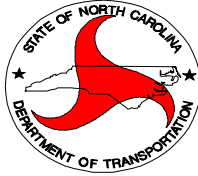


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION



DIVISION 11

CONTRACT PROPOSAL

WBS ELEMENT NUMBER: 17BP.11.R.57 CONTRACT: DK00115

ROUTE: SR 1345 COUNTY: Alleghany

DESCRIPTION: Replace Bridge No. 265 on SR 1345 (Farmers Fish Camp Road)
over New River in Alleghany County, North Carolina
Grading, Drainage, Paving and Structure

BID OPENING: June 5, 2014 @ 10:00 AM

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 OR SBE PROJECT. 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.

NAME OF BIDDER

N.C. CONTRACTOR'S LICENSE NUMBER

ADDRESS OF BIDDER

RETURN BIDS TO:

QUOTE NO: DK00115 – 17BP.11.R.57
N.C. DEPARTMENT OF TRANSPORTATION
JOE L. LAWS, PE, DIVISION PROJECT MANAGER
801 STATESVILLE ROAD
P.O. BOX 250
NORTH WILKESBORO, NORTH CAROLINA 28659

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, **except that bids may be prepared by electronic means as described elsewhere in the proposal**. Failure to comply with any requirement shall cause the bid to be considered irregular and shall be grounds for rejection of the bid.

1. The bid sheet furnished by NCDOT with the proposal shall be used and shall not be altered in any manner. **DO NOT SEPARATE THE BID SHEET FROM THE PROPOSAL!**
2. All entries on the bid sheet, including signatures, shall be written in ink.
3. The Bidder shall submit a unit price for every item on the bid form. The unit prices for the various contract items shall be written in figures. ****Unit Prices shall be rounded off by the bidder to contain no more than FOUR decimal places.****
4. An amount bid shall be entered on the bid sheet for every item. The amount bid for each item shall be determined by multiplying each unit bid by the quantity for that item, and shall be written in figures in the "Amount Bid" column of the sheet.
5. The total amount bid shall be written in figures in the proper place on the bid sheet. The total amount shall be determined by adding the amounts bid for each item.
6. Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Bidder shall initial the change in ink.
7. The bid shall be properly executed. All bids shall show the following information:
 - a. Name of individual, firm, corporation, partnership, or joint venture submitting bid.
 - b. Name and signature of individual or representative submitting bid and position or title.
 - c. Name, signature, and position or title of witness.
 - d. Contractor's License Number (if Applicable)
8. Bids submitted by corporations shall bear the seal of the corporation.
9. The bid shall not contain any unauthorized additions, deletions, or conditional bids.
10. The bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
11. **THE PROPOSAL WITH THE BID SHEET STILL ATTACHED SHALL BE PLACED IN A SEALED ENVELOPE AND SHALL HAVE BEEN DELIVERED TO AND RECEIVED IN THE DIVISION ENGINEER'S OFFICE AT 801 STATESVILLE ROAD, P.O. BOX 250, NORTH WILKESBORO, NORTH CAROLINA 28659 BY 10:00 AM ON JUNE 5, 2014.**
12. The sealed bid must display the following statement on the front of the sealed envelope:

QUOTE NO: DK00115 – 17BP.11.R.57

13. If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope shall be addressed as follows:

**JOE L. LAWS, PE, DIVISION PROJECT MANAGER
 N.C. DEPARTMENT OF TRANSPORTATION
 P.O. BOX 250
 801 STATESVILLE ROAD
 NORTH WILKESBORO, NORTH CAROLINA 28659**

AWARD OF CONTRACT

The award of the contract, if it be awarded, will be made to the lowest responsible Bidder in accordance with Section 102 of the *2012 Standard Specifications for Roads and Structures*. The lowest responsible Bidder will be notified that his bid has been accepted and that he has been awarded the contract. NCDOT reserves the right to reject all bids.

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DIVISION CONTRACT

General Provisions

SCOPE OF WORK

This work shall consist of furnishing and installing a prestressed concrete cored slab structure, removal of the existing structure; clearing and grubbing; comprehensive grading; installation of guardrail; roadway base course and pavement; placement of substructure and superstructure; grading within limits of the project; placement of rip rap; temporary erosion control; seeding and mulching; drainage; and all other incidental items necessary to complete the project as specified and shown on the plans. The Department shall be responsible for placement of final pavement markings.

Only the construction centerline, control points with a reference station and benchmark location shall be furnished by the Department on an initial one time basis. All other engineering, surveying, layout and measurements shall be the responsibility of the contractor.

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 any 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 in the contract.

The contractor shall be responsible for fulfilling all requirements of the *NCDOT Standard Specifications for Roads and Structures dated January 2012*, except as otherwise specified herein.

LOCATION AND DESCRIPTION

The existing bridge, consisting of 1 span @ 17'-7" with an asphalt wearing surface over a timber floor on I-beam superstructure and a clear roadway width of 19.2' on a substructure consisting of timber caps/timber post & sills, and is located on SR 1332 over Greer Branch northwest of Warrentonville, Ashe County. This bridge shall be replaced by a bridge with approach slabs and consisting of 1 span @ 50'-0" prestressed concrete cored slabs on end bent caps on steel piles on a 90o skew and a 24'-10" clear roadway width with roadway approaches.

(SEE BRIDGE LOCATION MAP)

CONTRACT TIME AND LIQUIDATED DAMAGES

The date of availability is July 1, 2014.

No work will be permitted and no contract will be executed until all required bonds and prerequisite conditions and certifications have been satisfied. No work will be permitted prior to issuance of the purchase order.

The completion date for this project is May 13, 2016. No extensions will be authorized except as authorized by Article 108-10 of the *2012 Standard Specifications*.

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.

Liquidated damages for this contract are One Thousand Dollars (\$1,000.00) per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES

Except for that work required under the Project Special Provisions entitled *Planting, Reforestation* and/or *Permanent Vegetation Establishment*, included elsewhere in this proposal, the Contractor will be required to complete all work included in this contract and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is July 1, 2014.

The completion date for this intermediate contract time is December 31, 2015.

Liquidated damages for this intermediate contract time are One Thousand Dollars (\$1,000.00) per calendar day.

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for the maintenance of all work **except** *Planting, Reforestation* and/or *Permanent Vegetation Establishment*. The Contractor will be responsible for and shall make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

PRECONSTRUCTION CONFERENCE

Following the award of a contract and prior to beginning work, the Contractor shall contact **David Poindexter of the North Wilkesboro Resident Engineer's Office at (336) 903-**

9170, to arrange a Pre-construction conference. The project superintendent is required to attend the Pre-construction conference.

PREPARATION AND SUBMISSION OF BIDS

The entire bid proposal package, properly signed and executed, must be returned in order for the bid to be considered as responsive. **Incomplete proposal packages may be considered unresponsive.** Bid proposals shall be completed in ink and any corrections shall have one strike through with the correction initialed by the bidder.

Any firm that wishes to bid on this project as the prime contractor must be prequalified for the type of work they wish to perform prior to submitting their bid.

For the purposes of prequalification, any firm that is currently prequalified as a prime or a subcontractor on centrally let contracts for the appropriate work codes is considered eligible to work and/or bid on this contract as long as other items such as bonding and license requirements for the contract are met.

Information regarding the requirements to become prequalified as a Purchase Order Contract contractor, can be found at the following website: <http://www.ncdot.org/business/howtogetstarted/>

All bids shall be prepared and submitted in accordance with the listed requirements of Article 102-8 of the *2012 Standard Specifications*.

In accordance with GS 136-28.1(b), if the total bid amount of the contract exceeds **\$2,500,000**, the bid will not be considered for award.

COMPUTER BID PREPARATION (OPTIONAL)

The bidder may elect to prepare his bid and MBE/WBE or DBE participation electronically by means of a personal computer. For electronic bid preparation the Contractor shall download the Expedite program from the NCDOT "Project Letting" website. Then download the appropriate .ebs electronic file of line items and quantities unique to each project from the Division Office's website.

The only entries into the program which will be permitted by the Bidder are the appropriate unit or lump sum prices for those items which must be bid in order to provide a complete bid for the project, and any MBE/WBE or DBE participation in the appropriate section of the Expedite program. When these entries have been made, the program will automatically prepare a complete set of itemized proposal sheets which will include the amount bid for the various items and the total amount bid for the project in addition to the unit or lump sum prices bid. The computer generated itemized proposal sheets shall be printed and signed by a duly authorized representative in accordance with Article 102-8(A)(8). This set of itemized proposal sheets, when submitted together with the appropriate proposal, will constitute the bid and shall be delivered to the appropriate Division Office or location specified in the INSTRUCTIONS TO BIDDERS. If the Bidder submits his bid on computer generated itemized proposal sheets, bid prices shall not be written on the itemized proposal sheets bound in the proposal. The computer generated itemized proposal sheets (.ebs bid

file) shall also be copied to a compact disk (CD) furnished by the Contractor and shall be submitted to the Department with the bid.

In the case of a discrepancy between the unit or lump sum prices submitted on the itemized proposal sheets and those contained on the CD furnished by the Contractor, the unit or lump sum prices submitted on the printed and signed itemized proposal sheets shall prevail.

The requirements of the INSTRUCTIONS TO BIDDERS will apply to the preparation of bids except that a bid may be submitted on computer generated itemized proposal sheets in which case the entries on the itemized proposal sheets will not be required to be in ink. Changes to any entry on the computer generated itemized proposal sheets shall be made in accordance with requirement Number (6) of the INSTRUCTIONS TO BIDDERS. When the computer generated itemized proposal sheets are not signed and received with the proposal, the bid will be considered irregular.

BID BOND

A Bid Bond is required for the submission of bids for this project.

EXECUTION OF SIGNATURE SHEETS AND DEBARMENT CERTIFICATION

The Bidder's attention is directed to the various sheets in the contract proposal, which are to be completed and/or signed by the Bidder. A list of these sheets is shown below. The signature sheets are located behind the Bid Form(s) in the contract proposal.

1. Execution of Bid including Non-Collusion Affidavit, Debarment Certification, & Gift Ban
2. MBE/WBE/DBE Subcontract Listing Form

The Bidder shall certify his and to the best of his knowledge all subcontractors, material suppliers and vendors utilized herein current status concerning suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency, in accordance with the "Debarment Certification" located behind the signature sheets in the proposal forms. Execution of the bid signature sheets in conjunction with any applicable statements concerning exceptions, when such statements have been made on the "Debarment Certification", constitutes the Bidders certification of "status" under penalty of perjury under the laws of the United States.

AWARD LIMITS ON MULTIPLE PROJECTS

It is the desire of the Proposer to be awarded contracts, the value of which will not exceed a total of \$_____, for those projects indicated below on which bids are being opened on the same date as shown in the Proposal Form. Individual projects shall be indicated by placing the project number and county in the appropriate place below. Projects not selected will not be subject to an award limit.

(Project Number)

(County)

(Project Number)

(County)

(Project Number)

(County)

*If a Proposer desires to limit the total amount of work awarded to him in this letting, he shall state such limit in the space provided above in the second line of this form.

It is agreed that in the event that I am (we are) the successful bidder on indicated projects, the total value of which is more that the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated which have a total value not exceeding the award limit and which will result in the best advantage to the Department of Transportation.

**Signature of Authorized Person

**Only those persons authorized to sign bids under the provisions of Article 102-8, Item 7, shall be authorized to sign this form.

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 for Construction contracts of **\$300,000.00** or more. 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 for Construction contracts greater than **\$300,000.00**. 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.

WORKMEN'S COMPENSATION INSURANCE

The contractor shall defend, indemnify and hold harmless the North Carolina Department of Transportation, its officers and employees from any claim, demand, suit, liability, judgment and expense (including attorney's fees and other costs of litigation) arising out of or relating to injury, disease, or death of persons or damage to or loss of property resulting from or in connection with the negligent performance of this contract by the contractor, its agents, employees, and subcontractors or any one for whom the contractor may be responsible. The obligations, indemnities and liabilities assumed by the contractor under this paragraph shall not extend to any liability caused by the negligence of the Department of Transportation or its employees. The contractor's liability shall not be limited by any provisions or limits of insurance set forth in this contract.

The contractor shall indemnify and hold harmless the Department of Transportation from any claim, demand, suit, liability, judgment, and expense involving damage or loss to the contractor's equipment (including vandalism, theft, fire and acts of God) arising out of or relating to work performed under this agreement. The obligations, indemnities and liabilities assumed by the contractor under this paragraph shall not extend to any liability caused by the negligence of the Department of Transportation or its employees. The contractor's liability shall not be limited by any provisions or limits of insurance set forth in this contract.

The contractor further agrees to indemnify the Department of Transportation for any damages to the roadway, highway signs, highway equipment and other property owned or in possession of the Department of Transportation, brought about by reason of the negligent operation of the leased equipment. The contractor further agrees to indemnify and save harmless the Department of Transportation, its officers and employees from any claims or amounts recovered by any of the contractor's employees under the Worker's Compensation Act.

Pursuant to N.C.G.S. § 97-19, all contractors of the Department of Transportation are, prior to beginning services, required to show proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors stating that it has complied with N.C.G.S. § 97-93 irrespective of whether subcontractors have regularly in service fewer than three employees in the same business within the State of North Carolina, and subcontractors shall be hereinafter liable under the Workers' Compensation Act for payment of compensation and other benefits to its employees for any injury or death due to an accident arising out of and in the course of performance of the work insured by the subcontractor.

Proof of insurance shall be furnished to the Engineer prior to beginning work.

LICENSES

The contractor must be properly licensed as required by the State of North Carolina. The General Statutes of North Carolina (G.S. 87-1) require the contractor to be licensed by the State for any contract totaling **\$30,000.00** or more.

SUBLETTING OF CONTRACT

The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of this contract or any portion thereof; or his right, title, or interest therein; without written consent of the Engineer. Subletting of this contract or any portion of the contract shall conform to the requirements of Article of 108-6 of the *2012 Standard Specifications*.

DEFAULT OF CONTRACT

The Department of Transportation shall have the right to declare a default of contract for breach by the Contractor of any material term or condition of the contract. Default of contract shall be in accordance with the terms, conditions, and procedures of Article 108-9 of the *2012 Standard Specifications*.

PARTIAL PAYMENT

The Contractor may submit a request for payment at the end of each work request. Compensation for all pay items shall be in accordance with the *Standard Specifications*. One hundred percent (100%) payment shall be made after successful completion of the work as verified by the final inspection.

Requests for payment can be made on the form furnished to the Contractor by the Department of Transportation. The form shall be completely and legibly filled out with all appropriate information supplied and shall be signed by an authorized representative of the Contractor.

Minority Business Enterprise (MBE), Women's Business Enterprise (WBE) and/or Disadvantage Business Enterprise (DBE) participation shall be listed on the appropriate form (DBE-IS) and shall accompany all requests for payment. If there is no participation the word "**None**" or the figure "**0**" shall be entered. Requests for payment will not be processed without the submission of the DBE-IS form. One hundred percent (100%) payment shall be made after successful completion of the work as verified by the final inspection.

RETAINAGE AND PROMPT PAYMENT**Prompt Payment of Monies Due Subcontractors, Second Tier Subcontractors and Material Suppliers and Release of Retainage**

Contractors at all levels; prime, subcontractor, or second tier contractor, shall within seven calendar days of receipt of monies, resulting from work performed on the project or services rendered, pay subcontractors, second tier subcontractors, or material suppliers, as appropriate. This seven-day period begins upon knowledgeable receipt by the contracting firm obligated to make a subsequent periodic or final payment. These prompt payment

requirements will be met if each firm mails the payment to the next level firm by evidence of postmark within the seven-day period.

This provision for prompt payment shall be incorporated into each subcontract or second tier subcontract issued for work performed on the project or for services provided.

The Contractor may withhold up to 3% retainage if any subcontractor does not obtain a payment and performance bond for their portion of the work. If any retainage is held on subcontractors, all retainage shall be released within seven calendar days of satisfactory completion of all work. For the purpose of release of retainage, satisfactory completion is defined as completion of all physical elements and corresponding documentation as defined in the contract, as well as agreement between the parties as to the final quantities for all work performed in the subcontract. The Department will provide internal controls to expedite the determination and processing of the final quantities for the satisfactorily completed subcontract portions of the project.

Failure of any entity to make prompt payment as defined herein may result in (1) withholding of money due to that entity in the next partial payment until such assurances are made satisfactory to this provision; or (2) removal of an approved contractor from the prequalified bidders list or the removal of other entities from the approved subcontractors list.

MANDATORY SUBCONTRACTOR INFORMATION

The Contractor is to provide a list of all proposed subcontractors he or she plans to use on this project. This list shall include all subcontractors that will be used, not only MBE, WBE or DBE firms. Only pre-approved subcontractors that are registered with the NCDOT may be used. A listing of all contractors (prime or subcontractor) may be found at the following website:

<https://partner.ncdot.gov/VendorDirectory/default.html>

Subcontract Approval Form (Form SAF) must be completed for each subcontractor that will be used and returned prior to the work being performed by the subcontractor. This form can be found at the following website:

http://www.ncdot.org/doh/operations/dp_chief_eng/constructionunit/saf.xls

If the proposed subcontractor cannot fulfill their obligation and a substitute must be used, then an appropriate form for the replacement subcontractor must be delivered to the administering officer before the new subcontractor is used.

AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

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 Article 108-13(E), of the *North Carolina Department of Transportation Standard Specifications for Roads and Structures, dated January 2012*.

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Laws to be Observed

In accordance with 107-1 of the *Standard Specifications*, The Contractor shall keep himself fully informed of all Federal and State laws, all local laws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority which may in any manner affect those engaged or employed in the work, or which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall indemnify and hold harmless the Board of Transportation and the Department of Transportation and their agents and employees from any claim or liability arising from or based on the violation of any such law, ordinance, regulations, order, or decree, by the Contractor or by his agents and employees.

Responsibility For Damage Claims

In accordance with 107-14 of the *Standard Specifications*, The Contractor shall indemnify and save harmless the Board of Transportation and its members and the Department of Transportation and its officers, agents, and employees from all suits, actions, or claims of any character brought for any injury or damages received or sustained by any person, persons, or property by reason of any act of the Contractor, Subcontractor, its agents or employees, in the performance of the contract.

Safety and Accident Protection

In accordance with 107-21 of the *Standard Specifications*, The Contractor shall comply with all applicable Federal, State, and local laws, ordinances, and regulations governing

safety, health, and sanitation, and shall provide all safeguards, safety devices, and protective equipment, and shall take any other needed actions, on his own responsibility that are reasonably necessary to protect the life and health of employees on the job and the safety of the public, and to protect property in connection with the performance of the work covered by the contract.

All Contractors' personnel, all subcontractors and their personnel, and any material suppliers and their personnel shall wear a reflective vest or outer garment conforming to the requirements of MUTCD at all times while on the project.

BANKRUPTCY

The Department of Transportation, at its option, may terminate the contract upon the filing by the contractor of any petition for protection under the provisions of the Federal Bankruptcy Act.

EXTENSION OF CONTRACT TIME

Failure on the part of the Contractor to furnish bonds or certifications or to satisfy preliminary requirements necessary to issue the purchase order will not constitute grounds for extension of the contract time. If the Contractor has fulfilled all preliminary requirements for the issuance of a purchase order, and the purchase order authorization is not available by the date of availability, the Contractor shall be granted an extension equal to the number of calendar days the purchase order authorization is delayed after the date of availability.

CLAIMS FOR ADDITIONAL COMPENSATION OR EXTENSION OF TIME

Any claims for additional compensation and/or extensions of the completion date shall be submitted to the Division Engineer with detailed justification within thirty (30) days after receipt of the final invoice payment. The failure of the Contractor to submit the claim(s) within thirty days shall be a bar to recovery.

CONTRACTOR CLAIM SUBMITTAL FORM

If the Contractor elects to file a written claim or requests an extension of contract time, it shall be submitted on the Contractor Claim Submittal Form (CCSF) available through the Construction Unit or http://ncdot.org/doh/operations/dp_chief_eng/constructionunit/formsmanuals/.

PROSECUTION AND PROGRESS

The Contractor will be required to prosecute the work in a continuous and uninterrupted manner from the time he begins the work until completion and final acceptance of the

project. The contractor will not be permitted to suspend his operations except for reasons beyond his control except where the Engineer has authorized a suspension of the contractor's operations in writing.

The Contractor shall pursue the work diligently with workmen in sufficient numbers, abilities, and supervision, and with equipment, materials, and methods of construction as may be required to complete the work described in the contract by the completion date and in accordance with Section 108 of the *Standard Specifications*.

In the event that the Contractor's operations are suspended in violation of the above provisions, the sum of **Five Hundred Dollars (\$500.00)** will be charged the Contractor for each and every calendar day that such suspension takes place. The said amount is hereby agreed upon as liquidated damages due to extra engineering and maintenance costs and due to increased public hazard resulting from a suspension of the work. Liquidated damages chargeable due to suspension of the work will be additional to any liquidated damages that may become chargeable due to failure to complete the work on time.

TEMPORARY SUSPENSION OF WORK

In accordance with Article 108-7 of the *2012 Standard Specifications*, the Engineer will have the authority to suspend the work wholly or in part, any written order for such periods as he may deem necessary for any of the following reasons.

1. Conditions considered unfavorable for the suitable prosecution of the work, or
2. The Contractor's failure for correct conditions unsafe for workmen or the general public, or
3. The Contractor has not carried out orders given to him by the Engineer, or
4. The Contractor's failure to perform any provisions of the contract.

No extension of the completion date will be allowed for the above suspensions except as may be provided for in Article 108-10.

AUTHORITY OF THE ENGINEER

The Engineer for this project shall be the Division Engineer, Division 11, Division of Highways, North Carolina Department of Transportation, acting directly or through his duly authorized representatives.

The Engineer will decide all questions which may arise as to the quality and acceptability of work performed and as to the rate of progress of the work; all questions which may arise as to the interpretation of the contract; and all questions as to the acceptable fulfillment of the contract on the part of the Contractor. His decision shall be final, and he shall have executive authority to enforce and make effective such decisions and orders as the Contractor fails to carry out promptly.

APPROVAL OF PERSONNEL

The State shall have the right to approve or reject the project engineer and other supervisory personnel, assigned to a project.

The Engineers or any subcontractor for the Engineers which are employed to provide engineering services for this project shall not engage the services of any person or persons, now in the employment of the State during the time of this Agreement, without written consent of the State.

In the event of engagement, the Engineers or their subcontractors shall restrict such person or persons from working on any of the Engineers' contracted projects in which the person or persons were formerly involved while employed by the State. This restriction period shall be for the duration of the contracted project with which the person or persons was involved. "Involvement" shall be defined as active participation in any of the following activities:

- Drafting the contract;
- Defining the scope of the contract;
- Selection of the Engineers' firm for services;
- Negotiation of the cost of the contract (including calculating man-hours or fees); and
- Administration of the contract.

An exception to these terms may be granted when recommended by the Secretary and approved by the Board of Transportation. Failure to comply with the terms stated above in this section shall be grounds for termination of this contract.

SUPERVISION BY CONTRACTOR

At all times during the life of the project the Contractor shall provide one permanent employee who shall have the authority and capability for overall responsibility of the project and who shall be personally available at the work site within 24 hours notice. Such employee shall be fully authorized to conduct all business with the subcontractors, to negotiate and execute all supplemental agreements, and to execute the orders or directions of the Engineer.

At all times that work is actually being performed, the Contractor shall have present on the project one competent individual who is authorized to act in a supervisory capacity over all work on the project, including work subcontracted. The individual who has been so authorized shall be experienced in the type of work being performed and shall be fully capable of managing, directing, and coordinating the work; of reading and thoroughly understanding the contract; and receiving and carrying out directions from the Engineer or his authorized representatives. He shall be an employee of the Contractor unless otherwise approved by the Engineer.

The Contractor may, at his option, designate one employee to meet the requirements of both positions. However, whenever the designated employee is absent from the work site, an

authorized individual qualified to act in a supervisory capacity on the project shall be present.

CONTRACTOR PERSONNEL

The Department will not be responsible in any way to the Contractor's personnel for damages, destruction or loss, from any cause, to the Contractor's equipment, supplies, materials or tools or the personal property of the Contractor's personnel. The Contractor will be responsible for all repairs, regardless of cost, resulting from the negligence of the Contractor or Contractor's employees. The Department will not participate in the cost of such repairs.

INSPECTION

All work shall be subject to inspection by the Engineer at any time. Routinely, the Engineer will make periodic inspections of the completed work. It will be the responsibility of the Contractor to keep the Engineer informed of his proposed work plan and to submit written reports of work accomplished on a frequency to be determined by the Engineer.

MATERIALS AND TESTING

The Engineer reserves the right to perform all sampling and testing in accordance with Section 106 of the *Standard Specifications* and the Department's "Materials and Test Manual." However the Engineer may reduce the frequency of sampling and testing where he deems it appropriate for the project under construction.

The Contractor shall furnish the applicable certifications and documentation for all materials as required by the *Standard Specifications*. Material that is not properly certified will not be accepted.

RESOURCE CONSERVATION

In accordance with North Carolina Executive Order 156, NCGS 130A-309.14(2), and NCGS 136-28.8, it is the policy of the Department to aid in the reduction of materials that become a part of our solid waste stream, to divert materials from landfills, and to find ways to recycle and reuse materials for the benefit of the Citizens of North Carolina.

Initiate, develop and use products and construction methods that incorporate the use of recycled or solid waste products in accordance with Article 104-13 of the *2012 Standard Specifications*. Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills on the Project Construction Reuse and Recycling Reporting Form.

A location-based tool for finding local recycling facilities and the Project Construction Reuse and Recycling Reporting Form are available at:

<http://connect.ncdot.gov/resources/Environmental/Pages/North-Carolina-Recycling-Locations.aspx>

DOMESTIC STEEL

Revise the *2012 Standard Specifications* as follows:

Page 1-49, Subarticle 106-1(B) Domestic Steel, lines 2-7, replace the first paragraph with the following:

All steel and iron products that are permanently incorporated into this project shall be produced in the United States except minimal amounts of foreign steel and iron products may be used provided the combined material cost of the items involved does not exceed 0.1% of the total amount bid for the entire project or \$2,500, whichever is greater. If invoices showing the cost of the material are not provided, the amount of the bid item involving the foreign material will be used for calculations. This minimal amount of foreign produced steel and iron products permitted for use is not applicable to high strength fasteners. Domestically produced high strength fasteners are required.

OUTSOURCING OUTSIDE THE USA

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.

PLAN, DETAIL AND QUANTITY ADJUSTMENTS

The Department reserves the right to make, at any time during the progress of the work, such alterations in plans or the details of construction as may be found necessary or desirable by the Engineer to complete the project.

LOCATING EXISTING UNDERGROUND UTILITIES

Revise the *2012 Standard Specifications* as follows:

Page 1-43, Article 105-8, line 28, after the first sentence, add the following:

Identify excavation locations by means of pre-marking with white paint, flags, or stakes or provide a specific written description of the location in the locate request.

GIFTS FROM VENDORS AND CONTRACTORS

By Executive Order 24, issued by Governor Perdue, and *N.C. G.S. § 133-32*, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offer or, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

- (1) have a contract with a governmental agency; or
- (2) have performed under such a contract within the past year; or
- (3) anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *G.S. § 133-32*.

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

Special Provisions – Roadway

NOTES TO CONTRACTOR

1. Refer to the *Standard Specifications for Roads and Structures and Roadway Standard Drawings dated January 2012* and any Special Provisions in contract for guidelines on this project. Refer to the most recent Superpave Manual and any Special Provisions in this contract for any information concerning asphalt paving.
2. All work performed by the contractor shall be in compliance with the *2012 Standard Specifications* and Workmanship/Appearance done to the satisfaction of the Engineer.
3. All work items necessary to complete the work other than listed on the "Bid Proposal Form" will be considered incidental in nature and no further compensation will be made. Any work performed in an unsatisfactory manner could be basis for cancellation of the contract.

NO MAJOR CONTRACT ITEMS

None of the items included in this contract will be major items.

SPECIALTY ITEMS

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2012 Standard Specifications*).

Line #	Description
24-28	Guardrail
29-30	Fencing
36-59	Erosion Control
60	Reforestation
63-64	Drilled Piers

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE

Revise the *2012 Standard Specifications* as follows:

Replace all references to "State Highway Administrator" with "Chief Engineer".

NOTIFICATION OF OPERATIONS

The Contractor or their appointed representative shall notify the Engineer one week in advance of beginning work on any site included in this contract. The Contractor shall give the Engineer sufficient notice of all operations for any sampling or acceptance testing required.

EMPLOYMENT

Revise the *2012 Standard Specifications* as follows:

Page 1-20, Subarticle 102-15(O), delete and replace with the following:

(O) Failure to restrict a former Department employee as prohibited by Article 108-5.

Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

E-VERIFY COMPLIANCE

Contractors and subcontractors shall comply with the E-Verify requirements of N.C.G.S. Chapter 64, Article 2. Contractors are directed to review the foregoing laws. By signing this bid, any awarded Contractor certifies its compliance with the E-Verify requirements and will do so on a periodic basis thereafter as may be required by the Department.

CONTRACT BID QUANTITIES

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 any 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.

Contractor's pricing shall be based on the estimated quantities per Division. These estimated amounts are submitted to assist contractors in the bidding process. Estimated quantities are not to be regarded as actual requirements. The State shall not be obligated to purchase any specific quantity.

AGGREGATE PRODUCTION

Provide aggregate from a producer who uses the current Aggregate Quality Control/Quality Assurance Program, which is in effect at the time of shipment.

No price adjustment is allowed to contractors or producers who use the program. Participation in the program does not relieve the producer of the responsibility of complying with all requirements of the *Standard Specifications*. Copies of this procedure are available upon request from the Materials and Test Unit.

BORROW AND WASTE SITE RECLAMATION PROCEDURES

The Department's Borrow and Waste Site Reclamation Procedures for Contracted Projects have been revised and are available on the website at:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/fieldops/downloads/

In accordance with Article 230-4 and Section 802 of the *2012 Standard Specifications*, the Contractor shall utilize these revised procedures for all borrow and waste sites on this project.

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS)

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 either the MBE or WBE goal. No submittal of a Letter of Intent is required.

Committed MBE/WBE Subcontractor - Any MBE/WBE submitted at the time of bid that is being used to meet either the MBE or 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 Goals Requirement - The approved MBE and WBE participation at time of award, but not greater than the advertised contract goals for each.

Goal Confirmation Letter - Written documentation from the Department to the bidder confirming the Contractor's approved, committed MBE and WBE 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 Goal - A portion of the total contract, expressed as a percentage, that is 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 Goal - A portion of the total contract, expressed as a percentage, that is 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. <http://www.ncdot.org/doh/forms/files/DBE-IS.xls>

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 amount 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 this MBE and WBE goals. This form is for paper bids only.

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

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>

MBE and WBE Goal

The following goals for participation by Minority Business Enterprises and Women Business Enterprises are established for this contract:

- (A) Minority Business Enterprises **1.0** %
 - (1) *If the MBE goal 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 as the MBE goal.
 - (2) *If the MBE goal 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 **6.0** %
 - (1) *If the WBE goal 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 as the WBE goal.

- (2) *If the WBE goal 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.

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 MBE and WBE goals respectively. The Directory can be found at the following link. <https://partner.ncdot.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 MBE goal and the 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 submitted at the time of bid will be used toward 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) *If either the MBE or WBE goal is more than zero*,
- (1) 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.
 - (2) 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.
 - (3) 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 corresponding goal.

- (B) *If either the MBE or 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 MBE and WBE goals, the firm is responsible for meeting the goals or making good faith efforts to meet the goals, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet one of the goals 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.

For example, on a proposed contract, the WBE goal is 10%, and the MBE goal is 8%. A WBE bidder puts in a bid where they will perform 40% of the contract work and have a WBE subcontractor which will perform another 5% of the work. Together the two WBE firms submit on the *Listing of MBE and WBE Subcontractors* a value of 45% of the contract which fulfills the WBE goal. The 8% MBE goal shall be obtained through MBE participation with MBE certified subcontractors or documented through a good faith effort. It should be noted that you cannot combine the two goals to meet an overall value. The two goals shall remain separate.

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 MBE and WBE goals 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 12:00 noon of the sixth calendar day following opening of bids, unless the sixth 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 12:00 noon 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 MBE and WBE goals, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the MBE/WBE goal. If the lack of this participation drops the commitment below either the MBE or 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 12:00 noon 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 12:00 noon on the next official state business day.

Submission of Good Faith Effort

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

One complete set and three (3) copies of this information shall be received in the office of the Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth 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 12:00 noon 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 MBE/WBE Goals 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 who have the capability to perform the work of the contract. 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 MBE and WBE goals 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 contract MBE/WBE goals when the work to be sublet includes potential for MBE/WBE participation (2nd and 3rd tier subcontractors).
- (C) Providing interested MBEs/WBEs 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 contract goals 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 contract MBE or WBE goals, 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 NCDOT's Business Development Manager in the Business Opportunity and Work Force Development Unit 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 MBE and WBE 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 MBE and WBE goals.
- (2) The bidders' past performance in meeting the MBE and WBE goals.
- (3) The performance of other bidders in meeting the MBE and WBE goals. For example, when the apparent successful bidder fails to meet the goals, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goals. If the apparent successful bidder fails to meet the MBE and WBE goals, 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 MBE and WBE goals can be met or that an adequate good faith effort has been made to meet the MBE and WBE goals.

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 MBE/WBE Goals**(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 MBE contract goal requirement. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE subcontracts to a non-MBE firm does not count toward the MBE contract goal requirement. Again, the same holds true for the work that a WBE subcontracts to a non-WBE firm. 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. The MBE/WBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption may be subject to review by the Office of Inspector General, NCDOT.

