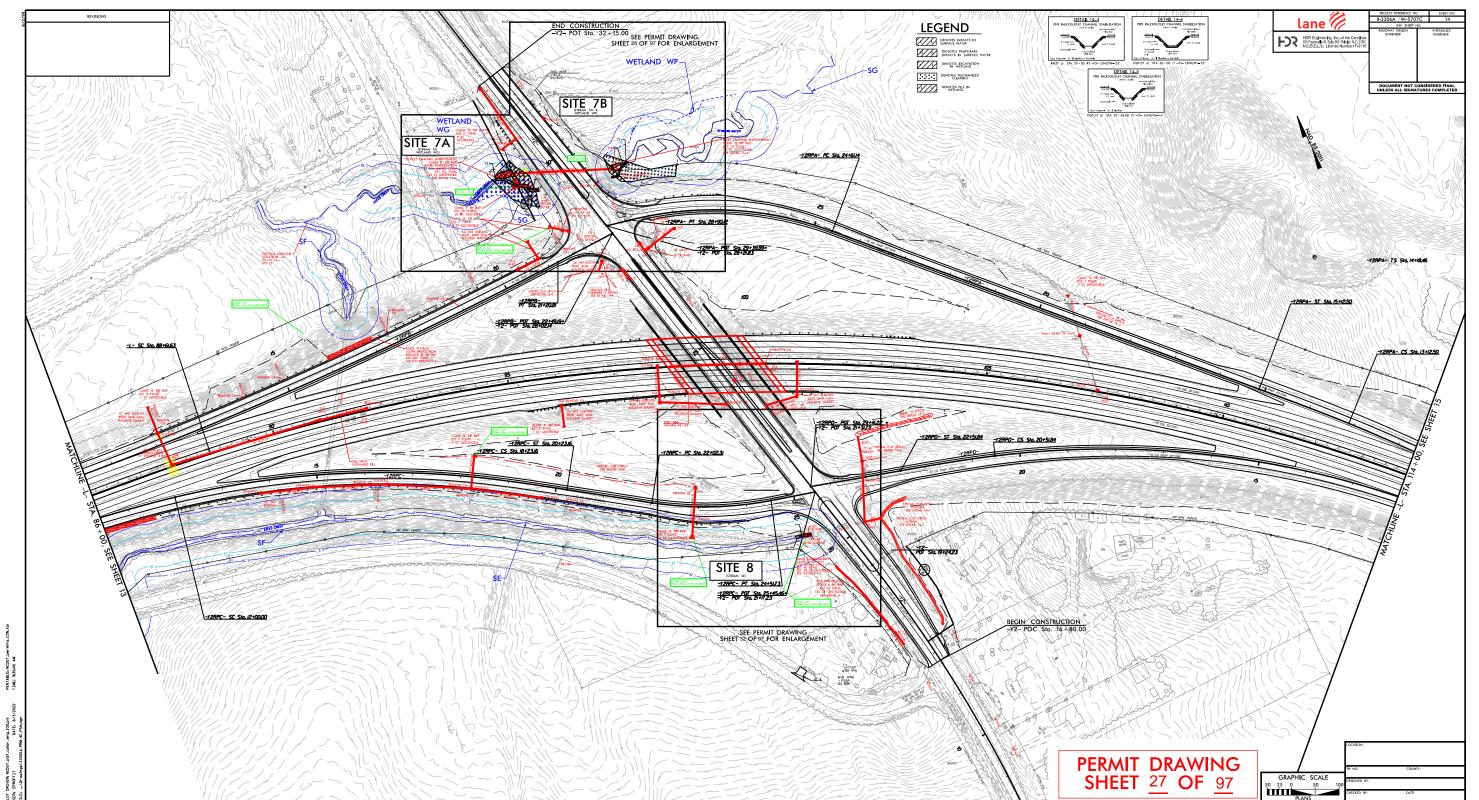
B=4 Ft.

pe of Liner = CLASS 'II' Rip-Rap

Min. D=2 Ft.

Max. d=2 Ft. b=5 Ft. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER FROM STA. 48 + 82 TO STA. 50 + 38 -L- RT FROM STA. 46+75 TO STA. 48+82 -L- RT DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 50 55 SHET SEE 띯 00 58 STA. 1-40 EBL 38 CONC MATCHLINE CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE SITE 6 SD (STREAM SD) WETLAND WLL PERMIT DRAWING SHEET 25 OF 97





SITE 7A,B 200′ 100' 0 100′ 200′ 300' SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL Q -Y2- STA 29+17
72" WELDED STEEL
GP ELEV. = 623.86'
SKEW= 118 DEGREES 630 EXISTING GROUND ALONG PROPOSED 72" WELDED PIPE CENTERLINE 2:1 NORMAL 620 RIGHT TOP OF BANK 610 INLET CHANNEL IMPROVEMENT
CLASS 'II' RIP RAP
EST. 70 TONS NC
57 SY GEOTEXTILE ELE SLOPE=0.0075fvft -DO NOT BURY INV=606.39' NORMAL WS — ELEV. = 408.0' DATE: 12/13/21 600 PROFILE ALONG STRUCTURE

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

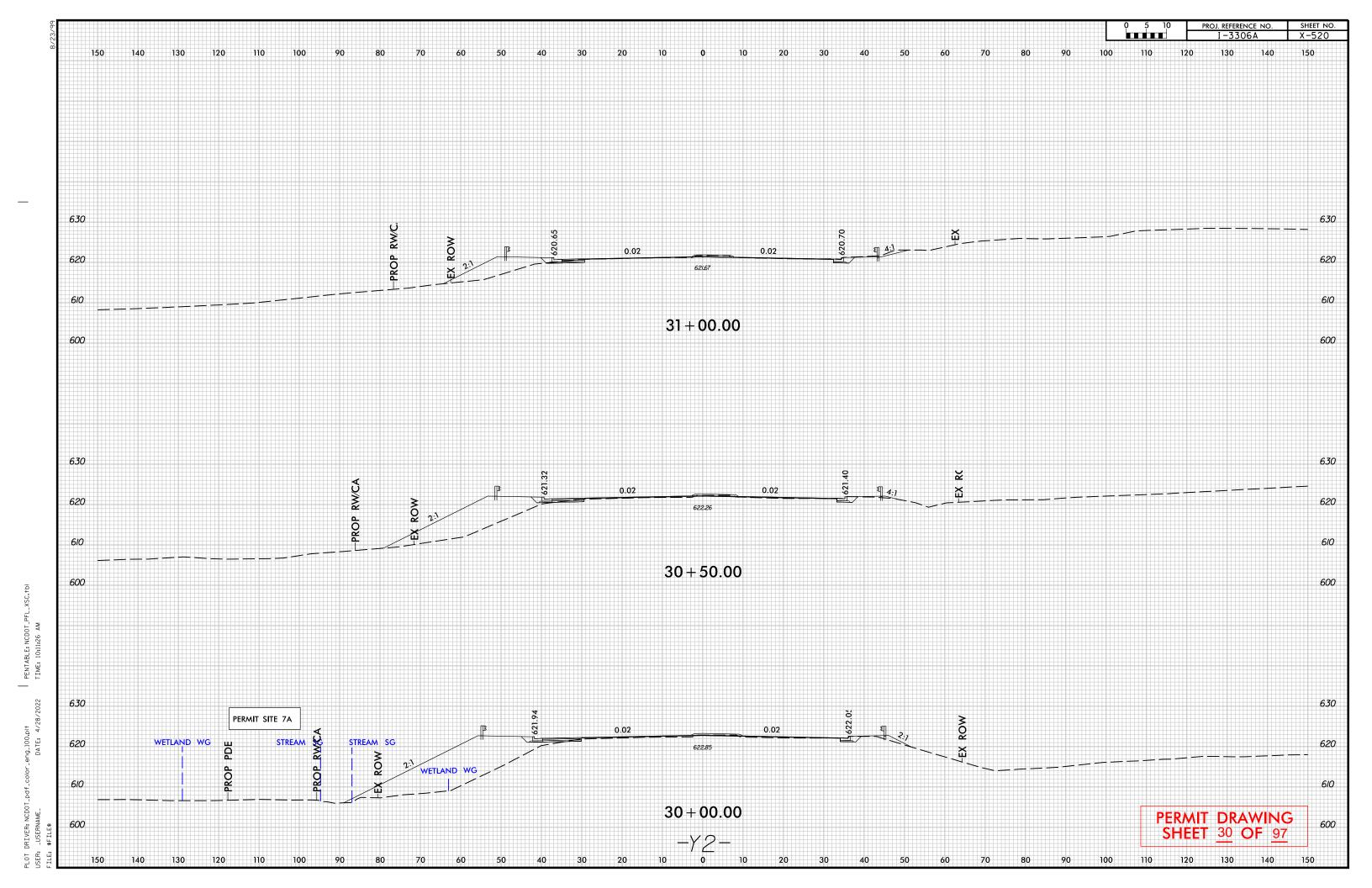
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

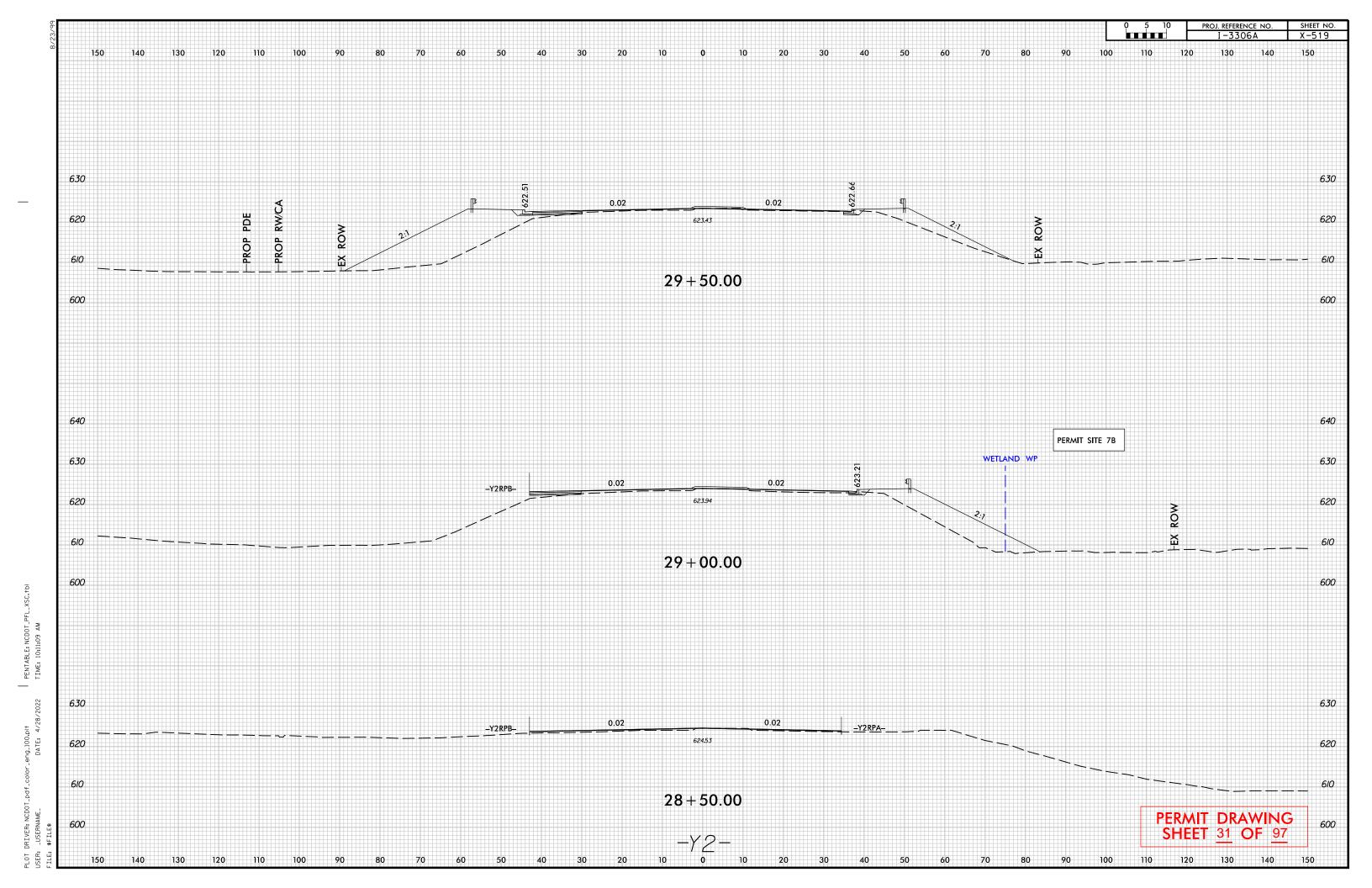
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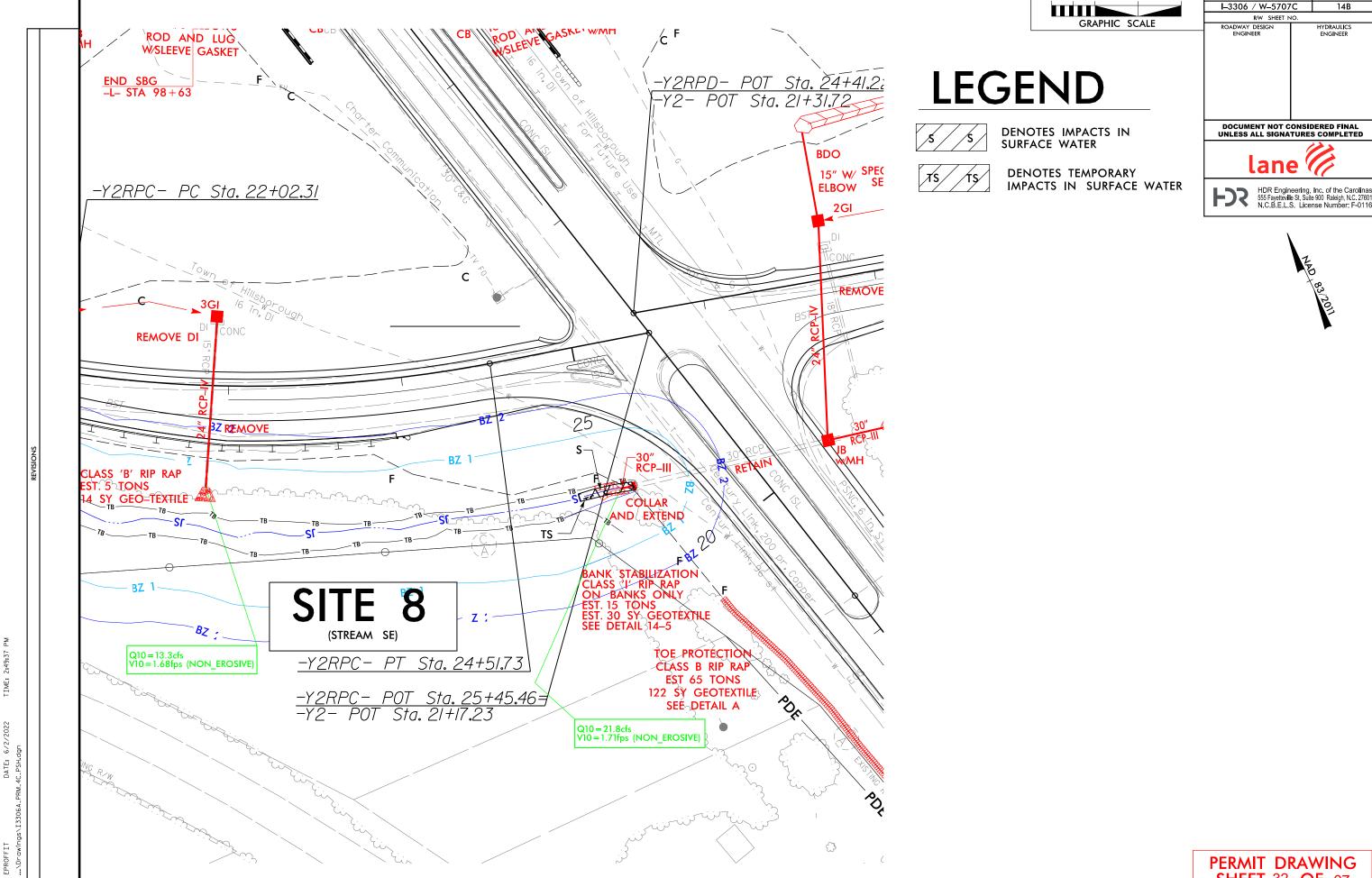
PERMIT DRAWING SHEET 29 OF 97

