

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION 9

PROPOSAL

DATE AND TIME OF BID OPENING: April 25, 2018 AT 2:00 P.M.

CONTRACT ID: DI00199

WBS ELEMENT NO.: 44392.3.1

FEDERAL AID NO.: N/A

COUNTY: Rowan

TIP NO.: U-5820A

MILES: 0.426 MILES

ROUTE NO.: SR 1006, SR 2576

LOCATION: INNES STREET/MARKET DRIVE EXTENSION &
EXISTING ROAD IMPROVEMENTS FROM SR 2576
(BENDIX DR) TO SR 1006 (FAITH RD) IN SALISBURY

TYPE OF WORK: GRADING, DRAINAGE, CURB AND GUTTER, PAVING,
SIDEWALK

NOTICE:
ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

THIS IS A ROADWAY PROJECT.

BID BONDS ARE REQUIRED.

NAME OF BIDDER

ADDRESS OF BIDDER

**PROPOSAL FOR THE CONSTRUCTION OF
CONTRACT No. DI00199 IN ROWAN COUNTY, NORTH CAROLINA**

April 4, 2018

**DEPARTMENT OF TRANSPORTATION,
RALEIGH, NORTH CAROLINA**

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **DI00199**; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Department of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with *the 2018 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. **DI00199** in **Rowan County**, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2018* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer or Division Engineer.

The quantities shown in the itemized proposal for the project are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the quantity of any item or portion of the work as may be deemed necessary or expedient.

An increase or decrease in the quantity of an item will not be regarded as sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for the contract.

Accompanying this bid is a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Bidder shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by him, as provided in the Standard Specifications; otherwise said deposit will be returned to the Bidder.

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INSTRUCTIONS TO BIDDERS

**PLEASE READ ALL INSTRUCTIONS CAREFULLY
BEFORE PREPARING AND SUBMITTING YOUR BID.**

All bids shall be prepared and submitted in accordance with the following requirements. Failure to comply with any requirement may cause the bid to be considered irregular and may be grounds for rejection of the bid.

For preparing and submitting the bid electronically using the on-line system Bid Express®, refer to Article 102-8(B) of the *2018 Standard Specifications*.

Bidders that bid electronically on Raleigh Central-Let projects will need a separate Digital Signature form Bid Express® for Division Contracts.

ELECTRONIC ON-LINE BID THRU BID EXPRESS:

1. Download entire proposal from Connect NCDOT website. Download EBS file from Bid Express website.
2. Prepare and submit EBS file using Expedite software.
3. Expedite software necessary for electronic bid preparation may be downloaded from the Connect NCDOT website at: <https://connect.ncdot.gov/letting/Pages/EBS-Information.aspx> or from Bid Express.

PROJECT SPECIAL PROVISIONS**GENERAL****BIDS OVER LIMIT:**

(08-01-16)

SPD 01-400

In accordance with GS 136-28.1(b), if the total bid amount of the contract exceeds \$5.0 million, the bid will not be considered for award.

DIVISION LET CONTRACT PREQUALIFICATION:

(07-01-14)(12-1-16)

SPD 01-410

Any firm that wishes to bid as a prime contractor shall be prequalified as a Bidder or PO Prime Contractor prior to submitting a bid. Information regarding prequalification can be found at: <https://connect.ncdot.gov/business/Prequal/Pages/default.aspx>.

Prior to performing the work, the prime contractor and/or subcontractor(s) shall be prequalified in the work code(s) which are identified as work items in the prime contractor's construction progress schedule that they will complete themselves. Any contractor identified as working outside their expertise may be considered in default of contract.

BOND REQUIREMENTS:

(06-01-16)

102-8, 102-10

SPD 01-420A

A Bid Bond is required in accordance with Article 102-10 of the *2018 Standard Specifications for Roads and Structures*.

Contract Payment and Performance Bonds are required in accordance with Article 103-7 of the *2018 Standard Specifications for Roads and Structures*.

CONTRACT PAYMENT AND PERFORMANCE BOND:

A performance bond in the amount of one hundred percent (100%) of the contract amount, conditioned upon the faithful performance of the contract in accordance with specifications and conditions of the contract is required. Such bond shall be solely for the protection of the North Carolina Department of Transportation and the State of North Carolina.

A payment bond in the amount of one hundred percent (100%) of the contract amount, conditioned upon the prompt payment for all labor or materials for which the Contractor, or his subcontractors, is liable is required. The payment bond shall be solely for the protection of persons or firms furnishing materials or performing labor for this contract for which the Contractor is liable.

The successful bidder, within fourteen (14) days after notice of award, shall provide the Department with a contract payment bond and a contract performance bond each in an amount equal to 100 percent of the amount of the contract.

CONTRACT TIME AND LIQUIDATED DAMAGES:

(7-20-99) (Rev. 12-18-07)

108

SP1 G04

The date of availability for this contract is **June 4, 2018**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **August 2, 2019**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Seven Hundred, Fifty Dollars (\$ 750.00)** per calendar day.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:

(2-20-07) 108

SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not reduce roadways to a one lane, two-way pattern or narrow roadway widths less than 11' during the following time restrictions:

DAY AND TIME RESTRICTIONS

-L-(Existing Market Dr.)	Mon-Sun: 7:00AM-9:00AM, 4:00PM-6:00PM
-L-(Existing Market Dr.) (Milling and paving operations)	Mon-Sun: 6:00AM-10:00PM
-Y1- (Bendix Dr.)	Mon-Fri: 7:00AM-9:00AM, 4:00PM-6:00PM
-Y2- (Faith Rd.)	Mon-Fri: 6:00AM-9:00AM, 3:00PM-6:00PM

In addition, the Contractor shall not reduce roadways to a one lane, two-way pattern or narrow roadway widths less than 11', detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS

1. For any **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.
2. For **New Year's Day**, between the hours of **7:00 AM** December 31st and **6:00 PM** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **6:00 PM** the following Tuesday.
3. For **Easter**, between the hours of **7:00 AM** Thursday and **6:00 PM** Monday.

4. For **Memorial Day**, between the hours of **7:00 AM** Friday and **6:00 PM** Tuesday.
5. For **Independence Day**, between the hours of **7:00 AM** the day before Independence Day and **6:00 PM** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **7:00 AM** the Thursday before Independence Day and **6:00 PM** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **7:00 AM** Friday and **6:00 PM** Tuesday.
7. For **Thanksgiving Day**, between the hours of **7:00 AM** Tuesday and **6:00 PM** Monday.
8. For **Christmas**, between the hours of **7:00 AM** the Friday before the week of Christmas Day and **6:00 PM** the following Tuesday after the week of Christmas Day.

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed herein.

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the existing traffic pattern.

The liquidated damages for this contract are **One Thousand, Two Hundred, Fifty Dollars (\$ 1,250.00)** per fifteen (15) minutes.

MAJOR CONTRACT ITEMS:

(2-19-02)

104

SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the *2018 Standard Specifications*):

Line #	Description
29	Asphalt Concrete Base Course, Type B25.0 B
30	Asphalt Concrete Intermediate Course, Type I19.0 B
31	Asphalt Concrete Surface Course, Type S9.5 C

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12)

108-6

SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the 2018 Standard Specifications).

Line #	Description
84 - 90	Long-Life Pavement Markings
98 - 99	Utility Construction
100 - 122	Erosion Control
123 - 164	Signals / ITS

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14)

109-8

SP1 G43

Revise the 2018 Standard Specifications as follows:

Page 1-83, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is \$ **2.0984** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

The pay items and the fuel factor used in calculating adjustments to be made will be as follows:

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55
Asphalt Concrete Base Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type ____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type ____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type ____	Gal/Ton	2.90
Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
__" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to __" Pavement	Gal/SY	0.245

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-16-17)

108-2

SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

	<u>Fiscal Year</u>	<u>Progress (% of Dollar Value)</u>
2018	(7/01/17 - 6/30/18)	7 % of Total Amount Bid
2019	(7/01/18 - 6/30/19)	80 % of Total Amount Bid
2020	(7/01/19 - 6/30/20)	13 % of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2018 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS):

(10-16-07)(Rev. 5-15-18)

102-15(J)

SP1 G67

Description

The purpose of this Special Provision is to carry out the North Carolina Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with State funds.

Definitions

Additional MBE/WBE Subcontractors - Any MBE/WBE submitted at the time of bid that will not be used to meet the Combined MBE/WBE goal. No submittal of a Letter of Intent is required.

Combined MBE/WBE Goal: A portion of the total contract, expressed as a percentage that is to be performed by committed MBE/WBE subcontractors.

Committed MBE/WBE Subcontractor - Any MBE/WBE submitted at the time of bid that is being used to meet the Combined MBE / WBE goal by submission of a Letter of Intent. Or any MBE or WBE used as a replacement for a previously committed MBE or WBE firm.

Contract Goal Requirement - The approved participation at time of award, but not greater than the advertised Combined MBE/WBE contract goal.

Goal Confirmation Letter - Written documentation from the Department to the bidder confirming the Contractor's approved, committed participation along with a listing of the committed MBE and WBE firms.

Manufacturer - A firm that operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor.

MBE Participation (Anticipated) - A portion of the total contract, expressed as a percentage that is anticipated to be performed by committed MBE subcontractor(s).

Minority Business Enterprise (MBE) - A firm certified as a Disadvantaged Minority-Owned Business Enterprise through the North Carolina Unified Certification Program.

Regular Dealer - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

North Carolina Unified Certification Program (NCUCP) - A program that provides comprehensive services and information to applicants for MBE/WBE certification. The MBE/WBE program follows the same regulations as the federal Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26.

United States Department of Transportation (USDOT) - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

WBE Participation (Anticipated) - A portion of the total contract, expressed as a percentage that is anticipated to be performed by committed WBE subcontractor(s).

Women Business Enterprise (WBE) - A firm certified as a Disadvantaged Women-Owned Business Enterprise through the North Carolina Unified Certification Program.

Forms and Websites Referenced in this Provision

Payment Tracking System - On-line system in which the Contractor enters the payments made to MBE and WBE subcontractors who have performed work on the project.
<https://apps.dot.state.nc.us/Vendor/PaymentTracking/>

DBE-IS Subcontractor Payment Information - Form for reporting the payments made to all MBE/WBE firms working on the project. This form is for paper bid projects only.
<https://connect.ncdot.gov/business/Turnpike/Documents/Form%20DBE-IS%20Subcontractor%20Payment%20Information.pdf>

RF-1 MBE/WBE Replacement Request Form - Form for replacing a committed MBE or WBE.
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf>

SAF Subcontract Approval Form - Form required for approval to sublet the contract.
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip>

JC-1 Joint Check Notification Form - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf>

Letter of Intent - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the estimated amount (based on quantities and unit prices) listed at the time of bid.

<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

Listing of MBE and WBE Subcontractors Form - Form for entering MBE/WBE subcontractors on a project that will meet the Combined MBE/WBE goal. This form is for paper bids only.

[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20\(State\).docx](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).docx)

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages.

<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>

Combined MBE/WBE Goal

The Combined MBE/WBE Goal for this project is **7 %**

The Combined Goal was established utilizing the following anticipated participation for Minority Business Enterprises and Women Business Enterprises:

(A) **Minority Business Enterprises 2 %**

- (1) *If the anticipated MBE participation is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above.
- (2) *If the anticipated MBE participation is zero*, the Contractor shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.

(B) **Women Business Enterprises 5 %**

- (1) *If the anticipated WBE participation is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above.
- (2) *If the anticipated WBE participation is zero*, the Contractor shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE participation obtained shall be reported to the Department.

The Bidder is required to submit only participation to meet the Combined MBE/WBE Goal. The Combined Goal may be met by submitting all MBE participation, all WBE participation, or a combination of MBE and WBE participation.

Directory of Transportation Firms (Directory)

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as MBE and WBE certified shall be used to meet the Combined MBE / WBE goal. The Directory can be found at the following link.

<https://www.ebs.nc.gov/VendorDirectory/default.html>

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

Listing of MBE/WBE Subcontractors

At the time of bid, bidders shall submit all MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the Combined MBE/WBE goal will be considered committed, even though the listing shall include both committed MBE/WBE subcontractors and additional MBE/WBE subcontractors. Any additional MBE/WBE subcontractor participation above the goal will follow the banking guidelines found elsewhere in this provision. All other additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goals. Only those firms with current MBE and WBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

(A) Electronic Bids

Bidders shall submit a listing of MBE and WBE participation in the appropriate section of Expedite, the bidding software of Bid Express®.

- (1) Submit the names and addresses of MBE and WBE firms identified to participate in the contract. If the bidder uses the updated listing of MBE and WBE firms shown in Expedite, the bidder may use the dropdown menu to access the name and address of the firms.
- (2) Submit the contract line numbers of work to be performed by each MBE and WBE firm. When no figures or firms are entered, the bidder will be considered to have no MBE or WBE participation.
- (3) The bidder shall be responsible for ensuring that the MBE and WBE are certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving the Combined MBE/WBE goal.

(B) Paper Bids

- (1) *If the Combined MBE/ WBE goal is more than zero,*
 - (a) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.

- (b) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word “None” or the number “0.” This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.
- (c) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE’s or WBE’s participation will not count towards achieving the Combined MBE/WBE goal.
- (2) *If the Combined MBE/WBE Goal is zero*, entries on the *Listing of MBE and WBE Subcontractors* are not required for the zero goal, however any MBE or WBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

MBE or WBE Prime Contractor

When a certified MBE or WBE firm bids on a contract that contains a Combined MBE/WBE Goal, the firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet the Combined MBE/WBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the MBE or WBE bidder and any other similarly certified subcontractors will count toward the goal. The MBE or WBE bidder shall list itself along with any MBE or WBE subcontractors, if any, in order to receive credit toward the goals.

MBE/WBE prime contractors shall also follow Sections A or B listed under *Listing of MBE/WBE Subcontractors* just as a non-MBE/WBE bidder would.

Written Documentation – Letter of Intent

The bidder shall submit written documentation for each MBE/WBE that will be used to meet the Combined MBE/WBE goal of the contract, indicating the bidder’s commitment to use the MBE/WBE in the contract. This documentation shall be submitted on the Department’s form titled *Letter of Intent*.

The documentation shall be received in the office of the Engineer no later than 2:00 p.m. of the fifth calendar day following opening of bids, unless the fifth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 10:00 a.m. on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the Combined MBE/WBE goal, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the Combined MBE/WBE goal. If the lack of this participation drops the commitment below the Combined MBE/WBE goal, the Contractor shall submit evidence of good faith efforts for the goal not met, completed in its entirety, to the Engineer no later than 2:00 p.m. of the eighth calendar day following opening of bids, unless the eighth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 10:00 a.m. on the next official state business day.

Banking MBE/WBE Credit

If the committed MBE/WBE participation submitted exceeds the algebraic sum of the Combined MBE/WBE goal by \$1,000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

When the apparent lowest responsive bidder fails to submit sufficient participation by MBE and WBE firms to meet the advertised goal, as part of the good faith effort, the Department will consider allowing the bidder to withdraw funds to meet the Combined MBE/WBE goal as long as there are adequate funds available from the bidder's MBE and WBE bank accounts.

Submission of Good Faith Effort

If the bidder fails to meet or exceed the Combined MBE/WBE goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach that specific goal.

One complete set and **3** copies of this information shall be received in the office of the Engineer no later than 2:00 p.m. of the fifth calendar day following opening of bids, unless the fifth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 10:00 a.m. on the next official state business day.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of MBE/WBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

Consideration of Good Faith Effort for Projects with a Combined MBE/WBE Goal More Than Zero

Adequate good faith efforts mean that the bidder took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient MBE/WBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought MBE/WBE participation. Mere *pro forma* efforts are not considered good faith efforts.

The Department will consider the quality, quantity, and intensity of the different kinds of efforts a bidder has made. Listed below are examples of the types of actions a bidder will take in making a good faith effort to meet the goals and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

- (A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs that are also prequalified subcontractors. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.

- (B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the Combined MBE/WBE goal will be achieved.
- (1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
 - (2) Negotiate with subcontractors to assume part of the responsibility to meet the advertised goal when the work to be sublet includes potential for MBE/WBE participation (2nd and 3rd tier subcontractors).
- (C) Providing interested certified MBEs/WBEs that are also prequalified subcontractors with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D) (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.
- (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as the advertised goal into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the advertised goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening the

Business Opportunity and Work Force Development Unit at BOWD@ncdot.gov to give notification of the bidder's inability to get MBE or WBE quotes.

- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the advertised goal.

In addition, the Department may take into account the following:

- (1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the Combined MBE/WBE goal.
- (2) The bidders' past performance in meeting the contract goal.
- (3) The performance of other bidders in meeting the advertised goal. For example, when the apparent successful bidder fails to meet the goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the advertised goal, but meets or exceeds the average MBE and WBE participation obtained by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy to the Department that the Combined MBE/WBE goal can be met or that an adequate good faith effort has been made to meet the advertised goal.

Non-Good Faith Appeal

The Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the Engineer. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

Counting MBE/WBE Participation Toward Meeting the Combined MBE/WBE Goal

- (A) Participation

The total dollar value of the participation by a committed MBE/WBE will be counted toward the contract goal requirements. The total dollar value of participation by a committed MBE/WBE will be based upon the value of work actually performed by the MBE/WBE and the actual payments to MBE/WBE firms by the Contractor.

- (B) Joint Checks

Prior notification of joint check use shall be required when counting MBE/WBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 (*Joint Check Notification Form*) and the use of joint checks shall be in accordance with the Department's Joint Check Procedures.

(C) Subcontracts (Non-Trucking)

A MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the anticipated MBE participation. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE/WBE subcontracts to a non-MBE/WBE firm does not count toward the contract goal requirement. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the MBE or WBE participation breakdown. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified firms and there is no interest or availability, and they can get assistance from other certified firms, the Engineer will not hold the prime responsible for meeting the individual MBE or WBE breakdown. If a MBE or WBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function.

(D) Joint Venture

When a MBE or WBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the MBE or WBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(E) Suppliers

A contractor may count toward its MBE /WBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a MBE or WBE regular dealer and 100 percent of such expenditures from a MBE or WBE manufacturer.

(F) Manufacturers and Regular Dealers

A contractor may count toward its MBE /WBE requirement the following expenditures to MBE/WBE firms that are not manufacturers or regular dealers:

- (1) The fees or commissions charged by a MBE/WBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.
- (2) With respect to materials or supplies purchased from a MBE/WBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Commercially Useful Function**(A) MBE/WBE Utilization**

The Contractor may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE/WBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the MBE/WBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a MBE/WBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the MBE/WBE credit claimed for its performance of the work, and any other relevant factors. If it is determined that a MBE or WBE is not performing a Commercially Useful Function, the contractor may present evidence to rebut this presumption to the Department.

(B) MBE/WBE Utilization in Trucking

The following factors will be used to determine if a MBE or WBE trucking firm is performing a commercially useful function:

- (1) The MBE/WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting the Combined MBE/WBE goal.
- (2) The MBE/WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The MBE/WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the participation breakdown. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime responsible for meeting the individual MBE or WBE participation breakdown.
- (5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by

MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.

- (6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

MBE/WBE Replacement

When a Contractor has relied on a commitment to a MBE or WBE firm (or an approved substitute MBE or WBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the MBE/WBE for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another MBE/WBE subcontractor, a non-MBE/WBE subcontractor, or with the Contractor's own forces or those of an affiliate. A MBE/WBE may only be terminated after receiving the Engineer's written approval based upon a finding of good cause for the proposed termination. The prime contractor must give the MBE/WBE firm 5 days to respond to the prime contractor's notice of intent to terminate and advise the prime contractor and the Department of the reasons, if any, why the firm objects to the proposed termination of its subcontract and why the Department should not approve the action.

All requests for replacement of a committed MBE/WBE firm shall be submitted to the Engineer for approval on Form RF-1 (*Replacement Request*). If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

The Contractor shall comply with the following for replacement of a committed MBE/WBE:

(A) Performance Related Replacement

When a committed MBE/WBE is terminated for good cause as stated above, an additional MBE/WBE that was submitted at the time of bid may be used to fulfill the MBE/WBE commitment to meet the Combined MBE/WBE Goal. A good faith effort will only be required for removing a committed MBE/WBE if there were no additional MBEs/WBEs submitted at the time of bid to cover the same amount of work as the MBE/WBE that was terminated.

If a replacement MBE/WBE is not found that can perform at least the same amount of work as the terminated MBE/WBE, the Contractor shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

- (1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.
 - (2) Efforts to negotiate with MBEs/WBEs for specific subbids including, at a minimum:
 - (a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.
 - (b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.
 - (3) A list of reasons why MBE/WBE quotes were not accepted.
 - (4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.
- (B) Decertification Replacement
- (1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.
 - (2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the Combined MBE/WBE goal requirement. If a MBE/WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

Changes in the Work

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed MBE/WBE, the Contractor will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed by a MBE/WBE based upon the Contractor's commitment, the MBE/WBE shall participate in additional work to the same extent as the MBE/WBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed MBE/WBE, the Contractor shall seek participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a MBE/WBE, the Contractor shall seek additional participation by MBEs/WBEs equal to the reduced MBE/WBE participation caused by the changes.

Reports and Documentation

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a MBE/WBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving MBE/WBE subcontractors.

When using transportation services to meet the contract commitment, the Contractor shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a MBE/WBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for MBE/WBE credit.

Reporting Minority and Women Business Enterprise Participation

The Contractor shall provide the Engineer with an accounting of payments made to all MBE and WBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

- (A) Withholding of money due in the next partial pay estimate; or
- (B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to MBEs/WBEs, it shall be the prime contractor's responsibility to report all monthly and final payment information in the correct reporting manner.

Failure on the part of the Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for further work on future projects until the required information is submitted.

Contractors reporting transportation services provided by non-MBE/WBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the Engineer can request written verification of subcontractor payments. The Contractor shall report the accounting of payments through the Department's DBE Payment Tracking System.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2018 Standard Specifications* may be cause to disqualify the Contractor.

SUBSURFACE INFORMATION:

(7-1-95)

450

SP1 G112 B

Subsurface information is available on the roadway portion of this project only.

COOPERATION BETWEEN CONTRACTORS:

(7-1-95)

105-7

SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2018 Standard Specifications*.

U-5820 Innes Street to Faith Road**Resurfacing on Innes Street**

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

OUTSOURCING OUTSIDE THE USA:

(9-21-04) (Rev. 5-16-06)

SP1 G150

All work on consultant contracts, services contracts, and construction contracts shall be performed in the United States of America. No work shall be outsourced outside of the United States of America.

Outsourcing for the purpose of this provision is defined as the practice of subcontracting labor, work, services, staffing, or personnel to entities located outside of the United States.

The North Carolina Secretary of Transportation shall approve exceptions to this provision in writing.

EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:

(1-16-07) (Rev 11-22-16)

105-16, 225-2, 16

SP1 G180

General

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollution discharge Elimination System (NPDES) permit for the work is required.

Establish a chain of responsibility for operations and subcontractors' operations to ensure that the *Erosion and Sediment Control/Stormwater Pollution Prevention Plan* is implemented and maintained over the life of the contract.

- (A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.
- (B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.

- (C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.
- (D) *Certified Designer* - Provide a certified designer for the design of the erosion and sediment control/stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control/stormwater plan.

Roles and Responsibilities

- (A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:
 - (1) *Manage Operations* - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.
 - (a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.
 - (b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
 - (c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
 - (d) Implement the erosion and sediment control/stormwater site plans requested.
 - (e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.
 - (f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.
 - (g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.
 - (h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
 - (i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
 - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
 - (k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.

- (2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:
- (a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
 - (b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days and within 24 hours after a rainfall event of 0.5 inch that occurs within a 24 hour period. Additional monitoring may be required at the discretion of Division of Water Resources personnel if the receiving stream is 303(d) listed for turbidity and the project has had documented problems managing turbidity.
 - (c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
 - (d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
 - (e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
 - (f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
 - (g) Provide secondary containment for bulk storage of liquid materials.
 - (h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
 - (i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.
- (3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:
- (a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
 - (b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
 - (c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
 - (d) Conduct the inspections required by the NPDES permit.
 - (e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
 - (f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.

- (g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
- (h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
- (i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
- (j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.

(B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:

- (1) Foreman in charge of grading activities
- (2) Foreman in charge of bridge or culvert construction over jurisdictional areas
- (3) Foreman in charge of utility activities

The Contractor may request to use the same person as the Level II Supervisor and Level II Foreman. This person shall be onsite whenever construction activities as described above are taking place. This request shall be approved by the Engineer prior to work beginning.

The Contractor may request to name a single Level II Foreman to oversee multiple construction activities on small bridge or culvert replacement projects. This request shall be approved by the Engineer prior to work beginning.

(C) *Certified Installers* - Provide at least one onsite, Level I Certified Installer for each of the following erosion and sediment control/stormwater crew:

- (1) Seeding and Mulching
- (2) Temporary Seeding
- (3) Temporary Mulching
- (4) Sodding
- (5) Silt fence or other perimeter erosion/sediment control device installations
- (6) Erosion control blanket installation
- (7) Hydraulic tackifier installation
- (8) Turbidity curtain installation
- (9) Rock ditch check/sediment dam installation
- (10) Ditch liner/matting installation
- (11) Inlet protection
- (12) Riprap placement
- (13) Stormwater BMP installations (such as but not limited to level spreaders, retention/detention devices)
- (14) Pipe installations within jurisdictional areas

If a Level I *Certified Installer* is not onsite, the Contractor may substitute a Level II Foreman for a Level I Installer, provided the Level II Foreman is not tasked to another crew requiring Level II Foreman oversight.

(D) *Certified Designer* - Include the certification number of the Level III-B Certified Designer on the erosion and sediment control/stormwater component of all reclamation plans and if applicable, the

certification number of the Level III-A Certified Designer on the design of the project erosion and sediment control/stormwater plan.

Preconstruction Meeting

Furnish the names of the *Certified Erosion and Sediment Control/Stormwater Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* and notify the Engineer of changes in certified personnel over the life of the contract within 2 days of change.

Ethical Responsibility

Any company performing work for the North Carolina Department of Transportation has the ethical responsibility to fully disclose any reprimand or dismissal of an employee resulting from improper testing or falsification of records.

Revocation or Suspension of Certification

Upon recommendation of the Chief Engineer to the certification entity, certification for *Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified Designer* may be revoked or suspended with the issuance of an *Immediate Corrective Action (ICA)*, *Notice of Violation (NOV)*, or *Cease and Desist Order* for erosion and sediment control/stormwater related issues.

The Chief Engineer may recommend suspension or permanent revocation of certification due to the following:

- (A) Failure to adequately perform the duties as defined within this certification provision.
- (B) Issuance of an ICA, NOV, or Cease and Desist Order.
- (C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications.
- (D) Demonstration of erroneous documentation or reporting techniques.
- (E) Cheating or copying another candidate's work on an examination.
- (F) Intentional falsification of records.
- (G) Directing a subordinate under direct or indirect supervision to perform any of the above actions.
- (H) Dismissal from a company for any of the above reasons.
- (I) Suspension or revocation of one's certification by another entity.

Suspension or revocation of a certification will be sent by certified mail to the certificant and the Corporate Head of the company that employs the certificant.

A certificant has the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding, in writing, to the Chief Engineer within 10 calendar days after receiving notice of the proposed adverse action.

Chief Engineer
1536 Mail Service Center
Raleigh, NC 27699-1536

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process.

The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. Decision of the Chief Engineer will be final and will be made in writing to the certificant.

If a certification is temporarily suspended, the certificant shall pass any applicable written examination and any proficiency examination, at the conclusion of the specified suspension period, prior to having the certification reinstated.

Measurement and Payment

Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers and Certified Designer will be incidental to the project for which no direct compensation will be made.

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:

(2-20-07) (Rev. 3-19-13)

105-16, 230, 801

SP1 G181

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams, lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

If during any operating day, the downstream water quality exceeds the standard, the Contractor shall do all of the following:

- (A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or
- (B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.
- (C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.
- (D) Notify DWQ within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

During the Environmental Assessment required by Article 230-4 of the *2018 Standard Specifications*, the Contractor shall define the point at which the discharge enters into the State's surface waters and the appropriate sampling locations. Sampling locations shall include points upstream and downstream from the point at which the discharge enters these waters. Upstream sampling location shall be located so that it is not influenced by backwater conditions and represents natural background conditions. Downstream sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

The discharge shall be closely monitored when water from the dewatering activities is introduced into jurisdictional wetlands. Any time visible sedimentation (deposition of sediment) on the wetland surface is observed, the dewatering activity will be suspended until turbidity levels in the stilling basin can be reduced

to a level where sediment deposition does not occur. Staining of wetland surfaces from suspended clay particles, occurring after evaporation or infiltration, does not constitute sedimentation. No activities shall occur in wetlands that adversely affect the functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

The Engineer will perform independent turbidity tests on a random basis. These results will be maintained in a log within the project records. Records will include, at a minimum, turbidity test results, time, date and name of sampler. Should the Department's test results exceed those of the Contractor's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Contractor.

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix*, available at http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

The Contractor may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the bid for the project. CEC values exceeding 15 milliequivalents per 100 grams of soil may indicate a high potential for turbidity and should be avoided when dewatering into surface water is proposed.

No additional compensation for monitoring borrow pit discharge will be paid.

PROJECT SPECIAL PROVISIONS**ROADWAY****GUARDRAIL END UNITS, TYPE - TL-2:**

(10-21-08) (Rev. 7-1-17)

862

SP8 R64

Description

Furnish and install guardrail end units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2018 Standard Specifications*, and at locations shown in the plans.

Materials

Furnish guardrail end units listed on the NCDOT [Approved Products List](https://apps.dot.state.nc.us/vendor/approvedproducts/) at <https://apps.dot.state.nc.us/vendor/approvedproducts/> or approved equal.

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each guardrail end unit certifying it meets the requirements of the AASHTO Manual for Assessing Safety Hardware, Test Level 2 in accordance with Article 106-2 of the *2018 Standard Specifications*.
- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail end unit in accordance with Article 105-2 of the *2018 Standard Specifications*.

No modifications shall be made to the guardrail end unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2018 Standard Specifications* and is incidental to the cost of the guardrail end unit.

Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the *2018 Standard Specifications*.

Payment will be made under:

Pay Item

Guardrail End Units, Type TL-2

Pay Unit

Each

ADJUSTMENT TO MANHOLES:

(7-1-95) (Rev. 8-21-12)

858

SP8 R96R

The Contractor's attention is directed to Section 858-3 of the *2018 Standard Specifications*.

Make adjustments to manholes on this project by using rings or rapid set (grout, mortar, or concrete) as approved by the Engineer.

REINFORCED SOIL SLOPES:**(1-16-18)****Description**

Construct reinforced soil slopes (RSS) consisting of select material and geogrid reinforcement in the reinforced zone with erosion control products on slope faces. Slope erosion control includes matting with shoulder and slope borrow or geocells with compost blankets. Construct RSS in accordance with the contract and if included in the plans, Geotechnical Standard Detail No. 1802.01 or 1802.02. RSS are required to reinforce embankments and stabilize slopes at locations shown in the plans and as directed. Define “geogrids” as primary or secondary geogrids and “matting” as coir fiber mats or matting for erosion control. Define “standard RSS” as a RSS that meets either of the standard reinforced soil slope drawings (Geotechnical Standard Detail No. 1802.01 or 1802.02).

Materials

Refer to Division 10 of the *Standard Specifications*.

Item	Section
Geogrids	1056
Matting for Erosion Control	1060-8
Select Materials	1016
Shoulder and Slope Borrow	1019-2

Unless required otherwise in the plans, use Class I, II or III select material in the reinforced zone of RSS. Use geocells that meet the *Cellular Confinement Systems* provision, seeded compost blankets that meet the *Compost Blanket* provision and coir fiber mats that meet the *Coir Fiber Mat* provision.

Handle and store geogrids in accordance with Article 1056-2 of the *Standard Specifications*. Define “machine direction” (MD) and “cross-machine direction” (CD) for geogrids per Article 1056-3 of the *Standard Specifications*. Provide Type 1 material certifications and identify geogrids in accordance with Article 1056-3 of the *Standard Specifications*.

Use geogrids with a roll width of at least 4 ft. Use primary geogrids with an “approved” status code and secondary geogrids with an “approved” or “approved for provisional use” status code. Do not use geogrids with an “approved for provisional use” status code for primary geogrids. The list of approved geogrids is available from:

connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Material.aspx

Provide geogrids with design strengths in accordance with the plans. For standard RSS and based on actual RSS angle and height and select material to be used in the reinforced zone at each standard RSS location, provide geogrids with long-term design strengths in accordance with

Geotechnical Standard Detail No. 1802.01 or 1802.02. Geogrids are typically approved for ultimate tensile strengths in the MD and CD or long-term design strengths for a 75-year design life in the MD based on material type. Define material type from the website above for select material as follows:

Material Type	Select Material
Borrow	Class I Select Material
Fine Aggregate	Class II or III Select Material

If the website does not list a long-term design strength in the MD for an approved geogrid, do not use the geogrid for primary geogrid. If the website does not list a long-term design strength in the CD for an approved geogrid, use a long-term design strength equal to the ultimate tensile strength divided by 7 for the secondary geogrid.

Construction Methods

Before starting RSS construction, the Engineer may require a preconstruction meeting to discuss the construction and inspection of the RSS. If this meeting is required and occurs before all RSS submittals and material certifications have been accepted, additional preconstruction meetings may be required before beginning construction of RSS without accepted submittals. The Resident or District Engineer, Area Construction Engineer, Geotechnical Operations Engineer, Contractor and RSS Contractor Superintendent will attend preconstruction meetings.

Control drainage during construction in the vicinity of RSS. Direct run off away from RSS, select material and backfill. Contain and maintain select material and backfill and protect material from erosion.

Excavate as necessary for RSS in accordance with the contract. Maintain a horizontal clearance of at least 12" between the ends of primary geogrids and limits of reinforced zone as shown in the plans. When excavating existing slopes, bench slopes in accordance with Subarticle 235-3(A) of the *Standard Specifications*. Notify the Engineer when excavation is complete. Do not place primary geogrids until excavation dimensions and in-situ material are approved.

Place geogrids within 3" of locations shown in the plans. Install geogrids with the orientation, dimensions and number of layers shown in the plans. Before placing select material, pull geogrids taut so they are in tension and free of kinks, folds, wrinkles or creases. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with geogrids. If necessary, the top geogrid layer may be lowered up to 9" to avoid obstructions. Extend geogrids to slope faces.

Install primary geogrids with the MD perpendicular to the embankment centerline. The MD is the direction of the length or long dimension of the geogrid roll. Unless shown otherwise in the plans, do not splice or overlap primary geogrids in the MD so splices or overlaps are parallel to toe of RSS. Unless shown otherwise in the plans and except for clearances at the ends of primary geogrids, completely cover select material at each primary geogrid layer with geogrid so primary geogrids are adjacent to each other in the CD, i.e., perpendicular to the MD. The CD is the direction of the width or short dimension of the geogrid roll.

Install secondary geogrids with MD parallel to toe of RSS. Secondary geogrids should be continuous for each secondary geogrid layer. If secondary geogrid roll length is too short, overlap ends of secondary geogrid rolls at least 12" in the direction that select material will be placed to

prevent lifting the edge of the top geogrid.

Place select material in the reinforced zone in 8" to 10" thick lifts and compact material in accordance with Subarticle 235-3(C) of the *Standard Specifications*. For RSS steeper than 1.5:1 (H:V), compact slope faces with an approved method. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage geogrids when placing and compacting select material. End dumping directly on geogrids is not permitted. Do not operate heavy equipment on geogrids until they are covered with at least 8" of select material. To prevent damaging geogrids, minimize turning and avoid sudden braking and sharp turns with compaction equipment. Replace any damaged geogrids to the satisfaction of the Engineer. Construct remaining portions of embankments outside the reinforced zone in accordance with Section 235 of the *Standard Specifications*.