(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 or 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 or 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.

(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 MBE or 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 goal requirement. 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 liable for meeting the goal.
- (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 termination.

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 is terminated for good cause as stated above, an additional MBE that was submitted at the time of bid may be used to fulfill the MBE commitment. The same holds true if a committed WBE is terminated for good cause, an additional WBE that was submitted at the time of bid may be used to fulfill the 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 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 on the Department's DBE-IS (*Subcontractor Payment Information*) with each invoice. Invoices will not be processed for payment until the DBE-IS is received.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2012 Standard Specifications* may be cause to disqualify the Contractor.

SUBSURFACE INFORMATION

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

TWELVE MONTH GUARANTEE

- (A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of the Department, and/or for use in excess of the design.
- (B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The Department's first remedy shall be through the manufacturer although the Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. NCDOT would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that the Department would normally compensate the Contractor for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

To ensure uniform application statewide the Division Engineer will forward details regarding the circumstances surrounding any proposed guarantee repairs to the Chief Engineer for review and approval prior to the work being performed.

CLEARING AND GRUBBING - METHOD III

Perform clearing on this project to the limits established by Method "III" shown on Standard Drawing No. 200.03 of the *2012 Roadway Standard Drawings*.

BURNING RESTRICTIONS

Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

PIPE INSTALLATION

Revise the *2012 Standard Specifications* as follows:

Page 3-1, Article 300-2, Materials, line 23-24, replace sentence with:

Provide foundation conditioning geotextile in accordance with Section 1056 for Type 4 geotextile.

SHOULDER AND FILL SLOPE MATERIAL**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 *2012 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 *2012 Standard Specifications* for *Borrow Excavation*.

BRIDGE APPROACH FILLS**Description**

Bridge approach fills include bridge approach fills for sub regional tier bridges and reinforced bridge approach fills. Construct bridge approach fills in accordance with the contract and Standard Drawing No. 422.10 or 422.11 of the *2012 Roadway Standard Drawings*. Define “geosynthetics” as geotextiles or geomembranes.

Materials

Refer to Division 10 of the *2012 Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Geotextiles	1056
Portland Cement Concrete	1000
Select Material	1016
Subsurface Drainage Materials	1044
Wire Staples	1060-8(D)

For bridge approach fills for sub regional tier bridges, provide Type 1 geotextile for filtration geotextiles. For reinforced bridge approach fills, provide Type 5 geotextile for geotextile reinforcement and Type 1 geotextile and No. 78M stone for drains. Use Class B concrete for concrete pads.

Use Class III or V select material for reinforced bridge approach fills and only Class V select material (standard size No. 78M stone) for bridge approach fills for sub regional tier bridges. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For drains and PVC pipes behind end bents, use pipes with perforations that meet AASHTO M 278.

Use PVC, HDPE or linear low density polyethylene (LLDPE) geomembranes for reinforced bridge approach fills. For PVC geomembranes, provide grade PVC30 geomembranes that meet ASTM D7176. For HDPE and LLDPE geomembranes, use geomembranes with a nominal thickness of at least 30 mils that meet Geosynthetic Research Institute Standard Specifications GM13 or GM17, respectively. Handle and store geomembranes in accordance with Article 1056-2 of the *2012 Standard Specifications*. Provide material certifications for geomembranes in accordance with Article 1056-3 of the *2012 Standard Specifications*.

Construction Methods

Excavate as necessary for bridge approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place geomembranes or filtration geotextiles until excavation dimensions and foundation material are approved. Attach geomembranes and filtration geotextiles to end bent cap back and wing walls with adhesives, tapes or other approved methods. Glue or weld geomembrane seams to prevent leakage.

For reinforced bridge approach fills, place geotextile reinforcement within 3" of locations shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings* and in slight tension free of kinks, folds, wrinkles or creases. Install geotextile reinforcement with the orientation, dimensions and number of layers shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings*. Place first layer of geotextile reinforcement directly on geomembranes with no void or material in between. Install geotextile reinforcement with the machine direction (MD) parallel to the roadway centerline. The MD is the direction of the length or long dimension of the geotextile roll. Do not splice or

overlap geotextile reinforcement in the MD so seams are perpendicular to the roadway centerline. Wrap geotextile reinforcement at end bent cap back and wing walls as shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings* and directed by the Engineer. Extend geotextile reinforcement at least 4 ft back behind end bent cap back and wing walls into select material.

Overlap adjacent geotextiles at least 18" with seams oriented parallel to the roadway centerline. Hold geotextiles in place with wire staples or anchor pins as needed. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with geosynthetics.

For reinforced bridge approach fills, construct one foot square drains consisting of 4" diameter continuous perforated PVC pipes surrounded by No. 78M stone wrapped in Type 1 geotextiles. Install drains in accordance with Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings*. For bridge approach fills for sub regional tier bridges, install 4" diameter continuous perforated PVC drain pipes in accordance with Standard Drawing No. 422.11 of the *2012 Roadway Standard Drawings*.

Use solvent cement to connect PVC pipes so joints do not leak. Connect perforated pipes to outlet pipes just behind wing walls. Provide drain pipes and drains with positive drainage towards outlets. Place pipe sleeves in or under wing walls for outlet pipes so positive drainage is maintained. Use sleeves that can withstand wing wall loads.

Place select material in 8" to 10" thick lifts. Use only hand operated compaction equipment to compact select material for bridge approach fills. Compact Class III select material in accordance with Subarticle 235-3(C) of the *2012 Standard Specifications*. Compact No. 78M stone with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, drain pipes or drains when placing and compacting select material. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on geosynthetics, drain pipes or drains until they are covered with at least 8" of select material. Replace any damaged geosynthetics, drain pipes or drains to the satisfaction of the Engineer.

Cover open ends of outlet pipes with rodent screens as shown in Standard Drawing No. 815.03 of the *2012 Roadway Standard Drawings*. Connect ends of outlet pipes to concrete pads or existing drainage structures as directed by the Engineer. Construct concrete pads with an Ordinary surface finish that meets Subarticle 825-6(B) of the *2012 Standard Specifications*.

Measurement and Payment

Reinforced Bridge Approach Fill, Station ____ will be paid at the contract lump sum price. The contract lump sum price for *Reinforced Bridge Approach Fill, Station ____* will be full compensation for labor, tools, equipment and reinforced bridge approach fill materials, excavating, backfilling, hauling and removing excavated materials, compacting select material, connecting outlet pipes to existing drainage structures and supplying select materials, geosynthetics, drains, pipe sleeves and outlet components and any incidentals necessary to construct all reinforced bridge approach fills at each bridge.

Bridge Approach Fill - Sub Regional Tier, Station ____ will be paid at the contract lump sum price. The contract lump sum price for *Bridge Approach Fill - Sub Regional Tier, Station ____* will be full compensation for labor, tools, equipment and bridge approach fill materials, excavating, backfilling, hauling and removing excavated materials, compacting No. 78M stone, connecting outlet pipes to existing drainage structures and supplying No. 78M stone, filtration geotextiles, drain pipes, pipe sleeves and outlet components and any incidentals necessary to construct all bridge approach fills at each sub regional tier bridge.

Payment will be made under:

Pay Item	Pay Unit
Reinforced Bridge Approach Fill, Station ____	Lump Sum
Bridge Approach Fill - Sub Regional Tier, Station ____	Lump Sum

INCIDENTAL STONE BASE

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 *2012 Standard Specifications*.

Measurement and Payment

Incidental Stone Base will be measured and paid in accordance with Article 545-6 of the *2012 Standard Specifications*.

ASPHALT PAVEMENTS - SUPERPAVE

Revise the *2012 Standard Specifications* as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

TABLE 605-1 APPLICATION RATES FOR TACK COAT	
Existing Surface	Target Rate (gal/sy)
	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

TABLE 605-2 APPLICATION TEMPERATURE FOR TACK COAT	
Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-7, Article 609-3 FIELD VERIFICATION OF MIXTURE AND JOB MIX FORMULA ADJUSTMENTS, lines 35-37, delete the second sentence of the second paragraph.

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor’s option in accordance with the NCDOT Approved Products List for WMA Technologies available at:

<https://connect.ncdot.gov/resources/Materials/MaterialsResources/Warm%20Mix%20Asphalt%20Approved%20List.pdf>

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), replace Table 610-1 with the following:

TABLE 610-1 DESIGN MIXING TEMPERATURE AT THE ASPHALT PLANT^A		
Binder Grade	HMA JMF Temperature	WMA JMF Temperature Range
PG 64-22	300°F	225 - 275°F
PG 70-22	315°F	240 - 290°F
PG 76-22	335°F	260 - 310°F

A. The mix temperature, when checked in the truck at the roadway, shall be within plus 15° and minus 25° of the temperature specified on the JMF.

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), lines 4-6, delete first sentence of the second paragraph. Line 7, in the second sentence of the second paragraph, replace “275°F” with “275°F or greater.”

Page 6-22, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, lines 15-17, replace the second sentence of the first paragraph with the following:

Do not place asphalt material when the air or surface temperatures, measured at the location of the paving operation away from artificial heat, do not meet Table 610-5.

Page 6-23, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, replace Table 610-5 with the following:

TABLE 610-5 PLACEMENT TEMPERATURES FOR ASPHALT	
Asphalt Concrete Mix Type	Minimum Surface and Air Temperature
B25.0B, C	35°F
I19.0B, C, D	35°F
SF9.5A, S9.5B	40°F
S9.5C, S12.5C	45°F
S9.5D, S12.5D	50°F

Page 6-26, Article 610-7 HAULING OF ASPHALT MIXTURE, lines 22-23, in the fourth sentence of the first paragraph replace “so as to overlap the top of the truck bed and” with “to”.

Page 6-41, Subarticle 650-3(B) Mix Design Criteria, replace Table 650-1 with the following:

TABLE 650-1 OGAFC GRADATION CRITERIA			
Grading Requirements	Total Percent Passing		
<i>Sieve Size (mm)</i>	<i>Type FC-1</i>	<i>Type FC-1 Modified</i>	<i>Type FC-2 Modified</i>
19.0	-	-	100
12.5	100	100	80 - 100
9.50	75 - 100	75 - 100	55 - 80
4.75	25 - 45	25 - 45	15 - 30
2.36	5 - 15	5 - 15	5 - 15
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

Page 6-50, Table 660-1 MATERIAL APPLICATION RATES AND TEMPERATURES, lines 1-2, replace Note A in Table 660-1 with the following:

- A. Use No. 6M, No. 67, No. 5 and No. 78M aggregate for retreatment before an asphalt overlay on existing pavement based on the width of the cracks in the existing pavement. Choose No. 78M for sections of roadway where the average width of existing cracks is 1/4" or less in width, No. 67 for sections of roadway where the average width of existing cracks are 1/4" to 5/8" in width and choose No. 5 for sections of roadway where the existing crack widths are greater than 5/8".

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0B	4.4%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications*.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications*.

The base price index for asphalt binder for plant mix is **\$572.67** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **May 1, 2014**.

ASPHALT PLANT MIXTURES

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

FINAL SURFACE TESTING NOT REQUIRED

Final surface testing is not required on this project.

GUARDRAIL ANCHOR UNITS, TYPE 350 TL-2**Description**

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2012 Standard Specifications*, and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (ET-Plus) manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc.
3616 Old Howard County Airport
Big Spring, Texas 79720
Telephone: 915-263-2435

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 2 in accordance with Article 106-2 of the *2012 Standard Specifications*.
- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor 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 *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item Guardrail Anchor Units, Type 350 TL-2	Pay Unit Each
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PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

Description

Construct and maintain preformed scour holes with spreader aprons at the locations shown on the plans and in accordance with the details in the plans. Work includes excavation, shaping and maintaining the hole and apron, furnishing and placing filter fabric, rip rap (class as specified in the plans) and permanent soil reinforcement matting.

Materials

Item	Section
Plain Rip Rap	1042
Filter Fabric	1056

The permanent soil reinforcement matting shall be permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene thread to form a permanent three dimensional structure. The mat shall have the following minimum physical properties:

Property	Test Method	Value Unit
Light Penetration	ASTM D6567	9 %
Thickness	ASTM D6525	0.40 in
Mass Per Unit Area	ASTM D6566	0.55 lb/sy
Tensile Strength	ASTM D6818	385 lb/ft
Elongation (Maximum)	ASTM D6818	49 %
Resiliency	ASTM D1777	>70 %
UV Stability *	ASTM 4355	≥80 %

Porosity (Permanent Net)	ECTC Guidelines	≥85 %
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft ²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

*ASTM D1682 Tensile Strength and % strength retention of material after 1,000 hours of exposure.

Submit a certification (Type 1, 2, or 3) from the manufacturer showing:

- (A) The chemical and physical properties of the mat used, and
- (B) Conformance of the mat with this specification.

Construction Methods

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the *2012 Standard Specifications*. The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

Measurement and Payment

Preformed Scour Holes with Level Spreader Aprons will be measured and paid as the actual number incorporated into the completed and accepted work. Such price and payment will be full compensation for all work covered by this provision.

Payment will be made under:

Pay Item	Pay Unit
Preformed Scour Hole with Level Spreader Aprons	Each

MATERIALS

Revise the *2012 Standard Specifications* as follows:

Page 10-1, Article 1000-1, DESCRIPTION, lines 9-10, replace the last sentence of the first paragraph with the following:

Type IL, IP, IS or IT blended cement may be used instead of Portland cement.

Page 10-1, Article 1000-1, DESCRIPTION, line 14, add the following:

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

Page 10-1, Article 1000-2, MATERIALS, line 16, add the following to the table of item references:

Item
Type IL Blended Cement

Section
1024-1

Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1 REQUIREMENTS FOR CONCRETE											
Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non-Vibrated	
		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
<i>Units</i>	<i>psi</i>					<i>inch</i>	<i>inch</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flowable	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flowable	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

TABLE 1005-1 AGGREGATE GRADATION - COARSE AGGREGATE													
Percentage of Total by Weight Passing													
Std. Size #	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	Remarks
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12 ^B	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12 ^B	Maintenance Stabilization
Light-weight C	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST

- A. See Subarticle 1005-4(A).
- B. See Subarticle 1005-4(B).
- C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

Page 10-46, Article 1024-1, PORTLAND CEMENT, line 33, add the following as the ninth paragraph:

Use Type IL blended cement that meets AASHTO M 240, except that the limestone content is limited to between 5 and 12% by weight and the constituents shall be interground. Class F fly ash can replace a portion of Type IL blended cement and shall be replaced as outlined in Subarticle 1000-4(I) for Portland cement. For mixes that contain cement with alkali content between 0.6% and 1.0% and for mixes that contain a reactive aggregate documented by the Department, use a pozzolan in the amount shown in Table 1024-1.

Page 10-65, Article 1050-1, GENERAL, line 41, replace the first sentence with the following:

All fencing material and accessories shall meet Section 106.

Page 10-73, Article 1056-1 DESCRIPTION, lines 7-8, delete the first sentence of the second paragraph and replace with the following:

Use geotextile fabrics that are on the NCDOT Approved Products List.

Page 10-73, Article 1056-2 HANDLING AND STORING, line 17, replace “mechanically stabilized earth (MSE) wall faces” with “temporary wall faces”.

Page 10-74, TABLE 1056-1 GEOTEXTILE REQUIREMENTS, replace table with the following:

TABLE 1056-1 GEOTEXTILE REQUIREMENTS						
Property	Requirement (MARV^A)					Test Method
	Type 1	Type 2	Type 3^B	Type 4	Type 5^C	
<i>Typical Application</i>	<i>Shoulder Drains</i>	<i>Under Rip Rap</i>	<i>Temporary Silt Fence</i>	<i>Soil Stabilization</i>	<i>Temporary Walls</i>	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1 ^D , Class 3	Table 1 ^D , Class 1	100 lb	Table 1 ^D , Class 3	-	ASTM D4632
Tear Strength (MD & CD)			-		-	ASTM D4533
Puncture Strength			-		-	ASTM D6241
Ultimate Tensile Strength (MD & CD)	-	-	-	-	2,400 lb/ft (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2 ^D , 15% to 50% <i>in Situ</i> Soil Passing No. 200 ^E		Table 7 ^D	Table 5 ^D	0.20 sec ⁻¹	ASTM D4491
Apparent Opening Size					No. 30 ^E	ASTM D4751
UV Stability (Retained Strength)					70%	ASTM D4355

- A. MARV does not apply to elongation
- B. Minimum roll width of 36" required
- C. Minimum roll width of 13 ft required
- D. AASHTO M 288
- E. US Sieve No. per AASHTO M 92

Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11, replace with the first two sentences with the following:

Supply gray iron castings meeting all facets of AASHTO M 306 excluding proof load. Proof load testing will only be required for new casting designs during the design process, and conformance to M306 loading (40,000 lbs.) will be required only when noted on the design documents.

Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1078-1 REQUIREMENTS FOR CONCRETE		
Property	28 Day Design Compressive Strength 6,000 psi or less	28 Day Design Compressive Strength greater than 6,000 psi
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22, replace (B), (C) and (D) with the following:

- (B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.
- (C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.
- (D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.
- (E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

Page 10-161, Subarticle 1081-1(A) Classifications, lines 29-33, delete first 3 sentences of the description for Type 2 and replace with the following:

Type 2 - A low-modulus, general-purpose adhesive used in epoxy mortar repairs. It may be used to patch spalled, cracked or broken concrete where vibration, shock or expansion and contraction are expected.

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A. **Lines 16-22**, delete Types 6A, 6B and 6C.

Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment

depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

Page 10-163, Table 1081-1 Properties of Mixed Epoxy Resin Systems, replace table with the following:

Table 1081-1 Properties of Mixed Epoxy Resin Systems							
Property	Type 1	Type 2	Type 3	Type 3A	Type 4A	Type 4B	Type 5
Viscosity-Poises at 77°F ± 2°F	Gel	10-30	25-75	Gel	40-150	40-150	1-6
Spindle No.	-	3	4	--	4	4	2
Speed (RPM)	-	20	20	--	10	10	50
Pot Life (Minutes)	20-50	30-60	20-50	5-50	40-80	40-80	20-60
Minimum Tensile Strength at 7 days (psi)	1,500	2,000	4,000	4,000	1,500	1,500	4,000
Tensile Elongation at 7 days (%)	30 min.	30 min.	2-5	2-5	5-15	5-15	2-5
Min. Compressive Strength of 2" mortar cubes at 24 hours	3,000 (Neat)	4,000-	6,000-	6,000 (Neat)	3,000	3,000	6,000
Min. Compressive Strength of 2" mortar cubes at 7 days	5,000 (Neat)	-	-	-	-	5,000	-
Maximum Water Absorption (%)	1.5	1.0	1.0	1.5	1.0	1.0	1.0
Min. Bond Strength Slant Shear Test at 14 days (psi)	1,500	1,500	2,000	2,000	1,500	1,500	1,500

Page 10-164, Subarticle 1081-1(E) Prequalification, lines 31-33, replace the second sentence of the first paragraph with the following:

Manufacturers choosing to supply material for Department jobs must submit an application through the Value Management Unit with the following information for each type and brand name:

Page 10-164, Subarticle 1081-1(E)(3), line 37, replace this subarticle with the following:

(3) Type of the material in accordance with Articles 1081-1 and 1081-4,

Page 10-165, Subarticle 1081-1(E)(6), line 1, in the first sentence of the first paragraph replace “AASHTO M 237” with “the specifications”.

Page 10-165, Subarticle 1081-1(E) Prequalification, line 9-10, delete the second sentence of the last paragraph.

Page 10-165, Subarticle 1081-1(F) Acceptance, line 14, in the first sentence of the first paragraph replace “Type 1” with “Type 3”.

Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives, delete this subarticle.

Page 10-170, Article 1081-3 Hot Bitumen, line 9, add the following at the end of Section 1081:

1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS

(A) General

This section covers epoxy resin adhesive for bonding traffic markers to pavement surfaces.

(B) Classification

The types of epoxies and their uses are as shown below:

Type I – Rapid Setting, High Viscosity, Epoxy Adhesive. This type of adhesive provides rapid adherence to traffic markers to the surface of pavement.

Type II – Standard Setting, High Viscosity, Epoxy Adhesive. This type of adhesive is recommended for adherence of traffic markers to pavement surfaces when rapid set is not required.

Type III – Rapid Setting, Low Viscosity, Water Resistant, Epoxy Adhesive. This type of rapid setting adhesive, due to its low viscosity, is appropriate only for use with embedded traffic markers.

Type IV – Standard Set Epoxy for Blade Deflecting-Type Plowable Markers.

(C) Requirements

Epoxies shall conform to the requirements set forth in AASHTO M 237.

(D) Prequalification

Refer to Subarticle 1081-1(E).

(E) Acceptance

Refer to Subarticle 1081-1(F).

Page 10-173, Article 1084-2 STEEL SHEET PILES, lines 37-38, replace first paragraph with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required by the plans. Galvanized sheet piles shall be coated in accordance with Section 1076. Metallized sheet piles shall be metallized in accordance to the Project Special Provision “Thermal Sprayed Coatings (Metallization)” with an 8 mil, 99.9% aluminum alloy coating and a 0.5 mil seal coating. Any portion of the metallized sheet piling encased in concrete shall receive a barrier coat. The barrier coat shall be an approved waterborne coating with a low-viscosity which readily absorbs into the pores of the aluminum thermal sprayed coating. The waterborne coating shall be applied at a spreading rate that results in a theoretical 1.5 mil dry film thickness. The manufacturer shall issue a letter of certification that the resin chemistry of the waterborne coating is compatible with the 99.9% aluminum thermal sprayed alloy and suitable for tidal water applications.

Page 10-174, Subarticle 1086-1(B)(1) Epoxy, lines 18-24, replace this subarticle with the following:

The epoxy shall meet Article 1081-4.

The 2 types of epoxy adhesive which may be used are Type I, Rapid Setting, and Type II, Standard Setting. Use Type II when the pavement temperature is above 60°F or per the manufacturer’s recommendations whichever is more stringent. Use Type I when the pavement temperature is between 50°F and 60°F or per the manufacturer’s recommendations whichever is more stringent. Epoxy adhesive Type I, Cold Set, may be used to attach temporary pavement markers to the pavement surface when the pavement temperature is between 32°F and 50°F or per the manufacturer’s recommendations whichever is more stringent.

Page 10-175, Subarticle 1086-2(E) Epoxy Adhesives, line 27, replace “Section 1081” with “Article 1081-4”.

Page 10-177, Subarticle 1086-3(E) Epoxy Adhesives, line 22, replace “Section 1081” with “Article 1081-4”.

Page 10-179, Subarticle 1087-4(A) Composition, lines 39-41, replace the third paragraph with the following:

All intermixed and drop-on glass beads shall not contain more than 75 ppm arsenic or 200 ppm lead.

Page 10-180, Subarticle 1087-4(B) Physical Characteristics, line 8, replace the second paragraph with the following:

All intermixed and drop-on glass beads shall comply with NCGS § 136-30.2 and 23 USC § 109(r).

Page 10-181, Subarticle 1087-7(A) Intermixed and Drop-on Glass Beads, line 24, add the following after the first paragraph:

Use X-ray Fluorescence for the normal sampling procedure for intermixed and drop-on beads, without crushing, to check for any levels of arsenic and lead. If any arsenic or lead is detected, the sample shall be crushed and repeat the test using X-ray Fluorescence. If the X-ray Fluorescence test shows more than a LOD of 5 ppm, test the beads using United States Environmental Protection Agency Method 6010B, 6010C or 3052 for no more than 75 ppm arsenic or 200 ppm lead.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace **Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A** with the following:

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

SHOULDER AND SLOPE BORROW

Use soil in accordance with Section 1019 of the *2012 Standard Specifications*. Use soil consisting of loose, friable, sandy material with a PI greater than 6 and less than 25 and a pH ranging from 5.5 to 7.0.

Soil with a pH ranging from 4.0 to 5.5 will be accepted without further testing if additional limestone is provided in accordance with the application rates shown in Table 1019-1A.

Soil type is identified during the soil analysis. Soils with a pH above 7.0 require acidic amendments to be added. Submit proposed acidic amendments to the Engineer for review and approval. Soils with a pH below 4.0 or that do not meet the PI requirements shall not be used.

pH TEST RESULT	Sandy Soils Additional Rate (lbs. / Acre)	Silt Loam Soils Additional Rate (lbs. / Acre)	Clay Loam Soils Additional Rate (lbs. / Acre)
4.0 - 4.4	1,000	4,000	6,000
4.5 - 4.9	500	3,000	5,000
5.0 - 5.4	NA	2,000	4,000

Note: Limestone application rates shown in this table are in addition to the standard rate of 4000 lbs. / acre required for seeding and mulching.

No direct payment will be made for providing additional lime or acidic amendments for Ph adjustment.

Special Provisions – Other Units

UTILITY CONFLICTS

General:

The following utility companies have facilities that will be in conflict with the construction of this project:

- A. Blue Ridge EMC – Power
- B. SkyLine Telecommunications – Telephone/ Fiber Optic

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 *Standard Specifications*.

Utilities Requiring Adjustment:

Utility relocations are shown on the Utilities by Others Plans.

A) Blue Ridge EMC – Power

1) Blue Ridge EMC will remove the existing aerial power line and pole that is privately owned by the Wagner Estate the pole and power line are described as follows, the facilities to be taken down are, the pole and power line serving the cottage that is going to be taken by NCDOT for the Rights of Way on Farmers Fish Camp Road. Blue Ridge EMC will also take down the power line (that is also private) crossing Farmers Fish Camp road from the Wagner's drive going to the private pole that is to be removed. Blue Ridge EMC needs a 1 week notice to perform any work.

2) Contact person for Blue Ridge EMC is Mr. Steve Rose at (336) 372-4646.

B) SkyLine Telecommunications – Telephone/ Fiber Optic

1) SkyLine is temporarily relocating their facilities (telephone/ fiber optic) off to the side of Famers Fish Camp Road on the ground and/or in the trees (tied up) out of the way of construction on the west side of the bridge. After construction is completed SkyLine will come back and plow-in the telephone/ fiber optic lines near the top of bank of the existing creek to the north side of Farmers Fish Camp Road on the west side of the bridge. On the east side of the bridge SkyLine will relocate from their existing pole inside the existing Rights of Way tying into their existing utilities outside of the construction area

2) Contact person for SkyLine Telecommunications is Mr. Eric Holt at (336) 876-6591

EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION**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, twice weekly for construction related *Federal Clean Water Act, Section 303(d)* impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24 hour period.
 - (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
1537 Mail Service Center
Raleigh, NC 27699-1537

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.

EROSION, SILTATION, AND POLLUTION CONTROL

The Contractor shall exercise every reasonable precaution and take all necessary measures throughout the life of the project to prevent erosion, siltation, and pollution in accordance with Section 107-12 of the *Standard Specifications*. Silt fence and erosion control measures shall be installed in accordance with the Section 1605 of the *Standard Specifications*, and in locations directed by the Engineer or his representative.

ENVIRONMENTAL STEWARDSHIP AND PERFORMANCE OF EROSION CONTROL

The Contractor shall perform all aspects of his / her work related to the project in a manner that is considerate of the environment and is representative of the Department's commitment to environmental stewardship. The Contractor shall take initiative to adhere to the erosion control plans and all provisions stated in the related permits. The Contractor shall provide additional measures above and beyond the plans and provisions when required to protect the environment. The Contractor shall also comply with all other general requirements of the regulatory agencies. These include but are not limited to the US Army Corps of Engineers, NC Wildlife Resources Commission (comments included in the Corps permit), NC Department of Environment and Natural Resources – Land Quality Section, NC Department of Environment and Natural Resources – Water Quality Section, etc. It is the responsibility of the Contractor to be familiar and to comply with the contract permit provisions, erosion control plan, general requirements of the agencies, and all laws pertaining to land disturbing activities.

Erosion Control Devices shall be installed and maintained in a timely manner throughout the life of the project. Such devices shall be constructed and maintained by the end of each workday. Modifications to the Erosion Control Plan shall be approved by the Engineer or his representative. Prior to grubbing and / or grade-work, erosion control devices shall be installed to prevent any loss of sedimentation into streams or outside the perimeter of the project. Inlet and outlet protection for pipes shall be constructed as part of the pipe installation in a continuous manner. Erosion control devices should not be placed in the stream itself.

In the event the Contractor does not comply with the erosion control plan and environmental conditions of the contract, **liquidated damages of \$1,000.00 per day** shall be imposed until the corrective action is taken in order to meet the requirements. These damages shall pertain to any permit condition and erosion control measure that is not installed and maintained in accordance with the erosion control plan, permit conditions, project special provisions, *Standard Specifications*, and directions provided by the Engineer or his/her representative. Disregard for the environment by the Contractor shall also subject the Contractor to such damages.

In the event that a Notice of Violation is issued for the project by NCDENR, the Contractor shall be **assessed a single amount of \$5,000.00**. If additional Violations are issued on the same project, **liquidated damages of \$10,000.00 per occurrence** will be imposed on the Contractor. Subsequent to the issuance of a NOV, the Contractor shall work in a continuous manner to comply with the required corrective action by the deadline given by the issuing agency. If the corrective actions are not completed by the required date of compliance, the Department shall impose additional **liquidated damages of \$1,000.00 per day**. All damages stated above shall also apply to the issuance of an **Immediate Corrective Action (ICA)** by the Department.

All liquidated damages described above shall be deducted from monies due to the Contractor. The Contractor shall also comply with Article 107-12 and Division 16 of the *Standard Specifications*.

ENVIRONMENTAL NOTES TO CONTRACTOR

1. Environmental stewardship and timely performance of erosion control shall be expected of the Contractor on this project.
2. The Contractor may be subject to fines imposed by the Department for violations and / or non-compliance related to environmental permits and erosion control issues (see special provisions).
3. Pipe installation shall include immediate protection of the inlet and outlet with appropriate erosion control measures as part of the pipe installation process by the end of each day.
4. Installation of all pipe(s) shall be completed in a continuous manner.
5. Vegetation shall not be disturbed beyond the limits of construction without approval by the Engineer.
6. Any ground disturbance beyond areas protected by installed erosion control devices shall be protected immediately – no exceptions. This may require hand seeding and mulching in some cases.
7. Temporary erosion control measures to protect areas of work shall be installed by end of each day, regardless the construction stage of a particular operation.
8. Erosion control measures installed after the fact is not acceptable practice.
9. Ditches that are not to final grade shall have the necessary temporary erosion control measures installed by the end of the day, including any basins and rock checks.
10. Filter stone and Class B Rip Rap for erosion control shall be installed at any location where runoff leaves the project. Class B Rip Rap only is not acceptable.
11. Blasting shall be controlled with appropriate measures to prevent fly rock and loss of material into rivers and streams and outside the limits of construction. Blasting mats will be required. Blasting shall not take place without the presence of an Inspector. The Contractor shall provide a 24-hour notice prior to blasting in a particular area. The Contractor shall be responsible for any and all damages that may occur from blasting, including any fines. The Contractor shall consider and implement when feasible alternative methods to blasting around environmentally sensitive areas.
12. No disturbed area shall be left unprotected from sediment runoff by the end of each day.
13. Grubbing shall not take place in an area until immediately before grading operations are to commence in that particular area.
14. The Contractor is responsible for being familiar with the conditions of the environmental permits.
15. The Contractor must comply with all provisions of the contract, standard specifications and drawings, and best management practices for bridge demolition and erosion control.
16. The presence of the Engineer or Inspector shall in no way lessen the Contractor's responsibility for compliance with the permits, conformity with erosion control, and protection of the environment. Should the Engineer or Inspector fail to point out work that is not in compliance for any reason, it shall in no way prevent later rejection or correction to the unsatisfactory materials or work when discovered.

STABILIZATION REQUIREMENTS

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 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 (HQP) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQP) 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.

PERMANENT VEGETATION ESTABLISHMENT

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish permanent vegetation on all erodible areas within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2012 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Department will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

Payment for *Response for Erosion Control, Seeding and Mulching, Repair Seeding, Supplemental Seeding, Mowing, Fertilizer Topdressing, Silt Excavation, and Stone for Erosion Control* will be made at contract unit prices for the affected items. Work required that is not represented by contract line items will be paid in accordance with Articles 104-7 or 104-3 of the *2012 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

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

2 nd Millennium	Duster	Magellan	Rendition
Avenger	Endeavor	Masterpiece	Scorpion
Barlexas	Escalade	Matador	Shelby
Barlexas II	Falcon II, III, IV & V	Matador GT	Signia
Barrera	Fidelity	Millennium	Silverstar
Barrington	Finesse II	Montauk	Southern Choice II
Biltmore	Firebird	Mustang 3	Stetson
Bingo	Focus	Olympic Gold	Tarheel
Bravo	Grande II	Padre	Titan Ltd

Cayenne	Greenkeeper	Paraiso	Titanium
Chapel Hill	Greystone	Picasso	Tomahawk
Chesapeake	Inferno	Piedmont	Tacer
Constitution	Justice	Pure Gold	Trooper
Chipper	Jaguar 3	Prospect	Turbo
Coronado	Kalahari	Quest	Ultimate
Coyote	Kentucky 31	Rebel Exeda	Watchdog
Davinci	Kitty Hawk	Rebel Sentry	Wolfpack
Dynasty	Kitty Hawk 2000	Regiment II	
Dominion	Lexington	Rembrandt	

Approved Kentucky Bluegrass Cultivars

Alpine	Bariris	Envicta	Rugby
Apollo	Bedazzled	Impact	Rugby II
Arcadia	Bordeaux	Kenblue	Showcase
Arrow	Champagne	Midnight	Sonoma
Award	Chicago II	Midnight II	

Approved Hard Fescue Cultivars

Chariot	Nordic	Rhino	Warwick
Firefly	Oxford	Scaldis II	
Heron	Reliant II	Spartan II	
Minotaur	Reliant IV	Stonehenge	

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.