TIME: 9:42:32 AM

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SHEET 32 **OF** 97

PROJECT REFERENCE NO.

SHEFT NO.

PROJECT REFERENCE NO. 50 25 0 SHEET NO. **LEGEND** I-3306A / W-5707C DETAIL 15–3
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) Natural Bad DETAIL 15–2
PIPE INLET/OUTLET CHANNEL STABILIZATION RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER INLET @ STA. 127+50 RT -L- LENGTH=50' OUTLET @ STA. 127+36 LT _L_ LENGTH=70' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 120 SITE 9A 115 <u>-Y2RPA- PC Sta. 11+58.31</u> 48" WW FENCE -Y2RPA- POT Sta. II+15.99= -L- POC Sta. II4+46.94 (47.00' LT) =04'07'00" CLASS 'B' RIP RAP L=30', W=6' EST. 12 TONS 22 SY GEOTEXTILE SEE DETAIL C SHET 생태왕 빓 00+ 00 128 SHEET ST MATCHLINE CLASS 'B' RIP RAP L=60', W=6' EST. 24 TONS 44 SY GEOTEXTILE SEE DETAIL C 48" WW FENCE SJ SITE 9B PERMIT DRAWING SHEET 33 OF 97

PROJECT REFERENCE NO. SHEET NO. **LEGEND** I-3306A / W-5707C DETAIL 15—3
PIPE INLETOUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Bed DETAIL 15-2
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Bed RW SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER INLET @ STA. 127 + 50 RT -L- LENGTH = 50' OUTLET @ STA. 127+36 LT -L- LENGTH=70' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 120 SITE 9A -Y2RPA- PC Sta. 11+58.31 -Y2RPA- POT Sta. II+15.99= -L- POC Sta. II4+46.94 (47.00' LT) =04'07'00' SHEET 빓 128+00 SHEET ST MATCHLINE SEE (MATCHLINE -Y2RPD- SC Sta. 12+00.00 -Y2RPD- TS Sta. 10+00.00= -L- POC Sta. 116+03.53 (47.00' RT) SITE 9B PERMIT DRAWING SHEET 34 OF 97

SITE 9A,B 200' 100' 100' 200′ 0 300' Q -L- STA 127+49 84" WELDED STEEL BURIED 1 FOOT GP ELEV.=654.11' SKEW= 90 DEGREES SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 660 650 EXISTING GROUND ALONG PROPOSED 84" WELDED PIPE CENTERLINE 640 - JB W/MH USED TO DISSIPATE ENERGY RIGHT TOP OF BANK / 84" WELDED STEEL PIPE BURIED 1 FOOT 630 /- 84" RCP-IV CEFT TOP 620 INV=621.10'
-- NORMAL WS
ELEV.= 623.0'
DATE: 12/13/21 INV=616.79' INLET CHANNEL IMPROVEA CLASS 'II' RIP RAP EST. 60 TONS 55 SY GEOTEXTILE 610 — CLASS 'II' RIP RAP ON CHANNEL BED EST. 50 TONS - OUTLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 80 TONS 75 SY GEOTEXTILE PROFILE ALONG STRUCTURE

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER

lane 🥢

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET NO.

HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 35 OF 97

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
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FILE: I3306A_PRM_4C_L 12749_Site 14-15.dgn

PROJECT REFERENCE NO. 50 25 0 SHEET NO. DETAIL 18–1

PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Red DETAIL 18-2 BANK STABILIZATION (Not to Scale) I-3306A / W-5707C 18 **LEGEND** RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER Type of Liner = CL 'II' Rip-Rap - Keyed-In Type of Liner≡ CL 'II' Rip-Rap - Keyed-In STA. 162 + 45 LT -L- LENGTH = 25';B = 11' NAD 83/2011 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 10A _SO 160 *1*65 SITE 10B SITE 11 19 48" WW FENCE SHEET LASS 'B' RIP RAP EST. 3 TONS 10 SY GEOTEXTILE END SEE ₩ ₩ STA. 170+00, FILL WITH 1-40 EBL 38' CONC MATCHLINE Q10 = 8.10cfs V10 = 1.72fps (NON_ - INLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 90 TONS 85 SY GEOTEXTILE SEE DETAIL 18-1 SITE 10C (STREAM SL, SM) PERMIT DRAWING SHEET 36 OF 97

PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 10A,B 200′ 100' 100′ 200′ 0 300' SCALE: - Ç STA 156+35 -L-PROPOSED 60" WELDED STEEL GP ELEV.=589.05' SKEW= 90 DEGREES 1" =50' HORIZONTAL 1" =10' VERTICAL 600 2:1 NORMAL 590 EXISTING GROUND ALONG PROPOSED 60" WELDED STEEL OF BANK RIGHT TOP OF BANK 580 INLET CHANNEL IMPROVE CLASS 'II' RIP RAP EST. 20 TONS 18 SY GEOTEXTILE NO 570 NORMAL WS — ELEV. = XXX.X DATE: 12/13/21 INV=569.22' ~ 560 PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET 38 OF 97

PROJECT REFERENCE NO. SHEET NO. 50 25 0 DETAIL 19-6
BANK STABILIZATION DETAIL 19–2
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) Natural Bed I-3306A / W-5707C 19 **LEGEND** RW SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER GEOTEXTILE | B | Min. D = 3 Ft | Max. d = 3 Ft | Max. d = 3 Ft |

"When B is < 6.0" B = 4 Ft.

Type of Liner = CLASS 'II' Rip-Rap | b = 5 Ft. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER NLET @ STA. 171+96 RT -L- LENGTH=50';B=4.0'
OUTLET @ STA. 182+62 LT -L- LENGTH=40';B=3.5'
OUTLET @ STA. 172+50 LT -L- LENGTH=10';B=4.0' STA. 172 + 65 LT -L- LENGTH = 25';B = 13.5' FROM STA. 172+05 TO STA. 172+88 -L- LT NAD 83/2011 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SL-175 WETLAND WO SITE 13 SITE 12 (STREAM SL) -L- SC Sta. 182+73.32 SHEET SHEET -Lano -T. S. fs Sta. 180+73.32 SEE 184 + 00,STA. 1-40 EBL 38' CONC MATCHLINE MATCHLIN CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE 48" WW FENCE INLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 68 TONS 65 SY GEOTEXTILE SEE DETAIL 19–2 PERMIT DRAWING **SHEET** 39 **OF** 97

PROJECT REFERENCE NO. SHEET NO. 50 25 DETAIL 19-6
BANK STABILIZATION
(Not to Scale) DETAIL 19–2
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Bed I-3306A / W-5707C **LEGEND** RW SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER GEOTEXTILE — | B | Min. D=3 Ft.

"When B is < 6.0" B=4 Ft.

Type of Liner = CLASS "II" Rip-Rap b=5 Ft. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER STA. 172 + 65 LT -L- LENGTH = 25';B = 13.5' NLET @ STA. 171+96 RT -L- LENGTH=50';B=4.0'
OUTLET @ STA. 182+62 LT -L- LENGTH=40';B=3.5'
OUTLET @ STA. 172+50 LT -L- LENGTH=10';B=4.0' FROM STA. 172+05 TO STA. 172+88 -L- LT NAD 83/2011 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SL-WETLAND WO SITE 13 SITE 12 (STREAM SL) -L- SC Sta. 182+73.32 SHEET SHEET -Lano -T. S.fs Sta. 180+73.32 SEE 184+00, STA. MATCHLINE CLASS 'B' RIP RAP EST/ 2 TONS 7 SY GEOTEXTILE 48" WW FENCE PERMIT DRAWING SHEET 40 OF 97