Plate slope faces of RSS with at least 6" of shoulder and slope borrow except when using geocells for slope erosion control. Install slope erosion control as shown in the plans and as soon as possible to prevent damage to slope faces of RSS. If damage occurs, repair RSS and slope faces to the satisfaction of the Engineer before seeding or installing erosion control products. For matting, seed slope faces and cover shoulder and slope borrow with coir fiber mat or matting for erosion control as shown in the plans in accordance with the *Coir Fiber Mat* provision or Section 1631 of the *Standard Specifications*, respectively. Install geocells filled with seeded compost in accordance with the accepted submittals and the *Cellular Confinement Systems* and *Compost Blanket* provisions. Maintain slope erosion control until vegetation is established.

Measurement and Payment

Reinforced Soil Slopes will be measured and paid in square yards. RSS will be measured along the slope faces of RSS before installing slope erosion control as the square yards of RSS. No payment will be made for repairing damaged RSS or slope faces.

The contract unit price for *Reinforced Soil Slopes* will be full compensation for providing labor, tools, equipment and RSS materials, compacting select materials and supplying and placing geogrids, select material, shoulder and slope borrow and any incidentals necessary to construct RSS except for erosion control products. The contract unit price for *Reinforced Soil Slopes* will also be full compensation for excavating and hauling and removing excavated materials to install RSS.

Coir fiber mat and matting for erosion control will be measured and paid in accordance with the *Coir Fiber Mat* provision and Article 1631-4 of the *Standard Specifications*, respectively. Geocells and seeded compost blankets will be will be measured and paid in accordance with the *Cellular Confinement Systems* and *Compost Blanket* provisions, respectively.

Payment will be made under:

Pay Item

Reinforced Soil Slopes

Pay Unit

Square Yard

ROCK EMBANKMENTS:

(4-19-16)

Description

Construct rock embankments in accordance with the contract. Use core material as necessary or required where piles will be driven through rock embankments and as shown in the plans. Rock

embankments are required to construct embankments in water at locations shown in the plans and as directed.

Materials

Refer to Division 10 of the *Standard Specifications*.

Item	Section
Geotextile for Rock Embankments, Type 2	1056
Rip Rap Materials	1042
Select Materials	1016

Provide Type 2 geotextile for filtration geotextiles. Use Class VII select material for rock embankments. Use Class VI select material (standard size No. 57) for core material and Class A and B rip rap and No. 57 stone to fill voids in rock embankments. Obtain aggregates from sources participating in the Department's Aggregate QC/QA Program in accordance with Section 1006 of the *Standard Specifications* or use similar size onsite material approved by the engineer.

Construction Methods

Construct rock embankments in accordance with the slopes, dimensions and elevations shown in the plans and Section 235 of the *Standard Specifications*. If piles will be installed through rock embankments, place Class VII so there will be at least 5 ft between rock and piles. Place Class VII so smaller rocks are uniformly distributed throughout rock embankments. Provide a uniform surface free of obstructions, debris and groups of large rocks that could cause voids in embankments. When placing Class VII in lifts, place core material to top of the current lift before placing the next lift of Class VII.

Before placing embankment fill material or filtration geotextiles over rock embankments, fill voids in the top of rock embankments with rip rap and No. 57 stone. Place and compact Class B rip rap first followed by Class A rip rap. Then, fill any remaining voids with No. 57 stone so geotextiles are not torn, ripped or otherwise damaged when installed and covered. Compact rip rap and No. 57 stone with tracked equipment or other approved methods. Install filtration geotextiles on top of Class VII, rip rap and No. 57 stone in accordance with Article 270-3 of the *Standard Specifications* before placing embankment fill material.

Measurement and Payment

Rock Embankments, Rip Rap, Class A and B and #57 Stone will be measured and paid in tons. Select material and rip rap will be measured by weighing material and rip rap in trucks in accordance with Article 106-7 of the *Standard Specifications*. The contract unit prices for *Rock Embankments, Rip Rap, Class A and B and #57 Stone* will be full compensation for providing, hauling, handling, placing, compacting and maintaining select material and rip rap.

Geotextile for Rock Embankments will be measured and paid in square yards. Geotextiles will be measured along the top of rock embankments as the square yards of exposed geotextiles before placing embankment fill material. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile for Rock Embankments* will be full compensation for providing, transporting and installing geotextiles.

Payment will be made under:

Pay Item	Pay Unit
Rock Embankments	Ton
Rip Rap, Class A	Ton
Rip Rap, Class B	Ton
#57 Stone	Ton
Geotextile for Rock Embankments	Square Yard

INCIDENTAL STONE BASE:

(7-1-95) (Rev.8-21-12)

545

SP5 R28R

Description

Place incidental stone base on driveways, mailboxes, etc. immediately after paving and do not have the paving operations exceed stone base placement by more than one week without written permission of the Engineer.

Materials and Construction

Provide and place incidental stone base in accordance with Section 545 of the *2018 Standard Specifications*.

Measurement and Payment

Incidental Stone Base will be measured and paid in accordance with Article 545-6 of the *2018 Standard Specifications*.

CLEARING AND GRUBBING - METHOD III:

(4-6-06) (Rev.8-18-15)

200

SP2 R02B

Perform clearing on this project to the limits established by Method "III" shown on Standard Drawing No. 200.03 of the *2018 Roadway Standard Drawings*. Conventional clearing methods may be used except where permit drawings or conditions have been included in the proposal which require certain areas to be cleared by hand methods.

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02)

235, 560

SP2 R45 A

Description

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2018 Standard Specifications*.

Measurement and Payment

Where the material has been obtained from an authorized stockpile or from a borrow source and *Borrow Excavation* is not included in the contract, no direct payment will be made for this work, as the cost of this work will be part of the work being paid at the contract lump sum price for *Grading*. If *Borrow Excavation* is included in this contract and the material has been obtained from an authorized stockpile or from a borrow source, measurement and payment will be as provided in Section 230 of the *2018 Standard Specifications for Borrow Excavation*.

SHOULDER WEDGE:

(9-20-11) (Rev. 8-21-12)

610

SP6 R03R

Revise the *2018 Standard Specifications* as follows:

Page 6-21, Article 610-8, SPREADING AND FINISHING, add the following after line 39:

Attach a device, mounted on screed of paving equipment, capable of constructing a shoulder wedge with an angle of 30 degrees plus or minus 4 degrees along the outside edge of the roadway, measured from the horizontal plane in place after final compaction on the final surface course. Use an approved mechanical device which will form the asphalt mixture to produce a wedge with uniform texture, shape and density while automatically adjusting to varying heights.

Payment for use of this device will be incidental to the other pay items in the contract.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00)

620

SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2018 Standard Specifications*.

The base price index for asphalt binder for plant mix is \$ **446.50** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **April 1, 2018**.

FINAL SURFACE TESTING NOT REQUIRED:

(5-18-04) (Rev. 2-16-16)

610

SP6 R45

Final surface testing is not required on this project in accordance with Section 610-13, *Final Surface Testing and Acceptance*.

ASPHALT CONCRETE PLANT MIX PAVEMENTS:

(2-20-18)

610, 1012

SP6 R65

Revise the 2018 Standard Specifications as follows:

Page 6-17, Table 610-1, MIXING TEMPERATURE AT THE ASPHALT PLANT, replace with the following:

TABLE 610-1 MIXING TEMPERATURE AT THE ASPHALT PLANT	
Binder Grade	JMF Temperature
PG 58-28; PG 64-22	250 - 290°F
PG 76-22	300 - 325°F

Page 6-17, Subarticle 610-3(C), Job Mix Formula (JMF), lines 38-39, delete the fourth paragraph.

Page 6-18, Subarticle 610-3(C), Job Mix Formula (JMF), line 12, replace “SF9.5A” with “S9.5B”.

Page 6-18, Table 610-3, MIX DESIGN CRITERIA, replace with the following:

TABLE 610-3 MIX DESIGN CRITERIA									
Mix Type	Design ESALs millions^A	Binder PG Grade^B	Compaction Levels		Max. Rut Depth (mm)	Volumetric Properties			
			G_{mm} @			VMA % Min.	VTM %	VFA Min.-Max.	%G_{mm} @ N_{ini}
			N_{ini}	N_{des}					
S4.75A	< 1	64 - 22	6	50	11.5	16.0	4.0 - 6.0	65 - 80	≤ 91.5
S9.5B	0 - 3	64 - 22	6	50	9.5	16.0	3.0 - 5.0	70 - 80	≤ 91.5
S9.5C	3 - 30	64 - 22	7	65	6.5	15.5	3.0 - 5.0	65 - 78	≤ 90.5
S9.5D	> 30	76 - 22	8	100	4.5	15.5	3.0 - 5.0	65 - 78	≤ 90.0
I19.0C	ALL	64 - 22	7	65	-	13.5	3.0 - 5.0	65 - 78	≤ 90.5
B25.0C	ALL	64 - 22	7	65	-	12.5	3.0 - 5.0	65 - 78	≤ 90.5
Design Parameter					Design Criteria				
All Mix Types	Dust to Binder Ratio (P _{0.075} / P _{be})				0.6 - 1.4 ^C				
	Tensile Strength Ratio (TSR) ^D				85% Min. ^E				

- A. Based on 20 year design traffic.
- B. Volumetric Properties based on specimens compacted to N_{des} as modified by the Department.
- C. Dust to Binder Ratio (P_{0.075} / P_{be}) for Type S4.75A is 1.0 - 2.0.
- D. NCDOT-T-283 (No Freeze-Thaw cycle required).
- E. TSR for Type S4.75A & B25.0C mixes is 80% minimum.

Page 6-19, Table 610-5, BINDER GRADE REQUIREMENTS (BASED ON RBR%), replace with the following:

Mix Type	%RBR ≤ 20%	21% ≤ %RBR ≤ 30%	%RBR > 30%
S4.75A, S9.5B, S9.5C, I19.0C, B25.0C	PG 64-22	PG 64-22 ^A	PG 58-28
S9.5D, OGFC	PG 76-22 ^B	n/a	n/a

Page 6-20, Table 610-6, PLACEMENT TEMPERATURES FOR ASPHALT, replace with the following:

TABLE 610-6 PLACEMENT TEMPERATURES FOR ASPHALT	
Asphalt Concrete Mix Type	Minimum Surface and Air Temperature
B25.0C	35°F
I19.0C	35°F
S4.75A, S9.5B, S9.5C	40°F ^A
S9.5D	50°F

A. If the mix contains any amount of RAS, The virgin binder shall be PG 58-28.

Page 6-23, Table 610-7, DENSITY REQUIREMENTS, replace with the following:

TABLE 610-7 DENSITY REQUIREMENTS	
Mix Type	Minimum % G _{mm} (Maximum Specific Gravity)
S4.75A	85.0 ^A
S9.5B	90.0
S9.5C, S9.5D, I19.0C, B25.0C	92.0

A. Compaction to the above specified density will be required when the S4.75A mix is applied at a rate of 100 lbs/sy or higher.

Page 6-32, Article 610-16 MEASUREMENT AND PAYMENT, replace with the following:

Pay Item	Pay Unit
Asphalt Concrete Base Course, Type B25.0C	Ton
Asphalt Concrete Intermediate Course, Type I19.0C	Ton
Asphalt Concrete Surface Course, Type S4.75A	Ton
Asphalt Concrete Surface Course, Type S9.5B	Ton
Asphalt Concrete Surface Course, Type S9.5C	Ton
Asphalt Concrete Surface Course, Type S9.5D	Ton

Page 10-30, Table 1012-1, AGGREGATE CONSENSUS PROPERTIES, replace with the following:

Mix Type	Coarse Aggregate Angularity ^B	Fine Aggregate Angularity % Minimum	Sand Equivalent % Minimum	Flat and Elongated 5 : 1 Ratio % Maximum
<i>Test Method</i>	<i>ASTM D5821</i>	<i>AASHTO T 304</i>	<i>AASHTO T 176</i>	<i>ASTM D4791</i>
S4.75A; S9.5B	75 / -	40	40	-
S9.5C; I19.0C; B25.0C	95 / 90	45	45	10
S9.5D	100 / 100	45	50	10

OGFC	100 / 100	45	45	10
UBWC	100 / 85	45	45	10

- A. Requirements apply to the design aggregate blend.
- B. 95 / 90 denotes that 95% of the coarse aggregate has one fractured face and 90% has 2 or more fractured faces.

STANDARD SPECIAL PROVISION
AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08)

Z-2

General Statute 143C-6-11. (h) Highway Appropriation is hereby incorporated verbatim in this contract as follows:

(h) Amounts Encumbered. – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c)*. Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Subarticle 108-13(D) of the *2018 Standard Specifications*.

STANDARD SPECIAL PROVISION
NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY

(5-17-11)

Z-3

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier’s expense.

Any re-labeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sicklepod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

<u>Restricted Noxious Weed</u>	<u>Limitations per Lb. Of Seed</u>	<u>Restricted Noxious Weed</u>	<u>Limitations per Lb. of Seed</u>
Blessed Thistle	4 seeds	Cornflower (Ragged Robin)	27 seeds
Cocklebur	4 seeds	Texas Panicum	27 seeds
Spurred Anoda	4 seeds	Bracted Plantain	54 seeds
Velvetleaf	4 seeds	Buckhorn Plantain	54 seeds
Morning-glory	8 seeds	Broadleaf Dock	54 seeds
Corn Cockle	10 seeds	Curly Dock	54 seeds
Wild Radish	12 seeds	Dodder	54 seeds
Purple Nutsedge	27 seeds	Giant Foxtail	54 seeds
Yellow Nutsedge	27 seeds	Horsenettle	54 seeds
Canada Thistle	27 seeds	Quackgrass	54 seeds
Field Bindweed	27 seeds	Wild Mustard	54 seeds
Hedge Bindweed	27 seeds		

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled

with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)	Bermudagrass
Kobe Lespedeza	Browntop Millet
Korean Lespedeza	German Millet – Strain R
Weeping Lovegrass	Clover – Red/White/Crimson
Carpetgrass	

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)
Kentucky Bluegrass (all approved varieties)
Hard Fescue (all approved varieties)
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Centipedegrass	Japanese Millet
Crownvetch	Reed Canary Grass
Pensacola Bahiagrass	Zoysia
Creeping Red Fescue	

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter; maximum 144 restricted noxious weed seed per pound.

Barnyard Grass
Big Bluestem
Little Bluestem

Bristly Locust
Birdsfoot Trefoil
Indiangrass
Orchardgrass
Switchgrass
Yellow Blossom Sweet Clover

STANDARD SPECIAL PROVISION**ERRATA**

(2-12-18)

Z-4

Revise the *2018 Standard Specifications* as follows:

Division 7

Page 7-27, line 4, Article 725-1 MEASUREMENT AND PAYMENT, replace article number “725-1” with “724-4”.

Page 7-28, line 10, Article 725-1 MEASUREMENT AND PAYMENT, replace article number “725-1” with “725-3”.

Division 10

Page 10-162, line 1, Article 1080-50 PAINT FOR VERTICAL MARKERS, replace article number “1080-50” with “1080-10”.

Page 10-162, line 5, Article 1080-61 EPOXY RESIN FOR REINFORCING STEEL, replace article number “1080-61” with “1080-11”.

Page 10-162, line 22, Article 1080-72 ABRASIVE MATERIALS FOR BLAST CLEANING STEEL, replace article number “1080-72” with “1080-12”.

Page 10-163, line 25, Article 1080-83 FIELD PERFORMANCE AND SERVICES, replace article number “1080-83” with “1080-13”.

STANDARD SPECIAL PROVISION**PLANT AND PEST QUARANTINES****(Imported Fire Ant, Gypsy Moth, Witchweed, Emerald Ash Borer, And Other Noxious Weeds)**

(3-18-03) (Rev. 12-20-16)

Z-04a

Within Quarantined Area

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

Originating in a Quarantined County

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

Contact

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-707-3730, or <http://www.ncagr.gov/plantindustry/> to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

Regulated Articles Include

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed, emerald ash borer, or other noxious weeds.

STANDARD SPECIAL PROVISION**MINIMUM WAGES**

(7-21-09)

Z-5

FEDERAL: The Fair Labor Standards Act provides that with certain exceptions every employer shall pay wages at the rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

STATE: The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees, wages at a rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all unskilled labor on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, Federal or State. It is the responsibility of the Contractor to keep fully informed of all Federal and State Laws affecting his contract.

STANDARD SPECIAL PROVISION**ON-THE-JOB TRAINING**

(10-16-07) (Rev. 4-21-15)

Z-10

Description

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

Minorities and Women

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year.\

Training Classifications

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

Equipment Operators	Office Engineers
Truck Drivers	Estimators
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and

The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

Records and Reports

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.

Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

Trainee Interviews

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

Trainee Wages

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

Achieving or Failing to Meet Training Goals

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

Measurement and Payment

No compensation will be made for providing required training in accordance with these contract documents.

STABILIZATION REQUIREMENTS:

(3-11-2016)

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 1, 2016 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING:**(West)**

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

Shoulder and Median Areas

August 1 - June 1

20# Kentucky Bluegrass
75# Hard Fescue
25# Rye Grain
500# Fertilizer
4000# Limestone

May 1 - September 1

20# Kentucky Bluegrass
75# Hard Fescue
10# German or Browntop Millet
500# Fertilizer
4000# Limestone

Areas Beyond the Mowing Pattern, Waste and Borrow Areas:

August 1 - June 1

100# Tall Fescue
15# Kentucky Bluegrass
30# Hard Fescue
25# Rye Grain
500# Fertilizer
4000# Limestone

May 1 - September 1

100# Tall Fescue
15# Kentucky Bluegrass
30# Hard Fescue
10# German or Browntop Millet
500# Fertilizer
4000# Limestone

Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Serengeti
2 nd Millennium	Essential	Kalahari	Shelby
3 rd Millennium	Evergreen 2	Kitty Hawk 2000	Sheridan
Apache III	Falcon IV	Legitimate	Signia
Avenger	Falcon NG	Lexington	Silver Hawk
Barlexas	Falcon V	LSD	Sliverstar
Barlexas II	Faith	Magellan	Shenandoah Elite
Bar Fa	Fat Cat	Matador	Sidewinder
Barrera	Festnova	Millennium SRP	Skyline
Barrington	Fidelity	Monet	Solara
Barrobusto	Finelawn Elite	Mustang 4	Southern Choice II
Barvado	Finelawn Xpress	Ninja 2	Speedway
Biltmore	Finesse II	Ol' Glory	Spyder LS
Bingo	Firebird	Olympic Gold	Sunset Gold
Bizem	Firecracker LS	Padre	Taccoa
Blackwatch	Firenza	Patagonia	Tanzania
Blade Runner II	Five Point	Pedigree	Trio
Bonsai	Focus	Picasso	Tahoe II
Braveheart	Forte	Piedmont	Talladega
Bravo	Garrison	Plantation	Tarheel
Bullseye	Gazelle II	Proseeds 5301	Terrano
Cannavaro	Gold Medallion	Prospect	Titan ltd
Catalyst	Grande 3	Pure Gold	Titanium LS
Cayenne	Greenbrooks	Quest	Tracer
Cessane Rz	Greenkeeper	Raptor II	Traverse SRP
Chipper	Gremlin	Rebel Exeda	Tulsa Time
Cochise IV	Greystone	Rebel Sentry	Turbo
Constitution	Guardian 21	Rebel IV	Turbo RZ
Corgi	Guardian 41	Regiment II	Tuxedo RZ
Corona	Hemi	Regenerate	Ultimate
Coyote	Honky Tonk	Rendition	Venture
Darlington	Hot Rod	Rhambler 2 SRP	Umbrella
Davinci	Hunter	Rembrandt	Van Gogh
Desire	Inferno	Reunion	Watchdog
Dominion	Innovator	Riverside	Wolfpack II
Dynamic	Integrity	RNP	Xtremegreen
Dynasty	Jaguar 3	Rocket	
Endeavor	Jamboree	Scorpion	

Approved Kentucky Bluegrass Cultivars:

4-Season	Blue Velvet	Gladstone	Quantum Leap
Alexa II	Blueberry	Granite	Rambo

America	Boomerang	Hampton	Rhapsody
Apollo	Brilliant	Harmonie	Rhythm
Arcadia	Cabernet	Impact	Rita
Aries	Champagne	Jefferson	Royce
Armada	Champlain	Juliet	Rubicon
Arrow	Chicago II	Jump Start	Rugby II
Arrowhead	Corsair	Keeneland	Shiraz
Aura	Courtyard	Langara	Showcase
Avid	Delight	Liberator	Skye
Award	Diva	Madison	Solar Eclipse
Awesome	Dynamo	Mercury	Sonoma
Bandera	Eagleton	Midnight	Sorbonne
Barduke	Emblem	Midnight II	Starburst
Barnique	Empire	Moon Shadow	Sudden Impact
Baroness	Envicta	Moonlight SLT	Total Eclipse
Barrister	Everest	Mystere	Touche
Barvette HGT	Everglade	Nu Destiny	Tsunami
Bedazzled	Excursion	NuChicago	Unique
Belissimo	Freedom II	NuGlade	Valor
Bewitched	Freedom III	Odyssey	Voyager II
Beyond	Front Page	Perfection	Washington
Blacksburg II	Futurity	Pinot	Zinfandel
Blackstone	Gaelic	Princeton 105	
Blue Note	Ginney II	Prosperity	

Approved Hard Fescue Cultivars:

Aurora II	Eureka II	Oxford	Scaldis II
Aurora Gold	Firefly	Reliant II	Spartan II
Berkshire	Granite	Reliant IV	Stonehenge
Bighorn GT	Heron	Rescue 911	
Chariot	Nordic	Rhino	

On cut and fill slopes 2:1 or steeper add 20# Sericea Lespedeza January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet, or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, and the rate of application may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MOWING:

The minimum mowing height on this project shall be six inches.

LAWN TYPE APPEARANCE:

All areas adjacent to lawns must be hand finished as directed to give a lawn type appearance. Remove all trash, debris, and stones $\frac{3}{4}$ " and larger in diameter or other obstructions that could interfere with providing a smooth lawn type appearance. These areas shall be reseeded to match their original vegetative conditions, unless directed otherwise by the Field Operations Engineer.

RESPONSE FOR EROSION CONTROL:**Description**

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the following work as shown herein, by an approved subcontractor.

Section	Erosion Control Item	Unit
1605	Temporary Silt Fence	LF
1606	Special Sediment Control Fence	LF/TON
1615	Temporary Mulching	ACR
1620	Seed - Temporary Seeding	LB

1620	Fertilizer - Temporary Seeding	TN
1631	Matting for Erosion Control	SY
SP	Coir Fiber Mat	SY
1640	Coir Fiber Baffles	LF
SP	Permanent Soil Reinforcement Mat	SY
1660	Seeding and Mulching	ACR
1661	Seed - Repair Seeding	LB
1661	Fertilizer - Repair Seeding	TON
1662	Seed - Supplemental Seeding	LB
1665	Fertilizer Topdressing	TON
SP	Safety/Highly Visible Fencing	LF
SP	Response for Erosion Control	EA

Construction Methods

Provide an approved subcontractor who performs an erosion control action as described in the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the above work items.

Measurement and Payment

Response for Erosion Control will be measured and paid for by counting the actual number of times the subcontractor moves onto the project, including borrow and waste sites, and satisfactorily completes an erosion control action described in Form 1675. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

Payment will be made under:

Pay Item

Response for Erosion Control

Pay Unit

Each

MINIMIZE REMOVAL OF VEGETATION:

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.

STOCKPILE AREAS:

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

ACCESS AND HAUL ROADS:

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

WASTE AND BORROW SOURCES:

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

WATTLE:**Description**

Wattles are tubular products consisting of excelsior fibers encased in synthetic netting. Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of wattles, matting installation, and removing wattles.

Materials

Wattle shall meet the following specifications:

100% Curled Wood (Excelsior) Fibers	
Minimum Diameter	12 in.
Minimum Density	2.5 lb/ft ³ +/- 10%
Net Material	Synthetic
Net Openings	1 in. x 1 in.
Net Configuration	Totally Encased
Minimum Weight	20 lb. +/- 10% per 10 ft. length

Anchors: Stakes shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

The Contractor shall maintain the wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

Wattle will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Wattle*.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Payment will be made under:

Pay Item

Wattle

Pay Unit

Linear Foot

COIR FIBER WATTLE BARRIER:

(5-20-13)

1630

Description

Coir fiber wattle barriers are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber or synthetic netting and used at the toe of fills or on slopes to intercept runoff. Coir fiber wattle barriers are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation, maintenance and removing coir fiber wattle barriers.

Materials

Coir fiber wattle shall meet the following specifications:

Inner Material	100% Coir (Coconut) Fibers
Minimum Diameter	18"
Minimum Length	10 ft.
Minimum Density	5 lb./c.f. \pm 10%
Net Material	Coir (Coconut) or Synthetic
Net Openings	2" x 2"
Net Strength	90 lb.
Minimum Weight	10 lb./ft. \pm 10%

Stakes shall be used as anchors. Provide hardwood stakes a minimum of 2-ft long with a 2" x 2" nominal square cross section. One end of the stake shall be sharpened or beveled to facilitate driving down into the underlying soil.

Provide staples made of 0.125" diameter new steel wire formed into a U-shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Align coir fiber wattle barriers in an overlapping and alternating pattern. Excavate a trench the entire length of each wattle with a depth of 2" to 3" for the wattle to be placed. Secure coir fiber wattle barriers to the soil by wire staples approximately every linear foot and at the end of each wattle. Install at least 4 stakes on the downslope side of the wattle with a maximum spacing of 2 linear feet and according to the detail. Install at least 2 stakes on the upslope side of the coir fiber wattle barriers according to the detail provided in the plans. Drive stakes into the ground at least 10" with no more than 2" projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

For coir fiber wattle barriers used to reduce runoff velocity for large slopes, use a maximum spacing of 25 ft. for the barrier measured along the slope.

Maintain the coir fiber wattle barriers until the project is accepted or until the coir fiber wattle barriers are removed, and remove and dispose of silt accumulations at the coir fiber wattle barriers when so directed in accordance with Section 1630 of the *2012 Standard Specifications*.

Measurement and Payment

Coir Fiber Wattle Barrier will be measured and paid as the actual number of linear feet of coir fiber wattle barrier installed and accepted. Such price and payment will be full compensation for all work covered by this provision, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the coir fiber wattle barrier.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Wattle Barrier	Linear Foot

FLOATING TURBIDITY CURTAIN:

Description

This work consists of furnishing a *Floating Turbidity Curtain* to deter silt suspension and movement of silt particles during construction. The floating turbidity curtain shall be constructed at locations as directed.

Materials

The curtain material shall be made of a tightly woven nylon, plastic or other non-deteriorating material meeting the following specifications:

Property	Value
Grab tensile strength	*md-370 lbs *cd-250 lbs

Mullen burst strength	480 psi
Trapezoid tear strength	*md-100 lbs *cd-60 lbs
Apparent opening size	70 US standard sieve
Percent open area	4% permittivity 0.28 sec-1

*md - machine direction
 *cd - cross machine direction

In the event that more than one width of fabric is required, a 6" overlap of the material shall also be required.

The curtain material shall be supported by a flotation material having over 29 lbs/ft buoyancy. The floating curtain shall have a 5/16" galvanized chain as ballast and dual 5/16" galvanized wire ropes with a heavy vinyl coating as load lines.

Construction Methods

The Contractor shall maintain the *Floating Turbidity Curtain* in a satisfactory condition until its removal is requested by the Engineer. The curtain shall extend to the bottom of the jurisdictional resource. Anchor the curtain according to manufacturer recommendations.

Measurement and Payment

Floating Turbidity Curtain will be measured and paid for as the actual number of square yards of curtain furnished as specified and accepted. Such price and payment will be full compensation for the work as described in this section including but not limited to furnishing all materials, tools, equipment, and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Floating Turbidity Curtain	Square Yard

CONCRETE WASHOUT STRUCTURE:

(12-01-15)

Description

Concrete washout structures are enclosures above or below grade to contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment. Concrete washouts must collect and retain all the concrete washout water and solids, so that this material does not migrate to surface waters or into the ground water. These enclosures are not intended for concrete waste not associated with wash out operations.

The concrete washout structure may include constructed devices above or below ground and or commercially available devices designed specifically to capture concrete waste water.

Materials

Item	Section
Temporary Silt Fence	1605

Safety Fence shall meet the specifications as provided elsewhere in this contract.

Geomembrane basin liner shall meet the following minimum physical properties for low permeability; it shall consist of a polypropylene or polyethylene 10 mil thick geomembrane. If the minimum setback dimensions can be achieved the liner is not required. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

Construction Methods

Build an enclosed earthen berm or excavate to form an enclosure in accordance with the details and as directed.

Install temporary silt fence around the perimeter of the enclosure in accordance with the details and as directed if structure is not located in an area where existing erosion and sedimentation control devices are capable to containing any loss of sediment.

Post a sign with the words "Concrete Washout" in close proximity of the concrete washout area, so it is clearly visible to site personnel.

The construction details for the above grade and below grade concrete washout structures can be found on the following web page link:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/soil_water/details/

[Alternate details for accommodating concrete washout may be submitted for review and approval.](#)

[The alternate details shall include the method used to retain and dispose of the concrete waste water within the project limits and in accordance with the minimum setback requirements.](#) (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

Maintenance and Removal

Maintain the concrete washout structure(s) to provide adequate holding capacity plus a minimum freeboard of 12 inches. Remove and dispose of hardened concrete and return the structure to a functional condition after reaching 75% capacity.

Inspect concrete washout structures for damage and maintain for effectiveness.

Remove the concrete washout structures and sign upon project completion. Grade the earth material to match the existing contours and permanently seed and mulch area.

Measurement and Payment

Concrete Washout Structure will be paid for per each enclosure installed in accordance with the details. If alternate details are approved then those details will also be paid for per each approved and installed device.

Temporary Silt Fence will be measured and paid for in accordance with Article 1605-5 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
Concrete Washout Structure	Each

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

Action Id. SAW-2017-00500 County: Rowan County U.S.G.S. Quad: Salisbury

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: Amy Euliss
NC DOT Div 9
Address: 375 Silas Creek Parkway
Winston-Salem, NC 27127
Telephone Number: 336-747-7802

Size (acres)		Nearest Town	<u>Salisbury</u>
Nearest Waterway	<u>Town Creek</u>	River Basin	<u>Upper Pee Dee</u>
USGS HUC	<u>03040103</u>	Coordinates	Latitude: <u>35.6528</u> Longitude: <u>-80.4633</u>

Location description: The project site is the proposed Innes Street/Market Drive extension, located in the town of Salisbury, Rowan County, North Carolina. Aquatic features on site drain to Town Creek, in the Yadkin River basin.

Description of projects area and activity: This permit verification allows for 0.06 acre of permanent wetland impacts, 0.05 acre of temporary wetland impacts, and 0.01 acre of permanent open water impacts from fill associated with the construction of the above referenced roadway extension. No mitigation is required for this proposal.

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

Authorization: Regional General Permit Number or Nationwide Permit Number: NWP 14 Linear Transportation Projects.

SEE ATTACHED RGP or NWP GENERAL, REGIONAL AND SPECIAL CONDITIONS

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application and attached information dated 10/24/2017. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

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

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

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management in Elizabeth City, NC, at (252) 264-3901.

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 James Lastinger at (919) 554-4884 or James.C.Lastinger@usace.army.mil.

Corps Regulatory Official: C.1363642400 LASTINGER.JAMES. Digitally signed by LASTINGER.JAMES.C.1363642400 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=LASTINGER.JAMES.C.1363642400 Date: 2017.11.13 11:22:30 -0500 Date: November 13, 2017
Expiration Date of Verification: 03/18/2022

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Action ID Number: SAW-2017-00500 County: Rowan County

Permittee: Amy Euliss, NC DOT Div 9

Project Name: NCDOT/U-5820 A/Innes St./division 9

Date Verification Issued: November 13, 2017

Project Manager: James Lastinger

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

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Raleigh Regulatory Field Office
Attn: James Lastinger, Regulatory PM
3331 Heritage Trade Dr., suite 105
Wake Forest, NC 27587

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

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

Signature of Permittee

Date

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: NC DOT Div 9 Amy Euliss	File Number: SAW-2017-00500	Date: <u>November 13, 2017</u>
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Attached is:	See Section below
<input type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/> PERMIT DENIAL	C
<input type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Raleigh Regulatory Field Office
Attn: James Lastinger, Regulatory PM
3331 Heritage Trade Dr., suite 105
Wake Forest, NC 27587
919-554-4884 ext 32**

If you only have questions regarding the appeal process you may also contact:

Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

<hr/> Signature of appellant or agent.	Date:	Telephone number:
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For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn: James Lastinger, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal
Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

NATIONWIDE PERMIT 14
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 19, 2017

Linear Transportation Projects. Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended

to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

NATIONWIDE PERMIT GENERAL CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.
(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
(c) The permittee understands and agrees that, if future operations by the United States 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 of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. 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, storm water management activities, and temporary and permanent road crossings, 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).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River 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 River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River 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, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) 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, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species. (a) No activity is authorized under any NWP 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 any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that

might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP 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 FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States 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.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory

birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) 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, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity 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 properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. 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 in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant 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 would 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 applicant. 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 applicant, 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.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-

lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill

material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:
“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To

validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a “USACE project”), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the

prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters.

Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River 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, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and

supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

DISTRICT ENGINEER'S DECISION

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal

individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2-acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and

include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

FURTHER INFORMATION

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

DEFINITIONS

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National

Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the acres or linear feet of stream bed that are filled or excavated as a result of the regulated activity. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the

primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Protected tribal resources: Those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by, or reserved by or for, Indian tribes through treaties, statutes, judicial decisions, or executive orders, including tribal trust resources.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine- marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. 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 crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water

surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

FINAL REGIONAL CONDITIONS 2017

NOTICE ABOUT WEB LINKS IN THIS DOCUMENT:

The web links (both internal to our Wilmington District and any external links to collaborating agencies) in this document are valid at the time of publication. However, the Wilmington District Regulatory Program web page addresses, as with other agency web sites, may change over the timeframe of the five-year Nationwide Permit renewal cycle, in response to policy mandates or technology advances. While we will make every effort to check on the integrity of our web links and provide re-direct pages whenever possible, we ask that you report any broken links to us so we can keep the page information current and usable. We apologize in advanced for any broken links that you may encounter, and we ask that you navigate from the Regulatory home page (Regulatory Permit Program Wetlands and Streams) of the Wilmington District Corps of Engineers, to the “Permits” section of our web site to find links for pages that cannot be found by clicking directly on the listed web link in this document.

Final 2017 Regional Conditions for Nationwide Permits (NWP) in the Wilmington District

1.0 Excluded Waters

The Corps has identified waters that will be excluded from the use of all NWP’s during certain timeframes. These waters are:

1.1 Anadromous Fish Spawning Areas

Waters of the United States identified by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are excluded during the period between February 15 and June 30, without prior written approval from the Corps and either NCDMF or NCWRC.

1.2 Trout Waters Moratorium

Waters of the United States in the designated trout watersheds of North Carolina are excluded during the period between October 15 and April 15 without prior written approval from the NCWRC, or from the Eastern Band of Cherokee Indians (EBCI) Fisheries and Wildlife Management (FWM) office if the project is located on EBCI trust land. (See Section 2.7 for information on the designated trout watersheds).

1.3 Sturgeon Spawning Areas as Designated by the National Marine Fisheries Service (NMFS)

Waters of the United States designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from the NMFS.

2.0 Waters Requiring Additional Notification

The Corps has identified waters that will be subject to additional notification requirements for activities authorized by all NWPs. These waters are:

2.1 Western NC Counties that Drain to Designated Critical Habitat

For proposed activities within waters of the United States that require a Pre-Construction Notification (PCN) and are located in the sixteen counties listed below, permittees must provide a copy of the PCN to the U.S. Fish and Wildlife Service (USFWS), 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the U.S. Fish and Wildlife Service and the Corps Asheville Regulatory Field Office. Please see General Condition 18 for specific notification requirements related to the Endangered Species Act and the below website for information on the location of designated critical habitat.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville U.S. Fish and Wildlife Service: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon, Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Website and office addresses for Endangered Species Act Information:

The Wilmington District has developed the following website for permittees which provides guidelines on how to review linked websites and maps in order to fulfill NWP General Condition 18 requirements:

<http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/AgencyCoordination/ESA.asp>

Permittees who do not have internet access may contact the appropriate U.S. Fish and Wildlife Service offices listed below or Corps at (910) 251-4633:

Asheville U.S. Fish and Wildlife Service Office counties: All counties west of and including Anson, Stanly, Davidson, Forsythe and Stokes Counties.