NATIVE GRASS SEEDING AND MULCHING

(West)

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation and/or trout stream construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

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.

August 1 - June 1		May 1 – September 1	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

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 shall be 6 inches.

Measurement and Payment

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

PLANT AND PEST QUARANTINES**(Imported Fire Ant, Gypsy Moth, Witchweed, and Other Noxious Weeds)****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, 919-733-6932, or <http://www.ncagr.gov/plantind/> 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 or other noxious weeds.

NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY

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 restricted 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

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
Indiangrass
Switchgrass

Birdsfoot Trefoil
Orchardgrass
Yellow Blossom Sweet Clover

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.

REFORESTATION

Description

Reforestation will be planted within interchanges and along the outside borders of the road, and in other areas as directed. *Reforestation* is not shown on the plan sheets. See the Reforestation Detail Sheet.

All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire *Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

Materials

Reforestation shall be bare root seedlings 12"-18" tall.

Construction Methods

Reforestation shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted in a 16-foot wide swath adjacent to mowing pattern line, or as directed.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: *Reforestation* shall be planted from November 15 through March 15.

Measurement and Payment

Reforestation will be measured and paid for in accordance with Article 1670-17 of the *Standard Specifications*.

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
SP	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
SP	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 Form 1675. 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	Pay Unit
Response for Erosion Control	Each

HIGH QUALITY WATERS**Description**

The New River has been identified as high quality waters. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the High Quality Water Zone and as designated by the Engineer. The High Quality Water Zones are identified on the plans as Environmentally Sensitive Areas. This also requires special procedures to be used for seeding and mulching and staged seeding.

The High Quality Water Zone/Environmentally Sensitive Area shall be defined as a 50- foot buffer zone on both sides of the stream measured from top of streambank.

Construction Methods**(A) Clearing and Grubbing**

In areas identified as High Quality Water Zones/Environmentally Sensitive Areas, the Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Article 200-1 of the *Standard Specifications*. Only clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

(B) Grading

Once grading operations begin in identified High Quality Water Zones/ Environmentally Sensitive Areas, work shall progress in a continuous manner until complete. All construction within these areas shall progress in a continuous manner such that each phase is complete and areas are permanently stabilized prior to beginning of next phase. Failure on the part of the Contractor to complete any phase of construction in a continuous manner in High Quality Water Zones/ Environmentally Sensitive Areas will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the *Standard Specifications*.

(C) Temporary Stream Crossings

Any crossing of streams within the limits of this project shall be accomplished in accordance with the requirements of Subarticle 107-13(B) of the *Standard Specifications*.

(D) Seeding and Mulching

Seeding and mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the High Quality Water Zones/Environmentally Sensitive Areas.

(E) Stage Seeding

The work covered by this section shall consist of the establishment of a vegetative cover on cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area. Each stage shall not exceed the limits stated above.

Additional payments will not be made for the requirements of this section, as the cost for this work shall be included in the contract unit prices for the work involved.

MINIMIZE REMOVAL OF VEGETATION

The Contractor shall minimize removal of vegetation at stream banks and disturbed areas within the project limits as directed.

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.

TEMPORARY DIVERSION

This work consists of installation, maintenance, and cleanout of *Temporary Diversions* in accordance with Section 1630 of the *Standard Specifications*. The quantity of excavation for installation and cleanout will be measured and paid for as *Silt Excavation* in accordance with Article 1630-4 of the *Standard Specifications*.

CLEAN WATER DIVERSION

Description

This work consists of installing, maintaining, and removing any and all material required for the construction of clean water diversions. The clean water diversions shall be used to direct water flowing from offsite around/away from specific area(s) of construction.

Materials

Refer to Division 10

Item

Geotextile for Soil Stabilization, Type 4

Section

1056

Construction Methods

The Contractor shall install the clean water diversions in accordance with the details in the plans and at locations indicated in the plans, and as directed. Upon installation, the excavated material shall be immediately stabilized as provided in Section 1620 of the *Standard Specifications*. Other stabilization methods may be utilized with prior approval from the Engineer.

Line clean water diversion with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope geotextile edge in a trench at least 5" deep and tamp securely. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile.

Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 6" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Stabilization of the excavated material will be paid for as *Temporary Seeding* as provided in Section 1620 of the *Standard Specifications*.

Such price and payment shall be considered full compensation for all work covered by this section including all materials, construction, maintenance, and removal of the clean water diversions.

SAFETY FENCE AND JURISDICTIONAL FLAGGING

Description

Safety Fence shall consist of furnishing materials, installing and maintaining polyethylene or polypropylene fence along the outside riparian buffer, wetland, or water boundary, or other boundaries located within the construction corridor to mark the areas that have been approved to infringe within the buffer, wetland, endangered vegetation, culturally sensitive areas or water. The fence shall be installed prior to any land disturbing activities.

Interior boundaries for jurisdictional areas noted above shall be delineated by stakes and highly visible flagging.

Jurisdictional boundaries at staging areas, waste sites, or borrow pits, whether considered outside or interior boundaries shall be delineated by stakes and highly visible flagging.

Materials

(A) Safety Fencing

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating.

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length.

(B) Boundary Flagging

Wooden stakes shall be 4 feet in length with a minimum nominal 3/4" x 1-3/4" cross section. The flagging shall be at least 1" in width. The flagging material shall be vinyl and shall be orange in color and highly visible.

Construction Methods

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

(A) Safety Fencing

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position and hand set or set with a post driver. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the Standard Specifications. No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

The Contractor shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.

(B) Boundary Flagging

Boundary flagging delineation of interior boundaries shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Interior boundaries may be staked on a tangent that runs parallel to buffer but must not encroach on the buffer at any location. Interior boundaries of hand clearing shall be identified with a different colored flagging to distinguish it from mechanized clearing

Boundary flagging delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the Standard Specifications. No direct pay will be made for delineation of the interior boundaries. This delineation will be considered incidental to the work being paid for as Construction Surveying, except that where there is no pay item or construction surveying the cost of boundary flagging delineation shall be included in the unit prices bid for the various items in the contract. Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall consist of wooden stakes on 25 feet maximum

intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6” into the ground. Additional flagging may be placed on overhanging vegetation to enhance visibility but does not substitute for installation of stakes.

Installation of boundary flagging for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(3)(d) or Subarticle 802-2(F) of the Standard Specifications. No direct pay will be made for this delineation, as the cost of same shall be included in the unit prices bid for the various items in the contract.

The Contractor shall be required to maintain alternative stakes and highly visible flagging in a satisfactory condition for the duration of the project as determined by the Engineer.

Measurement and Payment

Safety Fence will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence geotextile with necessary posts and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay Item	Pay Unit
Safety Fence	Linear Foot

PERMANENT SOIL REINFORCEMENT MAT

Description

This work consists of furnishing and placing *Permanent Soil Reinforcement Mat*, of the type specified, over previously prepared areas as directed.

Materials

The product shall be a permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene thread to form a permanent three-dimensional structure. The mat shall have the following minimum physical properties:

Property	Test Method	Value	Unit
Penetration	ASTM D6567	9	% Thickness
	ASTM D6525	0.40	in Mass Per Unit
Area	ASTM D6566	0.55	lb/sy Tensile
Strength	ASTM D6818	385	lb/ft Elongation
(Maximum)	ASTM D6818	49	% Resiliency
	ASTM D1777	>70	% UV Stability *
	ASTM D4355	≥80	% Porosity
(Permanent Net)	ECTC Guidelines	≥85	%

Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft ²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

*ASTM D1682 Tensile Strength and % strength retention of material after 1000 hours of exposure

Submit a certification (Type 1, 2, or 3) from the manufacturer showing:

- (A) the chemical and physical properties of the mat used, and
- (B) conformance of the mat with this specification.

Construction Methods

Matting shall be installed in accordance with Subarticle 1631-3(B) of the *Standard Specifications*.

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the *Standard Specifications*. The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

Measurement and Payment

Permanent Soil Reinforcement Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which Permanent Soil Reinforcement Mat is installed and accepted. Overlaps will not be included in the measurement, and will be considered as incidental to the work. Such payment shall be full compensation for furnishing and installing the mat, including overlaps, and for all required maintenance.

Payment will be made under:

Pay Item	Pay Unit
Permanent Soil Reinforcement Mat	Square Yard

COIR FIBER WATTLES WITH POLYACRYLAMIDE (PAM)

Description

Coir Fiber Wattles are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting. Coir Fiber Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Coir Fiber 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 coir fiber wattles, matting installation, PAM application, and removing wattles.

Materials

Coir Fiber Wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12 in.
Minimum Density	3.5 lb/ft ³ +/-
10% Net Material	Coir Fiber
Net Openings	2 in. x 2 in.
Net Strength	90 lbs.
Minimum Weight	2.6 lbs./ft. +/- 10%

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.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each wattle. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Coir Fiber 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 coir fiber 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.

Apply PAM over the lower center portion of the coir fiber wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the coir fiber 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

Coir Fiber Wattles 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 *Coir Fiber Wattles*.

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.

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the coir fiber wattles. 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 apply the *Polyacrylamide(PAM)*.

Payment will be made under:

Pay Item	Pay Unit
Polyacrylamide(PAM)	Pound
Coir Fiber Wattle	Linear Foot

COIR FIBER WATTLE BARRIER

Description

Coir Fiber Wattle Barriers are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting and used at 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

100% Coir (Coconut)	Fibers
Minimum Diameter	12 in.

Minimum Length	10 ft.
Minimum Density	3.5 ln/ft ³ +/- 10%
Net Material	Coir Fiber
Net Openings	2 in. x 2 in.
Net Strength	90 lbs.
Minimum Weight	2.6 lbs./ft +/- 10%

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.

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

Coir Fiber Wattle Barriers shall be aligned in an overlapping and alternating pattern. A trench shall be excavated the entire length of each coir fiber wattle with a depth of 1 to 2 inches for the wattle to be placed. Coir Fiber Wattle Barriers shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each wattle. A minimum of 4 stakes shall be installed on the downslope side of the wattle with a maximum spacing of 2 linear feet, and according to the detail. Install a minimum of 2 stakes on the upslope side of the Coir Fiber Wattle Barrier 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.

Coir Fiber Wattle Barriers used to reduce runoff velocity for large slopes, use a maximum spacing of 20 ft. for the barrier measured along the slope.

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

Measurement and Payment

Coir Fiber Wattle Barrier will be measured and paid for by the actual number of linear feet of Coir Fiber Wattle Barriers 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 *Coir Fiber Wattle Barrier*.

Payment will be made under:

Pay Item

Coir Fiber Wattle

Pay Unit

Linear Foot

TEMPORARY ROCK SILT CHECK TYPE A WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

Description

Temporary Rock Silt Checks Type A with Excelsior Matting and Polyacrylamide (PAM) are devices utilized in temporary and permanent ditches to reduce runoff velocity and incorporate PAM into the construction runoff to increase settling of sediment particles and reduce turbidity of runoff. Temporary Rock Silt Checks Type A with Excelsior Matting and PAM 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 Temporary Rock Silt Checks Type A, matting installation, PAM application, and removing Temporary Rock Silt Checks Type A with Excelsior Matting and PAM.

Materials

Structural stone shall be class B stone that meets the requirements of Section 1042 of the Standard Specifications for Stone for Erosion Control, Class B.

Sediment control stone shall be #5 or #57 stone, which meets the requirements of Section 1005 of the Standard Specifications for these stone sizes.

Matting shall meet the requirements of Excelsior Matting in section 1060-8(B) of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each Temporary Rock Silt Check Type A. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Temporary Rock Silt Checks Type A shall be installed in accordance with Section 1633-3(A) of the Standard Specifications, Roadway Standard Drawing No. 1633.01 and the detail provided in the plans.

Installation of matting shall be in accordance with the detail provided in the plans, and anchored by placing Class B stone on top of the matting at the upper and lower ends.

Apply PAM at a rate of 3.5 ounces over the center portion of the Temporary Rock Silt Checks Type A and matting where the water is going to flow over. PAM applications shall be done during construction activities and after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM until the project is accepted or until the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are removed, and shall remove and dispose of silt accumulations at the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

Temporary Rock Silt Checks Type A will be measured and paid for in accordance with section 1633-5 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

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

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the Temporary Rock Silt Checks Type A. 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 apply the *Polyacrylamide(PAM)*.

Payment will be made under:

Pay Item	Pay Unit
Polyacrylamide(PAM)	Pound

TEMPORARY PIPE FOR CULVERT CONSTRUCTION

Description

This work consists of furnishing, installing, maintaining and removing any and all temporary pipe used on this project in conjunction with the culvert construction.

Construction Methods

The Contractor shall install temporary pipe in locations shown on the plans in such a manner approved by the Engineer. The temporary pipe shall provide a passageway for the stream through the work-site. The minimum size requirements will be as stated on the erosion control plans.

Measurement and Payment

___" *Temporary Pipe* will be measured and paid for at the contract unit price per linear foot of temporary pipe approved by the Engineer and measured in place from end to end. Such price and payment will be full compensation for all work covered by this section including but not limited to furnishing all materials required for installation, construction, maintenance, and

removal of temporary pipe.

Payment will be made under:

Pay Item

__" Temporary Pipe

Pay Unit

Linear Foot

COIR FIBER MAT

Description

Furnish material, install and maintain coir fiber mat in locations shown on the plans or in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat with stakes, steel reinforcement bars or staples as directed.

Materials

Provide coir fiber mat to meet the following requirements:

100% coconut fiber (coir) twine woven into high strength matrix	
Thickness -	0.30 in. minimum
Tensile Strength	1348 x 626 lb/ft minimum
Elongation	34% x 38% maximum
Flexibility (mg-cm)	65030 x 29590
Flow Velocity	Observed 11 ft/sec
Weight	20 oz/SY
Size	6.6 x 164 ft (120 SY)
"C" Factor	0.002
Open Area (measured)	50%

Anchors: Stakes, reinforcement bars, or staples shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

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

Place the coir fiber mat immediately upon final grading. Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the mat with the soil. Unroll the mat and apply without stretching such that it will lie smoothly but loosely on the soil surface.

For stream relocation applications, take care to preserve the required line, grade, and cross section of the area covered. Bury the top slope end of each piece of mat in a narrow trench at least 6 in. deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6 in. overlap. Construct check trenches at least 12 in. deep every 50 ft. longitudinally along the edges of the mat or as directed. Fold over and bury mat to the full depth of the trench, close and tamp firmly. Overlap mat at least 6 in. where 2 or more widths of mat are installed side by side.

Place anchors across the mat at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the mat 3 ft. apart.

Adjustments in the trenching or anchoring requirements to fit individual site conditions may be required.

Measurement and Payment

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for anchor items.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Mat	Square Yard

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

Floating Turbidity Curtain

Pay Unit

Square Yard

Special Provisions - Structure

CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION -L- 18+76.70

(12-12-13)

GENERAL

Construct, maintain, and remove the temporary access required to provide the working area necessary for construction of the new bridge, construction of the temporary detour structure, or for the removal of an existing bridge, as applicable. Temporary access may involve the use of a rock causeway [workpad], a work bridge, or other methods; however, all types of temporary access are required to meet the requirements of all permits, the Standard Specifications, and this Special Provision.

TEMPORARY ROCK CAUSEWAY [WORKPAD]

At the contractor's option, construction of a temporary rock causeway [workpad] within the limits shown on the plans is permitted. Build the causeway [workpad] with Class II riprap topped by a layer of Class B riprap or as otherwise designated on the plans or approved by the Engineer. If desired, recycle the Class II riprap used in the causeway [workpad] for placement in the final riprap slope protection as directed by the Engineer. No payment will be made for recycled riprap as this material is considered incidental to the causeway [workpad] placement and removal. If this option is exercised, no adjustment in contract bid price will be allowed due to an underrun in the quantity of "Rip Rap Class II (2'-0" Thick)".

Completely remove all causeway [workpad] material including pipes and return the entire causeway [workpad] footprint to the original contours and elevations within 90 days of the completion of the deck slab or as otherwise required by permits.

For sites affected by moratoriums or restrictions on in-stream work: Do not construct or remove causeway [workpad] during the moratorium period shown on the permit. If the completion of the deck slab falls within the prohibitive dates for causeway [workpad] construction or removal, begin causeway [workpad] removal immediately following the prohibitive dates.

TEMPORARY WORK BRIDGE

At the contractor's option, construction of a temporary work bridge in lieu of the causeway(s) [workpad] is acceptable, provided the temporary work bridge satisfies all permits. Submit details of the temporary work bridge to the Engineer prior to constructing the work bridge to ensure conformance with the plans and all permits. Completely remove the temporary bridge prior to final acceptance or as otherwise required by the permits.