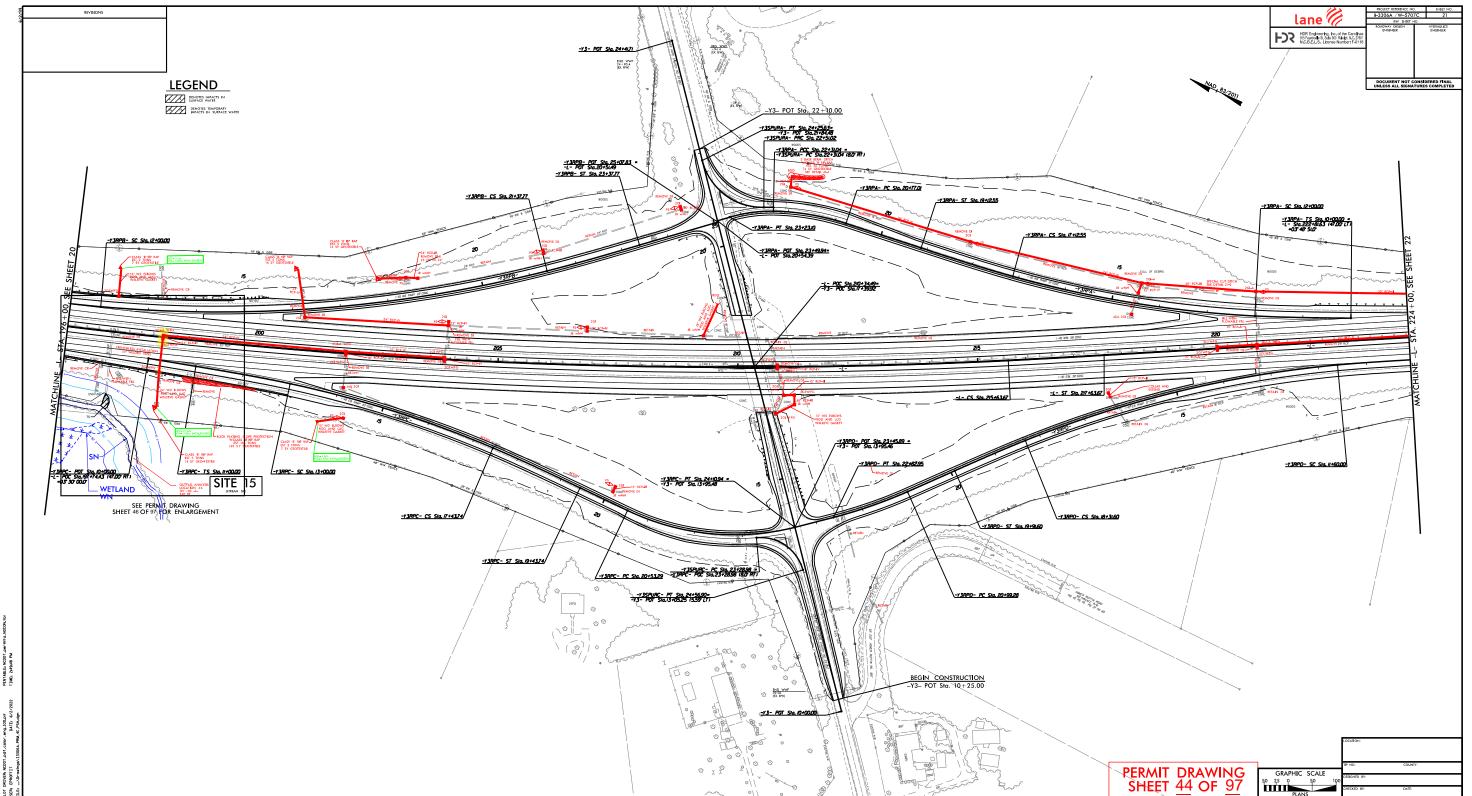
PROJECT REFERENCE NO. 50 25 0 SHEET NO. I-3306A / W-5707C 20 **LEGEND** RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DETAIL 20–2
PIPE INLET/OUTLET CHANNEL IMPROVEMENT
(Not to Scole) — Noticed Red DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED -Y 3RPB- ST Sta. 10+00.00 = \L- ROC Sta. 194+62.58 (47.00' LT) lane 🥢 SN HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 14A OUTLET @ STA. 193+80 RT -L- LENGTH=56';FB=0'-16' INLET @ STA. 192+15 LT -L- LENGTH=2';FB=5.5' -SL 185 部 Q10 = 14.3cfs V10 = 1.70fps (NON_EROSIVI 19 SHEET 961 SEI 00 STA MATCHLINE CLASS 'II' RIP RAP -ON BACK CUT (FILL SLOPE) EST. 100 TONS 90 SY GEOTEXTILE <u>,</u>/* * * * * * * * SN-SITE 14B (STREAM SN) WETLAND WN PERMIT₁DRAWING SHEET OF

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C **LEGEND** R/W SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DETAIL 20–2
PIPE INLET/OUTLET CHANNEL IMPROVEMENT
(Not to Scale) — Natural Bed DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED -Y3RPB- ST Sta. 10+00.00 = \(\(\) \ lane W SN HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 14A OUTLET @ STA. 193+80 RT -L- LENGTH=56';FB=0'-16' ____INLET @ STA. 192+15 LT -L- LENGTH=2';FB=5.5' -SL *-18*5 SHEI 19 SHEET 961 SEI 00 STA MATCHLINE SN SITE 14B (STREAM SN) WETLAND WN PERMIT DRAWING SHEET <u>42</u> OF <u>97</u>

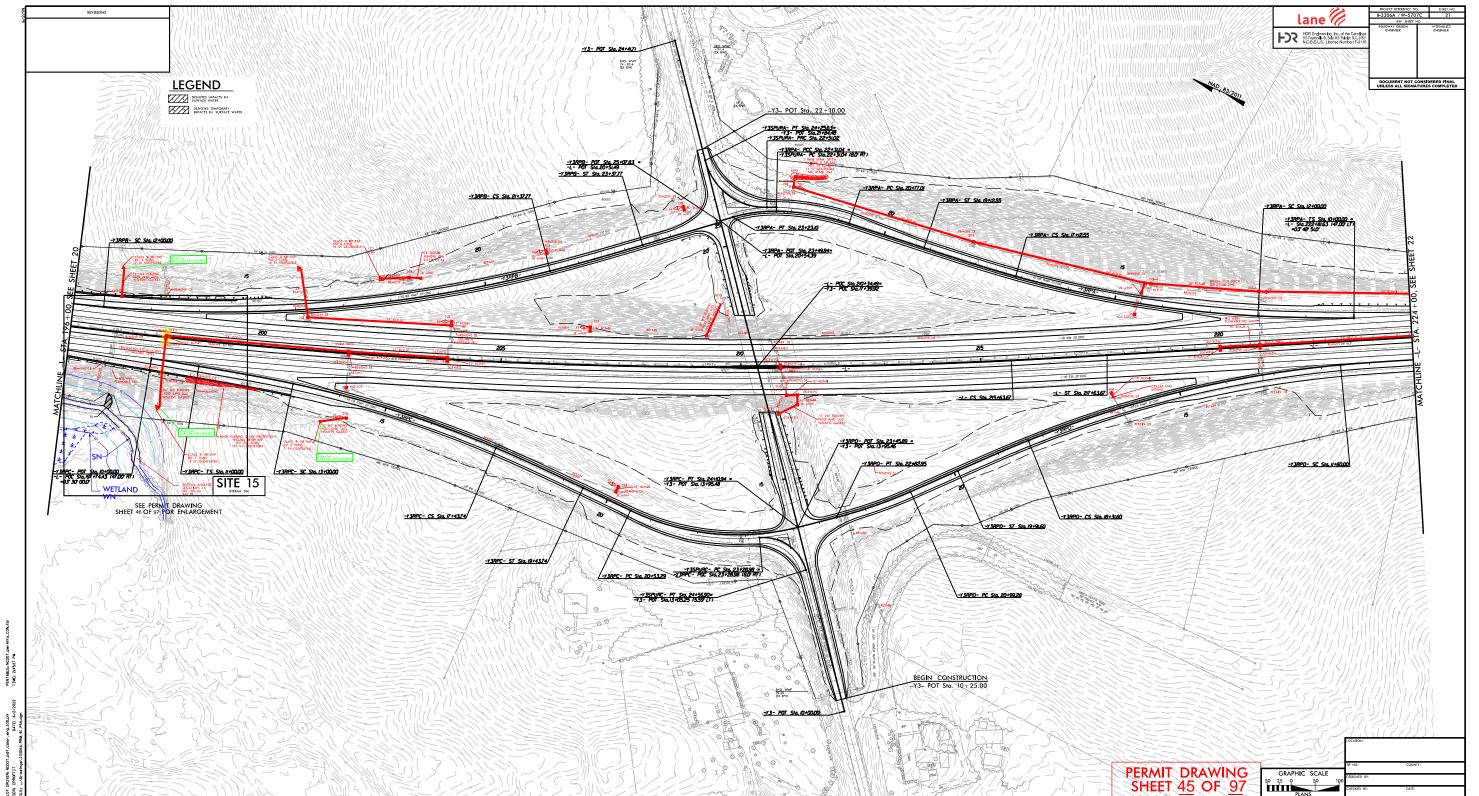
PROJECT REFERENCE NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 14A,B 100′ 100' 200′ 0 200′ 300' SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL Ç STA 193+16 -L-GP ELEV.=537.10 SKEW 60 DEGREES 540 530 520 510 500 INV=503.50 INV=503.50 SLOPE=0.0030 ft/ft EX. INV=503.02 EX. INV = 502.00 PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET 43 OF 97

SHEET NO.

HYDRAULICS ENGINEER



DENTABLE MODOL Assessive MOCON



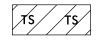
2GI-A W/FG 200 24" RCP-IV REMOVE DI TRENCHLESS INSTALLATION 24" WELDED STEEL FILL WITH REMOVE CB 24" W/2 ELBOWS -REMOVE END/UN W/SLEEVE GASKET Q10 = 21.4cfs V10 = 1.90fps (NON_EROSIVE) ROCK PLATING SLOPE PROTECTION
W/CLASS 'II' RIP RAP
EST. 155 TONS
165 S.Y. GEOTEXTILE **CLASS** EST. 2 7 SY (-CLASS 'B' RIP RAP SN EST. 5 TONS 14 SY GEO_TEXTILE <u> -Y3RPC - TS Sta. II+00.00</u> <u>PC- POT \$ta. 10+00.00</u> POC Sta.197+74.43 (47.00' RT) -Y3RPC 73° 30′ 00.0" **OUTFALL ANALYSIS WETLAND** LOCATION #4 197+03 -L-(STREAM SN) 240' RT WN

PROJECT REFERENCE NO. 25 12.5 0 SHEET NO. I-3306 / W-5707C 21A RW SHEET NO. GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

> PERMIT DRAWING **SHEET** 46 **OF** 97

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C 22 DETAIL 22-1
PIPE INLET/OUTLET CHANNEL IMPROVEMENT
(Not to Scale) Notice Bed RW SHEET NO **LEGEND** HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DENOTES EXCAVATION IN WETLAND OUTLET @ STA. 233+56 RT -L- LENGTH=40' FROM STA. 228+47 TO STA. 230+80 LT -L-DENOTES MECHANIZED CLEARING DETAIL 22-4 STANDARD BASE DITCH (Not to Scale) DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 16A Min. D=2 Ft.

Max. d=2 Ft.

B=5 Ft. lane W Min. D=1.5 Ft. Max. d=1.5 Ft. B=3 Ft. b=5 Ft. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SS Type of Liner - CLASS 'B' Rip-Rap Type of Liner= Class 'II' Rip-Rap
FROM STA. 230+80 TO STA. 230+84 LT -L-SITE 16B FROM STA. 232 + 09 TO STA. 233 + 38 -L- RT -SBB **WETLAND** -WU 235 230 225 SHEET X 48" WW & ISE 30" RCP-III လ 6.5' BST MATCHLINE OUTLET PIPE SLOPE=0.59 END UNK CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE 48" WW FENCE SS -Y3RPD- ST Sta. 10+00.00 = -L- POT Sta. 224+08.09 (47.00' RT) SITE 16C (STREAM SS) WETLAND WQ **PERMIT DRAWING SHEET 47 OF 97**

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C 22 DETAIL 22-1
PIPE INLET/OUTLET CHANNEL IMPROVEMENT
(Not to Scole) — Notweel Bad RW SHEET NO **LEGEND** HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER GEOTEXTILE — B Min. D = 3 Ft.

Max. d = 3 Ft.

B = 6 Ft.

Type of Liner=Class 'II' RIP RAP b = 5 Ft. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER Channel Bed (B = 5.0') DENOTES EXCAVATION IN WETLAND OUTLET @ STA. 233+56 RT -L- LENGTH=40' FROM STA. 228+47 TO STA. 230+80 LT -L-DENOTES MECHANIZED CLEARING DETAIL 22-5
LATERAL BASE DITCH DETAIL 22-4 STANDARD BASE DITCH (Not to Scale) DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 16A Min. D=2 Ft. Max. d=2 Ft. B=5 Ft. lane W Min. D=1.5 Ft. Max. d=1.5 Ft. B=3 Ft. b=5 Ft. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 Type of Liner - CLASS 'B' Rip-Rap Type of Liner = Class 'II' Rip-Rap
FROM STA. 230+80 TO STA. 230+84 LT -L-SITE 16B FROM STA. 232 + 09 TO STA. 233 + 38 -L- RT SBB WETLAND WU 235 225 230 SHEET 90 လ ATCHLINE 6.5' BST MATCHLINE OUTLET PIPE SLOPE=0. 7 SY GEOTEXTILE -Y3RPD- ST Sta.10+00.00 = -L- POT Sta.224+08.09 (47,00' RT) SITE 16C (STREAM SS) WETLAND WQ PERMIT DRAWING SHEET 48 OF 97

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 lane 🥢 SITE 16B,C 200' 100' 0 100′ 200′ 300' SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL - Ç STA 232+18 -L-PROPOSED 66" WELDED STEEL GP ELEV.=542.70' SKEW= 48 DEGREES 550 540 530 EXISTING GROUND ALONG PROPOSED 66" WELDED STEEL 520 510 JB w/MH USED TO DISSIPATE ENERGY 66" RCP-IV - PROPOSED 66" WELDED STEEL PIPE 500 NV = 504.90 NORMAL WS ___/ ELEV. = 505.4' DATE: 12/13/21 490 CLASS 'II' RIP RAP ON CHANNEL BED EST. 31 TONS PROFILE ALONG STRUCTURE