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

Raleigh U.S. Fish and Wildlife Service Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726

Raleigh, NC 27636-3726
Telephone: (919) 856-4520

2.2 Special Designation Waters

Prior to the use of any NWP, except NWP 3, that involves a discharge of dredged or fill material in any of the following identified waters and/or adjacent wetlands in North Carolina, permittees shall submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32). The North Carolina waters and wetlands that require additional notification requirements are:

“Outstanding Resource Waters” (ORW) or “High Quality Waters” (HQW) as designated by the North Carolina Environmental Management Commission; “Primary Nursery Areas” (PNA), including inland PNA, as designated by the North Carolina Marine Fisheries Commission and the NCWRC; or wetlands adjacent to these waters. Definitions of ORW, HQW and PNA waters can be found in the North Carolina State Administrative Code, Title 15A, Subchapters 2B and 10C (15A NCAC 02B, 15A NCAC 10C) and at the following World Wide Web page: <http://reports.oah.state.nc.us/ncac.asp?folderName=\Title%2015A%20-%20Environmental%20Quality&lookupError=15A%20NCAC%20000%20>. Surface water classifications for waters in North Carolina can be viewed at the North Carolina Division of Water Resources website or at the following World Wide Web Page: <https://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/classifications>

Permittees who do not have internet access may contact the Corps at (910) 251- 4633.

2.3 Coastal Area Management Act (CAMA) Areas of Environmental Concern

Non-federal permittees for any NWP in a designated “Area of Environmental Concern” (AEC) in the twenty (20) counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA) must also obtain the required CAMA permit. Development activities for non-federal projects may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403, (910) 251-4802 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889, (910) 251-4610).

2.4 Barrier Islands

Prior to the use of any NWP on a barrier island of North Carolina, permittees must submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32).

2.5 Mountain or Piedmont Bogs

Prior to the use of any NWP in a Bog, as classified by the North Carolina Wetland Assessment Methodology (NCWAM), permittees shall submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32). The latest version of NCWAM can be

viewed on the Corps RIBITS (Regulatory In-lieu Fee and Bank Information Tracking System) website or at the following World Wide Web Page:
https://ribits.usace.army.mil/ribits_apex/f?p=107:27:0::NO::

2.6 Animal Waste Facilities

Prior to use of any NWP for construction of animal waste facilities in waters of the United States, including wetlands, permittees shall submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32).

2.7 Trout Waters

Prior to any discharge of dredge or fill material into streams, waterbodies or wetlands within the 294 designated trout watersheds of North Carolina, the permittee shall submit a PCN (see General Condition 32) to the District Engineer prior to commencing the activity, unless other thresholds are established in the Regional Conditions in Section 4 (Additional Regional Conditions for Specific Nationwide Permits). The permittee shall also provide a copy of the notification to the appropriate NCWRC office, or to the EBCI FWM Office (if the project is located on EBCI trust land), to facilitate the determination of any potential impacts to designated Trout Waters.

Notification to the Corps will include a statement with the name of the NCWRC or EBCI FWM biologist contacted, the date of the notification, the location of work, a delineation of wetlands and waters, a discussion of alternatives to working in the mountain trout waters, why alternatives were not selected, and, if applicable, a plan to provide compensatory mitigation for all unavoidable adverse impacts to mountain trout waters.

NCWRC and NC Trout Watersheds:

NCWRC Contact**	Counties that are entirely within Trout Watersheds*	Counties that are partially within Trout Watersheds*
Mountain Coordinator Balsam Depot 20830 Great Smoky Mountain Expressway Waynesville, NC 28786 Telephone: (828) 558-6011 For NCDOT Projects: NCDOT Coordinator 206 Charter. Street Albemarle, NC 28001 Telephone: (704) 982-9181	Alleghany Jackson Ashe Macon Avery Swain Graham Transylvania Haywood Watauga	Burke McDowell Buncombe Mitchell Caldwell Polk Cherokee Rutherford Clay Surry Henderson Wilkes Madison Yancey

*NOTE: To determine notification requirements, contact the Corps Asheville Regulatory Field Office at (828) 271-7980 or view maps for each County at the following World Wide Web page: <http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout/>.

**If a project is located on EBCI trust land, submit the PCN in accordance with Section 3.14. Contact the Corps Asheville Regulatory Field Office at (828) 271-7980 with questions.

2.8 Western NC Waters and Corridors

The permittee shall submit a PCN (see General Condition 32) to the District Engineer prior to commencing the activity in waters of the United States if the activity will occur within any of the following identified waters in western North Carolina, within 0.5 mile on either side of these waters, or within 0.75 mile of the Little Tennessee River, as measured from the top of the bank of the respective water (i.e., river, stream, or creek):

Brasstown Creek
Burningtown Creek
Cane River
Caney Fork
Cartoogechaye Creek
Chattooga River
Cheoah River
Cowee Creek
Cullasaja River
Deep Creek
Ellijay Creek
French Broad River
Garden Creek
Hiwassee River
Hominy Creek
Iotla Creek
Little Tennessee River (within the river or within 0.75 mile on either side of this river)
Nantahala River
Nolichucky River
North Fork French Broad River
North Toe River
Nottley River
Oconaluftee River (portion not located on trust/EBCI land)
Peachtree Creek
Shooting Creek
Snowbird Creek
South Toe River
Stecoah Creek
Swannanoa River
Sweetwater Creek

Tuckasegee River (also spelled Tuckaseegee or Tuckaseigee)
Valley River
Watauga Creek
Watauga River
Wayah Creek
West Fork French Broad River

To determine notification requirements, contact the Corps Asheville Regulatory Field Office at (828) 271-7980 or view maps for all corridors at the following World Wide Web page:
<http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Designated-Special-Waters.aspx>

3.0 List of Corps Regional Conditions for All Nationwide Permits

The following conditions apply to all Nationwide Permits in the Wilmington District:

3.1 Limitation of Loss of Stream Bed

NWPs may not be used for activities that may result in the loss or degradation of more than 300 total linear feet of stream bed, unless the District Engineer has waived the 300 linear foot limit for ephemeral and intermittent streams on a case-by-case basis and has determined that the proposed activity will result in minimal individual and cumulative adverse impacts to the aquatic environment. Waivers for the loss of ephemeral and intermittent streams must be in writing and documented by appropriate/accepted stream quality assessments*. This waiver only applies to the 300 linear feet threshold for NWPs.

This Regional Condition does not apply to NWP 23 (Approved Categorical Exclusions).

*NOTE: Permittees should utilize the most current methodology prescribed by Wilmington District to assess stream function and quality. Information can be found at:
https://ribits.usace.army.mil/ribits_apex/f?p=107:27:0::NO::

3.2 Mitigation for Loss of Stream Bed

For any NWP that results in a loss of more than 150 linear feet of stream, the permittee shall provide a mitigation proposal to compensate for more than minimal individual and cumulative adverse impacts to the aquatic environment. For stream losses of 150 linear feet or less that require a PCN, the District Engineer may determine, on a case-by-case basis, that compensatory mitigation is required to ensure that the activity results in minimal adverse effect on the aquatic environment.

3.3 Pre-construction Notification for Loss of Streambed Exceeding 150 Feet

Prior to use of any NWP for any activity which impacts more than 150 total linear feet of perennial stream, intermittent or ephemeral stream, the permittee shall submit a PCN to the District Engineer prior to commencing the activity (see General Condition 32). This applies to

NWPs that do not have specific notification requirements. If a NWP has specific notification requirements, the requirements of the NWP should be followed.

3.4 Restriction on Use of Live Concrete

For all NWPs which allow the use of concrete as a building material, live or fresh concrete, including bags of uncured concrete, may not come into contact with the water in or entering into waters of the United States. Water inside coffer dams or casings that has been in contact with wet concrete shall only be returned to waters of the United States after the concrete is set and cured and when it no longer poses a threat to aquatic organisms.

3.5 Requirements for Using Riprap for Bank Stabilization

For all NWPs that allow for the use of riprap material for bank stabilization, the following measures shall be applied:

3.5.1. Where bank stabilization is conducted as part of an activity, natural design, bioengineering and/or geoenvironmental methods that incorporate natural durable materials, native seed mixes, and native plants and shrubs are to be utilized to the maximum extent practicable.

3.5.2. Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters. The placement of filter fabric is not required if the riprap will be pushed or “keyed” into the bank of the waterbody. A waiver from the specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional Condition would result in greater adverse impacts to the aquatic environment.

3.5.3. The placement of riprap shall be limited to the areas depicted on submitted work plan drawings.

3.5.4. The riprap material shall be clean and free from loose dirt or any pollutant except in trace quantities that would not have an adverse environmental effect.

3.5.5. It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

3.5.6. The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

3.6 Requirements for Culvert Placement

3.6.1 For all NWPs that involve the construction/installation of culverts, measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by altering the width or depth of the stream profile in connection with the construction activity. The width, height, and gradient of a proposed culvert should be

sufficient to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow is the seasonal sustained high flow that typically occurs in the spring. Spring flows should be determined from gage data, if available. In the absence of such data, bank-full flow can be used as a comparable indicator.

In Public Trust Areas of Environmental Concern (AEC) and/or the Estuarine Waters AEC as designated by the Coastal Area Management Act (CAMA): All pipes/culverts must be sufficiently sized to allow for the burial of the bottom of the culvert at least one foot below normal bed elevation.



In all other areas: Culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried to maintain aquatic passage and to maintain passage during drought or low flow conditions, and every effort shall be made to maintain the existing channel slope.

Culverts must be designed and constructed in a manner that minimizes destabilization and head cutting. Destabilizing the channel and head cutting upstream should be considered and appropriate actions incorporated in the design and placement of the culvert.

A waiver from the depth specifications in this condition may be requested, in writing, by the permittee and issued by the Corp; this request must be specific as to the reason(s) for the request. The waiver will be issued if it can be demonstrated that the proposed design would result in less impacts to the aquatic environment.

All counties: Culverts 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 United States.

Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried, but the culverts must be of adequate size and/or number to ensure unrestricted transmission of water.

3.6.2 Bank-full flows (or less) shall be accommodated through maintenance of the existing bank-full channel cross sectional area. Additional culverts or culvert barrels at such crossings shall be allowed only to receive bank-full flows.



3.6.3 Where adjacent floodplain is available, flows exceeding bank-full should be accommodated by installing culverts at the floodplain elevation. Additional culverts or culvert barrels at such crossings should not be buried, or if buried, must have sills at the inlets to ensure that they only receive flows exceeding bank-full.

3.6.4 Excavation of existing stream channels shall be limited to the minimum necessary to construct or install the proposed culvert. The final width of the impacted stream at the culvert inlet and outlet should be no greater than the original stream width. 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 the proposed design would result in less impacts to the aquatic environment and/or if it can be demonstrated that it is not practicable to restore the final width of the impacted stream at the culvert inlet and outlet to the width of the original stream channel.

3.6.5 The width of the culvert shall be comparable to the width of the stream channel. If the width of the culvert is wider than the stream channel, the culvert 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 and the design would result in less impacts to the aquatic environment.

3.7 Notification to NCDEQ Shellfish Sanitation Section

Permittees shall notify the NCDEQ Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination from the disposal area and cause a temporary shellfish closure to be made. Such notification shall also be provided to the appropriate Corps Regulatory Field Office. Any disposal of sand to the ocean beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand

should be used and no dredged sand from closed shell fishing areas may be used. If beach disposal were to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a swimming advisory shall be posted, and a press release shall be issued by the permittee.

3.8 Submerged Aquatic Vegetation

Impacts to Submerged Aquatic Vegetation (SAV) are not authorized by any NWP, except NWP 48, unless EFH Consultation has been completed pursuant to the Magnuson-Stevens Fisheries Conservation and Management Act (Magnuson-Stevens Act). Permittees shall submit a PCN (See NWP General Condition 32) to the District Engineer prior to commencing the activity if the project would affect SAV. The permittee may not begin work until notified by the Corps that the requirements of the Magnuson-Stevens Act have been satisfied and that the activity is authorized.

3.9 Sedimentation and Erosion Control Structures and Measures

All PCNs will identify and describe sedimentation and erosion control structures and measures proposed for placement in waters of the United States. The structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams.

3.10 Restoration of Temporary Impacts to Stream Beds

Upon completion of work that involves temporary stream impacts, streambeds are to be restored to pre-project elevations and widths using natural streambed material such that the impacted stream reach mimics the adjacent upstream and downstream reach. The impacted area shall be backfilled with natural streambed material to a depth of at least 12 inches or to the bottom depth of the impacted area if shallower than 12 inches. An engineered in-stream structure or material can be used to provide protection of a buried structure if it provides benefits to the aquatic environment and can be accomplished by a natural streambed design. A permittee may request a waiver of this condition if it is determined a buried structure needs significant physical protection beyond those provided in this condition. This condition does not apply to NWP 27 – Aquatic Habitat Restoration, Enhancement, and Establishment Activities.

3.11 Restoration of Temporary Impacts to Stream Banks

Upon completion of work involving temporary stream bank impacts, stream banks are to be restored to pre-project grade and contours or beneficial grade and contours if the original bank slope is steep and unstable. Natural durable materials, native seed mixes, and native plants and shrubs are to be utilized in the restoration. Natural designs which use bioengineered and/or geo-engineered methods are to be applied. An engineered structure or material can be used to provide protection of a buried structure if it provides benefits to the stream bank environment, provided it is not in excess of the minimum amount needed for protection and does not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark. A permittee may request a waiver of this condition if it is determined a buried structure

needs significant physical protection beyond those provided in this condition. This condition does not apply to NWP 27 – Aquatic Habitat Restoration, Enhancement, and Establishment Activities.

3.12 Federal Navigation Channel Setbacks and Corps Easements

3.12.1 Authorized structures and fills located in or adjacent to Federally authorized waterways will be constructed in accordance with the latest setback criteria established by the Wilmington District Engineer. You may review the setback policy at <http://www.saw.usace.army.mil/Missions/Navigation/Setbacks.aspx>. This general permit does not authorize the construction of hardened or permanently fixed structures within the Federally Authorized Channel Setback, unless the activity is approved by the Corps. The permittee shall submit a PCN (see General Condition 32) to the District Engineer prior to the construction of any structures or fills within the Federally Authorized Channel Setback.

3.12.2 The permittee shall obtain a Consent to Cross Government Easement from the Wilmington District’s Land Use Coordinator prior to any crossing of the 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. The Land Use Coordinator may be contacted at: CESAW-OP-N, 69 Darlington Avenue, Wilmington, North Carolina 28403-1343, email: SAWWeb-NAV@usace.army.mil

3.13 Northern Long-eared Bat – Endangered Species Act Compliance

The Wilmington District, U.S. Army Corps of Engineers has consulted with the United States Fish and Wildlife Service (USFWS) in regards to the threatened Northern long-eared bat (NLEB) (*Myotis septentrionalis*) and Standard Local Operating Procedures for Endangered Species (SLOPES) have been approved by the Corps and the USFWS. This condition concerns effects to the NLEB only and does not address effects to other federally listed species and/or federally designated critical habitat.

A. Procedures when the Corps is the lead federal* agency for a project:

The permittee must comply with (1) and (2) below when:

- the project is located in the western 41 counties of North Carolina, to include non-federal aid North Carolina Department of Transportation (NCDOT) projects, OR;
- the project is located in the 59 eastern counties of North Carolina, and is a non-NCDOT project.

*Generally, if a project is located on private property or on non-federal land, and the project is not being funded by a federal entity, the Corps will be the lead federal agency due to the requirement to obtain Department of the Army authorization to impact waters of the United States. If the project is located on federal land, contact the Corps to determine the lead federal agency.

(1) A permittee using a NWP must check to see if their project is located in the range of the NLEB by using the following website:

<http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>. If the project is within the range of the NLEB, or if the project includes percussive activities (e.g., blasting, pile driving, etc.), the permittee is then required to check the appropriate website in the paragraph below to discover if their project:

- is located in a 12-digit Hydrologic Unit Code area (“red HUC” - shown as red areas on the map), AND/OR;
- involves percussive activities within 0.25 mile of a red HUC.

Red HUC maps - for the western 41 counties in NC (covered by the Asheville Ecological Services Field Office), check the project location against the electronic maps found at: http://www.fws.gov/asheville/htmls/project_review/NLEB_in_WNC.html. For the eastern 59 counties in NC (covered by the Raleigh Ecological Services Field Office), check the project location against the electronic maps found at:

https://www.fws.gov/raleigh/NLEB_RFO.html.

(2) A permittee must submit a PCN to the District Engineer, and receive written authorization from the District Engineer, prior to commencing the activity, if the activity will involve any of the following:

- tree clearing/removal, construction/installation of wind turbines in a red HUC, AND/OR;
- bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, (applies anywhere in the range of the NLEB), AND/OR;
- percussive activities in a red HUC, or within 0.25 mile of a red HUC.

The permittee may proceed with the activity without submitting a PCN to either the Corps or the USFWS, provided the activity complies with all applicable NWP terms and general and regional conditions, if the permittee’s review under A.(1) and A.(2) above shows that the project is:

- located outside of a red HUC (and there are no percussive activities), and the activity will NOT include bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, OR;
- located outside of a red HUC and there are percussive activities, but the percussive activities will not occur within 0.25-mile of a red HUC boundary, and the activity will NOT include bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, OR;

- located in a red HUC, but the activity will NOT include: tree clearing/removal; construction/installation of wind turbines; bridge removal or maintenance, unless the bridge has been inspected and there is no evidence of bat use, and/or; any percussive activities.

B. Procedures when the USACE is not the lead federal agency:

For projects where another federal agency is the lead federal agency - if that other federal agency has completed project-specific ESA Section 7(a)(2) consultation for the NLEB, and has (1) determined that the project would not cause prohibited incidental take of the NLEB, and (2) completed coordination/consultation that is required by the USFWS (per the directions on the respective USFWS office's website), that project may proceed without notification to either the USACE or the USFWS, provided all General and Regional Permit Conditions are met.

The NLEB SLOPES can be viewed on the USACE website at the following World Wide Web Page: <http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/ESA/>. Permittees who do not have internet access may contact the USACE at (910) 251- 4633.

3.14 Work on Eastern Band of Cherokee Indians Land

All PCNs submitted for activities in waters of the United States on Eastern Band of Cherokee Indians (EBCI) trust land (i.e., Qualla Boundary and non-contiguous tracts of trust land), must comply with the requirements of the latest MOU between the Wilmington District and the Eastern Band of Cherokee Indians.

4.0 Additional Regional Conditions for Specific Nationwide Permits

4.1 NWP #14 - Linear Transportation Projects

4.1.1 If appropriate, permittees shall employ natural channel design (see definition below and NOTE below) to the maximum extent practicable for stream relocations. All stream relocation proposals shall include a Relocation and Monitoring Plan and a functional assessment of baseline conditions (e.g., use of the North Carolina Stream Assessment Methodology). Compensatory mitigation may be required for stream relocations.

Natural Channel Design means a geomorphologic approach to stream restoration based on an understanding of valley type, general watershed conditions, dimension, pattern, profile, hydrology and sediment transport of natural, stable channels (reference condition) and applying this understanding to the reconstruction of a stable channel.

NOTE: For more information on Natural Channel Design, permittees should reference North Carolina Stream Mitigation Guidance on the Corps RIBITS (Regulatory In-lieu Fee and Bank Information Tracking System) website or at the following World Wide Web Page: https://ribits.usace.army.mil/ribits_apex/f?p=107:27:16705499703550::NO:RP:P27_BUTTON_KEY:0.

4.1.2 This NWP authorizes only upland to upland crossings and cannot be used in combination with Nationwide Permit 18 to create an upland within waters of the United States, including wetlands.

4.1.3 This NWP cannot be used for private projects located in tidal waters or tidal wetlands.

4.1.4 In designated trout watersheds, a PCN is not required for impacts to a maximum of 60 linear feet (150 linear feet for temporary dewatering) or 1/10-acre of jurisdictional aquatic resources for proposed structures not adjoining, adjacent to, or connected to existing structures. In designated trout waters, the permittee shall submit a PCN (see Regional Conditions 2.7 and General Condition 32) to the District Engineer prior to commencing the activity if 1) impacts (other than temporary dewatering to work in dry conditions) to jurisdictional aquatic resources exceed 60 linear feet or 1/10-acre; 2) temporary impacts to streams or waterbodies associated with dewatering to work in dry conditions exceed 150 linear feet; 3) the project will involve impacts to wetlands; 4) the primary purpose of the project is for commercial development; 5) the project involves the replacement of a bridge or spanning structure with a culvert or non-spanning structure in waters of the United States; or 6) the activity will be constructed during the trout waters moratorium (October 15 through April 15).

4.1.5 The permittee shall submit a PCN to the District Engineer prior to commencing the activity if the activity will involve the discharge of dredged or fill material into more than 150 linear feet of stream channel for the construction of temporary access fills and/or temporary road crossings. The PCN must include a restoration plan that thoroughly describes how all temporary fills will be removed, describes how pre-project conditions will be restored, and includes a timetable for all restoration activities.



ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

LINDA CULPEPPER
Interim Director

November 15, 2017
Rowan County
NCDWR Project No. 20171354
Innes Street Market Drive Extension
TIP U-5820A

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Ms. Amy Euliss
Environmental Officer
NCDOT, Division 9
375 Silas Creek Parkway
Winston Salem, NC 27127

Dear Ms. Euliss:

You have our approval, in accordance with the conditions listed below, for the following impacts related to a new road to extend Innes Street Market Drive and make improvements to SR 1006 in Rowan County:

Wetland (Riverine) Impacts in the Yadkin Pee Dee River Basin

Site	Fill (ac)	Hand Clearing (temporary impacts) (ac)	Mechanized Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
1	0.04	0.01	<0.01	0.05	-
2	<0.01	0.03	0.01	0.04	-
3	<0.01	-	<0.01	0.01	-
Total	0.04	0.046	0.02	0.11	-

Total Wetland Impacts for this Section 0.11 acres.

Open Water Impacts in the Yadkin Pee Dee River Basin

Site	Temporary Fill in Open Waters (ac)	Permanent Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
3	-	0.01	0.01
Total	-	0.01	0.01

Total Open Water Impacts: 0.01 acres.

The project shall be constructed in accordance with your application dated October 24, 2017. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 4088. This certification corresponds to the Nationwide Permit 14 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.

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

Condition(s) of Certification:

General 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 downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact 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 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]
3. 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)]
4. 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)]
5. 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)]
6. 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)]
7. 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)]
8. 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)]

9. 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)]
10. 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)]
11. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
12. 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]
13. 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)]
14. 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)]
15. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing/flagging prior to any land disturbing activities. Impacts to areas within the marked areas are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
16. 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.
17. 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)]
18. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division 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)]
19. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02H.0506(b)(2)]
20. 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)]
21. 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.
22. 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)]

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:

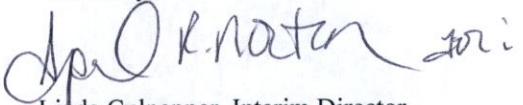
Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

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 Dave Wanucha at (336) 776- 9703 or Dave.Wanucha@ncdenr.gov.

Sincerely,



Linda Culpepper, Interim Director
Division of Water Resources

Electronic copy only distribution:

James Lastinger, US Army Corps of Engineers, Raleigh Field Office
Marella Buncick, US Fish and Wildlife Service
Marla Chambers, NC Wildlife Resources Commission
File Copy



ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

LINDA CULPEPPER
Interim Director

NCDWR Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

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

WATER QUALITY GENERAL CERTIFICATION NO. 4088

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR US ARMY CORPS OF ENGINEERS

- **NATIONWIDE PERMIT NUMBER 14 (LINEAR TRANSPORTATION PROJECTS), AND**
- **REGIONAL GENERAL PERMIT 198200031 (NCDOT BRIDGES, WIDENING PROJECTS, INTERCHANGE IMPROVEMENTS)**

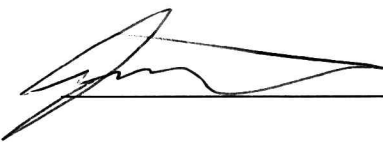
Water Quality Certification Number 4088 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to surface waters and wetland areas as described in 33 CFR 330 Appendix A (B) (14) of the US Army Corps of Engineers regulations and Regional General Permit 198200031.

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

Effective date: March 19, 2017

Signed this day March 3, 2017

By



for S. Jay Zimmerman, P.G.
Director

GC4088

Activities meeting any one (1) of the following thresholds or circumstances require written approval for a 401 Water Quality Certification from the Division of Water Resources (DWR):

- a) If any of the conditions of this Certification (listed below) cannot be met; or
- b) Any temporary or permanent impacts to wetlands, open waters and/or streams, except for construction of a driveway to a single family residential lot that are not determined to be part of a larger common plan of development as long as the driveway involves *less than 25 feet* of total stream impacts, including any in-stream stabilization needed for the crossing; or
- c) Any stream relocation or stream restoration; or
- d) Any high density project, as defined in 15A NCAC 02H .1003(2)(a) and by the density thresholds specified in 15A NCAC 02H .1017, which does not have a stormwater management plan reviewed and approved under a state stormwater program¹ or a state-approved local government stormwater program². Projects that have vested rights, exemptions, or grandfathering from state or locally-implemented stormwater programs and projects that satisfy state or locally-implemented stormwater programs through use of community in-lieu programs **require written approval**; or
- e) Any impacts to waters, or to wetlands adjacent to waters, designated as: ORW (including SAV), HQW (including PNA), SA, WS-I, WS-II, Trout, or North Carolina or National Wild and Scenic River; or
- f) Any impacts to coastal wetlands [15A NCAC 07H .0205], or Unique Wetlands (UWL); or
- g) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of NC Wetland Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), NC Surface Water or Wetland Standards (15A NCAC 02B .0200), or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200); or
- h) Any impacts to subject water bodies and/or state regulated riparian buffers along subject water bodies in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman Lake, Jordan Lake or Goose Creek Watersheds (or any other basin or watershed with State Regulated Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless*:
 - i) The activities are listed as “EXEMPT” from these rules; or
 - ii) A Buffer Authorization Certificate is issued by the NC Division of Coastal Management (DCM); or
 - iii) A Buffer Authorization Certificate or a Minor Variance is issued by a delegated or designated local government implementing a state riparian buffer program pursuant to 143-215.23

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval.

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

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

GC4088

I. ACTIVITY SPECIFIC CONDITIONS:

1. If this Water Quality Certification is used to access residential, commercial or industrial building sites, then all parcels owned by the applicant that are part of the single and complete project authorized by this Certification must be buildable without additional impacts to streams or wetlands. If required in writing by DWR, the applicant shall provide evidence that the parcels are buildable without requiring additional impacts to wetlands, waters, or state regulated riparian buffers. [15A NCAC 02H .0506(b)(4) and (c)(4)]
2. For road and driveway construction purposes, this Certification shall only be utilized from natural high ground to natural high ground. [15A NCAC 02H .0506(b)(2) and (c)(2)]
3. Deed notifications or similar mechanisms shall be placed on all lots with retained jurisdictional wetlands, waters, and state regulated riparian buffers within the project boundaries in order to assure compliance with NC Wetland Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), and/or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200). These mechanisms shall be put in place at the time of recording of the property or individual parcels, whichever is appropriate. [15A NCAC 02H .0506(b)(4) and (c)(4)]
4. For the North Carolina Department of Transportation, compliance with the NCDOT's individual NPDES permit NCS000250 shall serve to satisfy this condition. For all other projects that disturb one acre or more of land (including a project that disturbs less than one acre of land that is part of a larger common plan of development or sale); have permanent wetland, stream, or open water impacts; and are proposing new built-upon area shall comply with the following requirements: [15A NCAC 02H .0506(b)(5) and (c)(5)]
 - a. Stormwater management shall be provided throughout the entire project area in accordance with 15A NCAC 02H .1003. For the purposes of 15A NCAC 02H .1003(2)(a), density thresholds shall be determined in accordance with 15A NCAC 02H .1017.
 - b. Projects that have vested rights, exemptions, or grandfathering from state or locally-implemented stormwater programs do not satisfy this condition. Projects that satisfy state or locally-implemented stormwater programs through use of community in-lieu programs do not satisfy this condition.
 - c. Projects that require written authorization from DWR shall submit the following with their application for review and approval:
 - i. For projects that have a stormwater management plan (SMP) reviewed under a state stormwater program¹ or a state-approved local government stormwater program² shall submit plans that show the location and approximate size of all proposed stormwater measures;

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

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

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- ii. All other low density projects not covered above shall submit a completed low density supplement form with all required items; and
 - iii. All other high density projects not covered above shall submit a completed SMP, including all appropriate stormwater control measure (SCM) supplemental forms and associated items, that complies with the high density development requirements of 15A NCAC 02H .1003.
- d. Projects that do not require written approval from DWR shall obtain approval of the SMP, when required, before any impacts authorized by this Certification occur.
- e. SMPs approved by DWR may be phased on a case-by-case basis. SMPs for each future phase must be approved before construction of that phase commences. Approved SMPs may not be modified without prior written authorization from DWR.

II. GENERAL CONDITIONS:

1. When written authorization is required, the plans and specifications for the project are incorporated into the authorization by reference and are an enforceable part of the Certification. Any modifications to the project require notification to DWR and may require an application submittal to DWR with the appropriate fee. [15A NCAC 02H .0501 and .0502]
2. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the impacts (including temporary impacts) as authorized in the written approval from DWR; or beyond the thresholds established for use of this Certification without written authorization. [15A NCAC 02H .0501 and .0502]

No removal of vegetation or other impacts of any kind shall occur to state regulated riparian buffers beyond the footprint of impacts approved in a Buffer Authorization or Variance or as listed as an exempt activity in the applicable riparian buffer rules. [15A NCAC 02B .0200]

3. In accordance with 15A NCAC 02H .0506(h), compensatory mitigation may be required for losses of greater than 150 linear feet of streams and/or greater than one (1) acre of wetlands. Impacts to isolated and other non-404 jurisdictional wetlands shall not be combined with 404 jurisdictional wetlands for the purpose of determining when impact thresholds trigger a mitigation requirement. For linear publicly owned and maintained transportation projects that are not determined to be part of a larger common plan of development by the US Army Corps of Engineers, compensatory mitigation may be required for losses of greater than 150 linear feet per stream.

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

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4. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2 of Title 15A.
5. 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]

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 *NC DOT Sediment and Erosion Control Manual*.

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

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

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

6. Sediment and erosion control measures shall not be placed in wetlands or waters except within the footprint of temporary or permanent impacts authorized under this Certification. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0501 and .0502]
7. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02B .0201]

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8. An NPDES Construction Stormwater Permit (NCG010000) is required for construction projects that disturb one (1) or more acres of land. The NCG010000 Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If the project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. [15A NCAC 02H .0506(b)(5) and (c)(5)]

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit. [15A NCAC 02H .0506(b)(5) and (c)(5)]

9. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the *NC Sediment and Erosion Control Manual*, or the *NC DOT Construction and Maintenance Activities Manual*, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(3) and (c)(3)]
10. If activities must occur during periods of high biological activity (e.g. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities. [15A NCAC 02H .0506 (b)(2) and 15A NCAC 04B .0125]

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

Work within a designated trout watershed of North Carolina (as identified by the Wilmington District of the US Army Corps of Engineers), or identified state or federal endangered or threatened species habitat, shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

11. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. [15A NCAC 02H .0506(b)(2) and (c)(2)]

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Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

If multiple pipes or barrels are required, they shall be designed to mimic the existing stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel shall be avoided.

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross vanes, etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 60 calendar days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as, a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 60 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application to and written approval from DWR.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

12. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(5)]

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13. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters. [15A NCAC 02B .0200 and 15A NCAC 02B .0231]
14. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. [15A NCAC 02B .0200]
15. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, planform pattern, and longitudinal bed profile. For projects that receive written approval, no temporary impacts are allowed beyond those included in the application and authorization. All temporarily impacted sites shall be restored and stabilized with native vegetation. [15A NCAC 02H .0506(b)(2) and (c)(2)]
16. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams shall be installed as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* or the *North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities* so as not to restrict stream flow or cause dis-equilibrium during use of this Certification. [15A NCAC 02H .0506(b)(2) and (c)(2)]
17. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or in a manner that precludes aquatic life passage. [15A NCAC 02H .0506(b)(2)]
18. Any rip-rap used for stream or shoreline stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures. [15A NCAC 02H .0506(b)(2)]
19. Applications for rip-rap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Rip-rap Groins in Estuarine and Public Trust Waters) shall meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.

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20. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication and general equipment maintenance shall not take place within 50 feet of a waterbody or wetlands to prevent contamination by fuels and oils. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0211 (12)]
21. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance. [15A NCAC 02H .0506(b)(3) and (c)(3)]
22. In accordance with 143-215.85(b), the applicant shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.
23. If an environmental document is required under the State Environmental Policy Act (SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse. If an environmental document is required under the National Environmental Policy Act (NEPA), then this General Certification is not valid until a Categorical Exclusion, the Final Environmental Assessment, or Final Environmental Impact Statement is published by the lead agency. [15A NCAC 01C .0107(a)]
24. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.
25. The applicant and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If DWR determines that such standards or laws are not being met, including 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, then DWR may revoke or modify a written authorization associated with this General Water Quality Certification. [15A NCAC 02H .0507(d)]
26. When written authorization is required for use of this Certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return a certificate of completion (available on the DWR website <https://edocs.deq.nc.gov/Forms/Certificate-of-Completion>). [15A NCAC 02H .0502(f)]

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27. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards. [15A NCAC 02H .0507(c)]
28. If the property or project is sold or transferred, the new Permittee shall be given a copy of this Certification (and written authorization if applicable) and is responsible for complying with all conditions. [15A NCAC 02H .0501 and .0502]

III. GENERAL CERTIFICATION ADMINISTRATION:

1. In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. An applicant for a CAMA permit under Article 7 of Chapter 113A of the General Statutes for which a Water Quality Certification is required shall only make one payment to satisfy both agencies; the fee shall be as established by the Secretary in accordance with 143-215.3D(e)(7).
2. This Certification neither grants nor affirms any property right, license, or privilege in any waters, or any right of use in any waters. This Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and this Certification does not create any prescriptive right or any right of priority regarding any usage of water. This Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded.
3. This Certification grants permission to the Director, an authorized representative of the Director, or DWR staff, upon the presentation of proper credentials, to enter the property during normal business hours. [15A NCAC 02H .0502(e)]
4. This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide Permit and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification. This General Certification is rescinded when the US Army Corps of Engineers reauthorizes any of the corresponding Nationwide Permits and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Resources.
5. Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

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6. The Director of the North Carolina Division of Water Resources may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the water or downstream waters are precluded.
7. Public hearings may be held prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Resources.

History Note: Water Quality Certification (WQC) Number 4088 issued March 3, 2017 replaces WQC 3886 issued March 12, 2012; WQC Number 3820 issued April 6, 2010; WQC Number 3627 issued March 2007; WQC Number 3404 issued March 2003; WQC Number 3375 issued March 18, 2002; WQC Number 3289 issued June 1, 2000; WQC Number 3103 issued February 11, 1997; WQC Number 2732 issued May 1, 1992; WQC Number 2666 issued January 21, 1992; WQC Number 2177 issued November 5, 1987.