BASIS OF PAYMENT

The lump sum price bid for "Construction, Maintenance and Removal of Temporary Access at Station _____" will be full compensation for the above work, or other methods of access, including all material, pipes, work bridge components, equipment, tools, labor, disposal, and incidentals necessary to complete the work.

PLACING LOAD ON STRUCTURE MEMBERS

(11-27-12)

The 2012 Standard Specifications shall be revised as follows:

In **Section 420-20 – Placing Load on Structure Members** replace the first sentence of the fifth paragraph with the following:

Do not place vehicles or construction equipment on a bridge deck until the deck concrete develops the minimum specified 28 day compressive strength and attains an age of at least 7 curing days.

CONCRETE WEARING SURFACE

(9-30-11)

GENERAL

This Special Provision governs materials, forming, and all other related work in the construction of a reinforced concrete wearing surface in accordance with applicable parts of the Standard Specifications, the details shown on the plans, and as outlined in these Special Provisions.

MATERIALS

Unless otherwise noted on the plans, use class AA concrete and a coarse aggregate gradation of 78M. The Class AA concrete shall contain fly ash or ground granulated blast furnace slag at the substitution rate specified in Article 1024-1 and in accordance with Articles 1024-5 and 1024-6 of the Standard Specifications. Place the wearing surface according to the grades, thicknesses and cross sections shown on the plans.

PREPARATION OF SURFACE

Prepare all surfaces to be overlaid using the equipment specified herein and prior to placing the epoxy coated reinforcing steel. Additionally, clean the surface within 48 hours prior to placing the overlay unless otherwise approved.

Thoroughly soak the cleaned surface for at least 12 hours prior to placing the concrete wearing surface. While soaking the surface, cover it with a layer of white opaque polyethylene film that is at least 4 mils thick. Immediately prior to placing the concrete wearing surface, remove standing water from the surface.

EQUIPMENT

Prior to beginning any work, obtain approval for all equipment to be used for deck preparation, placing, finishing, and curing the concrete wearing surface.

For surface preparation, use sandblasting or pressure washing equipment capable of removing all foreign matter. If using high pressure water blast, a minimum nozzle pressure of 3000 psi is required.

PLACING AND FINISHING

Follow the placing, finishing, and curing requirements of Article 420-14 (A) and (B). Construction Joints other than those shown on the plans are not permitted.

LIMITATIONS OF OPERATIONS

The requirements of Article 420-20 will apply to placing vehicles and construction equipment on the finished concrete wearing surface.
Use insulation that meets the requirements of Article 420-7(C), and if required, place it on the concrete wearing surface as soon as the initial set permits.

METHOD OF MEASUREMENT

The quantity of concrete wearing surface to be paid for is the actual number of square feet of concrete wearing surface as provided on the plans.

BASIS OF PAYMENT

The quantity for which payment is made will be that quantity shown in square feet on the plans. Where the plans have been revised, the quantity to be paid for will be the quantity shown on the revised plans.

The unit bid per square foot will be full compensation for all work covered by this Special Provision and applicable parts of the Standard Specifications, but not limited to furnishing and placing concrete, epoxy coated reinforcing steel, joint filler and sealer, deck drains, bridge scuppers, and any other material; erecting and removing all forms, curing concrete, protecting concrete in wind, rain, low humidity, high temperatures or other unfavorable weather.

Payment will be made under:

Concrete Wearing Surface..... Square Foot

ELASTOMERIC CONCRETE

(9-27-12)

1.0 DESCRIPTION

Elastomeric concrete is a mixture of a two-part polymer consisting of polyurethane and/or epoxy and kiln-dried aggregate. Provide an elastomeric concrete and binder system that is preapproved. Use the concrete in the blocked out areas on both sides of the bridge deck joints as indicated on the plans.

2.0 MATERIALS

Provide materials that comply with the following minimum requirements at 14 days (or at the end of the specified curing time).

ELASTOMERIC CONCRETE PROPERTIES	TEST METHOD	MINIMUM REQUIREMENT
Compressive Strength, psi	ASTM D695	2000
5% Deflection Resilience	ASTM D695	95
Splitting Tensile Strength, psi	ASTM D3967	625
Bond Strength to Concrete, psi	ASTM D882 (D882M)	450
Durometer Hardness	ASTM D2240	50

BINDER PROPERTIES (without aggregate)	TEST METHOD	MINIMUM REQUIREMENT
Tensile Strength, psi	ASTM D638	1000
Ultimate Elongation	ASTM D638	150%
Tear Resistance, lb/in	ASTM D624	200

In addition to the requirements above, the elastomeric concrete must be resistant to water, chemical, UV and ozone exposure and withstand temperature extremes. Elastomeric concrete systems requiring preheated aggregates are not allowed.

3.0 PREQUALIFICATION

Manufacturers of elastomeric concrete materials shall submit samples (including aggregate, primer and binder materials) and a Type 3 certification in accordance with Article 106-3 of the Standard Specifications for prequalification to:

North Carolina Department of Transportation
Materials and Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

Prequalification will be determined for the system. Individual components will not be evaluated, nor will individual components of previously evaluated systems be deemed prequalified for use.

The submitted binder (a minimum volume of 1 gallon) and corresponding aggregate samples will be evaluated for compliance with the Materials requirements specified above. Systems satisfying all of the Materials requirements will be prequalified for a one year period. Before the end of this period new product samples shall be resubmitted for prequalification evaluation.

If, at any time, any formulation or component modifications are made to a prequalified system that system will no longer be approved for use.

4.0 INSTALLATION

The elastomeric concrete shall not be placed until the reinforced concrete deck slab has cured for seven full days and reached a minimum strength of 3000 psi.

Provide a manufacturer's representative at the bridge site during the installation of the elastomeric concrete to ensure that all steps being performed comply with all manufacturer installation requirements including, but not limited to weather conditions (ambient temperature, relative humidity, precipitation, wind, etc), concrete deck surface preparation, binder and aggregate mixing, primer application, elastomeric concrete placement, curing conditions and minimum curing time before joint exposure to traffic. Do not place elastomeric concrete if the ambient air or surface temperature is below 45°F.

Prepare the concrete surface within 48 hours prior to placing the elastomeric concrete. Before placing the elastomeric concrete, all concrete surfaces shall be thoroughly cleaned and dry. Sandblast the concrete surface in the blockout and clear the surface of all loose debris. Do not place the elastomeric concrete until the surface preparation is completed and approved.

Prepare and apply a primer, as per manufacturer's recommendations, to all concrete faces to be in contact with elastomeric concrete, and to areas specified by the manufacturer.

Prepare, batch, and place the elastomeric concrete in accordance with the manufacturer's instructions. Place the elastomeric concrete in the areas specified on the plans while the primer is still tacky and within 2 hours after applying the primer. Trowel the elastomeric concrete to a smooth finish.

The joint opening in the elastomeric concrete shall match the formed opening in the concrete deck prior to sawing the joint.

5.0 FIELD SAMPLING

Provide additional production material to allow freshly mixed elastomeric concrete to be sampled for acceptance. A minimum of six 2 inch cube molds and three 3x6 inch cylinders will be taken by the Department for each day's production. Compression, splitting tensile, and durometer hardness testing will be performed by the Department to determine acceptance. Materials failing to meet the requirements listed above are subject to removal and replacement at no cost to the Department.

6.0 BASIS OF PAYMENT

No separate payment will be made for elastomeric concrete. The lump sum contract price bid for "Foam Joint Seals" will be full compensation for furnishing and placing the Elastomeric Concrete.

FOAM JOINT SEALS

(9-27-12)

SEALS

Use preformed seals compatible with concrete and resistant to abrasion, oxidation, oils, gasoline, salt and other materials that are spilled on or applied to the surface. Use a resilient, UV stable, preformed, impermeable, flexible, expansion joint seal. The joint seal shall consist of low-density, closed cell, cross-linked polyethylene non-extrudable, foam. The joint seal shall contain no EVA (Ethylene Vinyl Acetate). Cell generation shall be achieved by being physically blown using nitrogen. No chemical blowing agents shall be used in the cell generation process.

Use seals manufactured with grooves 1/8"± wide by 1/8"± deep and spaced between 1/4" and 1/2" apart along the bond surface running the length of the joint. Use seals with a depth that meets the manufacturer's recommendation, but is not less than 70% of the uncompressed width. Provide a seal designed so that, when compressed, the center portion of the top does not extend upward above the original height of the seal by more than 1/4". Provide a seal that has a working range of 30% tension and 60% compression and meets the requirements given below.

TEST	TEST METHOD	REQUIREMENT
Tensile strength	ASTM D3575-08, Suffix T	110 – 130 psi
Compression Set	ASTM D1056 Suffix B, 2 hr recovery	10% - 16%
Water Absorption	ASTM D3575	< 0.03 lb/ft ²
Elongation at Break	ASTM D3575	180% - 210%
Tear Strength	ASTM D624 (D3575-08, Suffix G)	14 – 20 pli
Density	ASTM D3575-08, Suffix W, Method A	1.8 – 2.2 lb/ft ³
Toxicity	ISO-10993.5	Pass (not cytotoxic)

Have the top of the joint seal clearly shop marked. Inspect the joint seals upon receipt to ensure that the marks are clearly visible before installation.

BONDING ADHESIVE

Use a two component, 100% solid, modified epoxy adhesive supplied by the joint seal manufacturer that meets the requirements given below.

TEST	TEST METHOD	REQUIREMENT
Tensile strength	ASTM D638	3000 psi (min.)
Compressive strength	ASTM D695	7000 psi (min.)
Hardness	Shore D Scale	75-85 psi
Water Absorption	ASTM D570	0.25% by weight max.
Elongation to Break	ASTM D638	5% (max.)
Bond Strength	ASTM C882	2000 psi (min.)

Use an adhesive that is workable to 40°F. When installing in ambient air or surface temperatures below 40°F or for application on moist, difficult to dry concrete surfaces, use an adhesive specified by the manufacturer of the joint seal.

SAWING THE JOINT

The joint opening shall be initially formed to the width shown on the plans including the blockout for the elastomeric concrete.

The elastomeric concrete shall have sufficient time to cure such that no damage can occur to the elastomeric concrete prior to sawing to the final width and depth as specified in the plans.

When sawing the joint to receive the foam seal, always use a rigid guide to control the saw in the desired direction. To control the saw and to produce a straight line as indicated on the plans, anchor and positively connect a template or a track to the bridge deck. Do not saw the joint by visual means such as a chalk line. Fill the holes used for holding the template or track to the deck with an approved, flowable non-shrink, non-metallic grout.

Saw cut to the desired width and depth in one or two passes of the saw by placing and spacing two metal blades on the saw shaft to the desired width for the joint opening.

The desired depth is the depth of the seal plus 1/4" above the top of the seal plus approximately 1" below the bottom of the seal. An irregular bottom of sawed joint is permitted as indicated on the plans. Grind exposed corners on saw cut edges to a 1/4" chamfer.

Saw cut a straight joint, centered over the formed opening and to the desired width specified in the plans. Prevent any chipping or damage to the sawed edges of the joint.

Remove any staining or deposited material resulting from sawing with a wet blade to the satisfaction of the Engineer.

PREPARATION OF SAWED JOINT FOR SEAL INSTALLATION

The elastomeric concrete shall cure a minimum of 24 hours prior to seal installation.

After sawing the joint, the Engineer will thoroughly inspect the sawed joint opening for spalls, popouts, cracks, etc. All necessary repairs will be made by the Contractor prior to blast cleaning and installing the seal.

Clean the joints by sandblasting with clean dry sand immediately before placing the bonding agent. Sandblast the joint opening to provide a firm, clean joint surface free of curing compound, loose material and any foreign matter. Sandblast the joint opening without causing pitting or uneven surfaces. The aggregate in the elastomeric concrete may be exposed after sandblasting.

After blasting, either brush the surface with clean brushes made of hair, bristle or fiber, blow the surface with compressed air, or vacuum the surface until all traces of blast products and abrasives are removed from the surface, pockets, and corners.

If nozzle blasting is used to clean the joint opening, use compressed air that does not contain detrimental amounts of water or oil.

Examine the blast cleaned surface and remove any traces of oil, grease or smudge deposited in the cleaning operations.

Bond the seal to the blast cleaned surface on the same day the surface is blast cleaned.

SEAL INSTALLATION

Install the joint seal according to the manufacturer's procedures and recommendations and as recommended below. Do not install the joint seal if the ambient air or surface temperature is below 45°F. Have a manufacturer's certified trained factory representative present during the installation of the first seal of the project.

Before installing the joint seal, check the uninstalled seal length to insure the seal is the same length as the deck opening. When the joint seal requires splicing, use the heat welding method by placing the joint material ends against a teflon heating iron of 425-475°F for 7 - 10 seconds, then pressing the ends together tightly. Do not test the welding until the material has completely cooled.

Begin installation by protecting the top edges of the concrete deck adjacent to the vertical walls of the joint as a means to minimize clean up. After opening both cans of the bonding agent, stir each can using separate stirring rods for each component to prevent premature curing of the bonding agent. Pour the two components, at the specified mixing ratio, into a clean mixing bucket. Mix the components with a low speed drill (400 rpm max.) until a uniform gray color is achieved without visible marbling. Apply bonding agent to both sides of the elastomeric concrete as well as both sides of the joint seal, making certain to completely fill the grooves with epoxy. With gloved hands, compress the joint seal and with the help of a blunt probe, push the seal into the joint opening until the seal is recessed approximately 1/4" below the surface. When pushing down on the joint seal, apply pressure only in a downward direction. Do not push the joint seal into the joint opening at an angle that would stretch the material. Seals that are stretched during installation shall be removed and rejected. Once work on placing a seal begins, do not stop until it is completed. Clean the excess epoxy from the top of the joint seal immediately with a trowel. Do not use solvents or any cleaners to remove the excess epoxy from the top of the seal. Remove the protective cover at the joint edges and check for any excess epoxy on the surface. Remove excess epoxy with a trowel, the use of solvents or any cleaners will not be allowed.

The installed system shall be watertight and will be monitored until final inspection and approval. Do not place pavement markings on top of foam joint seals.

BASIS OF PAYMENT

Payment for all foam joint seals will be at the lump sum contract price bid for "Foam Joint Seals". Prices and payment will be full compensation for furnishing all material, including elastomeric concrete, labor, tools and equipment necessary for installing these units in place and accepted.

FALSEWORK AND FORMWORK

(4-5-12)

1.0 DESCRIPTION

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term “temporary works” is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

2.0 MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS**A. Working Drawings**

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screenshot Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2" W' from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than $\frac{1}{8}$ ".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet above ground	Pressure, lb/ft ² for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

5.0 REMOVAL

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

6.0 METHOD OF MEASUREMENT

Unless otherwise specified, temporary works will not be directly measured.

7.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

SUBMITTAL OF WORKING DRAWINGS

(8-9-13)

8.0 GENERAL

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, “submittals” refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the

contract. Make submittals that are not specifically noted in this provision directly to the Resident Engineer. Either the Structure Design Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Resident Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Resident Engineer, Structure Design Unit contacts or the Geotechnical Engineering Unit contacts noted below.

In order to facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

9.0 ADDRESSES AND CONTACTS

For submittals to the Structure Design Unit, use the following addresses:

Via US mail:

Mr. G. R. Perfetti, P. E.
State Structures Engineer
North Carolina Department
of Transportation
Structures Management Unit
1581 Mail Service Center
Raleigh, NC 27699-1581

Attention: Mr. P. D. Lambert, P. E.

Via other delivery service:

Mr. G. R. Perfetti, P. E.
State Structures Engineer
North Carolina Department
of Transportation
Structures Management Unit
1000 Birch Ridge Drive
Raleigh, NC 27610

Attention: Mr. P. D. Lambert, P. E.

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

Send an additional e-copy of the submittal to the following address:

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical
Manager
North Carolina Department

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical
Manager
North Carolina Department

of Transportation
 Geotechnical Engineering Unit
 Eastern Regional Office
 1570 Mail Service Center
 Raleigh, NC 27699-1570

of Transportation
 Geotechnical Engineering Unit
 Eastern Regional Office
 3301 Jones Sausage Road, Suite 100
 Garner, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:

Mr. Eric Williams, P. E.
 Western Regional Geotechnical
 Manager
 North Carolina Department
 of Transportation
 Geotechnical Engineering Unit
 Western Regional Office
 5253 Z Max Boulevard
 Harrisburg, NC 28075

Via other delivery service:

Mr. Eric Williams, P. E.
 Western Region Geotechnical
 Manager
 North Carolina Department
 of Transportation
 Geotechnical Engineering Unit
 Western Regional Office
 5253 Z Max Boulevard
 Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structure Design Unit can be viewed from the Unit's web site, via the "Contractor Submittal" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact: Paul Lambert (919) 707 – 6407
 (919) 250 – 4082 facsimile
plambert@ncdot.gov

Secondary Structures Contacts: James Gaither (919) 707 – 6409
 James Bolden (919) 707 – 6408

Eastern Regional Geotechnical Contact (Divisions 1-7):
 K. J. Kim (919) 662 – 4710
 (919) 662 – 3095 facsimile
kkim@ncdot.gov

Western Regional Geotechnical Contact (Divisions 8-14):
 Eric Williams (704) 455 – 8902
 (704) 455 – 8912 facsimile
ewilliams@ncdot.gov

10.0 SUBMITTAL COPIES

Furnish one complete copy of each submittal, including all attachments, to the Resident Engineer. At the same time, submit the number of hard copies shown below of the same complete submittal directly to the Structure Design Unit and/or the Geotechnical Engineering Unit.