PERMIT DRAWING **SHEET** 49 **OF** 97

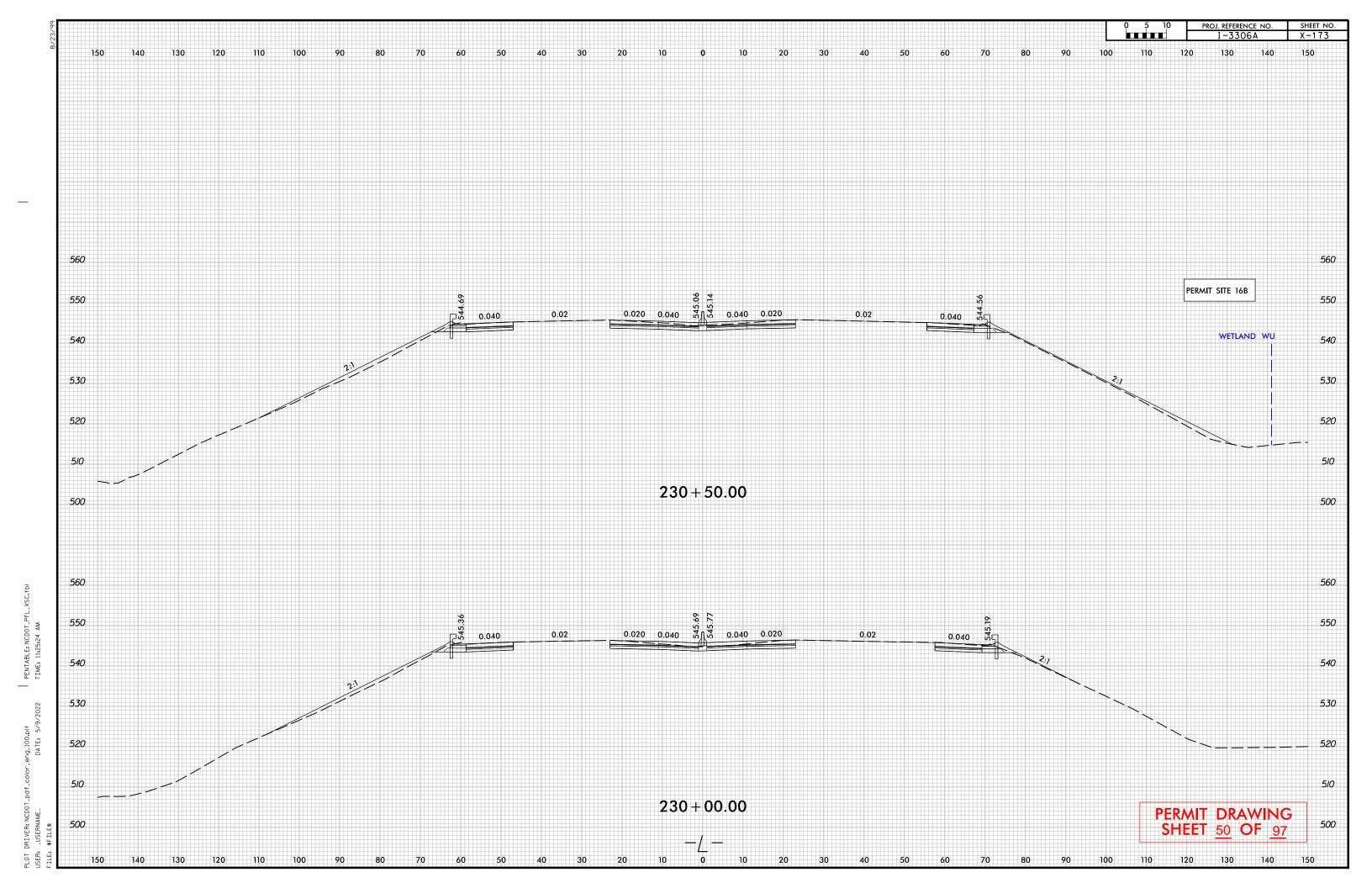
PROJECT REFERENCE NO.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY DESIGN ENGINEER

SHEET NO.

HYDRAULICS ENGINEER



PROJECT REFERENCE NO. 50 25 0 SHEET NO. DETAIL 23-1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) I-3306A / W-5707C **LEGEND** R/W SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER OUTLET @ STA. 247+79 RT -L- LENGTH=20';B=3.0' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED STONYWOOD ROAD 60' PUBLIC ROW PB 22 PG I27 lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 240 245 INLET CHANNEL IMPROVEMEN CLASS 'II' RIP RAP EST. 23 TONS 20 SY GEOTEXTILE SEE DETAIL 23–1 24 SHEET SEE 252 + 00, STA. MATCHLINE CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE 48" WW FENCE SYY SITE 17 PERMIT DRAWING SHEET 51 OF 97

PROJECT REFERENCE NO. SHEET NO. DETAIL 23—1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Red I-3306A / W-5707C 23 **LEGEND** RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER Geotextile — Channel Bed only (B)

Type of Liner= CL 'II' Rip-Rap - Keyed-In OUTLET @ STA. 247+79 RT -L- LENGTH=20';B=3.0' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 245 240 24 SEE SHEET 252 + 00, STA. MATCHLINE 48" WW FENCE SYY SITE 17 (STREAM SYY) PERMIT DRAWING SHEET 52 OF 97

PROJECT REFERENCE NO. 50 25 0 SHEET NO. DETAIL 25-2 BANK STABILIZATION I-3306A / W-5707C 25 **LEGEND** R/W SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER STA. 267+26 RT -L-NAD 83/2011 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W NEW HOPE CREEK HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 275 270 <u>-L- ST Sta. 277+03.43</u> <u>-L- CS Sta. 273+53.43</u> 26 SHEET TOE PROTECTION
W/CLASS 'B' RIP RAP
EST 66 TONS
93 SY GEOTEXTILE
SEE DETAIL A SEE 280+00, STA. MATCHLINE 00 NATCHLINE 00 SEE SHEET 24 MATCHLINE SITE 18 PERMIT DRAWING **SHEET** 53 **OF** 97

PROJECT REFERENCE NO. SHEET NO. DETAIL 27–2
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) Natural Bad DETAIL 27–1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) _____Natural Bod I-3306A / W-5707C 27 RW SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER -Y4- POT Sta. 23+28.66 OUTLET @ STA. 305 + 56 LT -L- LENGTH = 35' INLET @ STA. 305 + 17 RT -L- LENGTH = 50' **LEGEND** DENOTES IMPACTS IN SURFACE WATER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES TEMPORARY
IMPACTS IN SURFACE WATER <u>-Y4- PT Sta. 20+78.60</u> DENOTES MECHANIZED CLEARING lane 🕢 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 END CONSTRUCTION
-Y4- POC Sta. 20+15.00 <u>-Y4- PC Sta. 19+30.42</u> SITE 19A 300 *295*° -WETLAND WT SHEET 300 <u>-L- CS Sta. 302+27.27</u> 28 <u>-L2LT - SC Sta. 304+98.02</u> -L2LT - CS Sta. 301+98.02 SEE SHEET END WOODS 15" W/2 ELBOWS SEE +000 308 STA. -L2RT - PCC Sta. 296+08.44 MATCHLINE TEMP DECK DRAINS SEE NOTE FOR SPACING TOE PROTECTION
W/CLASS 'B' RIP RAP
EST. 130 TONS
127 SY GEOTEXTILE <u>-Y4- PT Sta. 16+28.30</u>/ 15 SEE DETAIL A -L2RT - CS Sta. 302+76.80 <u>-Y4- PCC Sta. 15+32.34</u> -L2RT - ST Sta. 305+76.80 BEGIN CONSTRUCTION
-Y4- POC Sta. 14+75.00 -Y4- PCC Sta. 13+89.26 SITE 19B PERMIT DRAWING <u>-Y4- PC Sta. 12+89.61</u> **SHEET** 55 **OF** 97

PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 SITE 19A,B DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED 200′ 100' 0 100' 200′ 300' Q STA 305+24 −L2RT-____ Q STA 305+10 -L2LT-SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 520 510 500 PROPOSED 78" WELDED STEEL PIPE (BURIED 1 FOOT) 490 RIGHT TOP OF BANK 480 INLET CHANNEL IMPR CLASS 'II' RIP RAP EST. 55 TONS 45 SY GEOTEXTILE INV=478.20' PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET <u>57</u> OF <u>97</u>

DETAIL 29–3
PIPE INLETOUTLET CHANNEL STABILIZATION
(Not to Scole) — Natural Bed PROJECT REFERENCE NO. SHEET NO. 50 25 0 DETAIL 29–2
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scole) Noticed Bed I-3306A / W-5707C 29 **LEGEND** RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER | Min. D = 1 Fi. | Max. denotes temporary impacts in surface water Type of Liner - CL 'II' Rip-Rap - Keyed-In OUTLET @ STA. 324+60 RT -L- LENGTH=30' INLET @ STA. 305+17 RT -L- LENGTH=35' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED *When B is < 6.0' lane W FROM STA. 326+23 TO STA. 330+46 -L- RT HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 335 330 SITE 20A 30 SHEET SHEET WOODS SEE SEE 336 + 00,STA. 15" RCP-III MATCHLINE SITE 20B (STREAM SX) SW PERMIT DRAWING SHEET 58 OF 97

PROJECT REFERENCE NO. SHEET NO. DETAIL 29-2
PIPE INLET/OUTLET CHANNEL ST
(Not to Scale) DETAIL 29-3 **LEGEND** I-3306A / W-5707C 29 PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Red RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER GEOTEKTILE — B Min. D = 1 Ft. Max. d = 1 Ft. Max. d = 1 Ft. Type of Liner = CLASS 'II' Rip-Rep b = 5 Ft.

FROM STA. 324 + 70 TO STA. 326 + 23 - L- RT DENOTES TEMPORARY IMPACTS IN SURFACE WATER Type of Liner - CL 'II' Rip-Rap - Keyed-In OUTLET @ STA. 324+60 RT -L- LENGTH=30' INLET @ STA. 305+17 RT -L- LENGTH=35' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane 🌈 FROM STA. 326+23 TO STA. 330+46 -L- RT HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 335 325 330 SITE 20A 30 28 SHEET SHEET SEE SEE 336+00, 90 STA. GI W/FG 15" RCP-HI MATCHLINE -SX SITE 20B SW PERMIT DRAWING SHEET 59 OF 97

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 20A,B 200′ 100' 0 100′ 200′ 300' © STA 325+25 -L-PROPOSED 84" WELDED STEEL GP ELEV.=489.21' SKEW= 121 DEGREES SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 500 490 EXISTING GROUND ALONG PROPOSED 84" WELDED STEEL INLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 110 TONS 115 SY GEOTEXTILE OUTLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 115 TONS 105 SY GEOTEXTILE 480 PROPOSED 84" WELDED STEEL PIPE (BURIED 1 FOOT) 470 460 SLOPE = 0.0106ft/ft ~ 450 PROFILE ALONG STRUCTURE

PERMIT DRAWING SHEET 60 OF 97

PROJECT REFERENCE NO.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY DESIGN ENGINEER

lane 🥢

SHEET NO.