North Carolina Department of Transportation
 Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: 44392.1.1 TIP No.: U-5820A County(ies): Rowan Page 1 of 2

WBS Element: 44392.1.1		TIP Number: U-5820A	General Project Information	
NCDOT Contact:		Contractor / Designer:	Project Type: Roadway Widening	
Address: 375 Silas Creek Parkway Winson Salem, NC 27127		Address: 1151 SE Cary Parkway Suite 101 Cary, NC 27518		
Phone: 336-747-7800		Phone: 919-557-0929		
Email: jbabernathy@ncdot.gov		Email: bbarham@ecologicaleng.com		
City/Town:	Salisbury	County(ies):	Rowan	
River Basin(s):	Yadkin-Pee Dee	CAMA County?	No	
Wetlands within Project Limits?		Yes		

Project Description			
Project Length (lin. miles or feet):	0.426 Miles	Surrounding Land Use:	Commercial Development, Woods
Project Built-Upon Area (ac.)	3.1 ac.	Proposed Project	
Typical Cross Section Description:	5@ 11' lanes with 10' shoulder; Section is variable throughout project		
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	Existing:	13000
General Project Narrative: (Description of Minimization of Water Quality Impacts)	State project U-5820A involves the extension of SR 2200 (Innes St. Market Dr.) and road improvements from SR 2576 (Bendix Dr) to SR 1006 (Faith Rd) in Salisbury, NC. There are 3 stormwater outfalls that outlet into nearby wetlands. All 3 outlets contain a Class B Rip Rap pad to dissipate energy and limit impact to the existing wetlands.		
Design/Future:		Year:	2015
Typical Cross Section Description:	4@ 11' lanes; shoulder width and existing Section is variable throughout project		
Existing Site	2.6 ac.		

Waterbody Information			
Surface Water Body (1):	NA	NCDWR Stream Index No.:	
NCDWR Surface Water Classification for Water Body		Primary Classification:	None
Other Stream Classification:	None	Supplemental Classification:	None
Impairments:	None		
Aquatic T&E Species?		Comments:	
NRTR Stream ID:		Buffer Rules in Effect:	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	Dispersal 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 General Project Narrative)	



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element:

TIP No.: U-5820A

County(ies): Rowan

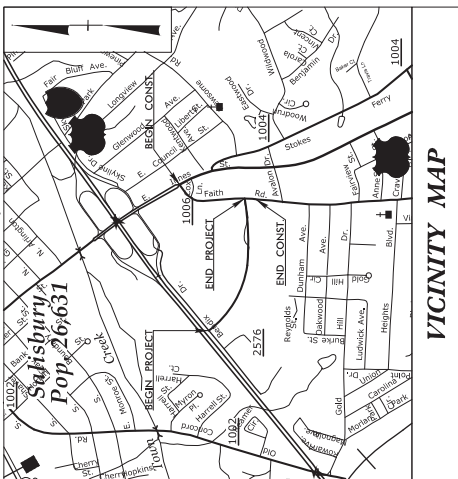
Page 2 of 2

Preformed Scour Holes and Energy Dissipators											
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?	
4	-L- 14+10 LT 35.65313, -80.46349	(1)NA	Rip Rap Outlet Pad	Class 'B'	0.5	Pipe	24	16.0	1.3	N/A	
4	-L- 15+80 RT 35.65264, -80.46327	(1)NA	Rip Rap Outlet Pad	Class 'B'	0.8	Pipe	15	4.0	0.8	N/A	
4	-L- 17+37 LT 35.65259, -80.46260	(1)NA	Rip Rap Outlet Pad	Class 'B'	0.2	Pipe	15	0.8	0.5	N/A	

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

See Sheet 1A For Index of Sheets
 See Sheet 1B For Conventional Symbols
 See Sheet 1C-1 For Survey Control Sheet



STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

ROWAN COUNTY

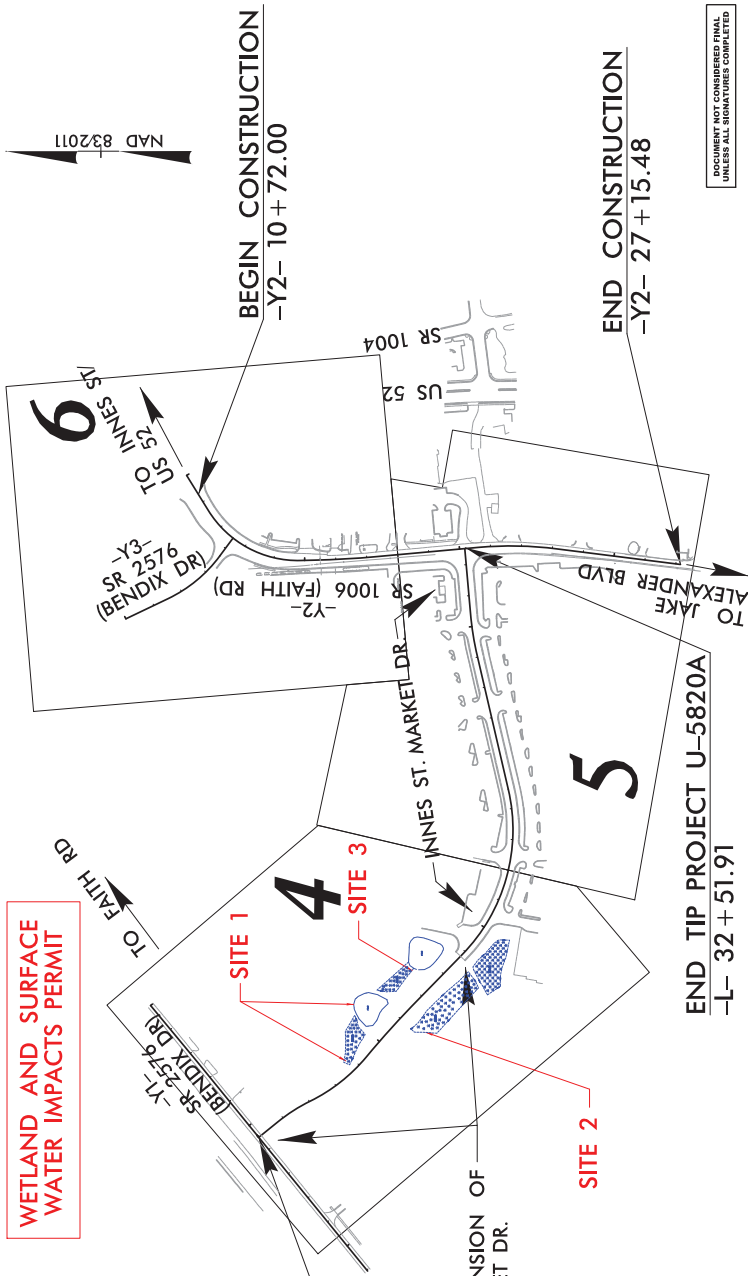
LOCATION: INNES STREET MARKET DRIVE EXTENSION AND
 EXISTING ROAD IMPROVEMENTS FROM SR 2576 (BENDIX DR)
 TO SR 1006 (FAITH RD) IN SALISBURY

TYPE OF WORK: GRADING, DRAINAGE, CURB AND GUTTER, PAVING AND SIDEWALKS

WETLAND AND SURFACE
 WATER IMPACTS PERMIT

PERMIT DRAWING
 SHEET 1 OF 6

STATE	N.C.	STATE PROJECT NUMBER	U-5820A	SHEET	1
PROJECT NUMBER	44392.1.1	DESCRIPTION	PE	DATE	
PROJECT NUMBER	44392.2.1	DESCRIPTION	R/W & UTILITIES	DATE	



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

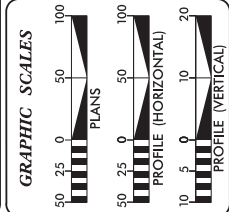
HYDRAULICS ENGINEER	_____ P.E.
ROADWAY DESIGN ENGINEER	_____ P.E.

RIGHT OF WAY DATE:	APRIL 21, 2017
LETTING DATE:	APRIL 17, 2018

PROJECT ENGINEER	TRACY N. PARROTT, PE
PROJECT DESIGNER	BRANDON W. JOHNSON, PE


PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT U-5820A	= 0.426 MILES
TOTAL LENGTH TIP PROJECT U-5820A	= 0.426 MILES

DESIGN DATA	
ADT 2015	= 13,000 VPD
V	= 40 MPH
* TTST	1% DUAL 2%
FUNC CLASS	= URBAN LOCAL



TIP PROJECT: U-5820A

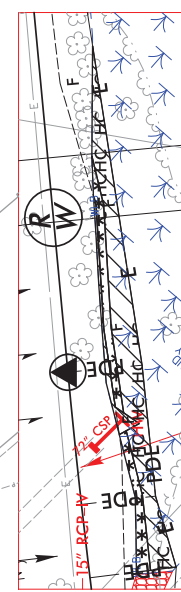
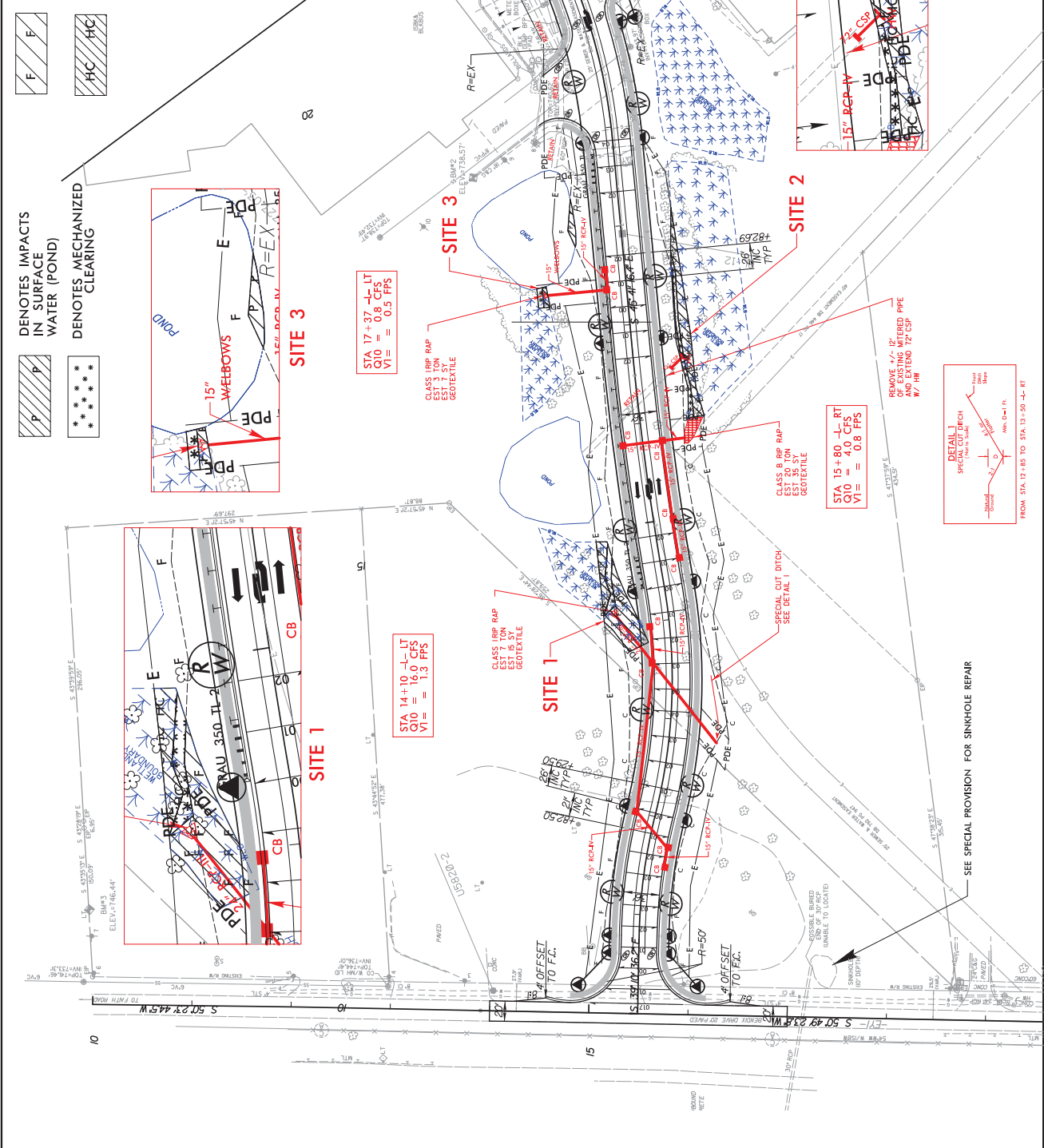
CONTRACT:

PROJECT REFERENCE NO.	U-5820A
R/W SHEET NO.	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED  Office of the Director of Transportation State of Michigan 2025	
FOR PROFILE, SEE SHEET 7	

PERMIT DRAWING
SHEET 2 OF 6

 DENOTES FILL IN WETLAND
 DENOTES HAND CLEARING
 DENOTES IMPACTS IN SURFACE WATER (POND)
 DENOTES MECHANIZED CLEARING

MATCHLINE -L- STA 22+00.00
(SEE SHEET 5)

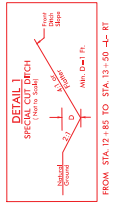


SITE 3
STA 17+37 -L- LT
Q10 = 0.8 CFS
V1 = 0.5 FPS
CLASS 8 IRP RAP
EST 7 TON
GEOTEXTILE

SITE 1
STA 14+10 -L- LT
Q10 = 16.0 CFS
V1 = 1.3 FPS
CLASS 8 IRP RAP
EST 7 TON
GEOTEXTILE

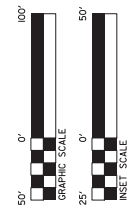
SITE 2
STA 15+80 -L- RT
Q10 = 4.0 CFS
V1 = 0.8 FPS
CLASS 8 IRP RAP
EST 20 TON
GEOTEXTILE

REMOVE +/- 12\"/>




SEE SPECIAL PROVISION FOR SINKHOLE REPAIR

FROM STA 17+85 TO STA 13+50 -L- RT



R/W REVISED ROW & TCE FOR PARCELS 2 & 3 TO ACCOMMODATE SINKHOLE AND PIPE WORK - BWI 10/02/21
 R/W REVISED ROW & TCE FOR PARCELS 2 & 3 TO ACCOMMODATE SINKHOLE AND PIPE WORK - BWI 10/02/21
 R/W REVISED ROW & TCE FOR PARCELS 2 & 3 TO ACCOMMODATE SINKHOLE AND PIPE WORK - BWI 10/02/21
 8/17/29

PROJECT REFERENCE NO. U-5820A	SHEET NO. 4
RDW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  Office of the State Engineer 1000 North Capitol Avenue Lansing, MI 48906-1200 TEL: 517.373.3100 FAX: 517.373.3101	
FOR PROFILE, SEE SHEET 7	

PERMIT DRAWING
 SHEET 3 OF 6

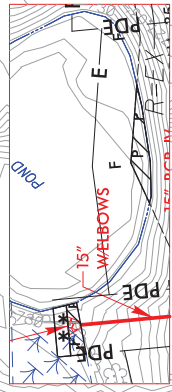
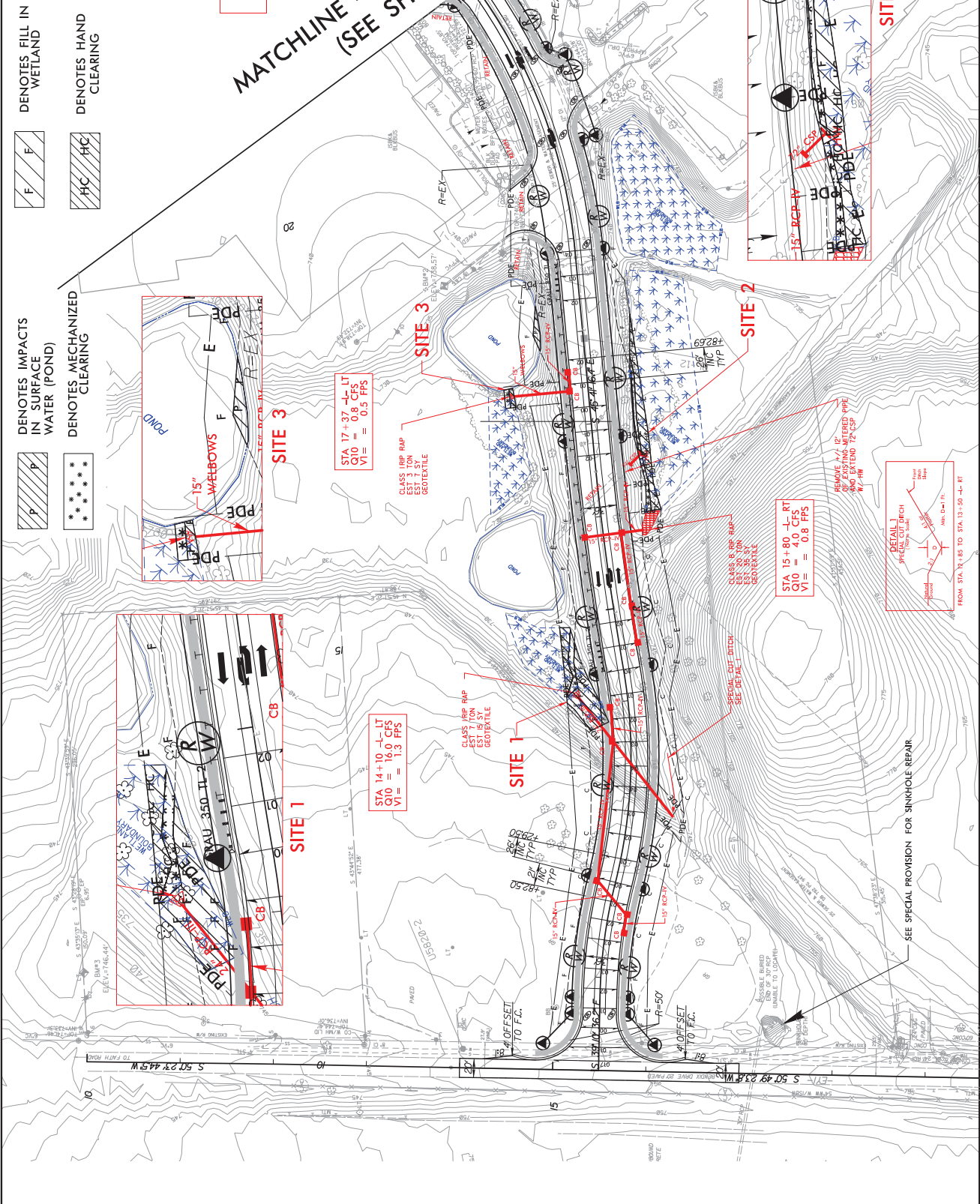
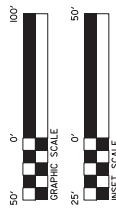
DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

MATCHLINE -L- STA 22+00.00
 (SEE SHEET 5)



SITE 1

STA 14+10-L-LT
 Q10 = 16.0 CFS
 VI = 1.3 FPS

SITE 2

STA 17+37-L-LT
 Q10 = 0.8 CFS
 VI = 0.5 FPS

SITE 3

STA 15+80-L-RT
 Q10 = 4.0 CFS
 VI = 0.8 FPS



SITE 2

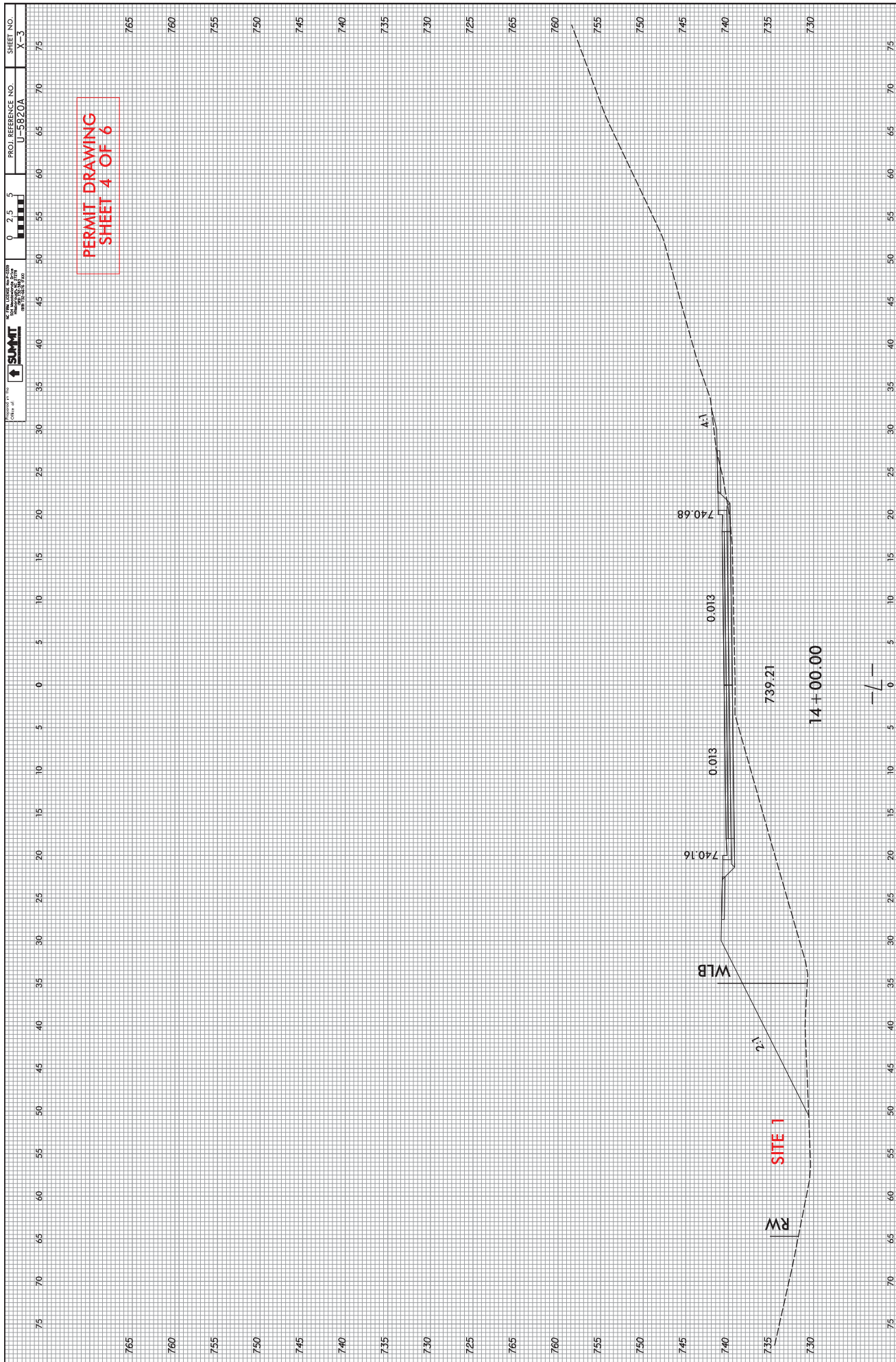
REMOVE 1/2\"/>

FROM STA. R+05 TO STA. 13+50 -L- RT

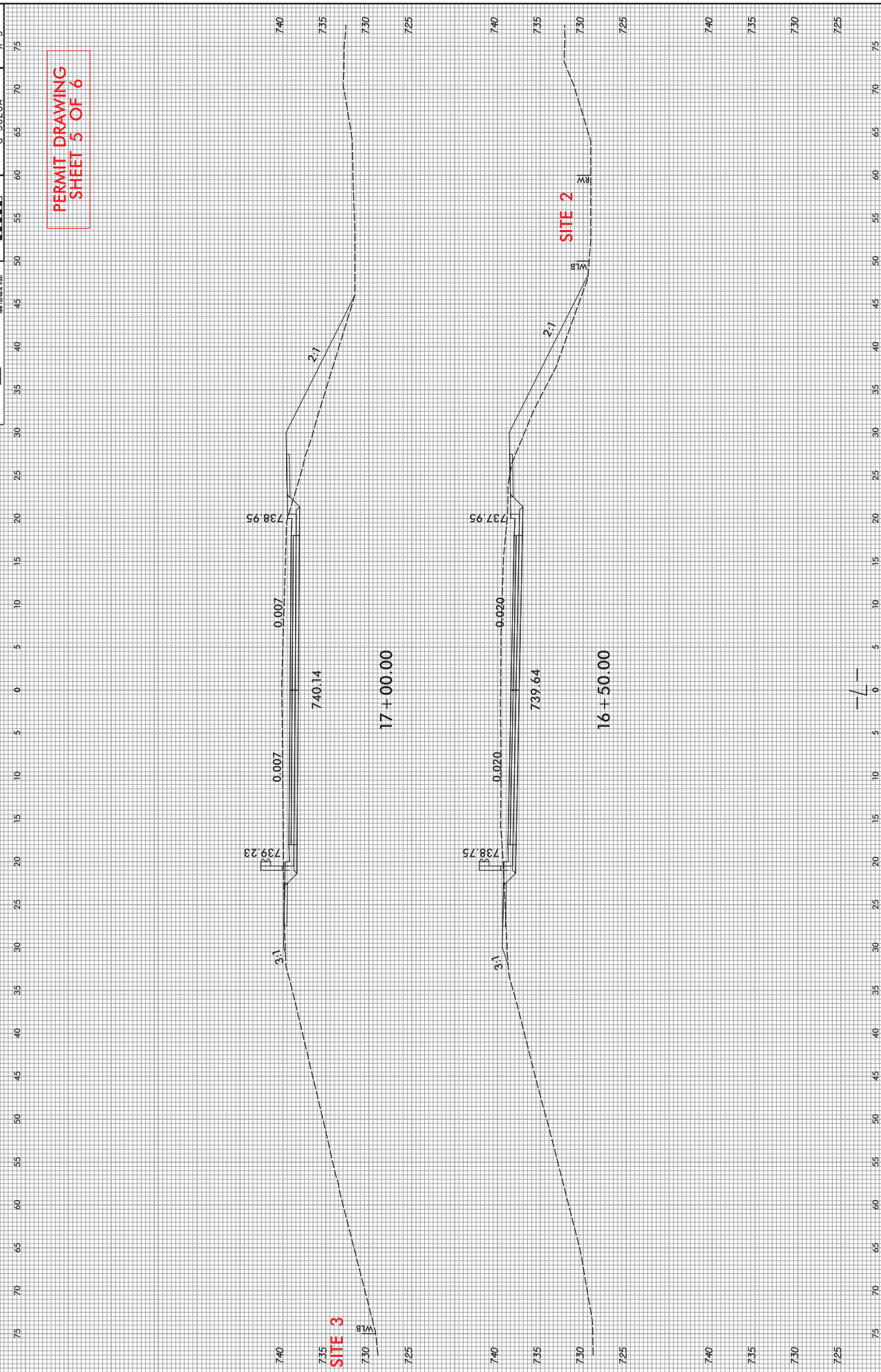
SEE SPECIAL PROVISION FOR SINGHOLE REPAIR

REVISIONS
 R/W REVISED ROW & TCE FOR PARCELS 2 & 3 TO ACCOMMODATE SINGHOLE AND PIPE WORK. - BWI 10/27
 R/W REVISED ROW & TCE FOR PARCELS 1 & 2 TO ACCOMMODATE SINGHOLE AND PIPE WORK. - BWI 10/27

8/17/99



PERMIT DRAWING
 SHEET 5 OF 6



WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS									
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)						
1	13+70/14+89 -L- LT	24" RCP-III	0.04			< 0.01	0.01											
2	16+00/18+14 -L- RT	72" CSP	< 0.01			0.01	0.03											
3	17+25/18+31 -L- LT	15" PIPE	< 0.01			< 0.01		< 0.01										
TOTALS*:			0.04			0.02	0.05		< 0.01									

*Rounded totals are sum of actual impacts

NOTES:

Revised 2016 09 09

**General:**

The following utility companies have facilities that will be in conflict with the construction of this project:

- A) Duke Energy Carolinas
- B) AT&T of NC
- C) Fibrant Communications
- D) Spectrum Communications
- E) City of Salisbury (Water)
- F) Piedmont Natural Gas

The conflicting facilities of these concerns will be adjusted prior to the date of availability, unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be done by the utility owners. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105-8 of the 2012 Standard Specifications.

Utilities Requiring Adjustment:

Utility relocations are shown on the Utilities by Others Plans.

- A) Duke Energy Carolinas

The conflicting utilities owned By Duke Energy will be relocated by April 30, 2018
Contact person for Duke Energy is Mike Fite at Mike.Fite@duke-energy.com
Phone # 704-302-7863

- B) AT&T of NC

The conflicting utility owned by AT&T of NC will begin relocation 2 weeks after the attaching utilities above it on the Duke Energy poles have completed their transfers and AT&T of NC representative is notified of their completed transfer. Buried facilities will be adjusted as necessary along Innes St. Market Drive. Pedestals will be removed and lines spliced and buried. There is a FO cable that will need to be worked around during placement of the drainage facilities. One week notification for AT&T of NC to have personnel on site during work around of FO will be required.

PROJECT SPECIAL PROVISIONS

Utilities by Others

The contact person for AT&T of NC is Darel Ellis at dellis@telics.com

Phone # 704-902-5792

C) Fibrant

The conflicting utility will begin their relocation 2 weeks after notification of Duke Energy relocation completion. Duration of relocation will be 2 weeks from notification to completion.

Contact person is Michael Guzetti at mguzz@salisburync.gov

Phone # 704-798-1103

D) Spectrum Communications

The conflicting utility will begin their relocation 2 weeks after notification of Fibrant's transfer completion and will complete 2 weeks from notification to completion.

Contact person is David Eddins at david.eddins@charter.com

Phone # 704-999-2522

E) City of Salisbury

The conflicting water appurtenances will be relocated during construction. These consist of Fire Hydrants and valve sleeves.

Contact person is Jason Wilson at jawils@salisburync.gov

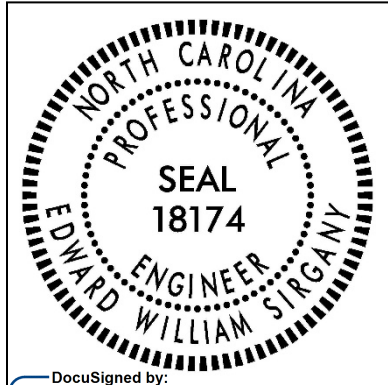
Phone # 704-216-7553

F) Piedmont Natural Gas Company Contact Person is Marcus Cuthbertson at

Marcus.Cuthbertson@duke-energy.com

G)

The conflicting facilities will be adjusted during construction around the drainage facilities where there are conflicts. Piedmont Gas desires to interconnect their existing system over to Bendix Drive along Innes Street Market Drive as shown on the UBO plans. 2 weeks notice will be needed to begin relocation work on the Faith Road conflict. One week notice will be necessary for the work along Innes Street Market Drive involving the service lines. The gas line installation will be accomplished once rough grading is complete connecting Bendix to Innes Street Market Drive.



**Signals and Intelligent Transportation Systems
Project Special Provisions
(Version 18.1)**

Prepared By: EW Sirgany

Date Prepared: 9-Mar-18

Document not considered final
unless all signatures completed.

DocuSigned by:
EW Sirgany
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1. 2018 STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES

The 2018 Standard Specifications are revised as follows:

1.1. GENERAL REQUIREMENTS – Construction Methods (1700-3(K))

Page 17-4, revise sentence starting on line 14 to read “Modify existing electrical services, as necessary, to meet the grounding requirements of the NEC, these *Standard Specifications*, *Standard Drawings*, and the project plans.”

Page 17-4, revise sentence beginning on line 21 to read “Furnish and install additional ground rods to grounding electrode system as necessary to meet the *Standard Specifications*, *Standard Drawings*, and test requirements.”

1.2. WOOD POLES – Construction Methods (1720-3)

Page 17-18, revise sentence starting on line 13 to read “On new Department-owned poles, install a grounding system consisting of #6 AWG solid bare copper wire that is mechanically crimped using an irreversible compression tool with die to a single ground rod installed at base of pole or to the electrical service grounding electrode system located within 10 feet of the pole.”

2. SIGNAL HEADS

2.1. MATERIALS

A. General:

Fabricate vehicle signal head housings and end caps from die-cast aluminum. Fabricate 12-inch and 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Fabricate 9-inch pedestrian signal head housings, end caps, and visors from virgin polycarbonate material. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel.

Fabricate tunnel and traditional visors from sheet aluminum.

Paint all surfaces inside and outside of signal housings and doors. Paint outside surfaces of tunnel and traditional visors, wire outlet bodies, wire entrance fitting brackets and end caps when supplied as components of messenger cable mounting assemblies, pole and pedestal mounting assemblies, and pedestrian pushbutton housings. Have electrostatically-applied, fused-polyester paint in highway yellow (Federal Standard 595C, Color Chip Number 13538) a minimum of 2.5 to 3.5 mils thick. Do not apply paint to the latching hardware, rigid vehicle signal head mounting brackets for mast-arm attachments, messenger cable hanger components or balance adjuster components.

Have the interior surfaces of tunnel and traditional visors painted an alkyd urea black synthetic baking enamel with a minimum gloss reflectance and meeting the requirements of MIL-E-10169, “Enamel Heat Resisting, Instrument Black.”

Where required, provide polycarbonate signal heads and visors that comply with the provisions pertaining to the aluminum signal heads listed on the QPL with the following exceptions:

Fabricate signal head housings, end caps, and visors from virgin polycarbonate material. Provide UV stabilized polycarbonate plastic with a minimum thickness of 0.1 ± 0.01 inches that is highway yellow (Federal Standard 595C, Color Chip 13538). Ensure the color is incorporated into the plastic material before molding the signal head housings and end caps. Ensure the plastic

formulation provides the following physical properties in the assembly (tests may be performed on separately molded specimens):

Test	Required	Method
Specific Gravity	1.17 minimum	ASTM D 792
Flammability	Self-extinguishing	ASTM D 635
Tensile Strength, yield, PSI	8500 minimum	ASTM D 638
Izod impact strength, ft-lb/in [notched, 1/8 inch]	12 minimum	ASTM D 256

For pole mounting, provide side of pole mounting assemblies with framework and all other hardware necessary to make complete, watertight connections of the signal heads to the poles and pedestals. Fabricate the mounting assemblies and frames from aluminum with all necessary hardware, screws, washers, etc. to be stainless steel. Provide mounting fittings that match the positive locking device on the signal head with the serrations integrally cast into the brackets. Provide upper and lower pole plates that have a 1 ¼-inch vertical conduit entrance hubs with the hubs capped on the lower plate and 1 ½-inch horizontal hubs. Ensure that the assemblies provide rigid attachments to poles and pedestals so as to allow no twisting or swaying of the signal heads. Ensure that all raceways are free of sharp edges and protrusions, and can accommodate a minimum of ten Number 14 AWG conductors.

For pedestal mounting, provide a post-top slipfitter mounting assembly that matches the positive locking device on the signal head with serrations integrally cast into the slipfitter. Provide stainless steel hardware, screws, washers, etc. Provide a minimum of six 3/8 X 3/4-inch long square head bolts for attachment to pedestal. Provide a center post for multi-way slipfitters.

For light emitting diode (LED) traffic signal modules, provide the following requirements for inclusion on the Department's Qualified Products List for traffic signal equipment.

1. Sample submittal,
2. Third-party independent laboratory testing results for each submitted module with evidence of testing and conformance with all of the Design Qualification Testing specified in section 6.4 of each of the following Institute of Transportation Engineers (ITE) specifications:
 - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement
 - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement
 - Pedestrian Traffic Control Signal Indications –Light Emitting Diode (LED) Signal Modules.

(Note: The Department currently recognizes two approved independent testing laboratories. They are Intertek ETL Semko and Light Metrics, Incorporated with Garwood Laboratories. Independent laboratory tests from other laboratories may be considered as part of the QPL submittal at the discretion of the Department,

3. Evidence of conformance with the requirements of these specifications,
4. A manufacturer's warranty statement in accordance with the required warranty, and

5. Submittal of manufacturer's design and production documentation for the model, including but not limited to, electrical schematics, electronic component values, proprietary part numbers, bill of materials, and production electrical and photometric test parameters.
6. Evidence of approval of the product to bear the Intertek ETL Verified product label for LED traffic signal modules.

In addition to meeting the performance requirements for the minimum period of 60 months, provide a written warranty against defects in materials and workmanship for the modules for a period of 60 months after installation of the modules. During the warranty period, the manufacturer must provide new replacement modules within 45 days of receipt of modules that have failed at no cost to the State. Repaired or refurbished modules may not be used to fulfill the manufacturer's warranty obligations. Provide manufacturer's warranty documentation to the Department during evaluation of product for inclusion on Qualified Products List (QPL).