The first table below covers “Structure Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Structure Design Unit. The second table in this section covers “Geotechnical Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Geotechnical Engineering Unit.

Unless otherwise required, submit one set of supporting calculations to either the Structure Design Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

STRUCTURE SUBMITTALS

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Reference Requiring Submittal ¹
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Box Culvert Falsework ⁷	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Cofferdams	6	2	Article 410-4
Foam Joint Seals ⁶	9	0	“Foam Joint Seals”
Expansion Joint Seals (hold down plate type with base angle)	9	0	“Expansion Joint Seals”
Expansion Joint Seals (modular)	2, then 9	0	“Modular Expansion Joint Seals”
Expansion Joint Seals (strip seals)	9	0	“Strip Seals”
Falsework & Forms ² (substructure)	8	0	Article 420-3 & “Falsework and Formwork”
Falsework & Forms (superstructure)	8	0	Article 420-3 & “Falsework and Formwork”
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	“Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____”

Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings ^{4,5}	7	0	Article 1072-8
Miscellaneous Metalwork ^{4,5}	7	0	Article 1072-8
Optional Disc Bearings ⁴	8	0	“Optional Disc Bearings”
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings ⁴	8	0	“Pot Bearings”
Precast Concrete Box Culverts	2, then 1 reproducible	0	“Optional Precast Reinforced Concrete Box Culvert at Station ____”
Prestressed Concrete Cored Slab (detensioning sequences) ³	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078-11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	“Modular Expansion Joint Seals”
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & “Sound Barrier Wall”
Sound Barrier Wall Steel Fabrication Plans ⁵	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel ⁴	2, then 7	0	Article 1072-8

Temporary Detour Structures	10	2	Article 400-3 & “Construction, Maintenance and Removal of Temporary Structure at Station _____”
TFE Expansion Bearings ⁴	8	0	Article 1072-8

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structure Design Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18” or greater.

GEOTECHNICAL SUBMITTALS

Submittal	Copies Required by Geotechnical Engineering Unit	Copies Required by Structure Design Unit	Contract Reference Requiring Submittal ¹
Drilled Pier Construction Plans ²	1	0	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports ²	1	0	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms ^{2,3}	1	0	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports ²	1	0	Subarticle 450-3(F)(3)
Retaining Walls ⁴	8 drawings, 2 calculations	2 drawings	Applicable Provisions
Temporary Shoring ⁴	5 drawings, 2 calculations	2 drawings	“Temporary Shoring” & “Temporary Soil Nail Walls”

FOOTNOTES

- References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
- Submit one hard copy of submittal to the Resident or Bridge Maintenance Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
- The Pile Driving Equipment Data Form is available from:

https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
 See second page of form for submittal instructions.
- Electronic copy of submittal is required. See referenced provision.

CRANE SAFETY

(8-15-05)

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

Competent Person: Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.

Riggers: Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.

Crane Inspections: Inspection records for all cranes shall be current and readily accessible for review upon request.

Certifications: By July 1, 2006, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

GROUT FOR STRUCTURES

(9-30-11)

1.0 DESCRIPTION

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

2.0 MATERIAL REQUIREMENTS

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

3.0 SAMPLING AND PLACEMENT

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

4.0 BASIS OF PAYMENT

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

PILE DRIVING CRITERIA

(9-18-12)

Revise the *2012 Standard Specifications* as follows:

Page 4-72, Subarticle 450-3(D)(3) Required Driving Resistance, lines 26-30, delete first paragraph and replace with the following:

The Engineer will determine if the proposed pile driving methods and equipment are acceptable and provide the blows/ft and equivalent set for the required driving resistance noted in the plans, i.e., "pile driving criteria" except for structures with pile driving analyzer (PDA) testing. For structures with PDA testing, provide pile driving criteria for any bents and end bents with piles in accordance with Subarticle 450-3(F)(4).

Page 4-73, Subarticle 450-3(F) Pile Driving Analyzer, lines 45-48, delete third paragraph and replace with the following:

The Engineer will complete the review of the proposed pile driving methods and equipment within 7 days of receiving PDA reports and pile driving criteria. Do not place concrete for caps or footings on piles until PDA reports and pile driving criteria have been accepted.

Page 4-75, Subarticle 450-3(F) Pile Driving Analyzer, add the following:

(4) Pile Driving Criteria

Analyze pile driving with the GRL Wave Equation Analysis Program (GRLWEAP) manufactured by Pile Dynamics, Inc. Use the same PDA Consultant that provides PDA reports to perform GRLWEAP analyses and develop pile driving criteria. Provide driving criteria sealed by an engineer approved as a Project Engineer (key person) for the same PDA Consultant.

Analyze pile driving so driving stresses, energy transfer, ram stroke and blows/ft from PDA testing and resistances from CAPWAP analyses correlate to GRLWEAP models. Provide pile driving criteria for each combination of required driving resistance and pile

length installed for all pile types and sizes. Submit 2 copies of pile driving criteria with PDA reports. Include the following for driving criteria:

- (a) Project information in accordance with Subarticle 450-3(F)(3)(a)
- (b) Table showing blows/ft and equivalent set vs. either stroke for multiple strokes in increments of 6" or bounce chamber pressure for multiple pressures in increments of 1 psi
- (c) Maximum stroke or blows/ft or pile cushion requirements to prevent overstressing piles as needed
- (d) GRLWEAP software version information
- (e) PDF copy of all pile driving criteria and executable GRLWEAP input and output files

Page 4-76, Article 450-4 MEASUREMENT AND PAYMENT, add the following:

The contract unit price for *PDA Testing* will also be full compensation for performing GRLWEAP analysis and developing and providing pile driving criteria.

Standard Special Provisions

ERRATA

Revise the 2012 *Standard Specifications* as follows:

Division 2

Page 2-7, line 31, Article 215-2 Construction Methods, replace “Article 107-26” with “Article 107-25”.

Page 2-17, Article 226-3, Measurement and Payment, line 2, delete “pipe culverts.”.

Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: **Line 1**, replace “(4) Buffer Zone” with “(c) Buffer Zone”; **Line 12**, replace “(5) Evaluation for Potential Wetlands and Endangered Species” with “(d) Evaluation for Potential Wetlands and Endangered Species”; and **Line 33**, replace “(6) Approval” with “(4) Approval”.

Division 3

Page 3-1, after line 15, Article 300-2 Materials, replace “1032-9(F)” with “1032-6(F)”.

Division 4

Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping, replace “sheet pile” with “reinforcement”.

Division 6

Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments, replace “30” with “45”.

Page 6-10, line 42, Subarticle 609-6(C)(2), replace “Subarticle 609-6(E)” with “Subarticle 609-6(D)”.

Page 6-11, Table 609-1 Control Limits, replace “Max. Spec. Limit” for the Target Source of $P_{0.075}/P_{be}$ Ratio with “1.0”.

Page 6-40, Article 650-2 Materials, replace “Subarticle 1012-1(F)” with “Subarticle 1012-1(E)”

Division 8

Page 8-23, line 10, Article 838-2 Materials, replace “Portland Cement Concrete, Class B” with “Portland Cement Concrete, Class A”.

Division 12

Page 12-7, Table 1205-3, add “FOR THERMOPLASTIC” to the end of the title.

Page 12-8, Subarticle 1205-5(B), line 13, replace “Table 1205-2” with “Table 1205-4”.

Page 12-8, Table 1205-4 and 1205-5, replace “THERMOPLASTIC” in the title of these tables with “POLYUREA”.

Page 12-9, Subarticle 1205-6(B), line 21, replace “Table 1205-4” with “Table 1205-6”.

Page 12-11, Subarticle 1205-8(C), line 25, replace “Table 1205-5” with “Table 1205-7”.

Division 15

Page 15-4, Subarticle 1505-3(F) Backfilling, line 26, replace “Subarticle 235-4(C)” with “Subarticle 235-3(C)”.

Page 15-6, Subarticle 1510-3(B), after line 21, replace the allowable leakage formula with the following: $W = LD\sqrt{P} \div 148,000$

Page 15-6, Subarticle 1510-3(B), line 32, delete “may be performed concurrently or” and replace with “shall be performed”.

Page 15-17, Subarticle 1540-3(E), line 27, delete “Type 1”.

Division 17

Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center, delete this subarticle.

Revise the *2012 Roadway Standard Drawings* as follows:

1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation, replace “1633.01” with “1631.01”.

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.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION BID FORM

WBS Element: 17BP.11.R.57Contract Number: DK00115

**DESCRIPTION: Replace Bridge No.265 on SR 1345 over New River in Alleghany County, North Carolina
Grading, Drainage, Paving, and Structure**

PAGE 1 OF 3

LINE	ITEM NUMBER	SECT	DESCRIPTION	QUANT	UNIT	UNIT BID	AMOUNT BID
1	0000100000-N	800	MOBILIZATION	1	LS		\$ -
2	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS		\$ -
3	0030000000-N	SP	BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION -L- 18+76.70	1	LS		\$ -
4	0043000000-N	226	GRADING	1	LS		\$ -
5	0050000000-E	226	SUPPLEMENTARY CLEARING & GRUBBING	1	ACR		\$ -
6	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	500	SY		\$ -
7	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	30	TON		\$ -
8	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	85	SY		\$ -
9	0343000000-E	310	15" SIDE DRAIN PIPE	20	LF		\$ -
10	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	73	LF		\$ -
11	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	59	LF		\$ -
12	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	48	LF		\$ -
13	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	39	LF		\$ -
14	0995000000-E	340	PIPE REMOVAL	67	LF		\$ -
15	1220000000-E	545	INCIDENTAL STONE BASE	20	TON		\$ -
16	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	760	TON		\$ -
17	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	230	TON		\$ -
18	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	50	TON		\$ -
19	2000000000-N	806	RIGHT OF WAY MARKERS	20	EA		\$ -
20	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	5	EA		\$ -
21	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	5	EA		\$ -
22	2556000000-E	846	SHOULDER BERM GUTTER	40	LF		\$ -
23	2577000000-E	846	CONCRETE EXPRESSWAY GUTTER	180	LF		\$ -
24	3030000000-E	862	STEEL BM GUARDRAIL	437.5	LF		\$ -
25	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	62.5	LF		\$ -
26	3165000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350 TL-2	4	EA		\$ -
27	3195000000-E	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	2	LF		\$ -
28	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	4	EA		\$ -
29	3569000000-E	867	BARBED WIRE FENCE RESET	365	LF		\$ -
30	3574000000-E	867	GENERIC FENCING ITEM (TEMP FENCE)	365	LF		\$ -
31	3628000000-E	876	RIP RAP, CLASS I	10	TON		\$ -
32	3635000000-E	876	RIP RAP, CLASS II	200	TON		\$ -
33	3649000000-E	876	RIP RAP, CLASS B	170	TON		\$ -
34	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	4,710	SY		\$ -
35	3659000000-N	876	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	2	EA		\$ -
36	6000000000-E	1605	TEMPORARY SILT FENCE	1,515	LF		\$ -
37	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	60	TON		\$ -

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION BID FORM

WBS Element: 17BP.11.R.57Contract Number: DK00115

**DESCRIPTION: Replace Bridge No.265 on SR 1345 over New River in Alleghany County, North Carolina
Grading, Drainage, Paving, and Structure**

PAGE 2 OF 3

LINE	ITEM NUMBER	SECT	DESCRIPTION	QUANT	UNIT	UNIT BID	AMOUNT BID
38	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	290	TON		\$ -
39	6012000000-E	1610	SEDIMENT CONTROL STONE	1,430	TON		\$ -
40	6015000000-E	1615	TEMPORARY MULCHING	1.0	ACR		\$ -
41	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	50	LB		\$ -
42	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	0.25	TON		\$ -
43	6024000000-E	1622	TEMPORARY SLOPE DRAINS	200	LF		\$ -
44	6029000000-E	SP	SAFETY FENCE	100	LF		\$ -
45	6030000000-E	1630	SILT EXCAVATION	240	CY		\$ -
46	6036000000-E	1631	MATTING FOR EROSION CONTROL	3,335	SY		\$ -
47	6037000000-E	SP	COIR FIBER MAT	100	SY		\$ -
48	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	70	SY		\$ -
49	6042000000-E	1632	1/4" HARDWARE CLOTH	205	LF		\$ -
50	6045000000-E	SP	15" TEMPORARY PIPE	305	LF		\$ -
51	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	60	SY		\$ -
52	6070000000-N	SP	SPECIAL STILLING BASIN	40	EA		\$ -
53	6071012000-E	SP	COIR FIBER WATTLE	210	LF		\$ -
54	6071014000-E	SP	COIR FIBER WATTLE BARRIER	332	LF		\$ -
55	6071020000-E	SP	POLYACRYLAMIDE (PAM)	75	LB		\$ -
56	6084000000-E	1660	SEEDING & MULCHING	1.0	ACR		\$ -
57	6087000000-E	1660	MOWING	0.5	ACR		\$ -
58	6090000000-E	1661	SEED FOR REPAIR SEEDING	50	LB		\$ -
59	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25	TON		\$ -
60	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	50	LB		\$ -
61	6108000000-E	1665	FERTILIZER TOPDRESSING	0.75	TON		\$ -
62	6114500000-N	1667	SPECIALIZED HAND MOWING	10	MHR		\$ -
63	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	9	EA		\$ -
64	6123000000-E	1670	REFORESTATION	0.07	ACR		\$ -
65	8007000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP STRUCTURE AT STA -L- 18+76.70	1	LS		\$ -
66	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION -L- 18+76.70	1	LS		\$ -
67	8105520000-E	411	3'-0" DIA DRILLED PIERS IN SOIL	124.8	LF		\$ -
68	8105620000-E	411	3'-0" DIA DRILLED PIERS NOT IN SOIL	213	LF		\$ -
69	8111200000-E	411	PERMANENT STEEL CASING FOR 3'-0" DIA DRILLED PIER	178.8	LF		\$ -
70	8112730000-N	450	PDA TESTING	1	EA		\$ -
71	8113000000-N	411	SID INSPECTIONS	3	EA		\$ -
72	8115000000-N	411	CSL TESTING	7	EA		\$ -
73	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION -L- 18+76.70	1	LS		\$ -
74	8156000000-E	SP	CONCRETE WEARING SURFACE	12,935	SF		\$ -

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION **BID FORM**

WBS Element: 17BP.11.R.57

Contract Number: DK00115

DESCRIPTION: **Replace Bridge No.265 on SR 1345 over New River in Alleghany County, North Carolina
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PAGE 3 OF 3

LINE	ITEM NUMBER	SECT	DESCRIPTION	QUANT	UNIT	UNIT BID	AMOUNT BID
75	8161000000-E	420	GROOVING BRIDGE FLOORS	11,752	SF		\$ -
76	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	148.7	CY		\$ -
77	8210000000-N	422	BRIDGE APPROACH SLABS, STATION -L-18+76.70	1	LS		\$ -
78	8217000000-E	425	REINFORCING STEEL (BRIDGE)	51,759	LB		\$ -
79	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	8,299	LB		\$ -
80	8364000000-E	450	HP 12X53 STEEL PILES	200.0	LF		\$ -
81	8391000000-N	450	STEEL PILE POINTS	10	EA		\$ -
82	8468000000-E	460	ONE BAR METAL RAIL	1,026.75	LF		\$ -
83	8517000000-E	460	1'-11 3/4"X 1'-0" CONCRETE PARAPET	1,041.75	LF		\$ -
84	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	180	TON		\$ -
85	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	195	SY		\$ -
86	8657000000-N	430	ELASTOMERIC BEARINGS	1	LS		\$ -
87	8692000000-N	SP	FOAM JOINT SEALS	1	LS		\$ -
88	8762000000-E	430	3'-0" X 1'-9" PRESTRESSED CONC CORED SLABS	4,680.0	LF		\$ -

TOTAL BID FOR PROJECT: _____

THIS SECTION TO BE COMPLETED BY NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

This bid has been reviewed in accordance with Article 103-1 of the Standard Specifications for Roads and Structures 2012.

Reviewed by _____ (date)

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

CORPORATION

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder 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 bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of 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 CONTRACTOR

_____ Full name of Corporation

_____ Address as Prequalified

Attest _____
Secretary/Assistant Secretary
Select appropriate title

By _____
President/Vice President/Assistant Vice President
Select appropriate title

_____ Print or type Signer's name

_____ Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
_____ day of _____, 20_____.

_____ Signature of Notary Public

of _____ County.