HYDRAULICS ENGINEER

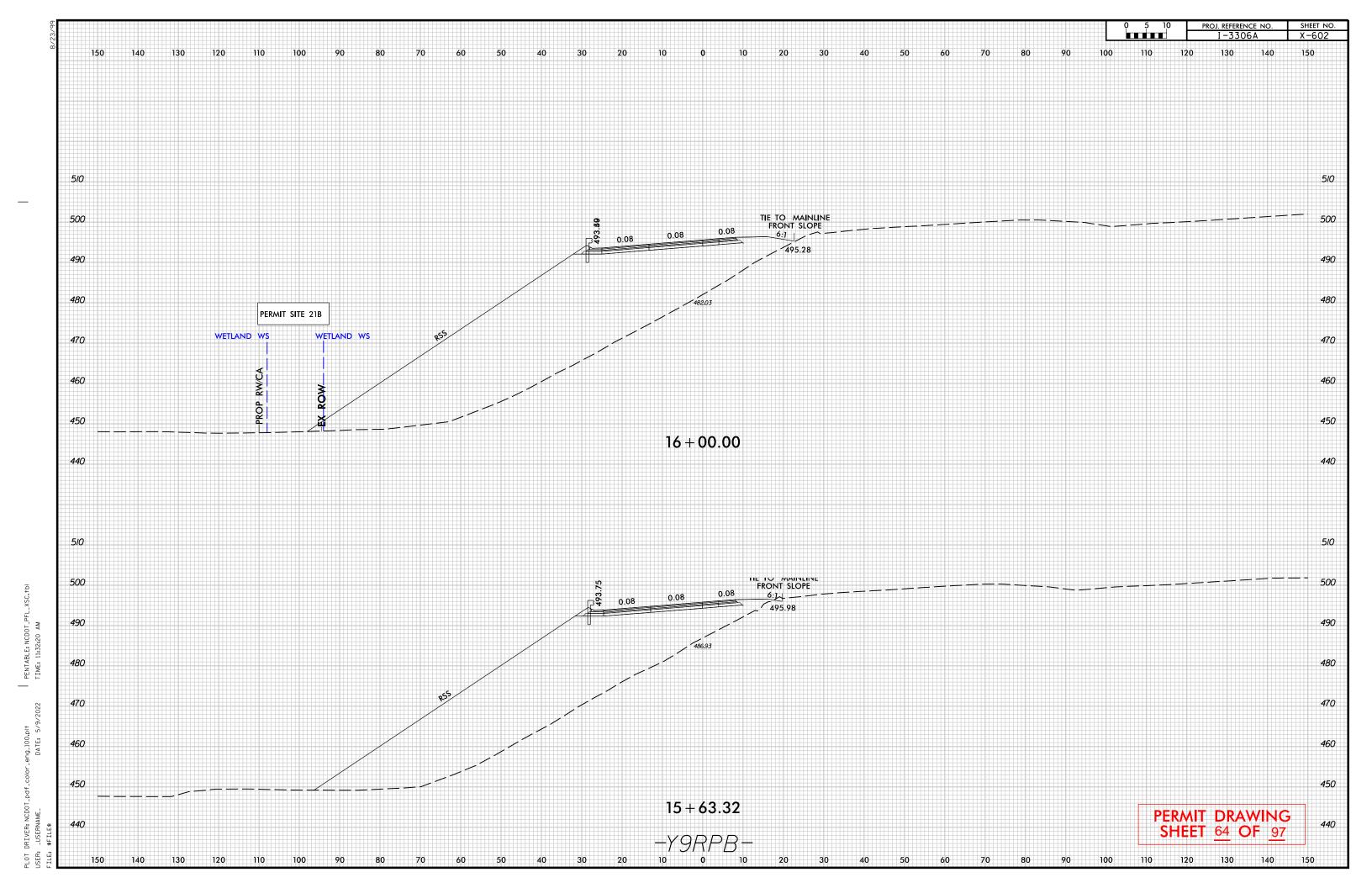
PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C DETAIL 30-2
BANK STABILIZATION RW SHEET NO GRAPHIC SCALE **LEGEND** HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER STA. 14+72.00 LT -Y9RPB-DENOTES MECHANIZED CLEARING DENOTES FILL IN WETLAND DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES EXCAVATION IN WETLAND lane W FROM STA. 14+82 TO STA. 16+30 LT -Y9RPB-HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 21B 340 €OLD FIELD CREEK -WETLAND WS -<u>Y9RPB- CS Sta. 10+62.45</u> Q10 = 11.8cfs /10 = 1.89fps (NON_EROS SITE 21A <u>-Y9RPB- PC Sta. 9+99.42 =</u> -L- CS Sta. 339+30.05 (47.00° LT) TOE PROTECTION —
WCLASS 'B' RIP RAP
5 'B' RIP RAP EST. 50 TONS
TONS: 48 SY GEOTEXTILE
GEOTEXTILE SEE DETAIL A STA -L- ST/ SHEET MATCHLINE SEE -L- CS Sta. 339+30.05 Q10 = 2.1cfs V10 = 1.97fps (NON_ERC # # # # -L- SC Sta. 343+30.05 유 OLD FIELD CREEK PERMIT DRAWING **SHEET** 61 **OF** 97

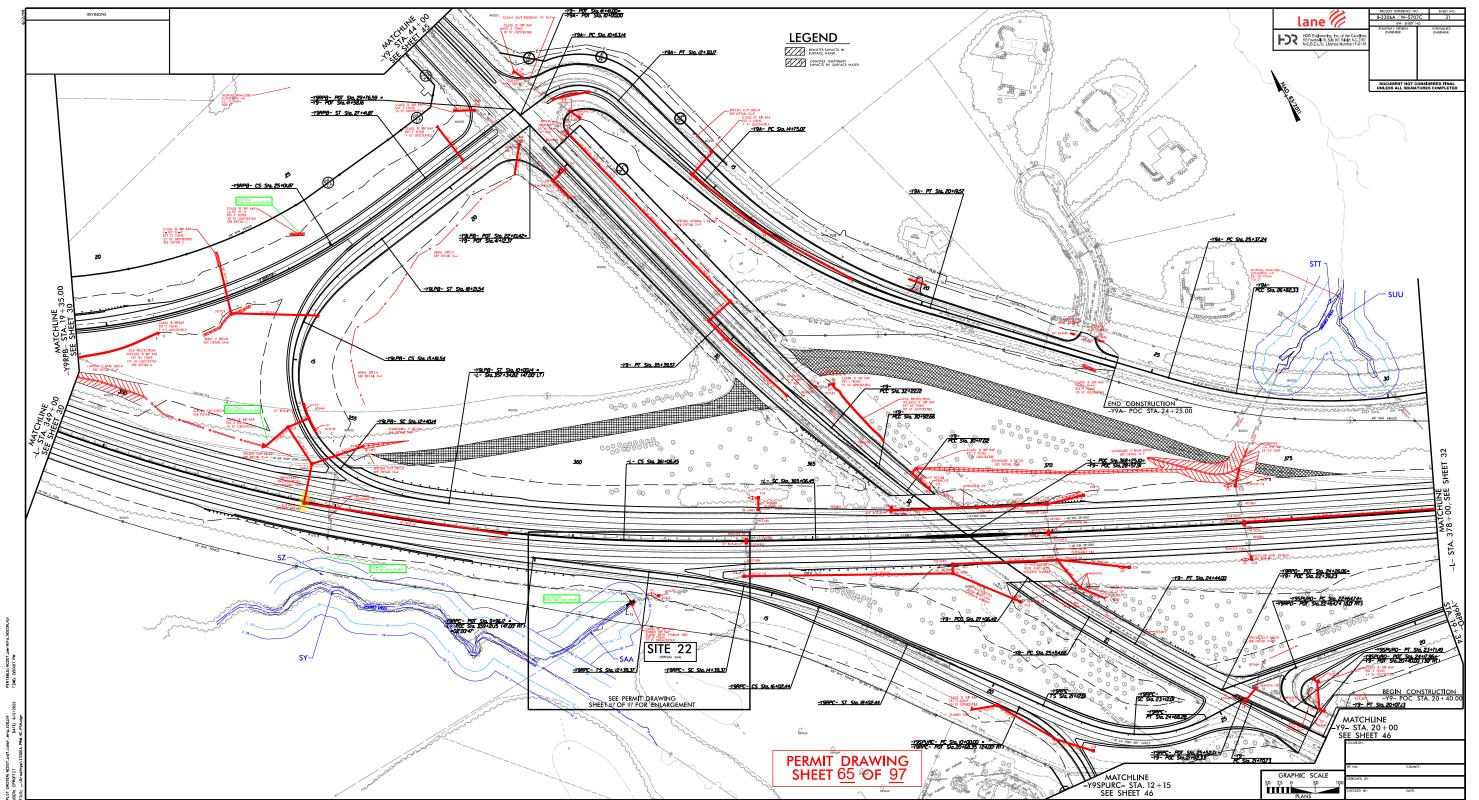
PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C DETAIL 30-2
BANK STABILIZATION
(Not to Scale) RW SHEET NO GRAPHIC SCALE **LEGEND** HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER STA. 14+72.00 LT -Y9RPB-DENOTES MECHANIZED CLEARING DENOTES FILL IN WETLAND DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES EXCAVATION IN WETLAND lane W FROM STA. 14+82 TO STA. 16+30 LT -Y9RPB-HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 21B 340 OLD FIELD CREEK -WETLAND WS -Y9RPB+ CS Sta. 10+62.45 SITE 21A -Y9RPB- PC Sta. 9+99.42 = -L- CS Sta. 339+30.05 (47,00° LT) -Y9RPB- SC Sta. 13+02,45 A. 349 L- ST/ SHEET MATCHLINE SEE -L- CS Sta. 339+30.05 -L- SC Sta. 343+30.05 - OLD FIELD CREEK PERMIT DRAWING SHEET 62 OF 97

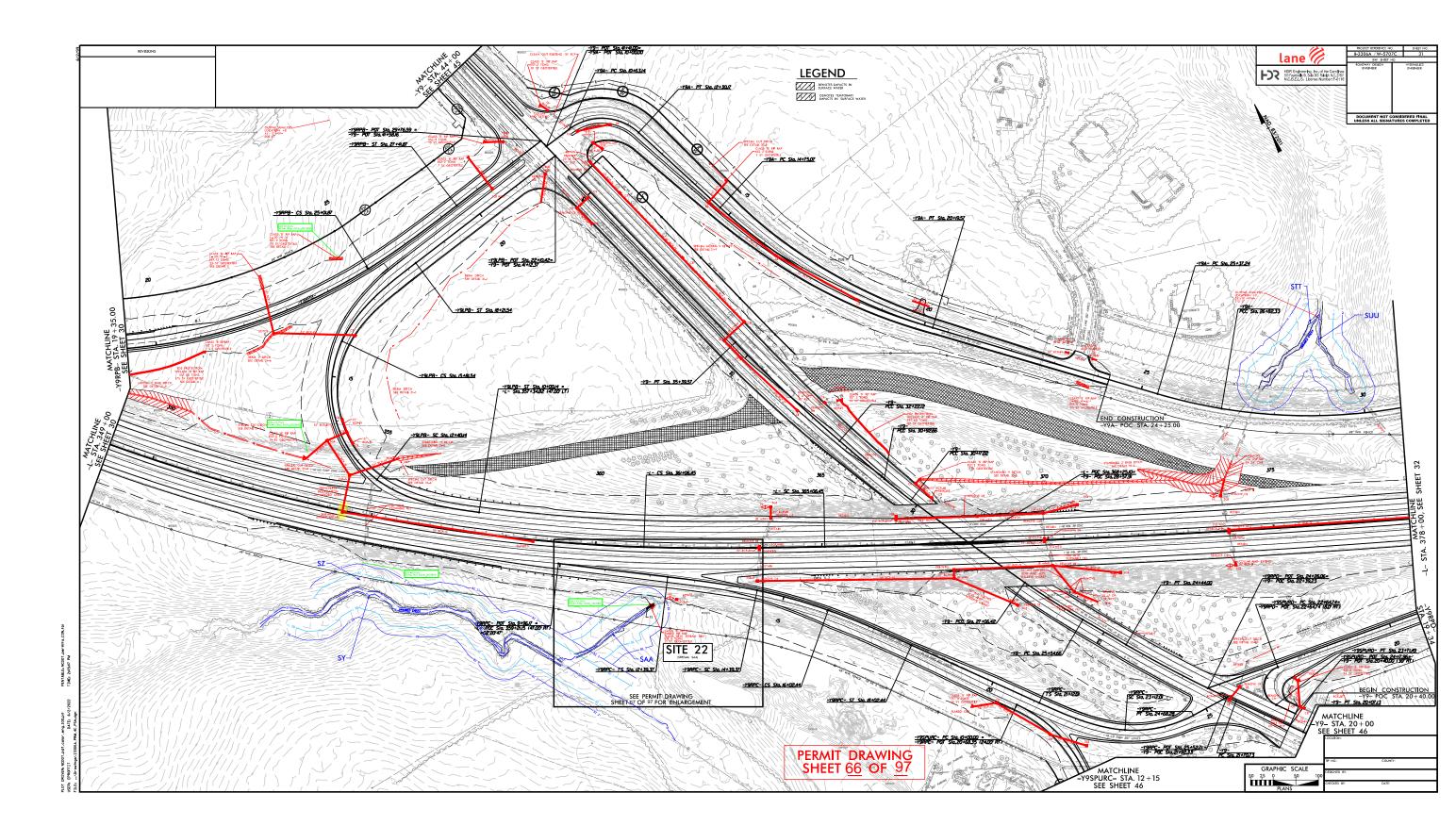
PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 21A 200′ 100' 0 100′ 200′ SCALE:

1" =50' HORIZONTAL

1" =10' VERTICAL Ç STA 343+01 -L-EXISTING 8'X8' RCBC GP ELEV.=518.38' SKEW= 98 DEGREES _____ Q STA 13+95 _Y9RPB-500 490 - 2:1 NORMAL EXISING GROUND OVER EXISTING 8'X8' RCBC 480 470 RETAIN EXISTING 8'X8' RCBC 460 450 INV=448.29' SLOPE = 0.0127ft/ft 440 PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET 63 OF 97







15" RCP-IV-Q10 = 25.39cfs V10 = 1.78fps (NON_EROSIVE) CLASS 'B' RIP RAP

EMBED RIP RAP

FLUSH WITH STREAM BED
EST. 8 TONS
21 SY GEO-TEXTILE SITE 22 (STREAM SAA) SAA TS Sta. 12+39.37 <u>-Y9RPC- SC Sta. 14+39.37</u>] <u>-Y9RPC-</u> PROJECT REFERENCE NO. SHEET NO.

I_3306 / W_5707C 31A

RW SHEET NO.