B. Vehicle Signal Heads:

Comply with the ITE standard "Vehicle Traffic Control Signal Heads". Provide housings with provisions for attaching backplates.

Provide visors that are 8 inches in length for 8-inch vehicle signal head sections. Provide visors that are 10 inches in length for 12-inch vehicle signal heads.

Provide a termination block with one empty terminal for field wiring for each indication plus one empty terminal for the neutral conductor. Have all signal sections wired to the termination block. Provide barriers between the terminals that have terminal screws with a minimum Number 8 thread size and that will accommodate and secure spade lugs sized for a Number 10 terminal screw.

Mount termination blocks in the yellow signal head sections on all in-line vehicle signal heads. Mount the termination block in the red section on five-section vehicle signal heads.

Furnish vehicle signal head interconnecting brackets. Provide one-piece aluminum brackets less than 4.5 inches in height and with no threaded pipe connections. Provide hand holes on the bottom of the brackets to aid in installing wires to the signal heads. Lower brackets that carry no wires and are used only for connecting the bottom signal sections together may be flat in construction.

For messenger cable mounting, provide messenger cable hangers, wire outlet bodies, balance adjusters, bottom caps, wire entrance fitting brackets, and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the messenger cable. Fabricate messenger cable hanger components, wire outlet bodies and balance adjuster components from stainless steel or malleable iron galvanized in accordance with ASTM A153 (Class A) or ASTM A123. Provide serrated rings made of aluminum. Provide messenger cable hangers with U-bolt clamps. Fabricate washers, screws, hex-head bolts and associated nuts, clevis pins, cotter pins, U-bolt clamps and nuts from stainless steel.

For mast-arm mounting, provide rigid vehicle signal head mounting brackets and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the mast arms and to provide a means for vertically adjusting the vehicle signal heads to proper alignment. Fabricate the mounting assemblies from aluminum, and provide serrated rings made of aluminum. Provide stainless steel cable attachment assemblies to secure the brackets to the mast arms. Ensure all fastening hardware and fasteners are fabricated from stainless steel.

Provide LED vehicular traffic signal modules (hereafter referred to as modules) that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections. Use LEDs that are aluminum indium gallium phosphorus (AlInGaP) technology for red and yellow indications and indium gallium nitride (InGaN) for green indications. Install the ultra bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

For the modules, provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard signal head. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Tint the red, yellow and green lenses to correspond with the wavelength (chromaticity) of the LED. Transparent tinting films are unacceptable. Provide a lens that is integral to the unit with a smooth outer surface.

1. LED Circular Signal Modules:

Provide modules in the following configurations: 12-inch circular sections, and 8-inch circular sections. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2018 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement" dated June 27, 2005 (hereafter referred to as VTCSH Circular Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Circular Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red circular	17	11
8-inch red circular	13	8
12-inch green circular	15	15
8-inch green circular	12	12

For yellow circular signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to insure power required at 77° F is 22 Watts or less for the 12-inch circular module and 13 Watts or less for the 8-inch circular module.

Note: Use a wattmeter having an accuracy of $\pm 1\%$ to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

2. LED Arrow Signal Modules

Provide 12-inch omnidirectional arrow signal modules. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2018 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the requirements for 12-inch omnidirectional modules specified in the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement" dated July 1, 2007 (hereafter referred to as VTCSH Arrow Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Arrow Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red arrow	12	9
12-inch green arrow	11	11

For yellow arrow signal modules, provide modules tested under the procedures outlined in the VTCSH Arrow Supplement to insure power required at 77° F is 12 Watts or less.

Note: Use a wattmeter having an accuracy of $\pm 1\%$ to measure the nominal wattage and maximum wattage of an arrow traffic signal module. Power may also be derived from voltage, current and power factor measurements.

C. Pedestrian Signal Heads:

Provide pedestrian signal heads with international symbols that meet the MUTCD. Do not provide letter indications.

Comply with the ITE standard for "Pedestrian Traffic Control Signal Indications" and the following sections of the ITE standard for "Vehicle Traffic Control Signal Heads" in effect on the date of advertisement:

- Section 3.00 - "Physical and Mechanical Requirements"
- Section 4.01 - "Housing, Door, and Visor: General"
- Section 4.04 - "Housing, Door, and Visor: Materials and Fabrication"
- Section 7.00 - "Exterior Finish"

Provide a double-row termination block with three empty terminals and number 10 screws for field wiring. Provide barriers between the terminals that accommodate a spade lug sized for number 10 terminal screws. Mount the termination block in the hand section. Wire all signal sections to the terminal block.

Where required by the plans, provide 16-inch pedestrian signal heads with traditional three-sided, rectangular visors, 6 inches long. Where required by the plans, provide 12-inch pedestrian signal heads with traditional three-sided, rectangular visors, 8 inches long.

Provide 2-inch diameter pedestrian push-buttons with weather-tight housings fabricated from die-cast aluminum and threading in compliance with the NEC for rigid metal conduit. Provide a weep hole in the housing bottom and ensure that the unit is vandal resistant.

Provide push-button housings that are suitable for mounting on flat or curved surfaces and that will accept 1/2-inch conduit installed in the top. Provide units that have a heavy duty push-button assembly with a sturdy, momentary, normally-open switch. Have contacts that are electrically insulated from the housing and push-button. Ensure that the push-buttons are rated for a minimum of 5 mA at 24 volts DC and 250 mA at 12 volts AC.

Provide standard R10-3 signs with mounting hardware that comply with the MUTCD in effect on the date of advertisement. Provide R10-3E signs for countdown pedestrian heads and R10-3B for non-countdown pedestrian heads.

Design the LED pedestrian traffic signal modules (hereafter referred to as modules) for installation into standard pedestrian traffic signal sections that do not contain the incandescent signal section reflector, lens, eggcrate visor, gasket, or socket. Provide modules that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp. Use LEDs that are of the latest aluminum indium gallium phosphorus (AlInGaP) technology for the Portland Orange hand and countdown displays. Use LEDs that are of the latest indium gallium nitride (InGaN) technology for the Lunar White walking man displays. Install the ultra-bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

Design all modules to operate using a standard 3 - wire field installation. Provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard pedestrian signal housing. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Provide modules in the following configuration: 16-inch displays which have the solid hand/walking man overlay on the left and the countdown on the right, and 12-inch displays which have the solid hand/walking man module as an overlay. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2018 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Pedestrian Traffic Control Signal Indicators - Light Emitting Diode (LED) Signal Modules" dated August 04, 2010 (hereafter referred to as PTCSI Pedestrian Standard) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the PTCSI Pedestrian Standard:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
Hand Indication	16	13

Walking Man Indication	12	9
Countdown Indication	16	13

Note: Use a wattmeter having an accuracy of $\pm 1\%$ to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

Provide module lens that is hard coated or otherwise made to comply with the material exposure and weathering effects requirements of the Society of Automotive Engineers (SAE) J576. Ensure all exposed components of the module are suitable for prolonged exposure to the environment, without appreciable degradation that would interfere with function or appearance.

Ensure the countdown display continuously monitors the traffic controller to automatically learn the pedestrian phase time and update for subsequent changes to the pedestrian phase time.

Ensure the countdown display begins normal operation upon the completion of the preemption sequence and no more than one pedestrian clearance cycle.

D. Signal Cable:

Furnish 16-4 and 16-7 signal cable that complies with IMSA specification 20-1 except provide the following conductor insulation colors:

- For 16-4 cable: white, yellow, red, and green
- For 16-7 cable: white, yellow, red, green, yellow with black stripe tracer, red with black stripe tracer, and green with black stripe tracer. Apply continuous stripe tracer on conductor insulation with a longitudinal or spiral pattern.

Provide a ripcord to allow the cable jacket to be opened without using a cutter. IMSA specification 19-1 will not be acceptable. Provide a cable jacket labeled with the IMSA specification number and provide conductors constructed of stranded copper.

3. CONTROLLERS WITH CABINETS

3.1. MATERIALS – TYPE 2070L CONTROLLERS

Conform to CALTRANS *Transportation Electrical Equipment Specifications (TEES)* (dated August 16, 2002, plus Errata 1 dated October 27, 2003 and Errata 2 dated June 08, 2004) except as required herein.

Furnish Model 2070L controllers. Ensure that removal of the CPU module from the controller will place the intersection into flash.

The Department will provide software at the beginning of the burning-in period. Contractor shall give 5 working days notice before needing software. Program software provided by the Department.

Provide model 2070L controllers with the latest version of OS9 operating software and device drivers, composed of the unit chassis and at a minimum the following modules and assemblies:

- MODEL 2070 1B, CPU Module, Single Board
- MODEL 2070-2A, Field I/O Module (FI/O)

- Note: Configure the Field I/O Module to disable both the External WDT Shunt/Toggle Switch and SP3 (SP3 active indicator is “off”)
- MODEL 2070-3B, Front Panel Module (FP), Display B (8x40)
- MODEL 2070-4A, Power Supply Module, 10 AMP
- MODEL 2070-7A, Async Serial Com Module (9-pin RS-232)

Furnish one additional MODEL 2070-7A, Async Serial Com Module (9-pin RS-232) for all master controller locations.

For each master location and central control center, furnish a U.S. Robotics V.92 or approved equivalent auto-dial/auto-answer external modem to accomplish the interface to the Department-furnished microcomputers. Include all necessary hardware to ensure telecommunications.

3.2.MATERIALS – GENERAL CABINETS

Provide a moisture resistant coating on all circuit boards.

Provide one 20 mm diameter radial lead UL-recognized metal oxide varistor (MOV) between each load switch field terminal and equipment ground. Electrical performance is outlined below.

PROPERTIES OF MOV SURGE PROTECTOR	
Maximum Continuous Applied Voltage at 185° F	150 VAC (RMS) 200 VDC
Maximum Peak 8x20µs Current at 185° F	6500 A
Maximum Energy Rating at 185° F	80 J
Voltage Range 1 mA DC Test at 77° F	212-268 V
Max. Clamping Voltage 8x20µs, 100A at 77° F	395 V
Typical Capacitance (1 MHz) at 77° F	1600 pF

Provide a power line surge protector that is a two-stage device that will allow connection of the radio frequency interference filter between the stages of the device. Ensure that a maximum continuous current is at least 10A at 120V. Ensure that the device can withstand a minimum of 20 peak surge current occurrences at 20,000A for an 8x20 microsecond waveform. Provide a maximum clamp voltage of 395V at 20,000A with a nominal series inductance of 200µh. Ensure that the voltage does not exceed 395V. Provide devices that comply with the following:

Frequency (Hz)	Minimum Insertion Loss (dB)
60	0
10,000	30
50,000	55
100,000	50
500,000	50
2,000,000	60
5,000,000	40
10,000,000	20
20,000,000	25

3.3. MATERIALS – TYPE 170E CABINETS

A. Type 170 E Cabinets General:

Conform to the city of Los Angeles' Specification No. 54-053-08, *Traffic Signal Cabinet Assembly Specification* (dated July 2008), except as required herein.

Furnish model 336S pole mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details. Provide 336S pole mounted cabinets that are 46" high with 40" high internal rack assemblies.

Furnish model 332 base mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. When overlaps are required, provide auxiliary output files for the overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details.

Provide model 200 load switches, model 222 loop detector sensors, model 252 AC isolators, and model 242 DC isolators according to the electrical details. As a minimum, provide one (1) model 2018 conflict monitor, one (1) model 206L power supply unit, two (2) model 204 flashers, one (1) DC isolator (located in slot I14), and four (4) model 430 flash transfer relays (provide seven (7) model 430 flash transfer relays if auxiliary output file is installed) with each cabinet.

B. Type 170 E Cabinet Electrical Requirements:

Provide a cabinet assembly designed to ensure that upon leaving any cabinet switch or conflict monitor initiated flashing operation, the controller starts up in the programmed start up phases and start up interval.

Furnish two sets of non-fading cabinet wiring diagrams and schematics in a paper envelope or container and placed in the cabinet drawer.

All AC+ power is subject to radio frequency signal suppression.

Provide surge suppression in the cabinet for each type of cabinet device. Provide surge protection for the full capacity of the cabinet input file. Provide surge suppression devices that

operate properly over a temperature range of -40° F to +185° F. Ensure the surge suppression devices provide both common and differential modes of protection.

Provide a pluggable power line surge protector that is installed on the back of the PDA (power distribution assembly) chassis to filter and absorb power line noise and switching transients. Ensure the device incorporates LEDs for failure indication and provides a dry relay contact closure for the purpose of remote sensing. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....20,000A
- Occurrences (8x20µs waveform).....10 minimum @ 20,000A
- Maximum Clamp Voltage.....395VAC
- Operating Current.....15 amps
- Response Time.....< 5 nanoseconds

Provide a loop surge suppressor for each set of loop terminals in the cabinet. Ensure the device meets the following specifications:

- Peak Surge Current (6 times, 8x20µs)
 - (Differential Mode).....400A
 - (Common Mode).....1,000A
- Occurrences (8x20µs waveform).....500 min @ 200A
- Maximum Clamp Voltage
 - (Differential Mode @400A).....35V
 - (Common Mode @1,000A).....35V
- Response Time.....< 5 nanoseconds
- Maximum Capacitance.....35 pF

Provide a data communications surge suppressor for each communications line entering or leaving the cabinet. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....10,000A
- Occurrences (8x20µs waveform).....100 min @ 2,000A
- Maximum Clamp Voltage.....Rated for equipment protected
- Response Time.....< 1 nanosecond
- Maximum Capacitance.....1,500 pF
- Maximum Series Resistance.....15Ω

Provide a DC signal surge suppressor for each DC input channel in the cabinet. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....10,000A
- Occurrences (8x20µs waveform).....100 @ 2,000A
- Maximum Clamp Voltage.....30V
- Response Time.....< 1 nanosecond

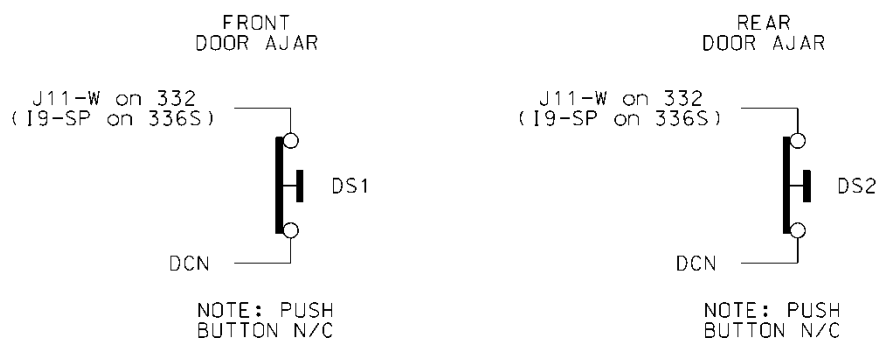
Provide a 120 VAC signal surge suppressor for each AC+ interconnect signal input. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....20,000A
- Maximum Clamp Voltage.....350VAC
- Response Time.....< 200 nanoseconds
- Discharge Voltage.....<200 Volts @ 1,000A
- Insulation Resistance.....≥100 MΩ

Provide conductors for surge protection wiring that are of sufficient size (ampacity) to withstand maximum over-currents which could occur before protective device thresholds are attained and current flow is interrupted.

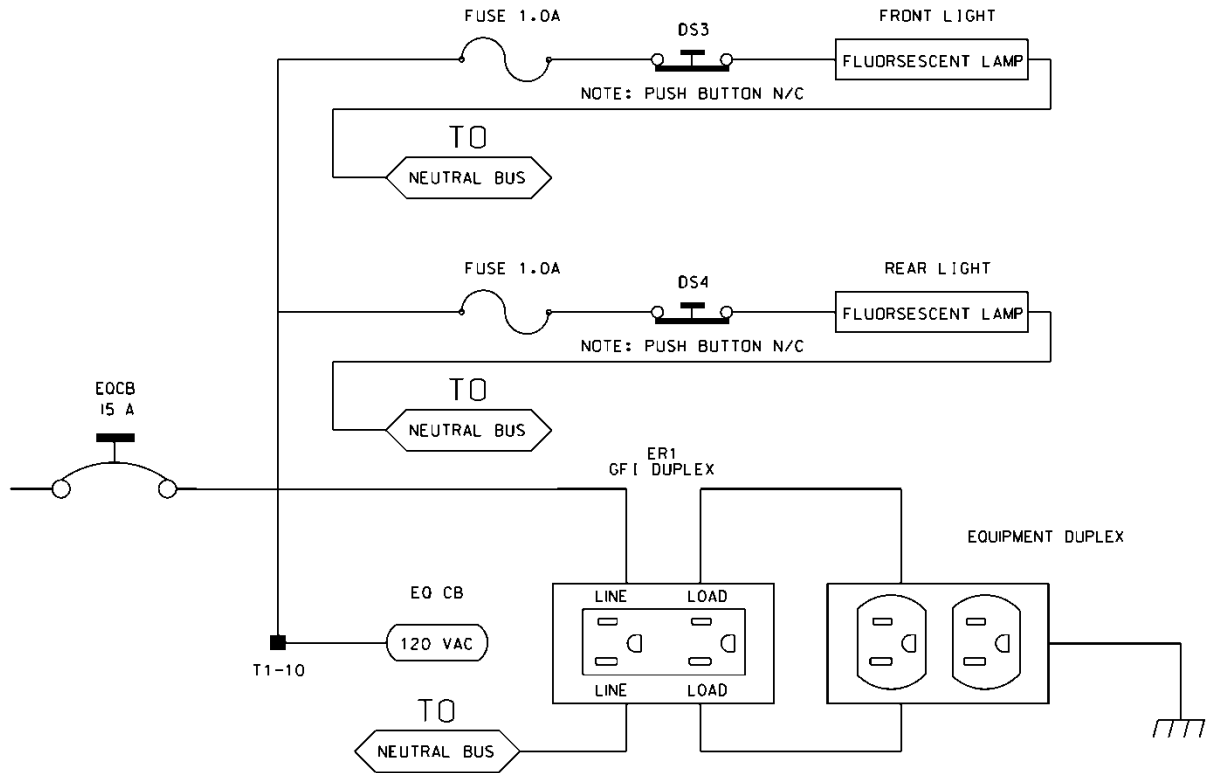
If additional surge protected power outlets are needed to accommodate fiber transceivers, modems, etc., install a UL listed, industrial, heavy-duty type power outlet strip with a minimum rating of 15 A / 125 VAC, 60 Hz. Provide a strip that has a minimum of 3 grounded outlets. Ensure the power outlet strip plugs into one of the controller unit receptacles located on the rear of the PDA. Ensure power outlet strip is mounted securely; provide strain relief if necessary.

Provide a door switch in the front and a door switch in the rear of the cabinet that will provide the controller unit with a Door Ajar alarm when either the front or the rear door is open. Ensure the door switches apply DC ground to the Input File when either the front door or the rear door is open.



Furnish a fluorescent fixture in the rear across the top of the cabinet and another fluorescent fixture in the front across the top of the cabinet at a minimum. Ensure that the fixtures provide sufficient light to illuminate all terminals, labels, switches, and devices in the cabinet. Conveniently locate the fixtures so as not to interfere with a technician’s ability to perform work on any devices or terminals in the cabinet. Provide a protective diffuser to cover exposed bulbs. Install 16 watt T-4 lamps in the fluorescent fixtures. Provide a door switch to provide power to each fixture when the

respective door is open. Wire the fluorescent fixtures to the 15 amp ECB (equipment circuit breaker).



Furnish a police panel with a police panel door. For model 336S cabinets, mount the police panel on the rear door. Ensure that the police panel door permits access to the police panel when the main door is closed. Ensure that no rainwater can enter the cabinet even with the police panel door open. Provide a police panel door hinged on the right side as viewed from the front. Provide a police panel door lock that is keyed to a standard police/fire call box key. In addition to the requirements of LA Specification No. 54-053-08, provide the police panel with a toggle switch connected to switch the intersection operation between normal stop-and-go operation (AUTO) and manual operation (MANUAL). Ensure that manual control can be implemented using inputs and software such that the controller provides full programmed clearance times for the yellow clearance and red clearance for each phase while under manual control.

Provide a 1/4-inch locking phone jack in the police panel for a hand control to manually control the intersection. Provide sufficient room in the police panel for storage of a hand control and cord.

Ensure the 336S cabinet Input File is wired as follows:

336S Cabinet														
Port-Bit/C-1 Pin Assignment														
Slot #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
C-1 (Spares)	59	60	61	62	63	64	65	66	75	76	77	78	79	80
Port	3-2	1-1	3-4	1-3	3-1	1-2	3-3	1-4	2-5	5-5	5-6	5-1	5-2	6-7
C-1	56	39	58	41	55	40	57	42	51	71	72	67	68	81
Port	2-1	1-5	2-3	1-7	2-2	1-6	2-4	1-8	2-6	5-7	5-8	5-3	5-4	6-8
C-1	47	43	49	45	48	44	50	46	52	73	74	69	70	82

For model 332 base mounted cabinets, ensure terminals J14-E and J14-K are wired together on the rear of the Input File. Connect TB9-12 (J14 Common) on the Input Panel to T1-2 (AC-) on the rear of the PDA.

Provide detector test switches mounted at the top of the cabinet rack or other convenient location which may be used to place a call on each of eight phases based on the chart below. Provide three positions for each switch: On (place call), Off (normal detector operation), and Momentary On (place momentary call and return to normal detector operation after switch is released). Ensure that the switches are located such that the technician can read the controller display and observe the intersection.

Connect detector test switches for cabinets as follows:

336S Cabinet		332 Cabinet	
Detector Call Switches	Terminals	Detector Call Switches	Terminals
Phase 1	I1-F	Phase 1	I1-W
Phase 2	I2-F	Phase 2	I4-W
Phase 3	I3-F	Phase 3	I5-W
Phase 4	I4-F	Phase 4	I8-W
Phase 5	I5-F	Phase 5	J1-W
Phase 6	I6-F	Phase 6	J4-W
Phase 7	I7-F	Phase 7	J5-W
Phase 8	I8-F	Phase 8	J8-W

Provide the PCB 28/56 connector for the conflict monitor unit (CMU) with 28 independent contacts per side, dual-sided with 0.156 inch contact centers. Provide the PCB 28/56 connector contacts with solder eyelet terminations. Ensure all connections to the PCB 28/56 connector are soldered to the solder eyelet terminations.

Ensure that all cabinets have the CMU connector wired according to the 332 cabinet connector pin assignments (include all wires for auxiliary output file connection). Wire pins 13, 16, R, and U of the CMU connector to a separate 4 pin plug, P1, as shown below. Provide a second plug, P2, which will mate with P1 and is wired to the auxiliary output file as shown below. Provide an additional plug, P3, which will mate with P1 and is wired to the pedestrian yellow circuits as shown below. When no auxiliary output file is installed in the cabinet, provide wires for the green and yellow inputs for channels 11, 12, 17, and 18, the red inputs for channels 17 and 18, and the wires for the P2 plug. Terminate the two-foot wires with ring type lugs, insulated, and bundled for optional use.

PIN	P1		P2		P3	
	FUNCTION	CONN TO	FUNCTION	CONN TO	FUNCTION	CONN TO
1	CH-9G	CMU-13	OLA-GRN	A123	2P-YEL	114
2	CH-9Y	CMU-16	OLA-YEL	A122	4P-YEL	105
3	CH-10G	CMU-R	OLB-GRN	A126	6P-YEL	120
4	CH-10Y	CMU-U	OLB-YEL	A125	8P-YEL	111

Do not provide the P20 terminal assembly (red monitor board) or red interface ribbon cable as specified in LA Specification No. 54-053-08.

Provide a P20 connector that mates with and is compatible with the red interface connector mounted on the front of the conflict monitor. Ensure that the P20 connector and the red interface connector on the conflict monitor are center polarized to ensure proper connection. Ensure that removal of the P20 connector will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.

Wire the P20 connector to the output file and auxiliary output file using 22 AWG stranded wires. Ensure the length of these wires is a minimum of 42 inches in length. Provide a durable braided sleeve around the wires to organize and protect the wires.

Wire the P20 connector to the traffic signal red displays to provide inputs to the conflict monitor as shown below. Ensure the pedestrian Don't Walk circuits are wired to channels 13 through 16 of the P20 connector. When no auxiliary output file is installed in the cabinet, provide wires for channels 9 through 12 reds. Provide a wire for special function 1. Terminate the unused wires with ring type lugs, insulated, and bundled for optional use.

P20 Connector					
PIN	FUNCTION	CONN TO	PIN	FUNCTION	CONN TO
1	Channel 15 Red	119	2	Channel 16 Red	110
3	Channel 14 Red	104	4	Chassis GND	01-9
5	Channel 13 Red	113	6	N/C	
7	Channel 12 Red	AUX 101	8	Spec Function 1	
9	Channel 10 Red	AUX 124	10	Channel 11 Red	AUX 114
11	Channel 9 Red	AUX 121	12	Channel 8 Red	107

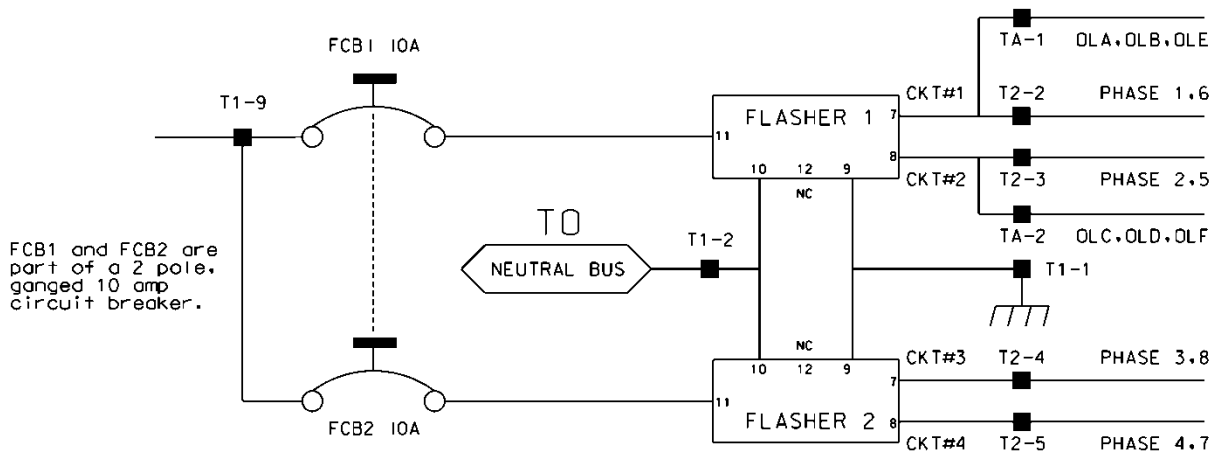
13	Channel 7 Red	122	14	Channel 6 Red	134
15	Channel 5 Red	131	16	Channel 4 Red	101
17	Channel 3 Red	116	18	Channel 2 Red	128
19	Channel 1 Red	125	20	Red Enable	01-14

Ensure the controller unit outputs to the auxiliary output file are pre-wired to the C5 connector. When no auxiliary output file is installed in the cabinet, connect the C5 connector to a storage socket located on the Input Panel or on the rear of the PDA.

Do not wire pin 12 of the load switch sockets.

In addition to the requirements of LA Specification No. 54-053-08, ensure relay K1 on the Power Distribution Assembly (PDA) is a four pole relay and K2 on the PDA is a two pole relay.

Provide a two pole, ganged circuit breaker for the flash bus circuit. Ensure the flash bus circuit breaker is an inverse time circuit breaker rated for 10 amps at 120 VAC with a minimum of 10,000 RMS symmetrical amperes short circuit current rating. Do not provide the auxiliary switch feature on the flash bus circuit breaker. Ensure the ganged flash bus circuit breaker is certified by the circuit breaker manufacturer to provide gang tripping operation.



Ensure auxiliary output files are wired as follows:

AUXILIARY OUTPUT FILE TERMINAL BLOCK TA ASSIGNMENTS	
POSITION	FUNCTION
1	Flasher Unit #1, Circuit 1/FTR1 (OLA, OLB)/FTR3 (OLE)
2	Flasher Unit #1, Circuit 2/FTR2 (OLC, OLD)/FTR3 (OLF)
3	Flash Transfer Relay Coils
4	AC -
5	Power Circuit 5
6	Power Circuit 5
7	Equipment Ground Bus
8	NC

Provide four spare load resistors mounted in each cabinet. Ensure each load resistor is rated as shown in the table below. Wire one side of each load resistor to AC-. Connect the other side of each resistor to a separate terminal on a four (4) position terminal block. Mount the load resistors and terminal block either inside the back of Output File No. 1 or on the upper area of the Service Panel.

ACCEPTABLE LOAD RESISTOR VALUES	
VALUE (ohms)	WATTAGE
1.5K – 1.9 K	25W (min)
2.0K – 3.0K	10W (min)

Provide Model 200 load switches, Model 204 flashers, Model 242 DC isolators, Model 252 AC isolators, and Model 206L power supply units that conform to CALTRANS' *"Transportation Electrical Equipment Specifications"* dated March 12, 2009 with Erratum 1.

C. Type 170 E Cabinet Physical Requirements:

Do not mold, cast, or scribe the name "City of Los Angeles" on the outside of the cabinet door as specified in LA Specification No. 54-053-08. Do not provide a Communications Terminal Panel as specified in LA Specification No. 54-053-08. Do not provide terminal block TBB on the Service Panel. Do not provide Cabinet Verification Test Program software or associated test jigs as specified in LA Specification No. 54-053-08.

Furnish unpainted, natural, aluminum cabinet shells. Ensure that all non-aluminum hardware on the cabinet is stainless steel or a Department approved non-corrosive alternate.

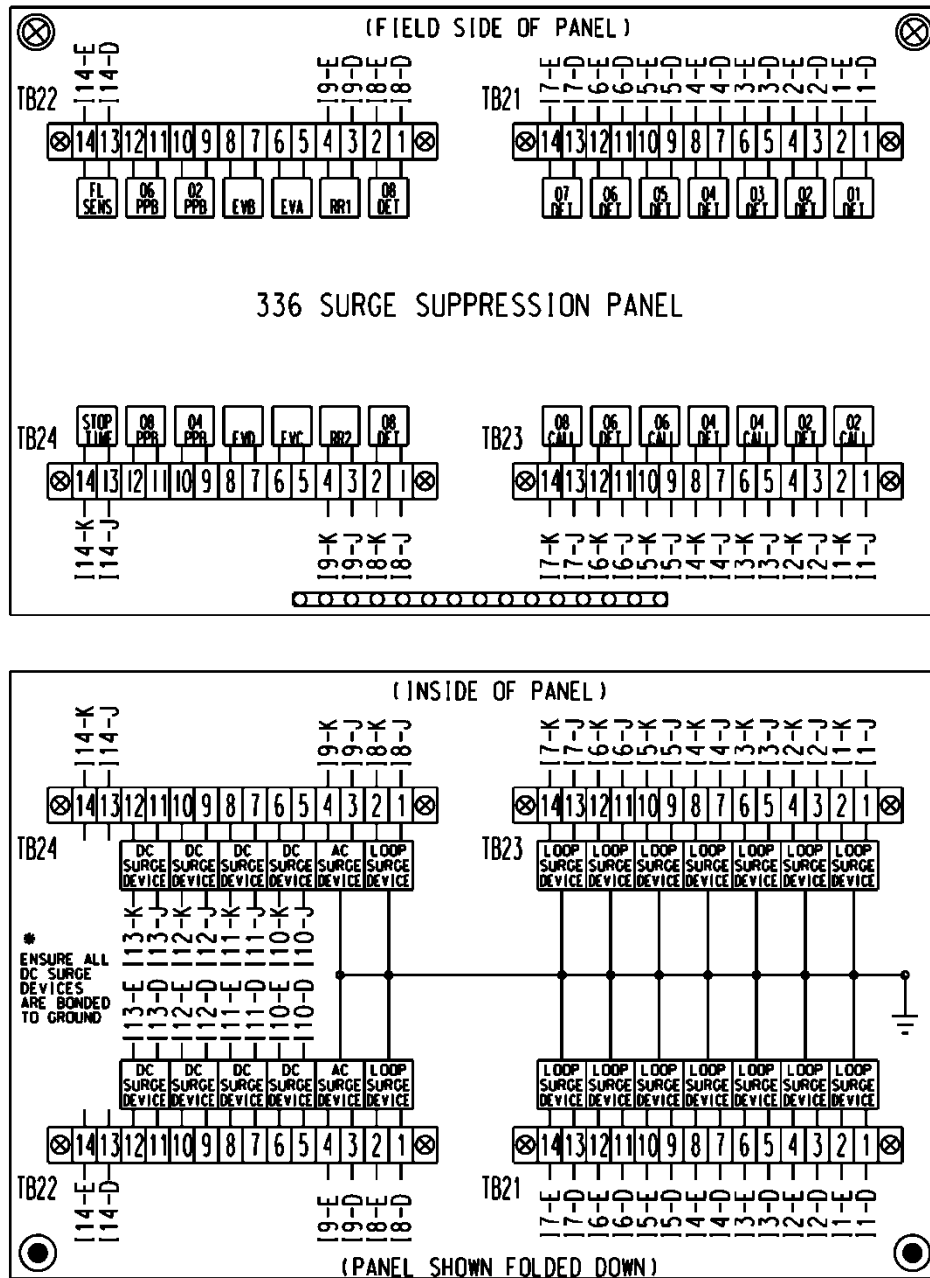
Ensure the lifting eyes, gasket channels, police panel, and all supports welded to the enclosure and doors are fabricated from 0.125 inch minimum thickness aluminum sheet and meet the same standards as the cabinet and doors.

Provide front and rear doors with latching handles that allow padlocking in the closed position. Furnish 0.75 inch minimum diameter stainless steel handles with a minimum 0.5 inch shank. Place the padlocking attachment at 4.0 inches from the handle shank center to clear the lock and key. Provide an additional 4.0 inches minimum gripping length.

Provide Corbin #2 locks on the front and rear doors. Provide one (1) Corbin #2 and one (1) police master key with each cabinet. Ensure main door locks allow removal of keys in the locked position only.

Provide a surge protection panel with 16 loop surge protection devices and designed to allow sufficient free space for wire connection/disconnection and surge protection device replacement. For model 332 cabinets, provide an additional 20 loop surge protection devices. Provide an additional two AC+ interconnect surge devices to protect one slot and eight DC surge protection devices to protect four slots. Provide no protection devices on slot I14.

For pole mounted cabinets, mount surge protection devices for the AC+ interconnect inputs, inductive loop detector inputs, and low voltage DC inputs on a swing down panel assembly fabricated from sturdy aluminum. Attach the swing down panel to the bottom rear cabinet rack assembly using thumb screws. Ensure the swing down panel allows for easy removal of the input file without removing the surge protection panel assembly or its parts. Have the surge protection devices mounted horizontally on the panel and soldered to the feed through terminals of four 14 position terminal blocks with #8 screws mounted on the other side. Ensure the top row of terminals is connected to the upper slots and the bottom row of terminals is connected to the bottom slots. Provide a 15 position copper equipment ground bus attached to the field terminal side (outside) of the swing down panel for termination of loop lead-in shield grounds. Ensure that a Number 4 AWG green wire connects the surge protection panel assembly ground bus to the main cabinet equipment ground.



For base mounted cabinets, mount surge protection panels on the left side of the cabinet as viewed from the rear. Attach each panel to the cabinet rack assembly using bolts and make it easily removable. Mount the surge protection devices in vertical rows on each panel and connect the devices to one side of 12 position, double row terminal blocks with #8 screws. For each surge protection panel, terminate all grounds from the surge protection devices on a copper equipment ground bus attached to the surge protection panel. Wire the terminals to the rear of a standard input file using spade lugs for input file protection.

Provide permanent labels that indicate the slot and the pins connected to each terminal that may be viewed from the rear cabinet door. Label and orient terminals so that each pair of inputs is next to each other. Indicate on the labeling the input file (I or J), the slot number (1-14) and the terminal pins of the input slots (either D & E for upper or J & K for lower).