ROADWAY DESIGN HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PENTABLE: NCDOT_permits_NC TIME: 2:50:09 PM

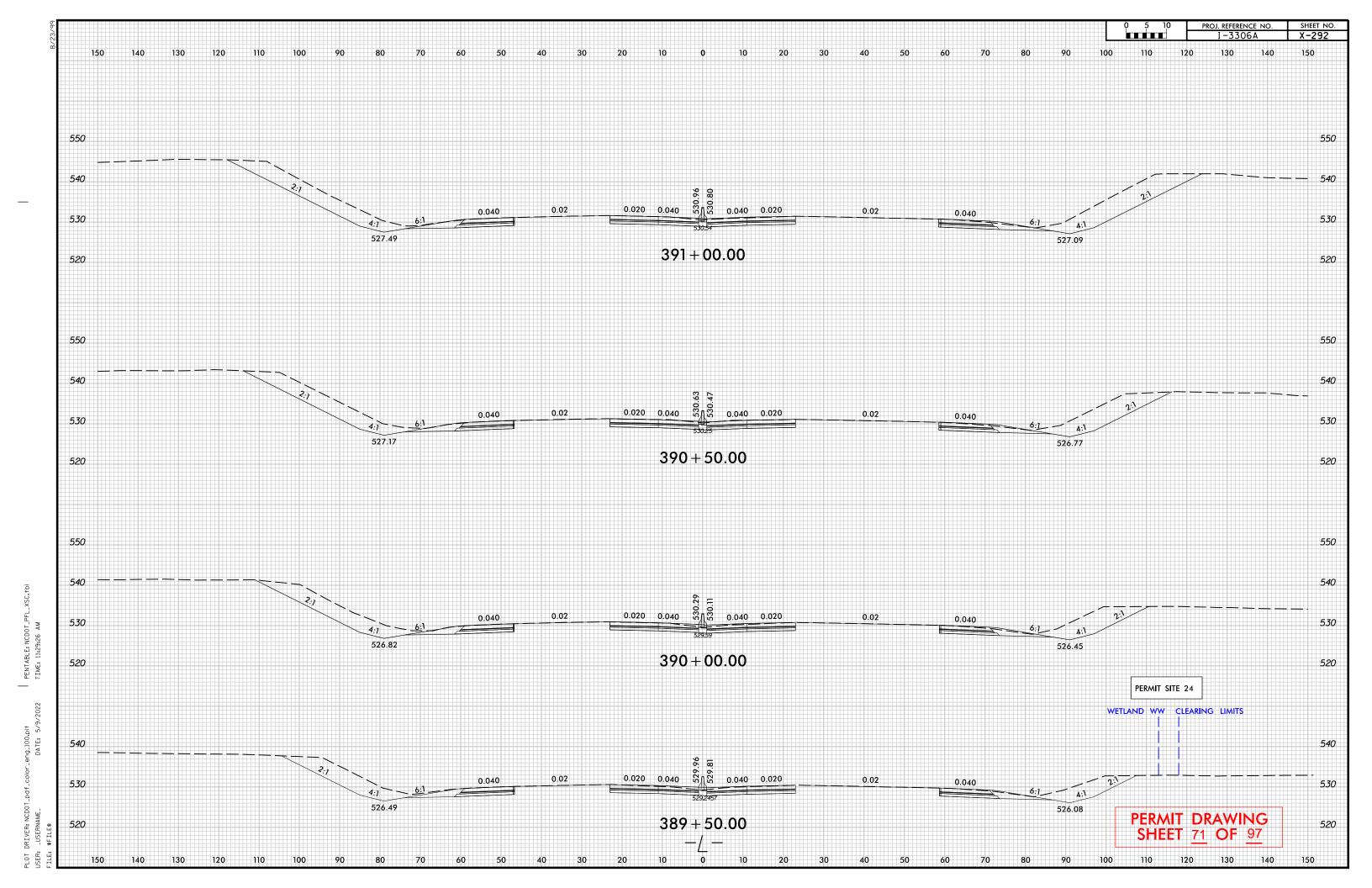
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>
>\Drawings\13306A_PRM_4C_PSH_dgn

PERMIT DRAWING SHEET 67 OF 97

PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 23A,B 100' 100′ 200′ 200′ 0 300′ - Ç STA 384+19 -L-PROPOSED 72" WELDED STEEL GP ELEV.=526.30' SKEW= 80 DEGREES SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 530 EXISTING GROUND ALONG PROPOSED 72" WELDED STEEL 2:1 NORMAL PROPOSED 72" WELDED STEEL PIPE (BURIED 1 FOOT) 520 INV=515.59' SLOPE=0.0067ft/ft INLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 125 TONS 120 SY GEOTEXTILE INV=514.21′ -510 OUTLET CHANNEL IMPROVEMENT —/
CLASS 'II' RIP RAP
EST. 72 TONS
67 SY GEOTEXTILE 500 PROFILE ALONG STRUCTURE

PLOT DRIVER: NCDOT_pdf_color_. USER: _USERNAME_ FILE: I3306A_PRM_4C_L 38419_S

PERMIT DRAWING SHEET 70 OF 97



PROJECT REFERENCE NO. SHEET NO. 50 25 0 **LEGEND** I-3306A / W-5707C DETAIL 33-1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scole) Natural Bed DETAIL 33–2
PIPE INLET/OUTLET CHANNEL STABILIZATION RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER DENOTES IMPACTS IN SURFACE WATER ROADWAY DESIGN ENGINEER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DENOTES MECHANIZED CLEARING OUTLET @ STA. 398+62 LT -L- LENGTH=30';B=6.0' INLET @ STA. 396+96 RT -L- LENGTH=35';B=4.0' INLET @ STA. 399+96 RT -L- LENGTH=25';B=4.0' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SDD SITE 25A lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 WETLAND WKK 30' SANITARY SEWER ESMT PB 35 PG 174 395 405 30' SANITARYE SEWER ESMT PB 35 PG 174 400 -L- SC Sta. 402+19.35 -L- CS Sta. 399+04.35 SEI 00 1-40 WBL 38' CON 39 POSSIBLE NG CREEK SITE 25B WETLAND WX PERMIT DRAWING SHEET 72 OF 97

SITE 25A,B 200′ 100' 0 100′ 200′ 300' SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 540 EXISTING GROUND ALONG PROPOSED 72" WELDED STEEL EXISTING GROUND ALONG PROPOSED 72" WELDED STEEL 530 PROP COLLAR 520 - 72" RCP-IV 510 SLOPE = 0.0221ft/ft -500 INV=503.24' PROFILE ALONG STRUCTURE

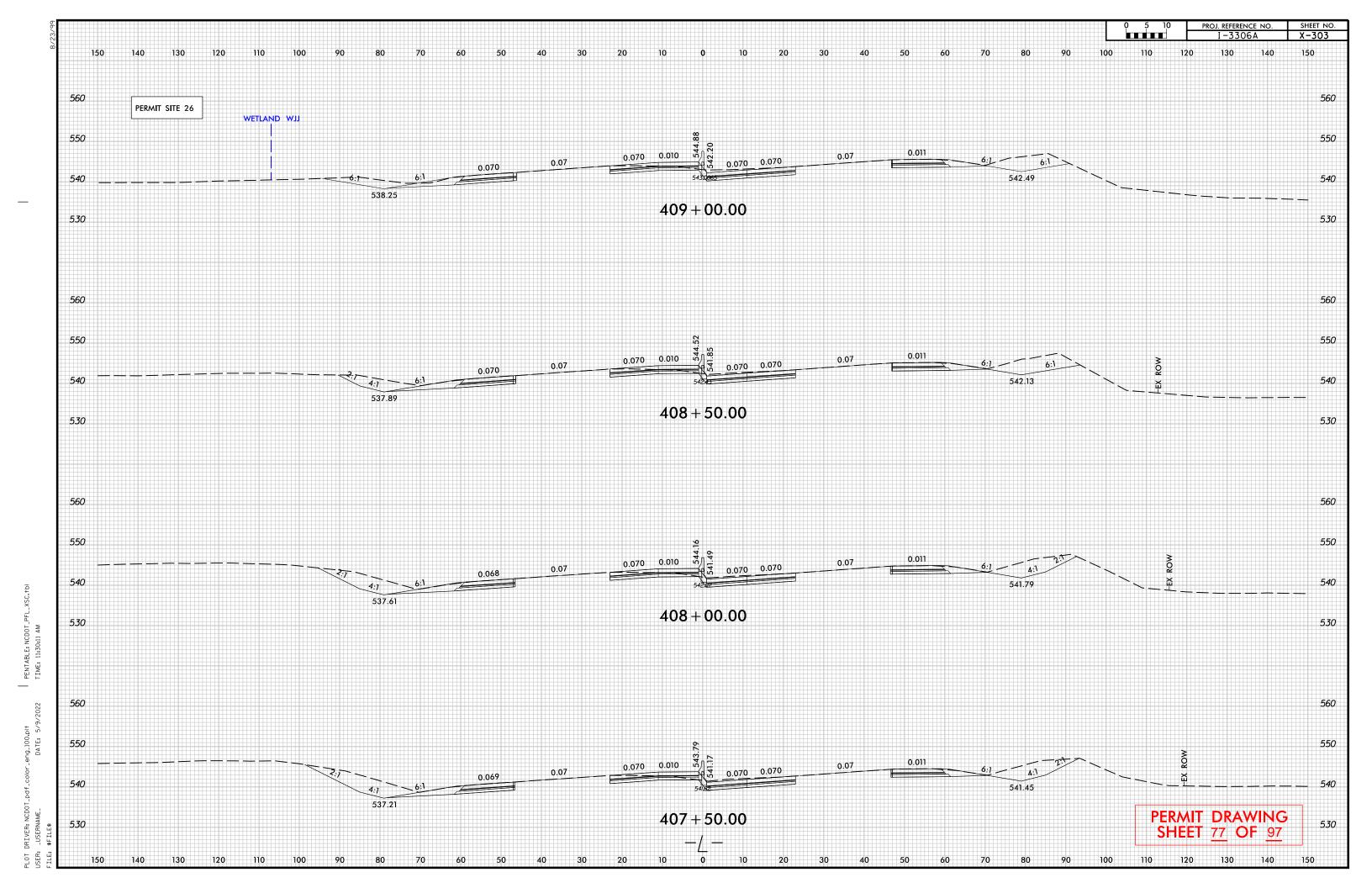
PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 74 OF 97

PROJECT REFERENCE NO. 50 25 0 SHEET NO. **LEGEND** I-3306A / W-5707C RW SHEET NO. GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES EXCAVATION IN WETLAND DENOTES MECHANIZED CLEARING DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 WETLAND WJJ 415 SITE 26 NATCHLINE OO STA. 420+00 -WETLAND WJJ Q10=7.6cfs /10=1.89fps (NON_EROSIVE) WOODS WETLAND WY SEDGEWOOD ROAD (UNDEVELOPED) 60' PUBLIC R/W PB 44 PG 138-139 PERMIT DRAWING SHEET 75 OF 97 PB 44 PG I38-I39

PROJECT REFERENCE NO. SHEET NO. **LEGEND** I-3306A / W-5707C RW SHEET NO. GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES EXCAVATION IN WETLAND DENOTES MECHANIZED CLEARING DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 WETLAND WJJ SITE 26 WETLAND WIJ WETLAND WY PERMIT DRAWING SHEET 76 OF 97 136 DUKE POWER ESMT / PB 44 / PG 138-139



50 25 0 PROJECT REFERENCE NO. SHEET NO. DETAIL 37-1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale)

Notice Scale) I-3306A / W-5707C 37 **LEGEND** RW SHEET NO. GRAPHIC SCALE ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES IMPACTS IN SURFACE WATER NAD 83/2011 OUTLET @ STA. 459+60 RT -L- LENGTH=25' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W -Y10- PT Sta. 16+00.00 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 *4*55 -L- SC Sta. 451+20.99 48" WW FENCE BERM 'V' DITCH 450 SEE DETAIL 37-2 \tilde{e} SHEF SHE -L- CS Sta. 449+20.99 SEE , 00 + 00 460 24" W1 ELBOW ROD AND LUG MATCHLINE BDO WOODS 48" WW FENCE SEE 48" WW & ISBW <u>-YIO- PCC Sta. II+05.J5</u> IMPROVEMENTS
CLASS 'II' RIP RAP
EST. 50 TONS
50 SY GEOTEXTILE
SEE DETAIL 37-1 SITE 27 <u>-YIO- PC Sta. 9+00.00</u> PERMIT DRAWING SHEET 78 OF 97

DETAIL 37–1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) — Notural Bed PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C 37 **LEGEND** RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER DENOTES IMPACTS IN SURFACE WATER OUTLET @ STA. 459+60 RT -L- LENGTH=25' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W -YIO- PT Sta. 16+00.00 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 455 -L- SC Sta. 451+20.99 48" WW FENCE BERM 'V' DITCH 450 SEE DETAIL 37-2 $\tilde{\omega}$ +00, SEE SHEET SHEI -L- CS Sta. 449+20.99 8 460 MATCHLINE SEE -YIO- PCC Sta. II+05.15 SITE 27 -YIO- PC Sta. 9+00.00 PERMIT DRAWING SHEET 79 OF 97

PROJECT REFERENCE NO. DETAIL 38–2
PIPE INLET/OUTLET CHANNEL STABILIZATION 50 25 0 SHEET NO. DETAIL 38–3
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) Natural Bod I-3306A / W-5707C 38 RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER **LEGEND** FROM STA. 470+00 TO STA. 470+82 RT -L-DENOTES IMPACTS IN SURFACE WATER OUTLET @ STA. 470+61 LT -L- LENGTH=30' INLET @ STA. 470+02 RT -L- LENGTH=145' DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DENOTES EXCAVATION IN WETLAND DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES MECHANIZED CLEARING lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 -SGG SITE 28B 475 SEE 37 SHEET SHIP SEE о́ INSTALLATION 18" WELDED ST 15" W/I ELBOW ROD AND LUC MATCHLINE -SPECIAL CUT DITCH SEE DETAIL 38-1 WOODS WETLAND WAA INLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 220 TONS 300 SY GEOTEXTILE SEE DETAIL 38–3 -SEE SITE 28A PERMIT DRAWING SHEET 80 OF 97

DETAIL 38–2
PIPE INLETOUTLET CHANNEL STABILIZATION PROJECT REFERENCE NO. SHEET NO. DETAIL 38–3
PIPE INLETOUTLET CHANNEL STABILIZATION
(Not to Scale) — Natural Bad I-3306A / W-5707C RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER **LEGEND** FROM STA. 470+00 TO STA. 470+82 RT -L-DENOTES IMPACTS IN SURFACE WATER OUTLET @ STA. 470+61 LT -L- LENGTH=30' INLET @ STA. 470+02 RT -L- LENGTH=145' DENOTES EXCAVATION IN WETLAND DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DENOTES MECHANIZED CLEARING lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 28B 475 SEE 37 SHEFT SHIP 00, SEE WATCHLINE WETLAND WAA 48" WW FENCE INLET CHANNEL IMPROVEMENT CLASS II' RIP RAP EST, 220 TONS 300 SY GEOTEXTILE SEE DETAIL 38–3 SEE SITE 28A PERMIT DRAWING SHEET <u>81</u> OF <u>97</u>

SITE 28A,B 200′ 100' 100′ 200′ 0 300' Ç STA 470+13 -L-- PROPOSED 78" WELDED STEEL BURIED 1 FOOT GP ELEV. = 466.09' SKEW= 115 DEGREES SCALE: 1" =50' HORIZONTAL 1" =10' VERTICAL 470 460 450 OUTLET CHANNEL IMPROVEMENT — CLASS 'II' RIP RAP EST. XX TONS XX SY GEOTEXTILE INV=448.58' -440 OUTLET CHANNEL IMPROVEMENT CLASS 'II' RIP RAP EST. 60 TONS 56 SY GEOTEXTILE PROFILE ALONG STRUCTURE

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

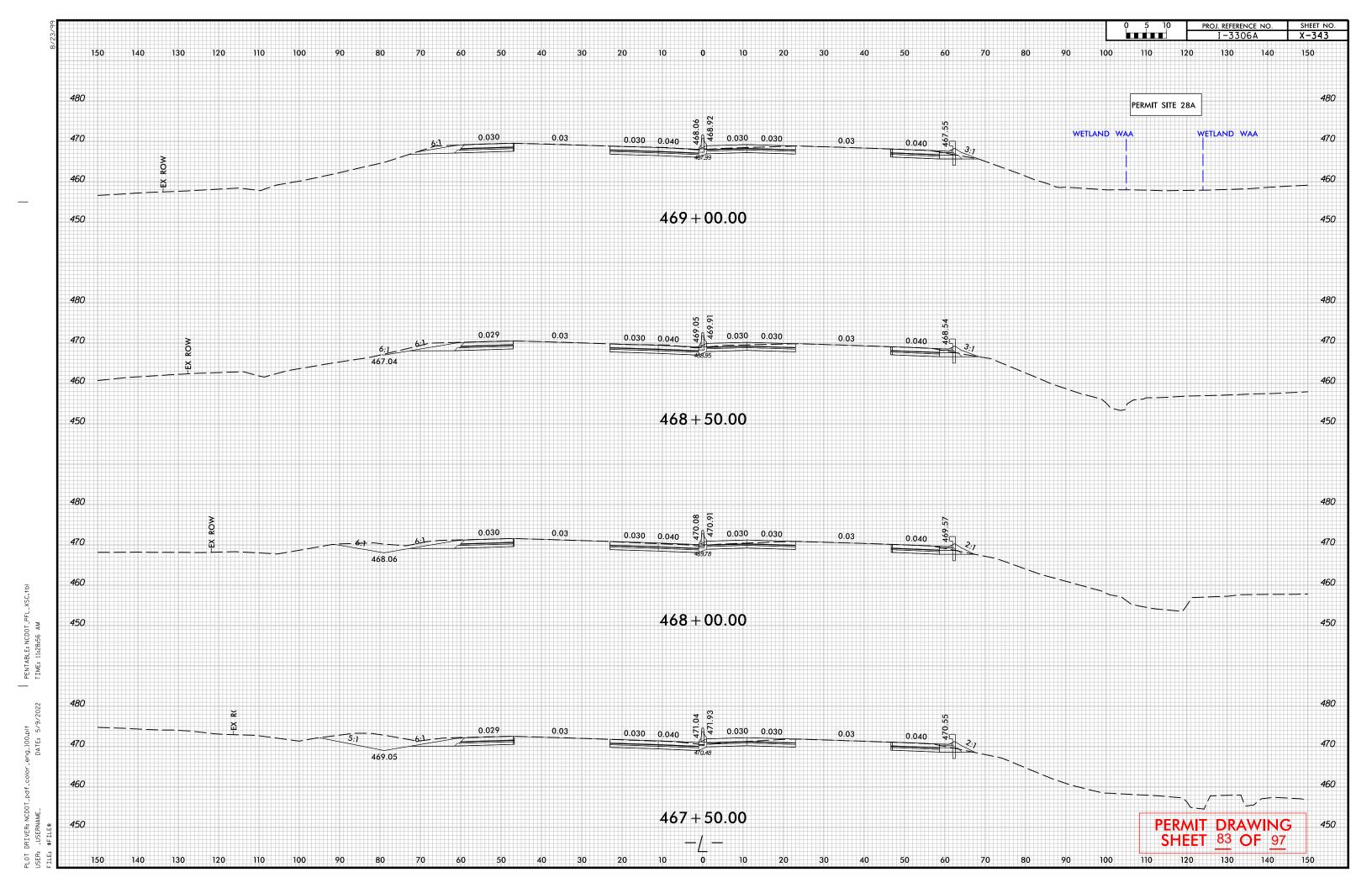
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PENTABLE: NCDOT_PFL_ TIME: 10:43:45 AM

PLOT DRIVER: NCDOT_pdf_color_eng_100_plt
USER: _USERNAME.

PLLE: I33306A_PRM_4C_L 47013_Site 38-39.4gn

PERMIT DRAWING SHEET 82 OF 97

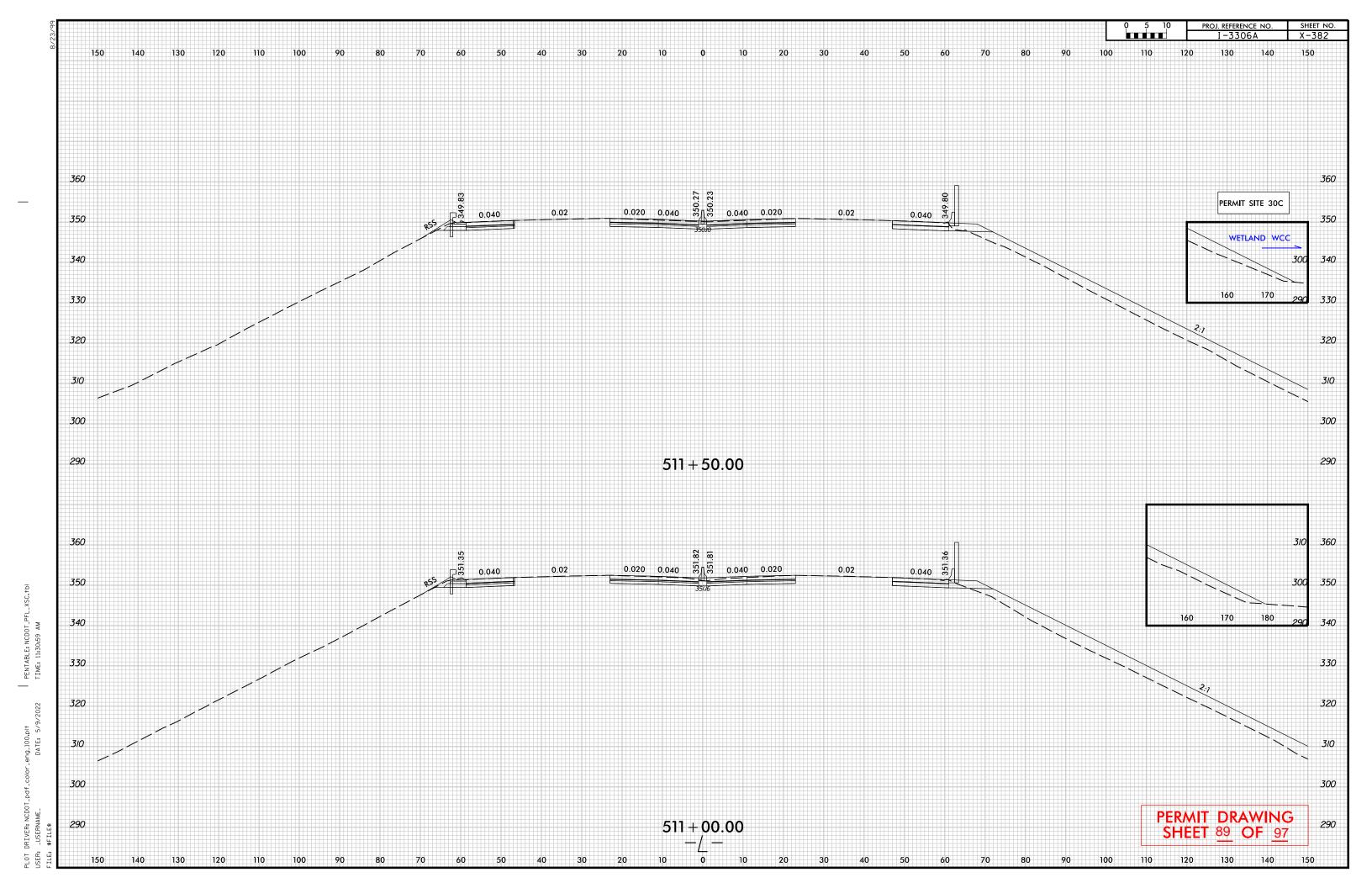


LEGEND PROJECT REFERENCE NO. SHEET NO. RIP RAP AT EMBANKMENT I-3306A / W-5707C RW SHEET NO. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER - SEE Type of Liner = 20 TONS,CL '1' Rip-Rap Geotextile - 15sy FROM STA. 482 + 70 -L- LT, L=15 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane 🥢 SITE 29 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 Q10=16.3cfs V10=1.85fps (NON_EROSIVE) -SEE -L- CS Sta. 488+10.22 48" WW FENCE 49 38 SHEFT 485 思 +000 490 STA. MATCHLINE PERMIT DRAWING SHEET 84 OF 97

LEGEND PROJECT REFERENCE NO. SHEET NO. DETAIL 39-4 RIP RAP AT EMBANKMENT (Not to Scale) I-3306A / W-5707C R/W SHEET NO. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER SEE Type of Liner = 20 TONS,CL 'I' Rip-Rap Geotextile - 15sy FROM STA. 482 + 70 -L- LT, L=15 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W SITE 29 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SEE -L- CS Sta. 488+10.22 40 38 SHEET 485 SEE , 00+ 490 STA. MATCHLINE. TOE PROTECTION
WCLASS B' RIP RAP
EST, 30 TONS
75 SY GEOTEXTILE
SEE DETAIL F PERMIT DRAWING SHEET 85 OF 97

SHEET NO. PROJECT REFERENCE NO. 50 25 0 DETAIL 41–1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scole) Natural Red I-3306A / W-5707C **LEGEND** RW SHEET NO GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER Min. D=3.0 Ft. Max. d=3.0 Ft. B=8.0 Ft. DENOTES TEMPORARY
IMPACTS IN SURFACE WATER Type of Liner = CL II RIP RAP b=7.0 Ft. OUTLET @ STA. 510+55 RT -L- LENGTH=95' DENOTES MECHANIZED CLEARING FROM STA. 507+69 TO STA. 509+70 LT -L- SLOPE=1.23%; EST EXCAVATION 155 CY DENOTES FILL IN WETLAND DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 SITE 30A 15" W/2 ELBOWS - ROD AND LUG W/SLEEVE GASKET DAMAGED 8" CMP END UNKNOWN 15" W/2 ELBOWS ROD AND LUG-W/SLEEVE GASKET SHEET FILL WITH FLOWABLE FILL STANDING WATER SEE 00 218 -40 EBL 38' CON S 15" W/2 ELBOW ROD AND LUC W/SLEEVE GASKE MATCHLINE NOISEWALL -NW32B-NOISEWALL -TOE PROTECTION
W/CLASS 'I' RIP RAP
EST. 190 TONS
250 SY GEOTEXTILE
SEE DETAIL E CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE LATERAL 2' BASE DITCH WCLASS I RIP RAP EST. 24 TONS 32 SY GEOTEXTILE SEE DETAIL 41–3 SITE 30B (STREAM SEE) SEE SITE 30C -WETLAND WCC EXISTING R/W PERMIT DRAWING **SHEET** 86 **OF** 97