Provide a minimum 14 x 16 inch pull out, hinged top shelf located immediately below controller mounting section of the cabinet. Ensure the shelf is designed to fully expose the table surface outside the controller at a height approximately even with the bottom of the controller. Ensure the shelf has a storage bin interior which is a minimum of 1 inch deep and approximately the same dimensions as the shelf. Provide an access to the storage area by lifting the hinged top of the shelf. Fabricate the shelf and slide from aluminum or stainless steel and ensure the assembly can support the 2070L controller plus 15 pounds of additional weight. Ensure shelf has a locking mechanism to secure it in the fully extended position and does not inhibit the removal of the 2070L controller or removal of cards inside the controller when fully extended. Provide a locking mechanism that is easily released when the shelf is to be returned to its non-use position directly under the controller.

D. Model 2018 Enhanced Conflict Monitor:

Furnish Model 2018 Enhanced Conflict Monitors that provide monitoring of 18 channels. Ensure each channel consists of a green, yellow, and red field signal input. Ensure that the conflict monitor meets or exceeds CALTRANS' Transportation Electrical Equipment Specifications dated March 12, 2009, with Erratum 1 (hereafter referred to as CALTRANS' 2009 TEES) for a model 210 monitor unit and other requirements stated in this specification.

Ensure the conflict monitor is provided with an 18 channel conflict programming card. Pin EE and Pin T of the conflict programming card shall be connected together. Pin 16 of the conflict programming card shall be floating. Ensure that the absence of the conflict programming card will cause the conflict monitor to trigger (enter into fault mode), and remain in the triggered state until the programming card is properly inserted and the conflict monitor is reset.

Provide a conflict monitor that incorporates LED indicators into the front panel to dynamically display the status of the monitor under normal conditions and to provide a comprehensive review of field inputs with monitor status under fault conditions. Ensure that the monitor indicates the channels that were active during a conflict condition and the channels that experienced a failure for all other per channel fault conditions detected. Ensure that these indications and the status of each channel are retained until the Conflict Monitor is reset. Furnish LED indicators for the following:

- AC Power (Green LED indicator)
- VDC Failed (Red LED indicator)
- WDT Error (Red LED indicator)
- Conflict (Red LED indicator)
- Red Fail (Red LED indicator)
- Dual Indication (Red LED indicator)
- Yellow/Clearance Failure (Red LED indicator)
- PCA/PC Ajar (Red LED indicator)

- Monitor Fail/Diagnostic Failure (Red LED indicator)
- 54 Channel Status Indicators (1 Red, 1 Yellow, and 1 Green LED indicator for each of the 18 channels)

Provide a switch to set the Red Fail fault timing. Ensure that when the switch is in the ON position the Red Fail fault timing value is set to 1350 +/- 150 ms (2018 mode). Ensure that when the switch is in the OFF position the Red Fail fault timing value is set to 850 +/- 150 ms (210 mode).

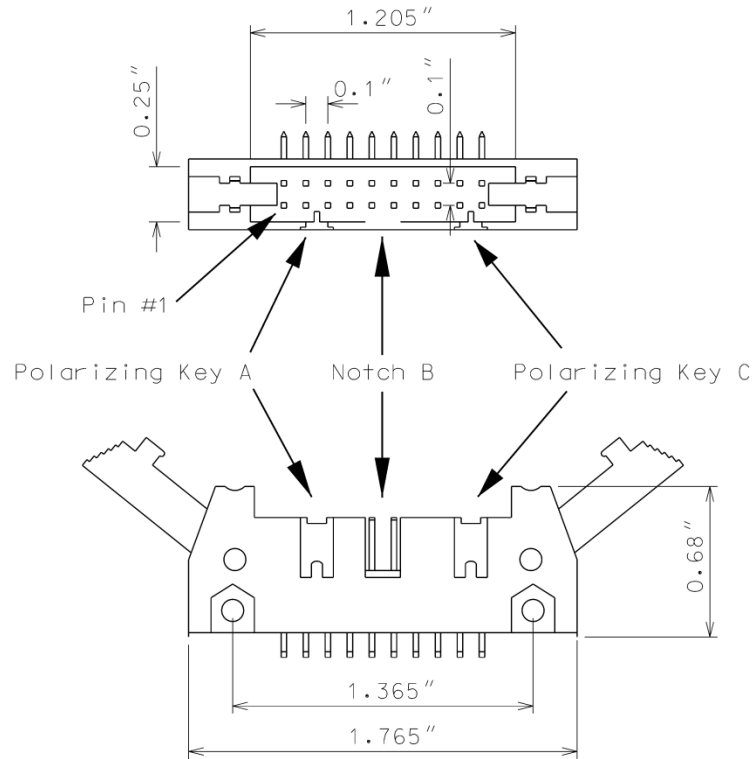
Provide a switch to set the Watchdog fault timing. Ensure that when the switch is in the ON position the Watchdog fault timing value is set to 1.0 +/- 0.1 s (2018 mode). Ensure that when the switch is in the OFF position the Watchdog fault timing value is set to 1.5 +/- 0.1 s (210 mode).

Provide a jumper or switch to set the AC line brown-out levels. Ensure that when the jumper is present or the switch is in the ON position the AC line dropout voltage threshold is 98 +/- 2 Vrms, the AC line restore voltage threshold is 103 +/- 2 Vrms, and the AC line brown-out timing value is set to 400 +/- 50ms (2018 mode). Ensure that when the jumper is not present or the switch is in the OFF position the AC line dropout voltage threshold is 92 +/- 2 Vrms, the AC line restore voltage threshold is 98 +/- 2 Vrms, and the AC line brown-out timing value is set to 80 +/- 17 ms (210 mode).

Provide a jumper or switch that will enable and disable the Watchdog Latch function. Ensure that when the jumper is not present or the switch is in the OFF position the Watchdog Latch function is disabled. In this mode of operation, a Watchdog fault will be reset following a power loss, brownout, or power interruption. Ensure that when the jumper is present or the switch is in the ON position the Watchdog Latch function is enabled. In this mode of operation, a Watchdog fault will be retained until a Reset command is issued.

Provide a jumper that will reverse the active polarity for pin #EE (output relay common). Ensure that when the jumper is not present pin #EE (output relay common) will be considered 'Active' at a voltage greater than 70 Vrms and 'Not Active' at a voltage less than 50 Vrms (Caltrans mode). Ensure that when the jumper is present pin #EE (output relay common) will be considered 'Active' at a voltage less than 50 Vrms and 'Not Active' at a voltage greater than 70 Vrms (Failsafe mode).

In addition to the connectors required by CALTRANS' 2009 TEES, provide the conflict monitor with a red interface connector mounted on the front of the monitor. Ensure the connector is a 20 pin, right angle, center polarized, male connector with latching clip locks and polarizing keys. Ensure the right angle solder tails are designed for a 0.062" thick printed circuit board. Keying of the connector shall be between pins 3 and 5, and between 17 and 19. Ensure the connector has two rows of pins with the odd numbered pins on one row and the even pins on the other row. Ensure the connector pin row spacing is 0.10" and pitch is 0.10". Ensure the mating length of the connector pins is 0.24". Ensure the pins are finished with gold plating 30μ" thick.



Ensure the red interface connector pins on the monitor have the following functions:

Pin #	Function	Pin #	Function
1	Channel 15 Red	2	Channel 16 Red
3	Channel 14 Red	4	Chassis Ground
5	Channel 13 Red	6	Special Function 2
7	Channel 12 Red	8	Special Function 1
9	Channel 10 Red	10	Channel 11 Red
11	Channel 9 Red	12	Channel 8 Red
13	Channel 7 Red	14	Channel 6 Red
15	Channel 5 Red	16	Channel 4 Red
17	Channel 3 Red	18	Channel 2 Red
19	Channel 1 Red	20	Red Enable

Ensure that removal of the P20 cable connector will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.

Provide Special Function 1 and Special Function 2 inputs to the unit which shall disable only Red Fail Monitoring when either input is sensed active. A Special Function input shall be sensed active when the input voltage exceeds 70 Vrms with a minimum duration of 550 ms. A Special Function input shall be sensed not active when the input voltage is less than 50 Vrms or the duration is less than 250 ms. A Special Function input is undefined by these specifications and may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms or the duration is between 250 ms and 550 ms.

Ensure the conflict monitor recognizes field signal inputs for each channel that meet the following requirements:

- consider a Red input greater than 70 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Red input less than 50 Vrms or with a duration of less than 200 ms as an “off” condition (no valid signal);
- consider a Red input between 50 Vrms and 70 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications;
- consider a Green or Yellow input greater than 25 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Green or Yellow input less than 15 Vrms or with a duration of less than 200 ms as an “off” condition; and
- consider a Green or Yellow input between 15 Vrms and 25 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications.

Provide a conflict monitor that recognizes the faults specified by CALTRANS’ 2009 TEES and the following additional faults. Ensure the conflict monitor will trigger upon detection of a fault and will remain in the triggered (in fault mode) state until the unit is reset at the front panel or through the external remote reset input for the following failures:

1. **Red Monitoring or Absence of Any Indication (Red Failure):** A condition in which no “on” voltage signal is detected on any of the green, yellow, or red inputs to a given monitor channel. If a signal is not detected on at least one input (R, Y, or G) of a conflict monitor channel for a period greater than 1000 ms when used with a 170 controller and 1500 ms when used with a 2070 controller, ensure monitor will trigger and put the intersection into flash. If the absence of any indication condition lasts less than 700 ms when used with a 170 controller and 1200 ms when used with a 2070 controller, ensure conflict monitor will not trigger. Red fail monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. Have red monitoring occur when all of the following input conditions are in effect:
 - a) Red Enable input to monitor is active (Red Enable voltages are “on” at greater than 70 Vrms, off at less than 50 Vrms, undefined between 50 and 70 Vrms), and
 - b) Neither Special Function 1 nor Special Function 2 inputs are active.

- c) Pin #EE (output relay common) is not active
2. **Short/Missing Yellow Indication Fault (Clearance Error):** Yellow indication following a green is missing or shorter than 2.7 seconds (with ± 0.1 -second accuracy). If a channel fails to detect an “on” signal at the Yellow input for a minimum of 2.7 seconds (± 0.1 second) following the detection of an “on” signal at a Green input for that channel, ensure that the monitor triggers and generates a clearance/short yellow error fault indication. Short/missing yellow (clearance) monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. This fault shall not occur when the channel is programmed for Yellow Inhibit, when the Red Enable signal is inactive or pin #EE (output relay common) is active.
 3. **Dual Indications on the Same Channel:** In this condition, more than one indication (R,Y,G) is detected as “on” at the same time on the same channel. If dual indications are detected for a period greater than 500 ms, ensure that the conflict monitor triggers and displays the proper failure indication (Dual Ind fault). If this condition is detected for less than 200 ms, ensure that the monitor does not trigger. G-Y-R dual indication monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. G-Y dual indication monitoring shall be enabled for all channels by use of a switch located on the conflict monitor. This fault shall not occur when the Red Enable signal is inactive or pin #EE (output relay common) is active.
 4. **Configuration Settings Change:** The configuration settings are comprised of (as a minimum) the permissive diode matrix, dual indication switches, yellow disable jumpers, any option switches, any option jumpers, and the Watchdog Enable switch. Ensure the conflict monitor compares the current configuration settings with the previous stored configuration settings on power-up, on reset, and periodically during operation. If any of the configuration settings are changed, ensure that the conflict monitor triggers and causes the program card indicator to flash. Ensure that configuration change faults are only reset by depressing and holding the front panel reset button for a minimum of three seconds. Ensure the external remote reset input does not reset configuration change faults.

Ensure the conflict monitor will trigger and the AC Power indicator will flash at a rate of 2 Hz \pm 20% with a 50% duty cycle when the AC Line voltage falls below the “drop-out” level. Ensure the conflict monitor will resume normal operation when the AC Line voltage returns above the “restore” level. Ensure the AC Power indicator will remain illuminated when the AC voltage returns above the “restore” level. Should an AC Line power interruption occur while the monitor is in the fault mode, then upon restoration of AC Line power, the monitor will remain in the fault mode and the correct fault and channel indicators will be displayed.

Provide a flash interval of at least 6 seconds and at most 10 seconds in duration following a power-up, an AC Line interruption, or a brownout restore. Ensure the conflict monitor will suspend all fault monitoring functions, close the Output relay contacts, and flash the AC indicator at a rate of 4 Hz \pm 20% with a 50% duty cycle during this interval. Ensure the termination of the flash interval after at least 6 seconds if the Watchdog input has made 5 transitions between the True and False state and the AC Line voltage is greater than the “restore” level. If the watchdog input has not made

5 transitions between the True and False state within 10 ± 0.5 seconds, the monitor shall enter a WDT error fault condition.

Ensure the conflict monitor will monitor an intersection with a minimum of four approaches using the four-section Flashing Yellow Arrow (FYA) vehicle traffic signal as outlined by the NCHRP 3-54 research project for protected-permissive left turn signal displays. Ensure the conflict monitor will operate in the FYA mode and FYAc (Compact) mode as specified below to monitor each channel pair for the following fault conditions: Conflict, Flash Rate Detection, Red Fail, Dual Indication, and Clearance. Provide a switch to select between the FYA mode and FYAc mode. Provide a switch to select each FYA phase movement for monitoring.

FYA mode

FYA Signal Head	Phase 1	Phase 3	Phase 5	Phase 7
Red Arrow	Channel 9 Red	Channel 10 Red	Channel 11 Red	Channel 12 Red
Yellow Arrow	Channel 9 Yellow	Channel 10 Yellow	Channel 11 Yellow	Channel 12 Yellow
Flashing Yellow Arrow	Channel 9 Green	Channel 10 Green	Channel 11 Green	Channel 12 Green
Green Arrow	Channel 1 Green	Channel 3 Green	Channel 5 Green	Channel 7 Green

FYAc mode

FYA Signal Head	Phase 1	Phase 3	Phase 5	Phase 7
Red Arrow	Channel 1 Red	Channel 3 Red	Channel 5 Red	Channel 7 Red
Yellow Arrow	Channel 1 Yellow	Channel 3 Yellow	Channel 5 Yellow	Channel 7 Yellow
Flashing Yellow Arrow	Channel 1 Green	Channel 3 Green	Channel 5 Green	Channel 7 Green
Green Arrow	Channel 9 Green	Channel 9 Yellow	Channel 10 Green	Channel 10 Yellow

If a FYA channel pair is enabled for FYA operation, the conflict monitor will monitor the FYA logical channel pair for the additional following conditions:

1. **Conflict:** Channel conflicts are detected based on the permissive programming jumpers on the program card. This operation remains unchanged from normal operation except for the solid Yellow arrow (FYA clearance) signal.
2. **Yellow Change Interval Conflict:** During the Yellow change interval of the Permissive Turn channel (flashing Yellow arrow) the conflict monitor shall verify that no conflicting channels to the solid Yellow arrow channel (clearance) are active. These conflicting channels shall be determined by the program card compatibility programming of the Permissive Turn channel (flashing Yellow arrow). During the Yellow change interval of the Protected Turn channel (solid Green arrow) the conflict monitor shall verify that no conflicting channels to the solid Yellow arrow channel (clearance) are active as determined by the program card compatibility programming of the Protected Turn channel (solid Green arrow).
3. **Flash Rate Detection:** The conflict monitor unit shall monitor for the absence of a valid flash rate for the Permissive turn channel (flashing Yellow arrow). If the Permissive turn channel (flashing Yellow arrow) is active for a period greater than 1600 milliseconds, ensure the conflict monitor triggers and puts the intersection into flash. If the Permissive turn channel (flashing Yellow arrow) is active for a period less than 1400 milliseconds, ensure the conflict monitor does not trigger. Ensure the conflict monitor will remain in the triggered (in fault mode) state until the unit is reset at the front panel or through the external remote reset input. Provide a jumper or switch that will enable and disable the Flash Rate Detection function. Ensure that when the jumper is not present or the switch is in the OFF position the Flash Rate Detection function is enabled. Ensure that when the jumper is present or the switch is in the ON position the Flash Rate Detection function is disabled.
4. **Red Monitoring or Absence of Any Indication (Red Failure):** The conflict monitor unit shall detect a red failure if there is an absence of voltage on all four of the inputs of a FYA channel pair (RA, YA, FYA, GA).
5. **Dual Indications on the Same Channel:** The conflict monitor unit shall detect a dual indication if two or more inputs of a FYA channel pair (RA, YA, FYA, GA) are “on” at the same time.
6. **Short/Missing Yellow Indication Fault (Clearance Error):** The conflict monitor unit shall monitor the solid Yellow arrow for a clearance fault when terminating both the Protected Turn channel (solid Green arrow) interval and the Permissive Turn channel (flashing Yellow arrow) interval.

Ensure that the conflict monitor will log at least nine of the most recent events detected by the monitor in non-volatile EEPROM memory (or equivalent). For each event, record at a minimum the time, date, type of event, status of each field signal indication with RMS voltage, and specific channels involved with the event. Ensure the conflict monitor will log the following events: monitor reset, configuration, previous fault, and AC line. Furnish the signal sequence log that shows all channel states (Greens, Yellows, and Reds) and the Red Enable State for a minimum of 2 seconds prior to the current fault trigger point. Ensure the display resolution of the inputs for the signal sequence log is not greater than 50 ms.

For conflict monitors used within an Ethernet communications system, provide a conflict monitor with an Ethernet 10/100 Mbps, RJ-45 port for data communication access to the monitor by a local notebook computer and remotely via a workstation or notebook computer device connected to the signal system local area network. The Ethernet port shall be electrically isolated from the conflict monitor's electronics and shall provide a minimum of 1500 Vrms isolation. Integrate monitor with Ethernet network in cabinet. Provide software to retrieve the time and date from a network server in order to synchronize the on-board times between the conflict monitor and the controller. Furnish and install the following Windows based, graphic user interface software on workstations and notebook computers where the signal system client software is installed: 1) software to view and retrieve all event log information, 2) software that will search and display a list of conflict monitor IP addresses and IDs on the network, and 3) software to change the conflict monitor's network parameters such as IP address and subnet mask.

For non-Ethernet connected monitors, provide a RS-232C/D compliant port (DB-9 female connector) on the front panel of the conflict monitor in order to provide communications from the conflict monitor to the 170/2070 controller or to a Department-furnished laptop computer. Electrically isolate the port interface electronics from all monitor electronics, excluding Chassis Ground. Ensure that the controller can receive all event log information through a controller Asynchronous Communications Interface Adapter (Type 170E) or Async Serial Comm Module (2070). Furnish and connect a serial cable from the conflict monitor's DB-9 connector to Comm Port 1 of the 2070 controller. Ensure conflict monitor communicates with the controller. Provide a Windows based graphic user interface software to communicate directly through the same monitor RS-232C/D compliant port to retrieve and view all event log information to a Department-furnished laptop computer. The RS-232C/D compliant port on the monitor shall allow the monitor to function as a DCE device with pin connections as follows:

Conflict Monitor RS-232C/D (DB-9 Female) Pinout		
Pin Number	Function	I/O
1	DCD	O
2	TX Data	O
3	RX Data	I
4	DTR	I
5	Ground	-
6	DSR	O
7	CTS	I
8	RTS	O
9	NC	-

MONITOR BOARD EDGE CONNECTOR

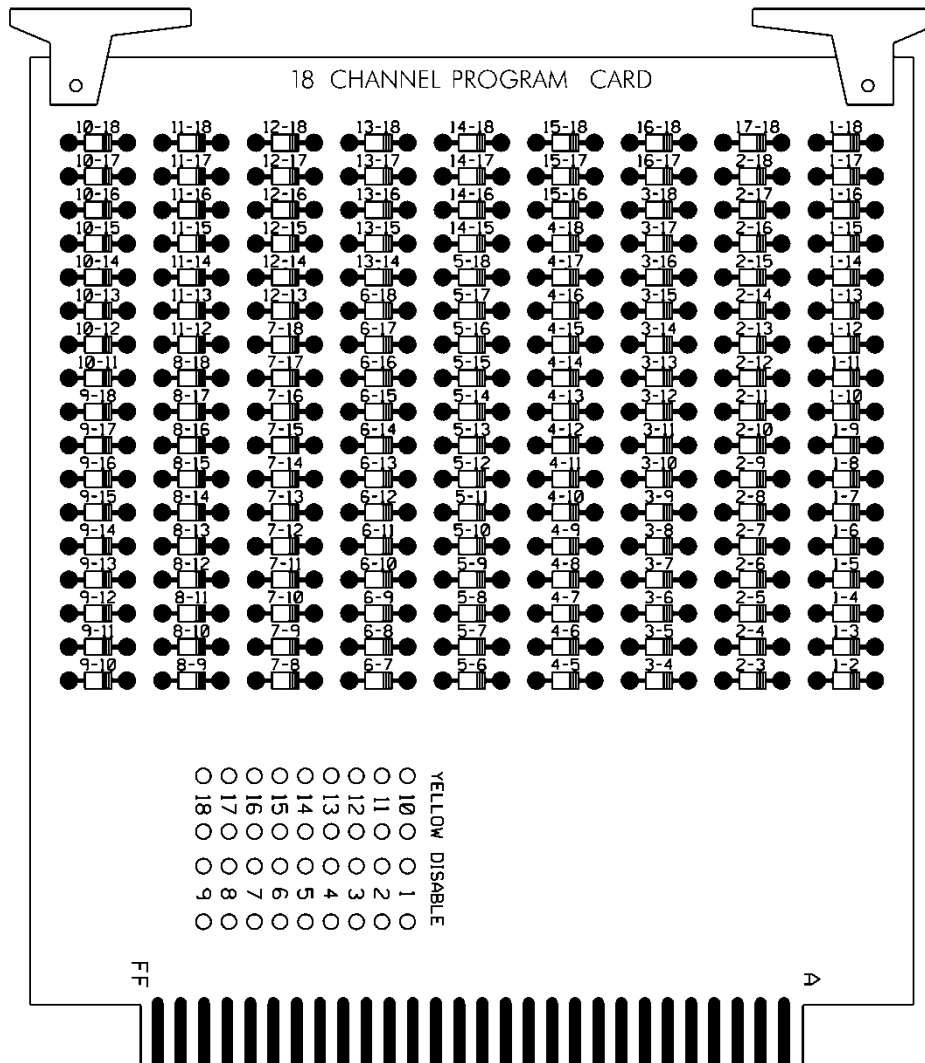
Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 2 Yellow
2	Channel 13 Green	B	Channel 6 Green
3	Channel 6 Yellow	C	Channel 15 Green
4	Channel 4 Green	D	Channel 4 Yellow
5	Channel 14 Green	E	Channel 8 Green
6	Channel 8 Yellow	F	Channel 16 Green
7	Channel 5 Green	H	Channel 5 Yellow
8	Channel 13 Yellow	J	Channel 1 Green
9	Channel 1 Yellow	K	Channel 15 Yellow
10	Channel 7 Green	L	Channel 7 Yellow
11	Channel 14 Yellow	M	Channel 3 Green
12	Channel 3 Yellow	N	Channel 16 Yellow
13	Channel 9 Green	P	Channel 17 Yellow
14	Channel 17 Green	R	Channel 10 Green
15	Channel 11 Yellow	S	Channel 11 Green
16	Channel 9 Yellow	T	Channel 18 Yellow
17	Channel 18 Green	U	Channel 10 Yellow
--		--	
18	Channel 12 Yellow	V	Channel 12 Green
19	Channel 17 Red	W	Channel 18 Red
20	Chassis Ground	X	Not Assigned
21	AC-	Y	DC Common
22	Watchdog Timer	Z	External Test Reset
23	+24VDC	AA	+24VDC
24	Tied to Pin 25	BB	Stop Time (Output)
25	Tied to Pin 24	CC	Not Assigned
26	Not Assigned	DD	Not Assigned
27	Relay Output, Side #3, N.O.	EE	Relay Output, Side #2, Common
28	Relay Output, Side #1, N.C.	FF	AC+

-- Slotted for keying between Pins 17/U and 18/V

CONFLICT PROGRAM CARD PIN ASSIGNMENTS

Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 1 Green
2	Channel 3 Green	B	Channel 2 Green
3	Channel 4 Green	C	Channel 3 Green
4	Channel 5 Green	D	Channel 4 Green
5	Channel 6 Green	E	Channel 5 Green
6	Channel 7 Green	F	Channel 6 Green
7	Channel 8 Green	H	Channel 7 Green
8	Channel 9 Green	J	Channel 8 Green
9	Channel 10 Green	K	Channel 9 Green
10	Channel 11 Green	L	Channel 10 Green
11	Channel 12 Green	M	Channel 11 Green
12	Channel 13 Green	N	Channel 12 Green
13	Channel 14 Green	P	Channel 13 Green
14	Channel 15 Green	R	Channel 14 Green
15	Channel 16 Green	S	Channel 15 Green
16	N/C	T	PC AJAR
17	Channel 1 Yellow	U	Channel 9 Yellow
18	Channel 2 Yellow	V	Channel 10 Yellow
19	Channel 3 Yellow	W	Channel 11 Yellow
20	Channel 4 Yellow	X	Channel 12 Yellow
21	Channel 5 Yellow	Y	Channel 13 Yellow
22	Channel 6 Yellow	Z	Channel 14 Yellow
23	Channel 7 Yellow	AA	Channel 15 Yellow
24	Channel 8 Yellow	BB	Channel 16 Yellow
--		--	
25	Channel 17 Green	CC	Channel 17 Yellow
26	Channel 18 Green	DD	Channel 18 Yellow
27	Channel 16 Green	EE	PC AJAR (Program Card)
28	Yellow Inhibit Common	FF	Channel 17 Green

-- Slotted for keying between Pins 24/BB and 25/CC



3.4. MATERIALS – TYPE 170 DETECTOR SENSOR UNITS

Furnish detector sensor units that comply with Chapter 5 Section 1, “General Requirements,” and Chapter 5 Section 2, “Model 222 & 224 Loop Detector Sensor Unit Requirements,” of the CALTRANS “Transportation Electrical Equipment Specifications” dated March 12, 2009 with Erratum 1.

4. TRAFFIC SIGNAL SUPPORTS

4.1. METAL TRAFFIC SIGNAL SUPPORTS – ALL POLES

A. General:

Furnish and install metal strain poles and metal poles with mast arms, grounding systems, and all necessary hardware. The work covered by this special provision includes requirements for the design, fabrication, and installation of both standard and custom/site specifically designed metal traffic signal supports and associated foundations.

Provide metal traffic signal support systems that contain no guy assemblies, struts, or stay braces. Provide designs of completed assemblies with hardware that equals or exceeds AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals* 6th Edition, 2013 (hereafter called 6th Edition AASHTO), including the latest interim specifications. Provide assemblies with a round or near-round (18 sides or more) cross-section, or a multi sided cross section with no less than six sides. The sides may be straight, convex, or concave.

Pole heights shown on signal plans are estimated from available data for bid purposes. Prior to furnishing metal signal poles, use field measurements and adjusted cross-sections to determine whether pole heights are sufficient to obtain required clearances. If pole heights are not sufficient, the Contractor should immediately notify the Engineer of the required revised pole heights.

Ensure that metal signal poles permit cables to be installed inside poles and any required mast arms. For holes in the poles and arms used to accommodate cables, provide full-circumference grommets. Arm flange plate wire access holes should be deburred, non grommited, and oversized to fit around the 2” diameter grommited shaft flange plate wire access hole.

After fabrication, have steel poles, required mast arms, and all parts used in the assembly hot-dip galvanized per section 1076. Design structural assemblies with weep holes large enough and properly located to drain molten zinc during the galvanization process. Provide hot-dip galvanizing on structures that meets or exceeds ASTM Standard A-123. Provide galvanizing on hardware that meets or exceeds ASTM Standard A-153. Ensure that threaded material is brushed and retapped as necessary after galvanizing. Perform repair of damaged galvanizing that complies with the following:

Repair of GalvanizingArticle 1076-7

Standard Drawings for Metal Poles are available that supplement these project special provisions. These drawings are located on the Department’s website:

<https://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx>

Comply with article 1098-1B of the *2018 STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES*, hereinafter referred to as the *Standard Specifications* for submittal requirements. Furnish shop drawings for approval. Provide the copies of detailed shop drawings for each type of structure as summarized below. Ensure that shop drawings include material specifications for each component and identify welds by type and size on the detail drawing only, not in table format. **Do not release structures for fabrication until shop drawings have been approved by NCDOT.** Provide an itemized bill of materials for all structural components and associated connecting hardware on the drawings.

Comply with article 1098-1A of the *Standard Specifications* for Qualified Products List (QPL) submittals. All shop drawings must include project location description, signal inventory number(s) and a project number or work order number on the drawings.

Summary of information required for metal pole review submittal:

Item	Hardcopy Submittal	Electronic Submittal	Comments / Special Instructions
Sealed, Approved Signal Plan/Loading Diagram	1	1	All structure design information needs to reflect the latest approved signal plans
Custom Pole Shop Drawings	4 sets	1 set	Show NCDOT inventory number(s), contractor's name and relevant revision number in the title block. All drawings must have a unique <u>drawing</u> number for each project and identified for multiple pages.
Standard Pole Shop Drawings (from the QPL)	4 sets	1 set	Submit drawings on 11" x 17" format media. Show NCDOT inventory number(s), contractor's name and relevant revision number in the title block. All drawings must have a <u>unique drawing</u> number for each project and identified for multiple pages.
Structure Calculations	1 set	1 set	Not required for Standard QPL Poles
Standard Pole Foundation Drawings	1 set	1 set	Submit drawings on 11" x 17" format media. Submit a completed Standard Foundation Selection form for each pole using foundation table on Metal Pole Drawing M-8.
Custom Foundation Drawings	4 sets	1 set	Submit drawings on 11" x 17" format media. Show NCDOT inventory number(s), contractor's name and relevant revision number in the title block. All drawings must have a <u>unique drawing</u> number for each project and identified for multiple pages. If QPL Poles are used, include the corresponding QPL pole shop drawings with this submittal.
Foundation Calculations	1	1	Submit copies of LPILE input, output and pile tip deflection graph per Section 11.4 of this specification for each foundation. Not required for Standard QPL Poles
Soil Boring Logs and Report	1	1	Report should include a location plan and a soil classification report including soil capacity, water level, hammer efficiency, soil bearing pressure, soil density, etc. for each pole.

NOTE – All shop drawings and custom foundation design drawings must be sealed by a Professional Engineer licensed in the state of North Carolina. All geotechnical information must be sealed by either a Professional Engineer or geologist licensed in the state of North Carolina. Include

a title block and revision block on the shop drawings and foundation drawings showing the NCDOT inventory number.

Shop drawings and foundation drawings may be submitted together or separately for approval. However, shop drawings must be approved before foundations can be reviewed.

Foundation designs will be returned without review if the associated shop drawing has not been approved. Boring reports should include the following: Engineer's summary, boring location maps, soil classification per AASHTO Classification System, hammer efficiency, and Metal Pole Standard Foundation Selection Form. Incomplete submittals will be returned without review. The Reviewer has the right to request additional analysis and copies of the calculations to expedite the approval process.

B. Materials:

Fabricate metal pole and arm shaft from coil or plate steel to meet the requirements of ASTM A 595 Grade A tubes. For structural steel shapes, plates and bars use A572 Gr 50 min or ASTM A709 Gr 50 min. Provide pole and arm shafts that are round in cross section or multisided tubular shapes and have a uniform linear taper of 0.14 in/ft. Construct shafts from one piece of single ply plate or coil so there are no circumferential weld splices. Galvanize in accordance with AASHTO M 111 or an approved equivalent.

Use the submerged arc process or other NCDOT previously approved process suitable for pole shaft and arms to continuously weld pole shafts and arm shafts along their entire length. The longitudinal seam weld will be finished flush to the outside contour of the base metal. Ensure shafts have no circumferential welds except at the lower end joining the shaft to the pole base and arm base. Use full penetration groove welds with backing ring for all tube-to-transverse-plate connections in accordance with 6th Edition AASHTO. Provide welding that conforms to Article 1072-18 of the *Standard Specifications*, except that no field welding on any part of the pole will be permitted unless approved by a qualified engineer.

Refer to Metal Pole Standard Drawing Sheets M2 through M5 for fabrication details. Fabricate anchor bases and mast arm connecting plates from plate steel meeting, as a minimum, the requirements of ASTM A572 Gr 50, AASHTO M270 Gr 50, ASTM A709 Gr50, or an approved equivalent. Conform to the applicable bolt pattern and orientation as shown on Metal Pole Standard Drawing Sheet M2.

Ensure all hardware is galvanized steel or stainless steel. The Contractor is responsible for ensuring that the designer/fabricator specifies connecting hardware and/or materials that do not create a dissimilar metal corrosive reaction.

Provide a minimum of four (4) 1-1/2" diameter high strength bolts for connection between arm plate and pole plate. Increase number of bolts to six (6) 1-1/2" diameter high strength bolts when arm lengths are greater than 50'-0" long.

Unless otherwise required by the design, ensure each anchor rod is 2" diameter and 60" length. Provide 10" minimum thread projection at the top of the rod, and 8" minimum at the bottom of the rod. Use anchor rod assembly and drilled pier foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

For each structural bolt and other steel hardware, hot dip galvanizing shall conform to the requirements of AASHTO M 232 (ASTM A 153). Ensure end caps for poles or mast arms are constructed of cast aluminum conforming to Aluminum Alloy 356.0F.

Provide a circular anchor bolt lock plate that will be secured to the anchor bolts at the embedded end with 2 washers and 2 nuts. Provide a base plate template that matches the bolt circle diameter of the anchor bolt lock plate. Construct plates and templates from ¼” minimum thick steel with a minimum width of 4”. Galvanizing is not required for both plates.

Provide 4 heavy hex nuts and 4 flat washers for each anchor bolt. For nuts, use AASHTO M291 grade 2H, DH, or DH3 or equivalent material. For flat washers, use AASHTO M293 or equivalent material.

C. Construction Methods:

Erect signal support poles only after concrete has attained a minimum allowable compressive strength of 3000 psi. Install anchor rod assemblies in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

For further construction methods, see construction methods for Metal Strain Pole, or Metal Pole with Mast Arm.

Connect poles to grounding electrodes and bond them to the electrical service grounding electrodes.

For holes in the poles used to accommodate cables, install grommets before wiring pole or arm. Do not cut or split grommets.

Attach the terminal compartment cover to the pole by a sturdy chain or cable. Ensure the chain or cable is long enough to permit the cover to hang clear of the compartment opening when the cover is removed, and is strong enough to prevent vandalism. Ensure the chain or cable will not interfere with service to the cables in the pole base.

Attach cap to pole with a sturdy chain or cable. Ensure the chain or cable is long enough to permit the cap to hang clear of the opening when the cap is removed.

Perform repair of damaged galvanizing that complies with the *Standard Specifications*, Article 1076-7 “Repair of Galvanizing.”

Install galvanized wire mesh around the perimeter of the base plate to cover the gap between the base plate and top of foundation for debris and pest control.

Install a ¼” thick plate for concrete foundation tag to include: concrete grade, depth, diameter, and reinforcement sizes of the installed foundation.

4.2. METAL POLE UPRIGHTS (VERTICAL MEMBERS)

A. Materials:

- Provide tapered tubular shafts and fabricated of steel conforming to ASTM A-595 Grade A or an approved equivalent.
- Hot-dip galvanize poles in accordance with AASHTO M 111 or an approved equivalent.
- Have shafts that are continuously welded for the entire length by the submerged arc process, and with exposed welds ground or rolled smooth and flush with the base metal.

Provide welding that conforms to Article 1072-18 of the *Standard Specification* except that no field welding on any part of the pole will be permitted.

- Have Shafts with no circumferential welds except at the lower end joining the shaft to the base.
- Have anchor bases for steel poles fabricated from plate steel meeting as a minimum the requirements of ASTM A572 Gr 50, AASHTO M270 Gr 50, ASTM A709 Gr 50, or an approved equivalent.

Provide a grounding lug(s) in the approximate vicinity of the messenger cable clamp for bonding and grounding messenger cable. Lugs must accept #4 or #6 AWG wire to bond messenger cables to the pole in order to provide an effective ground fault circuit path. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

Have poles permanently stamped above the hand holes with the identification tag details as shown on Metal Pole Standard Drawing Sheet M2.

Provide liquid tight flexible metal conduit (Type LFMC), liquid tight flexible nonmetallic conduit (Type LFNC), high density polyethylene conduit (Type HDPE), or approved equivalent to isolate conductors feeding luminaires.

Fabricate poles from a single piece of steel or aluminum with single line seam weld with no transverse butt welds. Fabrication of two ply pole shafts is unacceptable with the exception of fluted shafts. Provide tapers for all shafts that begin at base and that have diameters which decrease uniformly at the rate of not more than 0.14 inch per foot (11.7 millimeters per meter) of length.

Provide four anchor nuts and four washers for each anchor bolt. Ensure that anchor bolts have required diameters, lengths, and positions, and will develop strengths comparable to their respective poles.

Provide a terminal compartment with cover and screws in each pole that encompasses the hand hole and contains a 12-terminal barrier type terminal block. Provide two terminal screws with a removable shorting bar between them for each termination. Furnish terminal compartment covers attached to the pole by a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cover to hang clear of the compartment opening when the cover is removed, and is strong enough to prevent vandals from being able to disconnect the cover from the pole. Ensure that the chain or cable will not interfere with service to the cables in the pole base.

Install grounding lugs that will accept #4 or #6 AWG wire to electrically bond messenger cables to the pole. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

For each pole, provide a 1/2 inch minimum thread diameter, coarse thread stud and nut for grounding which will accommodate #6 AWG ground wire. Ensure that the lug is electrically bonded to the pole and is conveniently located inside the pole at the hand hole.

Provide a removable pole cap with stainless steel attachment screws for the top of each pole. Ensure that the cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to the pole with a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cap to hang clear of the pole-top opening when the cap is removed.

When required by the plans, furnish couplings 42 inches above the bottom of the base for mounting of pedestrian pushbuttons. Provide mounting points consisting of 1-1/2 inch internally threaded half-

couplings that comply with the NEC and that are mounted within the poles. Ensure that couplings are essentially flush with the outside surfaces of the poles and are installed before any required galvanizing. Provide a threaded plug in each mounting point. Ensure that the surface of the plug is essentially flush with the outer end of the mounting point when installed and has a recessed hole to accommodate a standard wrench.

1. MAST ARM POLE SHAFTS

Ensure that allowable pole deflection does not exceed that allowed per 6th Edition AASHTO. Ensure that maximum angular rotation of the top of the mast arm pole does not exceed 1 degree 40 minutes (1°40').

B. Construction Methods:

Install metal poles, hardware, and fittings as shown on the manufacturer's installation drawings. Install metal poles so that when the pole is fully loaded it is within 1 degree 40 minutes (1°40') of vertical. Install poles with the manufacturer's recommended "rake." Use threaded leveling nuts to establish rake if required.

4.3. MAST ARMS

Provide pole plates and associated gussets and fittings for attachment of required mast arms. As part of each mast arm attachment, provide a cable passage hole in the pole to allow passage of signal cables from the pole to the arm.

Ensure that allowable mast arm deflection does not exceed that allowed per 6th Edition AASHTO. Also when arm is fully loaded, tip of the arm shall not go below the arm attachment point with the pole for all load conditions per 6th Edition AASHTO.

Furnish all arm plates and necessary attachment hardware, including bolts and brackets.

Provide two extra bolts for each arm.

Provide grommet holes on the arms to accommodate cables for the signals.

Provide arms with weatherproof connections for attaching to the shaft of the pole.

Provide hardware that is galvanized steel, stainless steel, or corrosive-resistant aluminum.

Provide a removable end cap with stainless steel attachment screws for the end of each mast arm. Ensure that the cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to the arm with a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cap to hang clear of the arm end opening when the cap is removed.

Comply with the following for Steel Luminaire Arms:

- In addition to tapered tube, luminaire arms may be standard weight black steel pipe conforming to ASTM A 53-90a, Type E or Type S, Grade B or an approved equivalent.
- Conform to the welding requirements of the steel poles.
- After all fabricating, cutting, punching, and welding are completed, luminaire arms should be hot-dipped galvanized inside and outside.
- In accordance with the National Electrical Code (NEC) Article 230.2(E), provide identification of the electrical source provider for the luminaire feeder circuit with contact information on a permanent label located in the pole hand hole in the vicinity of the feeder circuit raceway.

A. Materials:

After all fabricating, cutting, punching, and welding are completed, hot-dip galvanize the structure in accordance with the AASHTO M 111 or an approved equivalent.

B. Construction Methods:

Install horizontal-type arms with sufficient manufactured rise to keep arm from deflecting below the arm attachment height.

Attach cap to the mast arm with a sturdy chain or cable. Ensure that the chain or cable is long enough to permit the cap to hang clear of the arm opening when the cap is removed.

For mast arm poles, use full penetration welds with back-up ring at the pole base and at the arm base connection.

4.4. DRILLED PIER FOUNDATIONS FOR METAL TRAFFIC SIGNAL POLES

Analysis procedures and formulas shall be based on AASHTO 6th Edition, latest ACI code and the *Drilled Shafts: Construction Procedures and Design Methods* FHWA-NHI-10-016 manual. Design methods based on engineering publications or research papers needs to have prior approval from NCDOT. The Department reserves the right to accept or disapprove any method used for the analysis.

Use a Factor of Safety of 1.33 for torsion and 2.0 for bending for the foundation design.

Foundation design for lateral load shall not exceed 1" lateral deflection at top of foundation.

For lateral analysis, use LPILE Plus V6.0 or later. Inputs, results and corresponding graphs are to be submitted with the design calculations.

Skin Friction is to be calculated using the α -method for cohesive soils and the β -method for cohesion-less soils (**Broms method will not be accepted**). Detailed descriptions of the " α " and " β " methods can be found in *FHWA-NHI-10-016*.

Omit first 2.5ft for cohesive soils when calculating skin friction.

When hammer efficiency is not provided, assume a value of 0.70.

Design all custom foundations to carry the maximum capacity of each metal pole. For standard case strain poles only, if a custom foundation is designed, use the actual shear, axial and moment reactions from the Standard Foundation Selection Table shown on Standard Drawing No. M8.

When poor soil conditions are encountered which could create an excessively large foundation design, consideration may be given to allowing an exemption to the maximum capacity design. The contractor must gain approval from the engineer before reducing a foundation's capacity. On projects where poor soil is known to be present, it is advisable that the contractor consider getting foundations approved before releasing poles for fabrication.

Have the contractor notify the engineer if the proposed foundation is to be installed on a slope other than 8H: 1V or flatter.

A. Description:

Furnish and install foundations for NCDOT metal poles with all necessary hardware in accordance with the plans and specifications.

Metal Pole Standards have been developed and implemented by NCDOT for use at signalized intersections in North Carolina. If the plans call for a standard pole, then a standard foundation may be selected from the plans. However, the Contractor is not required to use a standard foundation. If the Contractor chooses to design a non-standard site-specific foundation for a standard pole or if the plans call for a non-standard site-specific pole, design the foundation to conform to the applicable provisions in the NCDOT Metal Pole Standard Drawings and Section B7 (Non-Standard Foundation Design) below. If non-standard site specific foundations are designed for standard QPL approved strain poles, the foundation designer must use the design moment specified by load case on Metal Pole Standard Drawing Sheet M8. Failure to conform to this requirement will be grounds for rejection of the design.

If the Contractor chooses to design a non-standard foundation for a standard pole and the soil test results indicate a standard foundation is feasible for the site, the Contractor will be paid the cost of the standard foundation (drilled pier and wing wall, if applicable). Any additional costs associated with a non-standard site-specific foundation including additional materials, labor and equipment will be considered incidental to the cost of the standard foundation. All costs for the non-standard foundation design will also be considered incidental to the cost of the standard foundation.

B. Soil Test and Foundation Determination:

1. General:

Drilled piers are reinforced concrete sections, cast-in-place against in situ, undisturbed material. Drilled piers are of straight shaft type and vertical.

Some standard drilled piers for supporting poles with mast arms may require wing walls to resist torsional rotation. Based upon this provision and the results of the required soil test, a drilled pier length and wing wall requirement may be determined and constructed in accordance with the plans.

For non-standard site-specific poles, the contractor-selected pole fabricator will determine if the addition of wing walls is necessary for the supporting foundations.

2. Soil Test:

Perform a soil test at each proposed metal pole location. Complete all required fill placement and excavation at each signal pole location to finished grade before drilling each boring. Soil tests performed that are not in compliance with this requirement may be rejected and will not be paid. Drill one boring to a depth of 26 feet within a 25 foot radius of each proposed foundation.

Perform standard penetration tests (SPT) in accordance with ASTM D 1586 at depths of 1, 2.5, 5, 7.5, 10, 15, 20 and 26 feet. Discontinue the boring if one of the following occurs:

- A total of 100 blows have been applied in any 2 consecutive 6-in. intervals.
- A total of 50 blows have been applied with < 3-in. penetration.

Describe each intersection as the “Intersection of (Route or SR #), (Street Name) and (Route or SR #), (Street Name), _____ County, Signal Inventory No. _____”. Label borings with “B- N, S, E, W, NE, NW, SE or SW” corresponding to the quadrant location within the intersection. Pole numbers should be made available to the Drill Contractor. Include pole numbers in the boring label if they are available. If they are not available, ensure the boring labels can be cross-referenced to corresponding pole numbers. For each boring, submit a legible (hand written or typed) boring log signed and sealed by a licensed Geologist or Professional Engineer registered in North Carolina. Include on each boring the SPT blow counts and N-values at each depth, depth of the boring,

hammer efficiency, depth of water table and a general description of the soil types encountered using the AASHTO Classification System.

3. Standard Foundation Determination:

Use the following method for determining the Design N-value:

$$N_{AVG} = \frac{(N@1' + N@2.5' + \dots + N@Deepest\ Boring\ Depth)}{\text{Total Number of N-values}}$$

$$Y = (N@1')^2 + (N@2.5')^2 + \dots + (N@Deepest\ Boring\ Depth)^2$$

$$Z = (N@1' + N@2.5' + \dots + N@Deepest\ Boring\ Depth)$$

$$N_{STD\ DEV} = \left[\frac{(\text{Total Number of N-values} \times Y) - Z^2}{(\text{Total Number of N-values}) \times (\text{Total Number of N-values} - 1)} \right]^{0.5}$$

Design N-value equals lesser of the following two conditions:

$$N_{AVG} - (N_{STD\ DEV} \times 0.45)$$

Or

$$\text{Average of First Four N-Values} = \frac{(N@1' + N@2.5' + N@5' + N@7.5')}{4}$$

Note: If less than 4 N-values are obtained because of criteria listed in Section 2 above, use average of N-values collected for second condition. Do not include the N-value at the deepest boring depth for above calculations if the boring is discontinued at or before the required boring depth because of criteria listed in Section 2 above. Use N-value of zero for weight of hammer or weight of rod. If N-value is greater than 50, reduce N-value to 50 for calculations.

If standard NCDOT strain poles are shown on the plans and the Contractor chooses to use standard foundations, determine a drilled pier length, “L,” for each signal pole from the Standard Foundations Chart (sheet M 8) based on the Design N-value and the predominant soil type. For each standard pole location, submit a completed “Metal Pole Standard Foundation Selection Form” signed by the Contractor’s representative. Signature on form is for verification purposes only. Include the Design N-value calculation and resulting drilled pier length, “L,” on each form.

If non-standard site-specific poles are shown on the plans, submit completed boring logs collected in accordance with Section 2 (Soil Test) above along with pole loading diagrams from the plans to the contractor-selected pole fabricator to assist in the pole and foundation design.

If one of the following occurs, the Standard Foundations Chart shown on the plans may not be used and a non-standard foundation may be required. In such case, contact the Engineer.

- The Design N-value is less than 4.

- The drilled pier length, “L”, determined from the Standard Foundations Chart, is greater than the depth of the corresponding boring.

In the case where a standard foundation cannot be used, the Department will be responsible for the additional cost of the non-standard foundation.

Foundation designs are based on level ground around the traffic signal pole. If the slope around the edge of the drilled pier is steeper than 8:1 (H:V) or the proposed foundation will be less than 10 feet from the top of an embankment slope, the Contractor is responsible for providing slope information to the foundation designer and to the Engineer so it can be considered in the design.

The “Metal Pole Standard Foundation Selection Form” may be found at:

<http://www.ncdot.gov/doh/preconstruct/highway/geotech/formdet/misc/MetalPole.pdf>

If assistance is needed, contact the Engineer.

4. Non-Standard Foundation Design:

Design non-standard foundations based upon site-specific soil test information collected in accordance with Section 2 (Soil Test) above. Design drilled piers for side resistance only in accordance with Section 4.6 of the *AASHTO Standard Specifications for Highway Bridges*. Use the computer software LPILE version-6.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Use the computer software gINT V8i or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. Provide a drilled pier foundation for each pole with a length and diameter that result in a horizontal lateral movement of less than 1 inch at the top of the pier and a horizontal rotational movement of less than 1 inch at the edge of the pier. Contact the Engineer for pole loading diagrams for standard poles to be used for non-standard foundation designs. Submit any non-standard foundation designs including drawings, calculations, and soil boring logs to the Engineer for review and approval before construction.

C. Drilled Pier Construction:

Construct drilled pier foundations in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

4.5. CUSTOM DESIGN OF TRAFFIC SIGNAL SUPPORTS

A. General:

Design traffic signal supports with foundations consisting of metal strain poles or metal poles with mast arms.

The lengths of the metal signal poles shown on the plans are estimated from available data for bid purposes. Determine the actual length of each pole from field measurements and adjusted cross-sections. Furnish the revised pole heights to the Engineer. Use all other dimensional requirements shown on the plans.

Ensure each pole includes an identification tag with information and location positions as defined on Metal Pole Standard Drawing Sheets M2, M3 and M4. All pole shaft tags must include the NCDOT Inventory number followed by the pole number shown on the traffic signal or ITS (non-signalized locations) plan.

Design all traffic signal support structures using the following 6th Edition AASHTO specifications:

- Design for a 50 year service life as recommended by Table 3.8.3-2.

- Use the wind pressure map developed from 3-second gust speeds, as provided in Article 3.8.
- Ensure signal support structures include natural wind gust loading and truck-induced gust loading in the fatigue design, as provided for in Articles 11.7.1.2 and 11.7.1.3, respectively. Designs need not consider periodic galloping forces.
- Assume the natural wind gust speed in North Carolina is 11.2 mph. For natural wind fatigue stress calculations, utilize a drag coefficient (C_d) computed for 11.2 mph wind velocity and not the basic wind speed velocity.
- Design for Category II fatigue, as provided for in Article 11.6, unless otherwise specified.
- Calculate all stresses using applicable equations from Section 5. The Maximum allowable stress ratios for all signal support designs are 0.9.
- Conform to article 10.4.2 and 11.8 for all deflection requirements.

Ensure that the design permits cables to be installed inside poles and mast arms.

Unless otherwise specified by special loading criteria, the computed surface area for ice load on signal heads is:

- 3-section, 12-inch, Surface area: 26.0 ft² (17.0 ft² without back plate)
- 4-section, 12-inch, Surface area: 32.0 ft² (21.0 ft² without back plate)
- 5-section, 12-inch, Surface area: 42.0 ft² (29.0 ft² without back plate)

The ice loading for signal heads defined above includes the additional surface area that back plates will induce. Special loading criteria may be specified in instances where back plates will not be installed on signal heads. Refer to the Loading Schedule on each Metal Pole Loading Diagram for revised signal head surface areas. The pole designer should revise ice loads accordingly in this instance. Careful examination of the plans when this is specified is important as this may impact sizing of the metal support structure and foundation design which could affect proposed bid quotes. All maximum stress ratios of 0.9 still apply.

Assume the combined minimum weight of a messenger cable bundle (including messenger cable, signal cable and detector lead-in cables) is 1.3 lbs/ft. Assume the combined minimum diameter of this cable bundle is 1.3 inches.

Ensure that designs provide a removable pole cap with stainless steel attachment screws for each pole top and mast arm end.

B. Metal Poles:

Submit design drawings for approval including pre-approved QPL pole drawings. Show all the necessary details and calculations for the metal poles including the foundation and connections. Include NCDOT inventory number on design drawings. Include as part of the design calculations the ASTM specification numbers for the materials to be used. Provide the types and sizes of welds on the design drawings. Include a Bill of Materials on design drawings. Ensure design drawings and calculations are signed, dated, and sealed by the responsible professional engineer licensed in the state of North Carolina. Immediately bring to the attention of the Engineer any structural deficiency that becomes apparent in any assembly or member of any assembly as a result of the design requirements imposed by these specifications, the plans, or the typical drawings. Said Professional Engineer is wholly responsible for the design of all poles and arms. Review and acceptance of these

designs by the Department does not relieve the said Professional Engineer of his responsibility. **Do not fabricate the assemblies until receipt of the Department's approval of the design drawings.**

For mast arm poles, provide designs with provisions for pole plates and associated gussets and fittings for mast arm attachment. As part of each mast arm attachment, provide a grommeted 2" diameter hole on the shaft side of the connection to allow passage of the signal cables from the pole to the arm.

Where ice is present, assume wind loads as shown in Figure 3.9.4.2-3 of the 6th Edition AASHTO Specification for Group III loading.

For each strain pole, provide two messenger cable clamps and associated hardware to attach the messenger support cable. Ensure that the diameter of the clamps is appropriately designed to be adjustable from 1'-6" inches below the top, down to 6'-6" below the top of the pole. Do not attach more than one messenger support cable to a messenger cable clamp.

Provide a grounding lug(s) in the approximate vicinity of the messenger cable clamp for bonding and grounding messenger cable. Lugs must accept #4 or #6 AWG wire to bond messenger cables to the pole in order to provide an effective ground fault circuit path. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

Design tapers for all pole shafts that begin at the base with diameters that decrease uniformly at the rate of 0.14 inch per foot of length.

Design a base plate on each pole. The minimum base plate thickness for all poles is determined by the following criteria:

Case 1 Circular or rectangular solid base plate with the upright pole welded to the top surface of base plate with full penetration butt weld, and where no stiffeners are provided. A base plate with a small center hole, which is less than 1/3 of the upright diameter, and located concentrically with the upright pole, may be considered as a solid base plate.

The magnitude of bending moment in the base plate, induced by the anchoring force of each anchor bolt is $M = (P \times D_1) / 2$, where

M = bending moment at the critical section of the base plate induced by one anchor bolt

P = anchoring force of each anchor bolt

D_1 = horizontal distance between the anchor bolt center and the outer face of the upright, or the difference between the bolt circle radius and the outside radius of the upright

Locate the critical section at the face of the anchor bolt and perpendicular to the bolt circle radius. The overlapped part of two adjacent critical sections is considered ineffective.

Case 2 Circular or rectangular base plate with the upright pole socketed into and attached to the base plate with two lines of fillet weld, and where no stiffeners are provided, or any base plate with a center hole that is larger in diameter than 1/3 of the upright diameter.

The magnitude of bending moment induced by the anchoring force of each anchor bolt is $M = P \times D_2$,

where P = anchoring force of each anchor bolt

D_2 = horizontal distance between the face of the upright and the face of the anchor bolt nut

Locate the critical section at the face of the anchor bolt top nut and perpendicular to the radius of the bolt circle. The overlapped part of two adjacent critical sections is considered ineffective.

If the base plate thickness calculated for Case 2 is less than Case 1, use the thickness calculated for Case 1.

The following additional owner requirements apply concerning pole base plates.

- Ensure that whichever case governs as defined above, the anchor bolt diameter is set to match the base plate thickness. If the minimum diameter required for the anchor bolt exceeds the thickness required for the base plate, set the base plate thickness equal to the required bolt diameter.
- For dual mast arm supports, or for single mast arm supports 50' or greater, use a minimum 8 bolt orientation with 2" diameter anchor bolts, and a 2" thick base plate.
- For all metal poles with mast arms, use a full penetration groove weld with a backing ring to connect the pole upright component to the base. Refer to Metal Pole Standard Drawing Sheet M4.

Ensure that designs have anchor bolt holes with a diameter 1/4 inch larger than the anchor bolt diameters in the base plate.

Ensure that the anchor bolts have the required diameters, lengths, and positions, and will develop strengths comparable to their respective poles.

Provide designs with a 6 x 12-inch hand hole with a reinforcing frame for each pole.

Provide designs with a terminal compartment with cover and screws in each pole that encompasses the hand hole and contains provisions for a 12-terminal barrier type terminal block.

For each pole, provide designs with provisions for a 1/2 inch minimum thread diameter, coarse thread stud and nut for grounding which will accommodate a #6 AWG ground wire. Ensure the lug is electrically bonded to the pole and is conveniently located inside the pole at the hand hole.

When required, design couplings on the pole for mounting pedestrian pushbuttons at a height of 42 inches above the bottom of the base. Provide mounting points consisting of 1-1/2 inch internally threaded half-couplings that comply with the NEC that are mounted within the poles. Ensure the couplings are essentially flush with the outside surfaces of the poles and are installed before any required galvanizing. Provide a threaded plug for each half coupling. Ensure that the surface of the plug is essentially flush with the outer end of the mounting point when installed and has a recessed hole to accommodate a standard wrench.

C. Mast Arms:

Design all arm plates and necessary attachment hardware, including bolts and brackets as required by the plans.

Design for grommeted holes on the arms to accommodate the cables for the signals if specified.

Design arms with weatherproof connections for attaching to the shaft of the pole.

Always use a full penetration groove weld with a backing ring to connect the mast arm to the pole. Refer to Metal Pole Standard Drawing Sheet M5.

Capacity of tapped flange plate must be sufficient to develop the full capacity of the connecting bolts. In all cases the flange plate of both arm and shaft must be at least as thick as the arm connecting bolts are in diameter.

4.6. METAL SIGNAL POLE REMOVALS

A. Description:

Remove and dispose of existing metal signal poles including mast arms, and remove and dispose of existing foundations, associated anchor bolts, electrical wires and connections.

B. Construction Methods:

1. Foundations:

Remove and promptly dispose of the metal signal pole foundations including reinforcing steel, electrical wires, and anchor bolts to a minimum depth of two feet below the finished ground elevation. At the Contractor's option, remove the complete foundation.

2. Metal Poles:

Assume ownership of the metal signal poles, remove the metal signal poles, and promptly transport the metal signal poles from the project. Use methods to remove the metal signal poles and attached traffic signal equipment that will not result in damage to other portions of the project or facility. Repair damages that are a result of the Contractor's actions at no additional cost to the Department.

Transport and properly dispose of the materials.

Backfill and compact disturbed areas to match the finished ground elevation. Seed unpaved areas.

Use methods to remove the foundations that will not result in damage to other portions of the project or facility. Repair damages that are a result of the Contractor's actions at no cost to the Department.

4.7. POLE NUMBERING SYSTEM

A. New Poles

Attach an identification tag to each pole shaft and mast arm section as shown on Metal Pole Standard Drawing Sheet M2 "Typical Fabrication Details Common To All Metal Poles".

4.8. MEASUREMENT AND PAYMENT

Actual number of metal poles with single mast arms furnished, installed, and accepted.

Actual number of metal poles with dual mast arms furnished, installed, and accepted.

Actual number of soil tests with SPT borings drilled furnished and accepted.

Actual volume of concrete poured in cubic yards of drilled pier foundation furnished, installed and accepted.

Actual number of designs for mast arms with metal poles furnished and accepted.

Actual number of metal signal pole foundations removed and disposed.

Actual number of metal signal poles removed and disposed.

No measurement will be made for foundation designs prepared with metal pole designs, as these will be considered incidental to designing signal support structures.

Payment will be made under:

Metal Pole with Single Mast Arm	Each
Metal Pole with Dual Mast Arm.....	Each
Soil Test	Each
Drilled Pier Foundation.....	Cubic Yard
Mast Arm with Metal Pole Design	Each
Metal Pole Foundation Removal	Each
Metal Pole Removal.....	Each

5. PROTECTIVE COATING FOR METAL POLES

5.1. Description

Protective coating for metal poles is a supplemental durable color coating that is applied to galvanized steel and aluminum traffic signal structures installed in locations where maintaining an aesthetic appearance is important. Powder Coating is the preferred supplemental protective coating process for coating galvanized steel and aluminum structures. However, for the purposes of this special provision, an Acrylic Primer and top coat paint system is included as an acceptable alternative when protective color coating is required.

Provide protective coating over galvanization for all steel poles including all necessary hardware in accordance with the plans and specifications. Any aluminum components do not need to be galvanized before application of protective coating.

5.2. Materials

With the exception of aluminum components, furnish all metal poles with galvanic protection along with a tough and durable application of protective coating. Aluminum components shall have a durable powder coating application. Galvanization is not required for aluminum components.

Furnish pole caps that have a low gloss powder finish applied over a hot-dipped galvanized surface. Comply with the applicable provisions of Section 442-10 and 442-12 of the *Standard Specifications*.

Ensure the selected color for protective coating has been verified and approved by the Engineer prior to fabrication.

5.3. Coating Shop Approval

Approve the coating shop facility prior to the application of any coating process. Submit all requests, procedures and documents electronically to:

- Mr. Brian Hunter, P.E., Chemical Testing Engineer
 - bhunter@ncdot.gov
- A) Submit a quality control procedure that the company has established to ensure a quality and durable coating. The quality control procedure shall contain at a minimum the following:
- Qualified / Certified personnel to manage the QC Program and to conduct Quality Control tests
 - Qualified / certified coaters
 - Source and type of powder
 - How the powder will be stored
 - Powder application facility (heated or unheated)
 - Surface pre-treatment
 - Surface preparation including profile
 - Application methods
 - Curing conditions (conventional or infrared)
 - Curing Temperature
 - Adhesion & Holiday Detection
 - Repair Procedure
 - Storage and protection of coated items
 - Shipping and handling (packing, protection, and wrapping)
- B) Submit a powder certification from the manufacturer
- C) Submit the following to the Chemical Testing Engineer a minimum of four weeks prior to coating application.
1. Two test panels of ASTM A36 steel, ¼ or greater in thickness measuring 8 inches by 11 inches using the proposed color of the final coat; a powder coated over galvanized test panel and a powder coated over un-galvanized test panel.
 2. In addition, provide two (2) samples of the same or comparable material and thickness as production pieces. Ensure production piece replicas do not exceed twelve inches (12”) in length and width nor 50 pounds in weight.
 3. Submit all test panels with inspection reports and records according to *Standard Specifications*, Section 442, Section 1072, Section 1076, and Section 1080.
 4. Acceptance of the panels is determined by meeting the requirements of ASTM D-4541 of 800 psi for both galvanized and un-galvanized and production piece test panels.
 5. Send all panels to :
 - Materials and Tests Unit
 - 1801 Blue Ridge Road
 - Raleigh, NC 27607
 - Attn: Chemical Testing Engineer

5.4. POWDER COATING

A. Galvanizing

Galvanize steel products in accordance with Section 1076 of the *Standard Specifications*. Ensure the fabricator or designated representative(s) that is supplying the components to be galvanized communicates with the galvanizer to indicate that the galvanized pieces will be powder coated to avoid water or chromate quenching.

B. Surface Preparation

Comply with manufacturer's recommended surface coating specifications, Steel Structure Painting Council (SSPC) specifications and applicable articles of Section 442 (Painting Steel Structures) of the *Standard Specifications*. Ensure that surface preparations and treatments are performed and meet the requirements of the above referenced specifications.

Some pole components, specifically steel plates $\frac{3}{4}$ inches or more in thickness, may need blast cleaning prior to structure assembly to remove impurities and non-metallic foreign materials. Mechanically remove all weld flux after structure is assembled

Degrease and prepare steel structure for zinc coating after assembly using full immersion baths and pickling processes in heat controlled caustic and acid solutions. Rinse and clean structure to remove caustic or acid solutions by immersion in a circulating fresh water bath. Immerse structure in a heat controlled concentrated zinc ammonium chloride flux solution and air dry as a final prep before hot-dip galvanization.

Ensure that the surface preparation is no less than specified by the powder manufacturer's recommendations. Prepare all components to be coated in accordance with SSPC SP-2 (Hand Tool Cleaning) and/or SSPC SP-3 (Power Tool Cleaning). Remove all drainage spikes, high spots, protrusions or other surface defects using hand or power tools. Do not remove the galvanization below the limits set forth in AASHTO M111.

Remove grease, oils, moisture, scale, rust or any other foreign matter prior to powder coating to ensure ideal adhesion and coating performance. Prepare and coat the galvanized surface as soon as possible after the galvanization process.

C. Powder Coating Application and Curing

Prepare galvanized finish for powder coating by brush blasting in accordance with SSPC-SP7. Ensure all threaded components of the structure are protected from damage during blasting process.

Use thermosetting powder resin that meets 5A or 5B classifications of ASTM D3359. Apply powder coating electrostatically. Follow manufacturer's recommended preheating requirements. Ensure the top coat finish is applied uniformly to all surfaces with a dry film thickness of between 3.0 to 5.0 mils. Cure the top coat by heating the structure to manufacturer recommended temperatures at the duration required to ensure complete and uniform bond.

D. Quality Control

Ensure the applicator provides all test reports and documentation and inspects all coated material as outlined in the *Standard Specifications*, Section 442, Section 1072,

Section 1076, and Section 1080. Ensure the quality control inspection is kept separate from the production functions.

E. Storage, Shipping, and Handling

Store all powder coated material inside or as directed by the Engineer.

Protect the product from incurring damage during all shipping, handling, and storing activities. Do not store the product directly on the ground or in areas where water may pool; the Engineer determines the effectiveness of all storage, shipping and handling methods.

F. Repair of Powder Coated Material

Repair all damage to the coating by the original method of application as outlined in the coating facility's repair procedure. Ensure all repair areas meet the original requirements for adhesion as stated in this Project Special Provision.

Photograph, document, and report all damages upon delivery to the project site prior to unloading. Provide documented damage notifications to the Engineer or to their authorized representative so the application firm can be notified. The Engineer has the authority to accept or reject the material as outlined in the *Standard Specifications*.

Submit to the Engineer a repair procedure for damaged coatings which occur during storage, transporting, handling and or installation. Utilize a liquid paint approved by the Department, compatible with the powder applied product. Ensure all repair areas demonstrate an adhesion rating of 400 psi in accordance with ASTM D-4541. Obtain Engineer's acceptance of the final finish.

5.5.ACRYLIC PRIMER AND TOP COAT PAINT SYSTEM 4 (MODIFIED)

A. Description

Follow NCDOT procedures for Powder Coating over Galvanizing. Provide an Acrylic Primer and top coat when a substitute for powder coating is necessary.

Provide supplemental coating for all mast arms with metal signal poles and all necessary hardware for the signalized intersection in accordance with NCDOT Standard specifications – sections 442 and 1080, as contained herein, and as shown on the plans.

Ensure all painting work for new structures, except field touch-up and bolt painting is performed in the shop.

B. Surface Preparation

Ensure all surface preparation is not less than that specified by the paint manufacturer's recommendations.

Ensure all components to be coated are prepared in accordance with SSPC SP2 (Hand Tool Cleaning and or SSPC SP-3 (Power Tool Cleaning). Remove all drainage spikes, high spots, protrusions or other surface defects using hand or power tools. Do not remove the galvanization below the limits set forth in AASHTO M111.

Perform abrasive sweep blasting in accordance with ASTM D6386. Refer to this section for a description of the abrasive blast material to be used. Use a material and technique capable of stripping action to remove corrosion products and to provide a rough surface profile while leaving base zinc layers intact.

Blow down all blasted surfaces with clean compressed air to provide a clean, dry surface.

Ensure all surfaces are free of visible zinc oxides or zinc hydroxides.

C. Materials

Use an approved/qualified waterborne paint meeting the requirements of NCDOT Standard specification section 1080. Do not apply paint until each batch has been tested by the Department. Provide color as specified in the contract documents.

Ensure all paint used on this contract is produced by the same manufacturer.

D. Painting

Apply paint in accordance with the requirements of Section 1080 and Section 442 of the 2010 *Standard Specifications* using System 4 as modified herein.

System 4 (Modified) Acrylic Primer and Top Coats

Coat	Material	Mils Dry/Wet Film Thickness	
		Minimum	Maximum
Primer	1080-12 White	3.0 DFT	5.0 DFT
Stripe	1080-12 Brown	4.0 WFT	7.0 WFT
Topcoat	1080-12 Brown	2.0 DFT	4.0 DFT
Total		5.0 DFT	9.0 DFT

Shop paint all galvanized surfaces within 8 hours after surface preparation with the exception of field touch-up and bolt painting.

Mask off and do not paint all data plates and faying surfaces prior to application.

Spray apply all coatings except for the stripe coat. Brush apply the stripe coat to all plate edges, welds, bolt holes and bolts prior to applying the finish coat.

E. Curing

Store all material in a heated shop for a period no less than 24 hours once top coat has been applied. Continue storing material until requirements of ASTM D-1640 have been met.

F. Inspection

Provide inspection records showing the initial average thickness of the hot dipped galvanizing as well as the final average DFT measurement.

Ensure all material is of a uniform appearance free of runs, drips, and sags.

G. Handling

Do not handle, ship, or erect coated members until paint is thoroughly dry.

Protect all shipping and handling either from the coating facility to project site and or storage site to area(s) to construction location from incurring damage to product. Wood blocks and nylon slings are recommended for securing, loading, hoisting or storing members.

H. Repair of Damaged Coating

Repair damage occurring to the galvanized portion of the coating during shipment or installation in accordance with Articles 1076-6 and 1080-9 of the *Standard Specifications*. Repair damage occurring to the painted portion of the coating during shipment or installation by applying 4.0-7.0 wet mils of topcoat with a brush or roller and feather or taper this to be level with the surrounding areas.

5.6. MEASUREMENT AND PAYMENT

Actual number of single mast arm poles with powder coat applied furnished, installed, and accepted.

Actual number of dual mast arm poles with powder coat applied furnished, installed, and accepted.

Actual number of signal pedestals with powder coat applied furnished, installed, and accepted.

Actual number of pushbutton posts with powder coat applied furnished, installed, and accepted.

Payment will be made under:

Powder Coat for Single Mast Arm Pole (_____)	Each
Powder Coat for Dual Mast Arm Pole (_____)	Each
Powder Coat for Signal Pedestal (_____)	Each
Powder Coat for Pushbutton Post (_____)	Each

6. BACK PULL FIBER OPTIC CABLE

6.1. DESCRIPTION

Back pull and store or back pull and reinstall existing communications cable.

6.1. CONSTRUCTION

During project construction where instructed to back pull existing aerial sections of fiber optic communications cable, de-lash the cable from the messenger cable and back pull the cable to a point where it can be stored or re-routed as shown on the plans. If instructed, remove and discard the existing messenger cable and pole mounting hardware once the cable is safely out of harm's way.

During project construction where instructed to back pull existing underground sections of fiber optic communications cable, back pull the cable to a point where it can be stored or re-routed as

shown on the plans. If instructed, remove abandoned junction boxes and backfill with a suitable material to match the existing grade. Leave abandoned conduits in place unless otherwise noted.

Where instructed, re-pull the fiber optic cable back along messenger cable or through conduit systems.

6.2. MEASUREMENT AND PAYMENT

Back Pull Fiber Optic Cable will be paid for as the actual linear feet of fiber optic cable back pulled and either stored or back pulled and rerouted. Payment is for the actual linear feet of cable back pulled.

No payment will be made for removing messenger cable and pole mounting hardware or removing junction boxes and back filling to match the surrounding grade as these items of work will be considered incidental to back pulling the fiber optic cable.

Payment will be made under:

Back Pull Fiber Optic Cable Linear Feet

7. OPTICALLY ACTIVATED TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM

7.1. DESCRIPTION

Furnish, install, place in operation, repair, maintain, relocate and remove optically activated traffic signal prior control system. Comply with the provisions of Section 1700 of the 2018 *Standards and Specifications for Roads and Structures*.

7.2. MATERIALS

The required traffic signal priority control system shall be compromised of four basic matched components: optical emitter, optical detector, detector cable and phase selector. To ensure system integrity, operation and compatibility, the four basic components shall be from the same manufacturer. The system shall offer compatibility with all types of signal controllers, e.g. electromechanical, NEMA, 170, and most other solid state controllers.