PROJECT REFERENCE NO. SHEET NO. HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER lane 🥢 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SITE 30A,B 200′ 100' 0 100' 200′ 300' SCALE: ' =50' HORIZONTAL 1" =10' VERTICAL 360 Q STA 510+28 -L- -GP ELEV.=354.05 SKEW= 73 DEGREES 350 340 EXISTING GROUND ALONG PROPOSED CULVERT CENTERLINE EXISTING GROUND ALONG
PROPOSED CULVERT CENTERLINE 330 320 NORMAL WS ELEV. =295.45 DATE: 01/10/2022 310 EXISTING RIGHT PROPOSED 108" WSP BURIED 1.0' - EXISTING RIGHT TOP OF BANK 300 290 INV=294.95 INV=292.63 S=0.0122 ft/ft PROPOSED STREAM BED SLOPE = 0.5% INV=290.30 -PROPOSED STREAM BED INSTALL CL 'II' RIP RAP FLUSH WITH STREAM BED SLOPE = 0.5% PROFILE ALONG STRUCTURE PERMIT DRAWING SHEET <u>88</u> OF <u>97</u>



50 25 0 PROJECT REFERENCE NO. SHEET NO. DETAIL 42-1
PIPE INLET/OUTLET CHANNEL STABILIZATION
(Not to Scale) - Natural Bed I-3306A / W-5707C 42 **LEGEND** RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 DENOTES TEMPORARY
IMPACTS IN SURFACE WATER OUTLET @ STA. 520+91 RT -L- LENGTH=45' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED -YII - PT Sta. 16+01.75 520 *52*5 530 SHEET <u>-L- POT Sta.531+10.49=</u> -YII- POC Sta.12+49.78 15" W2 ELBOWS — ROD AND LUG WSLEEVE GASKET CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE SEE REMOVE CB ,00 STA. MATCHLINE CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE SITE 31 -YII- PCC Sta. II+47.02) (STREAM SHH) 01 SHH--YII- PC Sta. 9+00.00 WOODS PERMIT DRAWING SHEET 90 OF 97

PROJECT REFERENCE NO. SHEET NO. 50 25 DETAIL 42-1 I-3306A / W-5707C 42 **LEGEND** PIPE INLET/OUTLET CHANNEL STABILIZATION RW SHEET NO. GRAPHIC SCALE HYDRAULICS ENGINEER ROADWAY DESIGN ENGINEER HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 Geotextile — Channel Bed on banks (B=3.5')

Type of Liner= CL 'E' Rip-Rap - Keyed-In TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER OUTLET @ STA. 520+91 RT -L- LENGTH=45' DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED -YII - PT Sta. 16+01.75 520 525 530 SHEET -L- POT Sta.531+10.49= -YII- POC Sta.12+49.78 15" W2 ELBOWS ROD AND LUG WSLEEVE GASKET SEE ,00 532 STA. MATCHLINE SITE 31 -YII- PCC Sta. 11+47.02) OF SHH -YII- PC Sta. 9+00.00 PERMIT DRAWING **SHEET** 91 **OF** 97

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C **LEGEND** RW SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 540 535 SHEET BERM DITCH SEE DETAIL 43-1 BERM DITCH SEE DETAIL 43-1 SEE ·+00 546 STA. MATCHLINE 48" WW FENCE SITE 32 SII WOODS PERMIT DRAWING SHEET 92 OF 97

PROJECT REFERENCE NO. SHEET NO. I-3306A / W-5707C LEGEND RW SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER DENOTES IMPACTS IN SURFACE WATER DENOTES TEMPORARY
IMPACTS IN SURFACE WATER DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED lane W HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 535 SHEET BERM DITCH SEE DETAIL 43-1 SEE 546+00, STA. MATCHLINE 48" WW FENCE SITE 32 SIIT PERMIT DRAWING SHEET 93 OF 97

				WE ⁻	TLAND IMPA	CTS			SURFACE WATER IMPACTS					
Site	Station	Structure	Permanent Fill In	Temp. Fill In	Excavation in	Mechanized Clearing	Hand Clearing in	Permanent SW impacts	Permanent SW impacts	Temp. SW	Existing Channel Impacts	Existing Channel Impacts	Natural Stream	
No.	(From/To)	Size / Type	Wetlands (ac)	Wetlands (ac)	Wetlands (ac)		Wetlands (ac)		(Stream) (ac)	impacts (ac)	Permanent (ft)	Temp. (ft)	Design (ft)	
1	125+00 -l85- RT	8' X 7' RCBC				0.02				0.03		67		
2A	50+00 -YFLYA- RT	6' X 6' RCBC								< 0.01		10		
		BANK STABILIZATION							0.02		63			
2B	50+00 -YFLYA- LT	6' X 6' RCBC				0.04				< 0.01		10		
	440.00.105.15	BANK STABILIZATION							0.01	2.24	39	10		
3A	146+00 -l85- LT	42" AND 66" PIPES							0.00	< 0.01	50	10		
		BANK STABILIZATION							0.02		52			
3B	146+00 -l85- RT	8' X 8' RCBC			< 0.01	0.05			< 0.01	0.02	20	79		
00	00.00 VELVE LT	BANK STABILIZATION							. 0 0 1	. 0.04	43	40		
3C	30+00 -YFLYB- LT	72" PIPE							< 0.01	< 0.01	40	10		
3D	150+00 -l85- RT	66" PIPE							. 0.04	< 0.01	0.4	10		
4.0	20.00 VELA DE	BANK STABILIZATION 78" PIPE	-		1001	0.00			< 0.01	< 0.01	31 60	40		
4A	32+00 -YFLA- RT 32+00 -YFLA- LT	78 PIPE			< 0.01	0.02			< 0.01 < 0.01	< 0.01	50	16 10	+	
4B 5	12+50 -YFLYA- RT	24" PIPE	< 0.01		< 0.01	< 0.01			< 0.01	< 0.01	50	10	+	
6	50+00 -L- RT	LATERAL DITCH	< 0.01		< 0.01	< 0.01			< 0.01	< 0.01	40	12	+	
7A	30+00 -L- RT 30+00 -Y2- LT	78" and 48" PIPE	0.04		0.01	0.06			< 0.01	< 0.01	54	29		
/A	30+00 -12- L1	BANK STABILIZATION	0.04		0.01	0.00			0.01	< 0.01	16	29	+	
7B	30+00 -Y2- RT	78" PIPE	< 0.01		< 0.01	0.08			< 0.01	< 0.01	40	8	+	
8	20+24 -Y2- LT	30" PIPE	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		\ 0.01	0.00			< 0.01	< 0.01	8	o 11	+	
0	ZU ' Z4 - 1 Z- L 1	BANK STABILIZATION							< 0.01	\ 0.01	13	11	+	
		BANKSTABILIZATION							\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		10		+	
I FOTALS* THIS SH	HEET:		0.05		0.02	0.27			0.10	0.07	569	282	+	

*Rounded totals are sum of actual impacts.

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MAY 2022
ORANGE COUNTY
TIP I-3306A

STATE PROJ. # 34178.3.GV3

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				WE	TLAND IMPA	CTS			SURFACE WATER IMPACTS						
Site	Station	Structure	Permanent Fill In	Temp. Fill In	Excavation in	Mechanized Clearing	Hand Clearing in	Permanent SW impacts	Permanent SW impacts	Temp. SW	Existing Channel Impacts	Existing Channel Impacts	Natural Stream		
No.	(From/To)	Size / Type	Wetlands (ac)	Wetlands (ac)	Wetlands (ac)	in Wetlands (ac)	Wetlands (ac)	(Pond) (ac)	(Stream) (ac)	impacts (ac)	Permanent (ft)	Temp. (ft)	Design (ft)		
9A	156+36 -L- LT	84" PIPE							0.01	< 0.01	60	10			
9B	127+50 -L- RT	84" PIPE							< 0.01	< 0.01	65	20			
10A	156+35 -L- LT	BORE PIT								0.01		54			
10B	156+36 -L- LT	60" PIPE							< 0.01	< 0.01	34	10			
10C	156+36 -L- RT	60" PIPE							< 0.01	< 0.01	18	45			
11	162+53 -L- LT	42" PIPE								0.01		33			
		BANK STABILIZATION							< 0.01		26				
12	173+00 -L- LT	LATERAL DITCH								< 0.01		21			
		BANK STABILIZATION							0.02		42				
13	178+80 -L- LT	15" PIPE REMOVAL								< 0.01		15			
14A	192+00 -L- LT	BANK STABILIZATION							0.02	0.04	38	166			
14B	192+00 -L-	BANK STABILIZATION							0.01	< 0.01	54	28			
15	197+00 -L- RT	36" PIPE REMOVAL								< 0.01		25			
16A	228+50 -L- LT	36" PIPE								< 0.01		10			
		BANK STABILIZATION							< 0.01		43				
16B	231+00 -L- LT	66" PIPE			0.01	< 0.01			< 0.01	< 0.01	47	15			
16C	233+50 -L- RT	66" PIPE							< 0.01	< 0.01	46	13			
17	247+50 -L- RT	42" PIPE							< 0.01	< 0.01	20	10			
18	267+00 -L- RT	BANK STABILIZATION							< 0.01	< 0.01	30	10			
OTALS* THIS SHE					0.01	< 0.01			0.11	0.10	523	485			

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				WE	TLAND IMPA	CTS			SU	RFACE W	ATER IMPACT	S	
							Hand	Permanent	Permanent		Existing	Existing	
			Permanent	Temp.	Excavation	Mechanized	Clearing	SW	SW	Temp.	Channel	Channel	Natural
Site	Station	Structure	Fill In	Fill In	in	Clearing	in	impacts	impacts	SW	Impacts	Impacts	Stream
No.	(From/To)	Size / Type	Wetlands	Wetlands		in Wetlands	Wetlands	` ,	(Stream)	impacts	Permanent	Temp.	Design
			(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ac)	(ft)	(ft)	(ft)
19A	305+00 -L- LT	78" PIPE			< 0.01	0.03			< 0.01	< 0.01	40	6	
19B	305+00 -L- RT	78"PIPE							0.01	< 0.01	54	4	
20A	325+00 -L- LT	84" PIPE							0.01	< 0.01	47	12	
20B	325+00 -L- RT	84" PIPE							0.01	< 0.01	42	13	
21A	343+30 -L- LT	8' x 8' RCBC								0.02		40	
		BANK STABILIZATION							< 0.01		34		
21B	16+50 -Y9RPB- LT	ROADWAY FILL / DITCH	< 0.01		0.01	0.01							
22	12+00 -Y9RPC- RT	30" PIPE							< 0.01	< 0.01	10	10	
23A	384+00 -L- LT	72" PIPE							< 0.01	< 0.01	33	22	
23B	384+00 -L- RT	72" PIPE							< 0.01	< 0.01	57	4	
24	389+50 -L- RT	ROADWAY CUT				< 0.01							
25A	399+00 -L- LT	72" PIPE			< 0.01	0.01			< 0.01	< 0.01	39	18	
25B	399+00 -L- LT	72" PIPE								< 0.01		10	
		BANK STABILIZATION							< 0.01		24		
26	409+00 -L- LT	ROADWAY CUT			< 0.01	< 0.01							
27	11+70 -Y10- RT	48" PIPE							< 0.01		20		
28A	470+00 -L- RT	78" PIPE			0.05				< 0.01	< 0.01	23	14	
28B	470+00 -L- LT	78" PIPE							< 0.01	< 0.01	34	45	
29	482+50 -L- LT	18" PIPE								< 0.01		20	
		BANK STABILIZATION							< 0.01		17		
30A	509+00 -L- LT	108" PIPE							0.01	0.01	47	35	
30B	509+00 -L- RT	108" PIPE							0.04	< 0.01	76	10	
30C	511+50 -L- RT	ROADWAY FILL	0.01			0.03							
31	521+00 -L- RT	42" PIPE							< 0.01	< 0.01	34	5	
32	539+50 -L- RT	36" PIPE							< 0.01	< 0.01	12	15	
TOTALS* THIS	S SHEET:		0.02	0	0.06	0.09	0	0	0.14	0.06	643	283	T

^{*}Rounded totals are sum of actual impacts.

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				WE.	TLAND IMPA	CTS			SU	RFACE WA	ATER IMPACT			
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	in	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SW impacts	Permanent SW impacts (Stream) (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natura Strean Desigr (ft)	
SHEET 1			0.05		0.02	0.27			0.10	0.07	569	282		
SHEET 2					0.01	< 0.01			0.11	0.10	523	485		
SHEET 3			0.02		0.06	0.09			0.14	0.06	643	283		
306A PRO II	<u> </u>		0.07	0	0.10	0.36	0	0	0.34	0.22	1735	1050	+	

			_		
*Rounded	totals:	are o	sum of	actual	imnacts

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