Emitter

The emitter shall trigger the system. It shall send the infrared signal to the detector. It shall be located on the priority vehicle. **No new emitters shall be required for this project.**

Optical Detector

The optical detector shall change the infrared signal to an electric signal and transmit the electrical signal to the phase selector in the cabinet. The optical detector shall be located at or near the intersection, and have a reception range of approximately 200 feet adjustable up to 2,500 feet.

The required optical detector shall be intended to be mounted (installed) at or near a signalized intersection that permits a direct, unobstructed line of sight to vehicle approaches. The optical detector may be mounted on span wire, mast arms or other appropriate structures.

The required optical detector shall be capable of detecting approaching vehicles with a vehicle emitter matched to the detector on a single channel and transmit the light signal for each detected

approach to the phase selector via the optical detector cable. The detector shall be of modular design, have an adjustable turret to accommodate skewed approaches, be of a lightweight, polycarbonate type housing design.

The required optical detector shall operate on 24 to 28 VDC system, 50 MA minimum, and in a temperature range of -30° F to +165° F (-34° C to +74° C). It shall operate in conditions from 5% to 95 % relative humidity. The required optical detector shall be fully compatible with the existing emitters used by the City of Salisbury.

Optical Detector Cable

The optical detector cable shall carry the electrical signal from the detector to the phase selector. The cable shall be of durable construction to satisfy the following installation methods:

- Direct burial
- Conduit and mast arm pull
- Exposed overhead

The weight of the optical detector cable shall not exceed 0.04 lbs./ft (65.5 grams/meter).

The outside diameter of the optical cable shall not exceed 0.3 in. (7.62mm).

The insulation rating of the optical detector cable shall be 600 volts.

The temperature rating of the optical detector cable shall be 167° F (75° C).

The conductors shall be shielded with an aluminumized polyester shield with 20 % overlap, and drain AWG #20 (7 x 28) stranded, individually tinned copper.

The optical detector cable shall have three conductors of AWG #20 (7 x 28) stranded, individually tinned copper, color coded with orange yellow and blue, in addition to the drain conductor.

The optical detector cable shall be capable of transmitting the electrical signal up to 1,000 ft. (305 m), without signal degradation.

Phase selector

The phase selector shall validate, identify, classify and record the signal from the detector. It shall be located within the controller cabinet at the intersection. It shall request the controller to provide priority to the requesting vehicle. **No new phase selectors shall be required for this project.**

7.3. CONSTRUCTION METHODS

At the locations called for on the plans, optical priority control system components shall be relocated by the Contractor as required or furnished and installed by the Contractor to pre-empt normal traffic signal operations to allow the passage of authorized emergency vehicles. The priority control system shall identify the presence of designated emergency vehicles and record the vehicle by classification and identification number. The optical communication shall request the traffic signal controller to advance to and/or hold a desired traffic signal display selected from phases normally available. Intersection plans showing the controller phasing sequence shall be provided to the Contractor prior to the installation of the optical priority control system components at each intersection.

The priority control system shall consist of a matched system of optical emitters, optical detectors, optical detector cables and phase selectors. It shall be the Contractor's responsibility to verify the existing system components in use at each intersection and to confirm that the components that are being furnished and installed as required in these Special Provisions are compatible with the existing optical priority control system in use.

The system shall require no action from the vehicle operator other than to turn on the optical emitter. The system shall operate on a first-come, first-served basis. Higher priority requests shall override lower priority requests. The system shall interface with the traffic signal controllers without comprising normal signal operations.

At all locations utilizing optically activated traffic signal priority control, the Type 2070L controller shall be capable of communicating with the phase selectors. The optically activated traffic signal priority control system shall communicate with the field master controller or distributed system server via the serial ports on the 2070L controller and signal system interconnect.

Install optical detector cable in continuous lengths between the optical detector on signal spans and/or mast arms, and the phase selector in the traffic signal cabinet. Route the optical detector cable to minimize the length of the cable installed and number of cables lashed to spans and/or pulled in conduit runs. Pull 72 inches of additional optical detector cable into controller cabinets. Install drip loops on cable runs at the optical detector on span wire.

Contact the City of Salisbury Signal Shop a minimum of 5 days prior to installation of new optical detectors to request a vehicle equipped with an emitter to fully test the operation and functionality of the optical detector once it has been installed.

7.4. MEASUREMENT AND PAYMENT

Relocate Optical Priority System Phase Selector will be paid for as the actual number of existing Optical System Phase Selectors removed from existing traffic signal cabinets and re-installed and placed into operational mode and operating as it was programmed to operate in the new traffic signal cabinet. Payment is for the actual phase selectors successfully re-installed and operating correctly.

Optical Detector will be paid for as the actual number of Optical System Detectors furnished, installed and accepted.

No measurement or payment will be made for removing optical detectors units, optical detector cable and any other related mounting hardware.

No measurement will be made for operation, maintenance, adjustment of optical detectors installed to optimize optical signal reception, or use of flaggers during repair periods as these will be considered incidental to furnishing, installing, relocating and operating optically activated traffic signal priority control systems.

No payment will be made for furnishing and installing new optical detector cable, mounting hardware or cable wraps and ties required to mount detectors and lash the optical detector cable as

these items of work will be considered incidental to the installing the optical priority system detectors.

Payment will be made under:

Relocate Optical Priority System Phase SelectorEach
Optical DetectorEach

8. ETHERNET EDGE SWITCH

Relocate and install a managed Ethernet edge switch that is an existing unit and currently operating within the existing traffic signal cabinet on the City of Salisbury traffic signal system communications network.

8.1. DESCRIPTION

Relocate existing hardened, field Ethernet edge switch (hereafter “edge switch”) for traffic signal controllers and associated power supply and mounting hardware. Furnish and install new Ethernet cables and fiber optic jumper cables for each device attached to the edge switch in the new cabinet. Mount the edge switch in the cabinet in similar fashion to the existing signal cabinet.

Contact the City of Salisbury to notify the date and time the existing communications will be disconnected. Provide a minimum five (5) days working notice to allow the City to verify the need for any configuration backups.

8.2. MATERIALS

Ethernet Patch Cable:

Furnish a factory pre-terminated/pre-connectorized Ethernet patch cable for each Ethernet cable being replaced. Furnish Ethernet patch cables meeting the following physical requirements:

- Five (5)-foot length
- Category 5e or better
- Factory-installed RJ-45 connectors on both ends
- Molded anti-snag hoods over connectors
- Gold plated connectors

Furnish Fast Ethernet patch cords meeting the following minimum performance requirements:

- TIA/EIA-568-B-5, Additional Transmission Performance Specifications for 4-pair 100 Ω Enhanced Category 5 Cabling
- Frequency Range: 1-100 MHz
- Near-End Crosstalk (NEXT): 30.1 dB
- Power-sum NEXT: 27.1 dB
- Attenuation to Crosstalk Ratio (ACR): 6.1 dB
- Power-sum ACR: 3.1 dB
- Return Loss: 10dB
- Propagation Delay: 548 nsec

8.3. CONSTRUCTION METHODS

A. General:

Verify that network/field/data patch cords meet all ANSI/EIA/TIA requirements for Category 5E and Category 6 four-pair unshielded twisted pair cabling with stranded conductors and RJ45 connectors.

Contact the City of Salisbury Signal Shop a minimum of 5 days prior to installation to verify the need for configuration changes or data backup.

B. Edge Switch:

Mount the edge switch inside each field cabinet by securely fastening the edge switch to the upper end of the right rear vertical rail of the equipment rack using manufacturer-recommended or Engineer-approved attachment methods, attachment hardware and fasteners.

Ensure that the edge switch is mounted securely in the cabinet and is fully accessible by field technicians without blocking access to other equipment. Verify that fiber-optic jumpers consist of a length of cable that has connectors on both ends, primarily used for interconnecting termination or patching facilities and/or equipment.

8.4. MEASUREMENT AND PAYMENT

Relocate Ethernet switch will be measured and paid as the actual number of Ethernet edge switches removed from existing signal cabinets, relocated to new signal cabinets, installed, and accepted.

No separate measurement will be made for Ethernet patch cable, power cord, mounting hardware, nuts, bolts, brackets, or edge switch programming as these will be considered incidental to furnishing and installing the edge switch.

Payment will be made under:

Relocate Ethernet Switch.....Each

NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

CORPORATION

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bonafide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF PREQUALIFIED BIDDER

_____ Full name of Corporation

_____ Address as Prequalified

Attest _____ By _____
Secretary/Assistant Secretary President/Vice President/Assistant Vice President
Select appropriate title *Select appropriate title*

_____ Print or type Signer's name

_____ Print or type Signer's name

Date of Execution _____

CORPORATE SEAL

NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

LIMITED LIABILITY COMPANY

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bonafide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF PREQUALIFIED BIDDER

Full Name of Firm

Address as Prequalified

Signature of Witness

Signature of Member/Manager/Authorized Agent
Select appropriate title

Print or type Signer's name

Print or type Signer's Name

Date of Execution _____

NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

JOINT VENTURE (2) or (3)

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bonafide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF PREQUALIFIED BIDDER

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

(1) _____
 Name of Joint Venture

(2) _____
 Name of Contractor

 Address as Prequalified

_____ Signature of Witness or Attest	By	_____ Signature of Contractor
_____ Print or type Signer's name		_____ Print or type Signer's name

If Corporation, affix Corporate Seal and

(3) _____
 Name of Contractor

 Address as Prequalified

_____ Signature of Witness or Attest	By	_____ Signature of Contractor
_____ Print or type Signer's name		_____ Print or type Signer's name

If Corporation, affix Corporate Seal and

(4) _____
 Name of Contractor (for 3 Joint Venture only)

 Address as Prequalified

_____ Signature of Witness or Attest	By	_____ Signature of Contractor
_____ Print or type Signer's name		_____ Print or type Signer's name

If Corporation, affix Corporate Seal

Date of Execution _____

NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bonafide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF PREQUALIFIED BIDDER

Name of Prequalified Bidder

Individual name

Trading and doing business as

Full name of Firm

Address as Prequalified

Signature of Witness

Signature of Prequalified Bidder, Individually

Print or type Signer's name

Print or type Signer's name

Date of Execution _____

NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bonafide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF PREQUALIFIED BIDDER

Name of Prequalified Bidder _____
Print or type name

Address as Prequalified

Signature of Prequalified Bidder, Individually

Print or type Signer's Name

Signature of Witness

Print or type Signer's name

Date of Execution _____

DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

Check here if an explanation is attached to this certification.

**State of North Carolina
Department of Transportation
Subcontractor Payment Information**

Submit with Invoice

Firm Invoice No. Reference _____
 NCDOT PO/Contract Number _____
 WBS No. (State Project No.) _____
 Date of Invoice _____

Signed _____

Invoice Line Item Reference (from PO)	Payer Name	Payer Federal Tax Id	Subcontractor / Subconsultant/ Material Supplier Name	Subcontractor / Subconsultant / Material Supplier Federal Tax Id	Amount Paid To Subcontractor / Subconsultant / Material Supplier This Invoice	Date Paid To Subcontractor / Subconsultant / Material Supplier This Invoice
Total Amount Paid to Subcontractor Firms					\$	_____

NOTE: - These documents are scanned into our Fiscal program. Please do not highlight or shade the figures.

I certify that this information accurately reflects actual payments made and the dates the payments were made to Subcontractors/
Subconsultants/Material Suppliers on the above referenced project.

Signature _____ Title _____

Print Name _____ Date _____

**State of North Carolina
Department of Transportation
Subcontractor Payment Information**

Submit with Invoice

Firm Invoice No. Reference 1231
 NCDOT PO/Contract Number 360001234
 WBS No. (State Project No.) 40491
 Date of Invoice 12/11/2007
 Signed John Doe

EXAMPLE

Invoice Line Item Reference (from PO)	Payer Name	Payer Federal Tax Id	Subcontractor / Subconsultant / Material Supplier Name	Subcontractor / Subconsultant / Material Supplier Federal Tax Id	Amount Paid To Subcontractor / Subconsultant / Material Supplier This Invoice	Date Paid To Subcontractor / Subconsultant / Material Supplier This Invoice
Example 1						
10	XYZ Trucking	123-45-6789	ABC Company	987-65-4312	\$ 7,000.00	11/16/2007
60	CDF Company	456-78-9123	DEF Paving	789-12-3456	\$ 1,000.00	11/17/2007

If no Subcontractor/Subconsultant participation, please submit form as shown below in Example 2

N/A					0.00	

	Example 1	Example 2
Total Amount Paid to Subcontractor Firms	\$ 8,000.00	0.00

NOTE: - These documents are scanned into our Fiscal program. Please do not highlight or shade the figures.

I certify that this information accurately reflects actual payments made and the dates the payments were made to Subcontractors/ Subconsultants/Material Suppliers on the above referenced project.

Signature	<u>John Doe</u>	Title	<u>Owner</u>
Print Name	<u>John Doe</u>	Date	<u>12/11/2007</u>

Field

Instructions

Subgrantee Letterhead / Name & Address Goes Here

Enter the name and address of the company, firm, governmental entity or subgrantee requesting payment from the North Carolina Department of Transportation

Submit with Invoice To:

Update this section with the name and address of the NCDOT representative that is responsible for processing payment requests for your contracts.

Firm Invoice No. Reference

Enter the invoice number that was submitted to NCDOT that corresponds with the payment information contained on this form.

NCDOT PO / Contract Number
WBS No. (State Project No.)

Enter the NCDOT Purchase Order or Contract number that corresponds with the information contained on this form.
Enter the NCDOT WBS element number assigned to this project.

Date of Invoice

Enter the date of the invoice that was submitted for payment.

Signed

Enter the name of the person responsible for the validity of the information contained on this form.

Invoice Line Item Reference

Enter the invoice line item or pay item that the DBE payment information is related to.

Payer Name
Payer Federal Tax Id

Enter the name of the company, firm, governmental entity or subgrantee that is responsible for paying the DBE subcontractor.
Enter the Federal Tax Identification number of the Payer (See Payer Name)

Subcontractor / Subconsultant/ Material Supplier Name

Enter the name of the DBE Subcontractor, Subconsultant or Material Supplier that is being paid for goods or services related to the NCDOT PO / Contract Number.

Subcontractor / Subconsultant/ Material Supplier Federal Tax Id
Amount Paid To Subcontractor / Subconsultant / Material Supplier

Enter the Federal Tax Identification number of the DBE Subcontractor, Subconsultant or Material Supplier that is being paid for goods or services related to the NCDOT PO / Contract Number.
Enter the amount paid to the DBE Subcontractor, Subconsultant or Material Supplier for the invoice referenced.

This Invoice
Date Paid To Subcontractor / Subconsultant / Material Supplier This Invoice

Enter the date that the Subcontractor / Subconsultant / Material Supplier was paid for the items referenced on the invoice.

Total Amount Paid to DBE Firms

Enter the total payments made to all DBE Subcontractor / Subconsultant / Material Supplier for the invoice referenced.



LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

CONTRACT:

NAME OF BIDDER:

The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation as:

Name of MBE/WBE/DBE Subcontractor _____

Address _____

City _____ State _____ Zip _____

Please check all that apply:

Minority Business Enterprise (MBE) _____

Women Business Enterprise (WBE) _____

Disadvantaged Business Enterprise (DBE) _____

The MBE /WBE /DBE status of the above named subcontractor is certified by the North Carolina Department of Transportation. The above named subcontractor is prepared to perform the described work listed on the attached MBE/WBE/DBE Commitment Items sheet, in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation. The above named subcontractor is prepared to perform the described work at the estimated Commitment Total for Subcontractor Price identified on the MBE/WBE/DBE Commitment Items sheet and amount indicated below.

Commitment Total based on estimated Unit Prices and Quantities on the "attached" MBE/WBE/DBE Commitment Items sheet. Amount \$ _____

The above named bidder and subcontractor mutually accepts the Commitment Total estimated for the Unit Prices and Quantities. This commitment total is based on estimated quantities only and most likely will vary up or down as the project is completed. Final compensation will be based on actual quantities of work performed and accepted during the pursuance of work. The above listed amount represents the entire dollar amount quoted based on these estimated quantities. No conversations, verbal agreements, and/or other forms of non-written representations shall serve to add, delete, or modify the terms as stated.

This document shall not serve in any manner as an actual subcontract between the two parties. A separate subcontractor agreement will describe in detail the contractual obligations of the bidder and the MBE/WBE/DBE subcontractor.

Affirmation

The above named MBE/ WBE/ DBE subcontractor affirms that it will perform the portion(s) of the contract for the estimated dollar value as stated above.

Name of MBE/ WBE/ DBE Subcontractor

Name of Bidder

Signature / Title

Signature / Title

Date

Date

Subcontract Approval Form (SAF)

1. Complete the "Subcontract Approval Form" (Form SAF) for the Subcontractor and the 2nd Tier Subcontractor on one form. Additional items of work can be entered on the "Subcontract Approval Form Attachment". If there is more than one 2nd Tier Subcontractor, the information should be listed on the "Subcontract Approval Form - Additional 2nd Tier" (SAF - Additional 2nd Tier).
2. Reporting Number is the Fiscal Vendor Number for Contractors and Subcontractors. This number can be found in the NCDOT Directory of Transportation Firms - Prequalified Bidders and Subcontractors. Use the following web address to access the list of Prequalified Bidders and Subcontractors.

<https://partner.ncdot.gov/VendorDirectory/default.html>

Enter the name of your subcontractor and hit "Submit". If the firm is prequalified to perform work for NCDOT, the firm's information will be shown on the screen. Click on the firm's name to access the Reporting Number.

3. If retainage is being withheld for the Subcontractor or 2nd Tier Subcontractor place an "X" in the box under the column titled "Retainage."
4. When the proposed Subcontractor or 2nd Tier Subcontractor is a certified DBE, MBE, or WBE Subcontractor, select the appropriate certification from the drop down list. When the proposed Subcontractor is not a certified DBE, MBE, or WBE subcontractor, select "NONE" from the drop down list.
5. **Partial Item of Work and Portion of Work**

Partial Item of Work is defined as a Subcontractor performing part of the work associated with a line item, such as hauling asphalt or tying steel. The partial item of work should be indicated by the symbol (♦). The work associated with the contract line item to be performed by the Subcontractor shall be identified.

Portion of Work is defined as a Subcontractor performing all the work associated with a line item, but only a portion of the contract quantity. An example is grading from Station 225+00 - L- to the end of the project. The portions of work should be indicated by the symbol (●). The physical limits of the sublet quantity shall be identified.

The Contractor may designate a subcontracted item of work as both a portion and a partial. (Example: Contractor is subcontracting hauling of unclassified excavation to multiple trucking contractors.) If the item of work is designated as both a portion and a partial the unit price shall be less than the contract unit price and the quantity shall be less than the contract quantity.

6. Sub or 2nd Tier - Designate if the work for the associated line item will be performed by a Subcontractor or a 2nd Tier Subcontractor. This must be completed to correctly calculate the Subcontract Amount.
7. Units of Measure (UOM) shown on the Subcontract Approval Form (SAF) shall be the same as those shown in the Department's contract. Any conversions that are necessary to satisfy this requirement shall be the responsibility of the Contractor. The Converted Price (CP) shall be denoted with an asterisk (*).
(Examples of converting units of measure can be found in the HiCAMS User Guide, Chapter 2, Section 8A. Use the following link to view the examples.)

<https://connect.ncdot.gov/projects/construction/Pages/HiCAMS-Manual.aspx>

8. DBE/MBE/WBE Unit Price - This unit price should only be completed for DBE/MBE/WBE Subcontractors. Enter a DBE/MBE/WBE Unit Price for the items of work performed by any certified DBE/MBE/WBE. Use the chart below to determine if a DBE/MBE/WBE Unit Price shall be entered for the line item, based on the certification of the firm.

Subcontractor	2nd Tier	Enter DBE/MBE/WBE Unit Price For
Certified	None	Subcontractor
Certified	Certified	Subcontractor
None	Certified	2nd Tier

The DBE/MBE/WBE Unit Price must be the negotiated unit or lump sum price agreed upon between the Contractor and the Subcontractor, **unless the Contractor is entering a Converted Price**. Indicating a Converted Price acknowledges that the price shown is not the actual price, but an approximate value used for calculating the Sublet Amount as reasonably close as possible. It can be higher, lower or equal to the contract bid price.

9. DBE/MBE/WBE Sublet Amount is the DBE/MBE/WBE Unit Price multiplied by the Quantity. For committed firms, the DBE/MBE/WBE Sublet Amount shall be the same or higher than the amount listed in the contract.
10. Subcontract Unit Price - The Subcontract Unit Price must be the same as the contract unit price unless the Subcontractor is performing a partial item of work. When a partial item of work is sublet, the unit price must be less than the contract unit price. When only a portion of the quantity of an item is sublet, the unit price shall be the same as the contract unit price. If an item of work is designated as both a partial and a portion, refer to Item 5 of these instructions. A Subcontract Unit Price must be entered for every line item, including an item of work performed by a DBE/MBE/WBE Subcontractor.
11. The Total Subcontract Amount is the Subcontract Unit Price multiplied by the Quantity.
12. The Subcontract Amount is the amount subcontracted by the Contractor. The amount is used to determine the percent of work performed by the Prime Contractor. (Refer to Article 108-6 of the Standard Specifications for subletting percentages.) The Subcontract Amount is calculated by summing the Total Subcontract Amounts for the Subcontractor. Any items listed on the Attachment sheet for the Subcontractor is also included in the Subcontract Amount. The line items for 2nd Tier Subcontractor(s) are not included.
13. When any item requested to be sublet has been previously included in an approved subcontract, the following statement shall be included above the listing of these items: "The following items are being deleted from "Subcontract Request Number ____."
14. The Contractor, Subcontractor and 2nd Tier Subcontractor shall sign the original Subcontract Approval Form and the Contractor shall submit the form to the Resident Engineer.

Sublet Percentages

FOR USE BY NCDOT PERSONNEL (for non HiCAMS contracts)

The following is the process used to calculate the Sublet Percentages after the approval of each subcontract. The fields will not populate, this process should be hand calculated.

(1) Total Original Contract Amount _____	(5) Difference {1-(2+3)} _____
(2) Specialty Items Sublet _____	(6) Percent by Prime {(1-4)/5} _____
(3) Non-spec. Items Sublet to DBE/MBE/WBE _____	(7) Threshold Check {(1-4)/(1-2)} _____
(4) Total Sublet (Grand Total) _____	



SUBCONTRACT APPROVAL FORM

Contract No.: _____ F.A. No.: _____

Subcontract Request Number: _____

WBS Element: _____ T.I.P. No.: _____

County: _____

APPROVAL IS REQUESTED TO SUBLET THE FOLLOWING ITEMS OF WORK ON THIS PROJECT TO:

Retainage

Certification

Reporting No.

Retainage

Certification

Reporting No.

Subcontractor Name and Address _____
2nd Tier-1 Subcontractor Name and Address _____

Line Code Number	Item Description	Portion (●)	Partial (♦)	Sub or 2nd Tier	Quantity	UOM	CP *	DBE/MBE/WBE Unit Price	DBE/MBE/WBE Sublet Amount	Subcontract Unit Price	Total Subcontract Amount

Indicates a Portion of Work (●)

Indicates a Partial Item (♦)

DBE/MBE/WBE Amount

Subcontract Amt.

SUBCONTRACT CERTIFICATION (applies only to Federal projects)

The Contractor / Subcontractor certifies that the subcontract is in writing and that FHWA 1273, "Required Contract Provisions," have been included in the subcontract / 2nd tier subcontract in its entirety.

Contractor:	_____	Date _____	APPROVED:	_____	Date _____
Signature:	_____		Resident Engineer	_____	
Title:	_____			_____	

Subcontractor:	_____	Date _____	Approved with the understanding that the Contractor will be responsible for the satisfactory performance and completion of the work in compliance with the terms of the contract and that all payments will be made to the Contractor.		
Signature:	_____				
Title:	_____				

2 nd Tier Subcontractor:	_____	Date _____			
Signature:	_____				
Title:	_____				



SUBCONTRACT APPROVAL FORM

Contract No.: _____ F.A. No.: _____ Subcontract Request Number: _____
WBS Element: _____ T.I.P. No.: _____ County: _____

APPROVAL IS REQUESTED TO SUBLET THE FOLLOWING ITEMS OF WORK ON THIS PROJECT TO:

2nd Tier-2 Subcontractor Name and Address

Retention Certification _____ Reporting No. _____

Retention Certification _____ Reporting No. _____

2nd Tier-3 Subcontractor Name and Address

Line Code Number	Item Description	Portion (●)	Partial (◊)	Sub or 2nd Tier	Quantity	UOM	CP *	DBE/MBE/WBE Unit Price	DBE/MBE/WBE Sublet Amount	Subcontract Unit Price	Total Subcontract Amount
III											

Indicates a Portion of Work (●) Indicates a Partial Item (◊)

SUBCONTRACT CERTIFICATION (applies only to Federal projects)
The Contractor / Subcontractor certifies that the subcontract is in writing and that FHWA 1273, "Required Contract Provisions," have been included in the subcontract / 2nd tier subcontract in its entirety.

Contractor: _____ Date _____ APPROVED: _____ Resident Engineer _____ Date _____
Signature: _____
Title: _____

Subcontractor: _____ Date _____ Approved with the understanding that the Contractor will be responsible for the satisfactory performance and completion of the work in compliance with the terms of the contract and that all payments will be made directly to the Contractor.
Signature: _____
Title: _____

2nd Tier Subcontractor: _____ Date _____
Signature: _____
Title: _____

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB-BING	1 ACR		
0003	0036000000-E	225	UNDERCUT EXCAVATION	1,300 CY		
0004	0043000000-N	226	GRADING	Lump Sum	L.S.	
0005	0192000000-N	260	PROOF ROLLING	2 HR		
0006	0195000000-E	265	SELECT GRANULAR MATERIAL	950 CY		
0007	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	1,350 SY		
0008	0220000000-E	SP	ROCK EMBANKMENTS	300 TON		
0009	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	555 SY		
0010	0223000000-E	275	ROCK PLATING	300 SY		
0011	0225000000-E	SP	REINFORCED SOIL SLOPES	300 SY		
0012	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	220 TON		
0013	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	670 SY		
0014	0335100000-E	305	12" DRAINAGE PIPE	32 LF		
0015	0335200000-E	305	15" DRAINAGE PIPE	120 LF		
0016	0335400000-E	305	24" DRAINAGE PIPE	64 LF		
0017	0335850000-E	305	*** DRAINAGE PIPE ELBOWS (15")	2 EA		
0018	0335850000-E	305	*** DRAINAGE PIPE ELBOWS (24")	2 EA		
0019	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	24 LF		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0020	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	164 LF		
0021	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	524 LF		
0022	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	780 LF		
0023	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	284 LF		
0024	0576000000-E	310	*** CS PIPE CULVERTS, ***** THICK (72", 0.168" THICK)	16 LF		
0025	0995000000-E	340	PIPE REMOVAL	272 LF		
0026	1099500000-E	505	SHALLOW UNDERCUT	100 CY		
0027	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	150 TON		
0028	1297000000-E	607	MILLING ASPHALT PAVEMENT, ***** DEPTH (1.5" DEPTH)	11,660 SY		
0029	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	1,660 TON		
0030	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	1,590 TON		
0031	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	2,490 TON		
0032	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	300 TON		
0033	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	120 TON		
0034	2000000000-N	806	RIGHT-OF-WAY MARKERS	59 EA		
0035	2022000000-E	815	SUBDRAIN EXCAVATION	68 CY		
0036	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	200 SY		
0037	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	34 CY		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0038	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	200		LF
0039	2070000000-N	815	SUBDRAIN PIPE OUTLET	1		EA
0040	2077000000-E	815	6" OUTLET PIPE	6		LF
0041	2220000000-E	838	REINFORCED ENDWALLS	7.5		CY
0042	2253000000-E	840	PIPE COLLARS	3,418		CY
0043	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	25		EA
0044	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	3.2		LF
0045	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	7		EA
0046	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (TYPE E)	3		EA
0047	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (TYPE F)	9		EA
0048	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (TYPE G)	5		EA
0049	2396000000-N	840	FRAME WITH COVER, STD 840.54	2		EA
0050	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	2		EA
0051	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	140		LF
0052	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	3,710		LF
0053	2591000000-E	848	4" CONCRETE SIDEWALK	2,440		SY
0054	2605000000-N	848	CONCRETE CURB RAMPS	30		EA
0055	2612000000-E	848	6" CONCRETE DRIVEWAY	60		SY

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0056	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	290	SY	
0057	2800000000-N	858	ADJUSTMENT OF CATCH BASINS	2	EA	
0058	2815000000-N	858	ADJUSTMENT OF DROP INLETS	2	EA	
0059	2830000000-N	858	ADJUSTMENT OF MANHOLES	5	EA	
0060	2845000000-N	858	ADJUSTMENT OF METER BOXES OR VALVE BOXES	6	EA	
0061	2920000000-N	859	CONVERT EXISTING DROP INLET TO CATCH BASIN	1	EA	
0062	3030000000-E	862	STEEL BEAM GUARDRAIL	387.5	LF	
0063	3288000000-N	SP	GUARDRAIL END UNITS, TYPE TL-2	2	EA	
0064	3360000000-E	863	REMOVE EXISTING GUARDRAIL	63	LF	
0065	3628000000-E	876	RIP RAP, CLASS I	10	TON	
0066	3649000000-E	876	RIP RAP, CLASS B	20	TON	
0067	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	455	SY	
0068	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	620	LF	
0069	4102000000-N	904	SIGN ERECTION, TYPE E	21	EA	
0070	4108000000-N	904	SIGN ERECTION, TYPE F	4	EA	
0071	4116100000-N	904	SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (SIGN TYPE E)	8	EA	
0072	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U- CHANNEL	3	EA	
0073	4192000000-N	907	DISPOSAL OF SUPPORT, U-CHANNEL	8	EA	
0074	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	228	SF	

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0075	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	264	SF	
0076	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	79	SF	
0077	4415000000-N	1115	FLASHING ARROW BOARD	1	EA	
0078	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	2	EA	
0079	4430000000-N	1130	DRUMS	210	EA	
0080	4435000000-N	1135	CONES	35	EA	
0081	4445000000-E	1145	BARRICADES (TYPE III)	120	LF	
0082	4455000000-N	1150	FLAGGER	240	DAY	
0083	4516000000-N	1180	SKINNY DRUM	40	EA	
0084	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	1,450	LF	
0085	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	13,151	LF	
0086	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	370	LF	
0087	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	600	LF	
0088	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	675	LF	
0089	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	80	EA	
0090	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	40	EA	
0091	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	11,900	LF	
0092	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	820	LF	

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0093	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	310	LF	
0094	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	44	EA	
0095	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	1,500	LF	
0096	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	80	LF	
0097	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	194	EA	
0098	5648000000-N	1515	RELOCATE WATER METER	1	EA	
0099	5672000000-N	1515	RELOCATE FIRE HYDRANT	3	EA	
0100	6000000000-E	1605	TEMPORARY SILT FENCE	5,120	LF	
0101	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	150	TON	
0102	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	65	TON	
0103	6012000000-E	1610	SEDIMENT CONTROL STONE	485	TON	
0104	6015000000-E	1615	TEMPORARY MULCHING	4.5	ACR	
0105	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	300	LB	
0106	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	1.5	TON	
0107	6024000000-E	1622	TEMPORARY SLOPE DRAINS	200	LF	
0108	6030000000-E	1630	SILT EXCAVATION	140	CY	
0109	6036000000-E	1631	MATTING FOR EROSION CONTROL	12,630	SY	
0110	6042000000-E	1632	1/4" HARDWARE CLOTH	2,255	LF	
0111	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	35	SY	

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0112	6071010000-E	SP	WATTLE	510	LF	
0113	6071014000-E	SP	COIR FIBER WATTLE BARRIER	70	LF	
0114	6084000000-E	1660	SEEDING & MULCHING	6	ACR	
0115	6087000000-E	1660	MOWING	3	ACR	
0116	6090000000-E	1661	SEED FOR REPAIR SEEDING	50	LB	
0117	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25	TON	
0118	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	100	LB	
0119	6108000000-E	1665	FERTILIZER TOPDRESSING	2.5	TON	
0120	6114500000-N	1667	SPECIALIZED HAND MOWING	10	MHR	
0121	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	75	EA	
0122	6132000000-N	SP	GENERIC EROSION CONTROL ITEM (CONCRETE WASHOUT STRUCTURE)	3	EA	
0123	7048500000-E	1705	PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/COUNTDOWN)	16	EA	
0124	7060000000-E	1705	SIGNAL CABLE	6,980	LF	
0125	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	35	EA	
0126	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	6	EA	
0127	7144000000-E	1705	VEHICLE SIGNAL HEAD (12", 5 SECTION)	2	EA	
0128	7264000000-E	1710	MESSENGER CABLE (3/8")	780	LF	
0129	7279000000-E	1715	TRACER WIRE	180	LF	
0130	7300000000-E	1715	UNPAVED TRENCHING (***** (1 CONDUIT, 2 INCH)	540	LF	

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0131	7300000000-E	1715	UNPAVED TRENCHING (*****) (2 CONDUITS, 2 INCH)	290 LF		
0132	7301000000-E	1715	DIRECTIONAL DRILL (*****) (2 CONDUITS, 2 INCH)	460 LF		
0133	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	13 EA		
0134	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	8 EA		
0135	7360000000-N	1720	WOOD POLE	6 EA		
0136	7372000000-N	1721	GUY ASSEMBLY	13 EA		
0137	7420000000-E	1722	2" RISER WITH WEATHERHEAD	3 EA		
0138	7432000000-E	1722	2" RISER WITH HEAT SHRINK TUBING	1 EA		
0139	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	2,550 LF		
0140	7456000000-E	1726	LEAD-IN CABLE (*****) (14-2)	5,630 LF		
0141	7552000000-N	1731	INTERCONNECT CENTER	1 EA		
0142	7566000000-N	1733	DELINEATOR MARKER	3 EA		
0143	7588000000-N	SP	METAL POLE WITH SINGLE MAST ARM	2 EA		
0144	7590000000-N	SP	METAL POLE WITH DUAL MAST ARM	3 EA		
0145	7613000000-N	SP	SOIL TEST	5 EA		
0146	7614100000-E	SP	DRILLED PIER FOUNDATION	40 CY		
0147	7631000000-N	SP	MAST ARM WITH METAL POLE DESIGN	5 EA		
0148	7636000000-N	1745	SIGN FOR SIGNALS	10 EA		
0149	7642100000-N	1743	TYPE I POST WITH FOUNDATION	4 EA		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0150	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	10	EA	
0151	7684000000-N	1750	SIGNAL CABINET FOUNDATION	1	EA	
0152	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	1	EA	
0153	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	9	EA	
0154	7901000000-N	1753	CABINET BASE EXTENDER	1	EA	
0155	7960000000-N	SP	METAL POLE FOUNDATION REMOVAL	2	EA	
0156	7972000000-N	SP	METAL POLE REMOVAL	2	EA	
0157	7980000000-N	SP	GENERIC SIGNAL ITEM (RELOC OPTICAL PRIORITY SYST PHASE S)	1	EA	
0158	7980000000-N	SP	GENERIC SIGNAL ITEM (OPTICAL DETECTOR)	6	EA	
0159	7980000000-N	SP	GENERIC SIGNAL ITEM (POWDER COAT FOR DUAL MAST ARM POLE)	3	EA	
0160	7980000000-N	SP	GENERIC SIGNAL ITEM (POWDER COAT FOR SINGLE MAST ARM POLE)	2	EA	
0161	7980000000-N	SP	GENERIC SIGNAL ITEM (POWDER COAT FOR TYPE I PUSHBUTTON POLE)	4	EA	
0162	7980000000-N	SP	GENERIC SIGNAL ITEM (POWDER COAT FOR TYPE II SIG P ED)	10	EA	
0163	7980000000-N	SP	GENERIC SIGNAL ITEM (RELOCATE ETHERNET SWITCH)	1	EA	
0164	7990000000-E	SP	GENERIC SIGNAL ITEM (BACK PULL FIBER OPTIC CABLE)	380	LF	