State of _____

My Commission Expires: _____

NOTARY SEAL

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

PARTNERSHIP

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder 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 bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of 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 CONTRACTOR

_____ Full Name of Partnership

_____ Address as Prequalified

_____ By _____
Signature of Witness Signature of Partner

_____ Print or type Signer's name

_____ Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
_____ day of _____, 20_____.

_____ Signature of Notary Public

NOTARY SEAL

of _____ County.

State of _____

My Commission Expires: _____

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

LIMITED LIABILITY COMPANY

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder 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 bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of 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 CONTRACTOR

_____ Full Name of Firm

_____ Address as Prequalified

_____ Signature of Manager _____
Signature of Witness Individually

_____ Print or type Signer's name

_____ Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
_____ day of _____, 20_____.

_____ Signature of Notary Public

NOTARY SEAL

of _____ County.

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

JOINT VENTURE (2) or (3)

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder 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 bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of 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 CONTRACTOR

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

NOTARY SEAL

Affidavit must be notarized for Line (2)
Subscribed and sworn to before me this the
_____ day of _____, 20_____.

Signature of Notary Public

of _____ County.

State of _____

My Commission Expires: _____

NOTARY SEAL

Affidavit must be notarized for Line (3)
Subscribed and sworn to before me this the
_____ day of _____, 20_____.

Signature of Notary Public

of _____ County.

State of _____

My Commission Expires: _____

NOTARY SEAL

Affidavit must be notarized for Line (4)
Subscribed and sworn to before me this the
_____ day of _____, 20_____.

Signature of Notary Public

of _____ County.

State of _____

My Commission Expires: _____

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder 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 bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of 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 CONTRACTOR

Name of Contractor _____ Individual Name
Trading and doing business as _____ Full name of Firm

Address as Prequalified

Signature of Witness Signature of Contractor, Individually

Print or type Signer's name Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
____ day of _____, 20____.

Signature of Notary Public
of _____ County.
State of _____
My Commission Expires: _____

NOTARY SEAL

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder 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 bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of 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 CONTRACTOR

Name of Contractor _____
Print or type Individual Name

Address as Prequalified

Signature of Contractor, Individually

Print or type Signer's name

Signature of Witness

Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
_____ day of _____, 20_____.

Signature of Notary Public

NOTARY SEAL

of _____ County.

State of _____

My Commission Expires: _____

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.

Contract No: DK00115

County: Alleghany

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

Contract Officer

Date

LISTING OF MBE & WBE SUBCONTRACTORS

Sheet of

FIRM NAME AND ADDRESS	MBE OR WBE	ITEM NO.	ITEM DESCRIPTION	* AGREED UPON UNIT PRICE	DOLLAR VOL. OF SUBLET ITEM

DOLLAR VOLUME OF WB SUBCONTRACTOR _____ WB PERCENTAGE OF TOTAL CONTRACT BID PRICE _____ DOLLAR VOLUME OF MB SUBCONTRACTOR _____ MB PERCENTAGE OF TOTAL CONTRACT BID PRICE _____	*THE DOLLAR VOLUME SHOWN IN THIS COLUMN SHALL BE THE ACTUAL PRICE AGREED UPON BY THE PRIME CONTRACTOR AND THE MB/WB SUBCONTRACTOR. THESE PRICES WILL BE USED TO DETERMINE THE PERCENTAGES OF MB/WB PARTICIPATION IN THE CONTRACT.
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**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action Id. SAW-2014-00424

County: Alleghany

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: NC DOT DIV 11

Address: Heath Slaughter
801 Statesville Rd.

North Wilkesboro, NC, 28659

Telephone Number: (336) 903-9202

Size (acres) <1 Nearest Town Amelia

Nearest Waterway: New River River Basin: Upper New. North Carolina, Virginia.

USGS HUC: 5050001 Coordinates Latitude: 36.55184 Longitude: -81.18196

Location description: The site is located along SR 1345 (Farmers Fish Camp Road) over the New River at NCDOT Bridge #265 in Alleghany County, North Carolina.

Description of projects area and activity: This authorization is for the permanent and temporary discharge of clean fill material associated with an existing bridge replacement project. The previously existing bridge was destroyed during a January 2013 storm event. Permanent impacts include the placement of fill associated with 15 span structures that total 0.01 acre, and the discharge of rip rap within 71 linear feet of river channel for bank stabilization/pipe outlet protection. Temporary impacts are within 0.48 acre of jurisdictional river channel and 20 linear feet of river channel and are associated with a temporary rock causeway.

Applicable Law: Section 404 (Clean Water Act, 33 USC 1344)

Authorization: Regional General Permit Number or Nationwide Permit Number: NWP 3 Maintenance.

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 received February 21, 2014. 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 Quality (telephone 919-807-6300) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management

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

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Andrew Williams at 919-554-4884 x26 or Andrew.E.Williams2@usace.army.mil.**

Special Conditions:

1. Recommendations numbered 1-7 and 9-11 in the attached letter from the North Carolina Wildlife Resource Commission dated March 25, 2014 are hereby incorporated as special conditions of this permit verification.
2. Replacement bridge rail will be a one-bar metal design.
3. NCDOT will work with historic property owner to replace the existing gates and fences affected during construction and to provide temporary fencing during construction to contain their cattle.

Corps Regulatory Official: _____ Date: **04/02/2014**
Expiration Date of Verification: **03/18/2017**

Determination of Jurisdiction:

- C. There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

Basis For Determination: The stream, Rock Creek, is a relatively permanent water (RPW) and a tributary to the New River, a TNW and a navigable water of the United States, in the lower reaches. The Ordinary High Water Mark (OHWM) of the unnamed tributary was indicated by a description provided by the applicant and the following physical characteristics observed in an aerial photograph: absence of vegetation, scour, and bed and banks.

This jurisdictional determination is only for the stream/river proposed for impacts associated with this Nationwide Permit verification and does not include any other waters/wetlands that may be located on the project site

Remarks: None

E. Attention USDA Program Participants

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

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

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

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address **by June 2, 2014.**

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

Corps Regulatory Official: _____
Andrew Williams

Date of JD: **04/02/2014**

Expiration Date of JD: April 02, 2019

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 online at <http://regulatory.usacesurvey.com/>.

Copy furnished:

Dave Wanucha
North Carolina Department of Natural Resources
Division of Water Resources
585 Waughtown Street
Winston-Salem, NC 27107

Action ID Number: SAW-2014-00424

County: Alleghany

Permittee: NC DOT DIV 11
Heath Slaughter

Project Name: NCDOT/SR1345/Bridge265/Division11

Date Verification Issued: 04/02/2014

Project Manager: Andrew Williams

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

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Andrew Williams
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 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 11 Heath Slaughter		File Number: SAW-2014-00424	Date: 04/02/2014
Attached is:		See Section below	
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
	PERMIT DENIAL	C	
X	APPROVED JURISDICTIONAL DETERMINATION	D	
	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 or <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or the 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.

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

- 2.
- **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 district 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,
 Attn: Andrew Williams
 3331 Heritage Trade Drive, Suite 105
 Wake Forest, North Carolina 27587**

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.

_____ Signature of appellant or agent.	Date:	Telephone number:
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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**



⊠ North Carolina Wildlife Resources Commission ⊠

Gordon Myers, Executive Director

TO: Andrew Williams, Regulatory Project Manager
Raleigh Regulatory Field Office, USACE

FROM: Marla Chambers, Western NCDOT Review Coordinator *Marla Chambers*
Habitat Conservation Program, NCWRC

DATE: March 25, 2014

SUBJECT: Review of NCDOT's application for Section 404 and 401 permits to rebuild Bridge No. 265 over the New River on SR 1345 (Farmers Fish Camp Road), Alleghany County, North Carolina.

The North Carolina Department of Transportation (NCDOT) has submitted an application to obtain a Section 404 Permit from the U.S. Army Corps of Engineers (USACE) and a 401 Water Quality Certification from the NC Division of Water Resources (NCDWR). Staff biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the information provided. These comments are provided in accordance with the provisions of the state and federal Environmental Policy Acts (G.S. 113A-1 through 113-10; 1 NCAC 25 and 42 U.S.C. 4332(2)(c), respectively), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d), as applicable.

The NCDOT proposes to rebuild Bridge No. 265 over the New River on SR 1345, which washed out in January 2013, with a new longer bridge at the same location. The new bridge design raises the grade of the previous low-water bridge to allow for debris and canoe passage beneath. Rock Creek joins the New River at the bridge site and will incur approximately 20 linear feet (lf) of riprap impacts and 20 lf of dewatering. Impacts from interior bents in the New River will be significantly reduced from the existing condition. The temporary causeway across the 450-foot wide river will have 17 CSPAs installed to maintain flow and only half of the causeway will be in the river at one time. Permanent stream impacts to the New River total 51 linear feet for riprap bank stabilization. Temporary causeway impacts are 24 lf wide or 0.48 acres.

New River (Class: C; ORW) supports a number of state-protected aquatic species at and just downstream of the project including Spike (*Elliptio dilatata*), Special Concern (SC); Seep Mudalia (*Leptoxis dilatata*), Threatened (T); Purple Wartyback (*Cyclonaias tuberculata*) Endangered (E); Green Floater (*Lasmigona subviridis*), (E); Logperch (*Percina caprodes*), (T);

Mimic shiner (*Notropis volucellus*), Significantly Rare (SR); Kanawha Rosyface shiner (*Notropis sp. 1*), (SR); Kanawha minnow (*Phenacobius teretulus*), (SC); New River shiner (*Notropis scabriceps*), Watch List (WL); Appalachia darter (*Percina gymnocephala*), (WL); Spotfin shiner (*Cyprinella spiloptera*), (WL); Silver shiner (*Notropis photogenis*), (WL); Bigmouth chub (*Nocomis platyrhynchus*), (WL); Spiny Stream Crayfish (*Orconectes cristavarius*), (WL); New River Crayfish (*Cambarus chasmodactylus*), (WL). The project area was last sampled in 2008. We request that NCDOT keep us informed regarding the construction schedule and pre-construction meeting. Sediment and erosion control measures must adhere to the Design Standards in Sensitive Watersheds. Significant trout resources are not expected in the project vicinity; therefore, we are not requesting a trout moratorium.

NCWRC managed a Public Fishing Area at the project bridge site, on privately owned land. The site had a kiosk, was patrolled by law enforcement, and the Alleghany Parks and Recreation Department provided trash pick-up. The site also had a problem with floating debris backing up against the bridge and blocking the access area. We commend NCDOT for designing the new bridge to allow debris and canoes to pass underneath. Also, we request that NCDOT work with us to re-establish public access at the project site, in accordance with their policies.

NCWRC can concur with the issuance of Section 404 and 401 permits provided that the following conditions are implemented:

1. Sediment and erosion control measures shall adhere to the Design Standards in Sensitive Watersheds and be strictly maintained until project completion.
2. Herbaceous vegetation shall be planted on all bare soil as soon as possible following the completion of permanent or temporary ground disturbing activities to provide appropriate long-term erosion control.
3. Tall fescue and straw mulch shall not be used in riparian areas. We encourage NCDOT to utilize onsite vegetation and materials for bank stabilization when practicable. Erosion control matting shall be used on steep slopes and for establishing permanent vegetation in riparian areas. The matting shall be well anchored with staples or wooden stakes and, whenever possible, include live stakes of native trees. Matting in riparian areas should not contain plastic mesh, which can entangle and trap small animals.
4. Stormwater should be directed to buffer areas or retention basins and should not be routed directly into the waterway.
5. The natural dimension, pattern, and profile of the waterway above and below the crossing should not be modified by widening the channel or changing the depth of the waterway.
6. Removal of vegetation in riparian areas should be minimized. Native trees and shrubs should be planted along the banks, as appropriate to the setting, to reestablish the riparian zone and to provide long-term erosion control.

7. Grading and backfilling should be minimized, and tree and shrub growth should be retained if possible to ensure long term availability of shoreline cover for fish and wildlife.
8. Where practicable, riprap placed for bank stabilization should be limited to the banks below the high water mark, and vegetation should be used for stabilization above the high water elevation.
9. If concrete will be used during construction, work must be accomplished so that wet (uncured) concrete does not contact surface waters. This will lessen the chance of altering the water chemistry and causing a fish kill.
10. Discharging hydroseeding mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
11. Heavy equipment should be operated from the bank rather than in the channel whenever possible in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the waterway. All mechanized equipment operated near surface waters should be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids or other toxic materials.

Thank you for the opportunity to review and comment on this project. If you have any questions regarding these comments, please contact me at (704) 982-9181 or marla.chambers@ncwildlife.org.

cc: Amy Chapman, NCDWR
Heath Slaughter, NCDOT



North Carolina Department of Environment and Natural Resources

Division of Water Resources

Water Quality Programs

Thomas A. Reeder

Director

Pat McCrory
Governor

John E. Skvarla, III
Secretary

March 14, 2014
Alleghany County
NCDWR Project No. 20140183
Bridge No. 265 on SR 1345
WBS Project No. 17BP.11.R.57

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Mr. Heath Slaughter, Division Environmental Officer
NCDOT, Division 11
P.O. Box 250
Wilkesboro, NC 28659

Dear Mr. Slaughter:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of replacing Bridge No. 265 with a new bridge over the New River on SR 1345 in Alleghany County:

Stream Impacts in the New River Basin

Station Number	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream Riprap (linear ft)	Temporary Fill in Perennial Stream for Causeway (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Bridge	-	-	51	24	75	-
11+92	-	-	10	10	20	-
13+42	-	-	10	10	20	-
Totals	-	-	71	44	115	0

Total Stream Impact for Project: 115 linear feet.

The project shall be constructed in accordance with your application dated received February 20, 2014. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 3883. This certification corresponds to the Nationwide Permit 3 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.

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-733-1290
Internet: www.ncwaterquality.org

One
North Carolina
Naturally

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 150 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:

Project Specific Conditions

1. None.

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 the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required.
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.
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.
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.
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.
6. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
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 the 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.
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.
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.
10. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
11. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

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.
13. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..
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.
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 prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.
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.
18. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer 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.
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.
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.
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:
 - 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.

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 DENR as follows:

Mr. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
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 David Wanucha at (336)771-4951 or dave.wanucha@ncdenr.gov.

Sincerely,



Thomas A. Reeder

cc: Andy Williams, US Army Corps of Engineers, Raleigh Field Office (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission (electronic copy only)
DWR TPU (electronic copy only)
File Copy



North Carolina Department of Environment and Natural Resources

Division of Water Resources
Water Quality Programs
Thomas A. Reeder
Director

Pat McCrory
Governor

John E. Skvarla, III
Secretary

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, 1650 Mail Service Center, Raleigh, NC, 27699-1650. 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 _____

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-733-1290
Internet: www.ncwaterquality.org



Water Quality Certification No. 3883

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBERS: 3 (MAINTENANCE), 4 (FISH AND WILDLIFE HARVESTING, ENHANCEMENT, AND ATTRACTION DEVICES AND ACTIVITIES), 5 (SCIENTIFIC MEASUREMENT DEVICES—25 CUBIC YARDS FOR WEIRS AND FLUMES), 6 (SURVEY ACTIVITIES—25 CUBIC YARDS FOR TEMPORARY PADS), 7 (OUTFALL STRUCTURES AND ASSOCIATED INTAKE STRUCTURES), 19 (MINOR DREDGING), 20 (OIL SPILL CLEANUP), 22 (REMOVAL OF VESSELS), 25 (STRUCTURAL DISCHARGE), 30(MOIST SOIL MANAGEMENT FOR WILDLIFE), 32 (COMPLETED ENFORCEMENT ACTIONS), 36 (BOAT RAMPS [IN NONWETLAND SITES]), AND REGIONAL PERMIT 197800056 (PIERS, DOCKS AND BOATHOUSES), AND REGIONAL PERMIT 197800125 (BOAT RAMPS) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

Water Quality Certification Number 3883 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 Division of Water Quality (DWQ) Regulations in 15 NCAC 02H .0500 and 15 NCAC 02B .0200 for the discharge of fill material to waters and wetland areas which are waters of the United States as described in 33 CFR 330 Appendix A (B) (3, 4, 5, 6, 7, 19, 20, 22, 25, 30, 32, and 36) and Regional Permits 197800056 and 19780125 and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

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.

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 Quality (the "Division"):

- a. Impacts equal to or greater than 40 linear feet of additional permanent stream impact (including stream relocations) at an existing stream impact location; or
- b. Temporary or permanent impacts equal to or greater than one-tenth (1/10) of an acre of wetlands; or
- c. Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
- d. Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

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. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.

Water Quality Certification No. 3883

Conditions of Certification:

1. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

2. Standard Erosion and Sediment Control Practices

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 and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

- a. 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.
- b. 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*.
- c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.
- d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
- e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

3. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

Water Quality Certification No. 3883

4. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your 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. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at <http://portal.ncdenr.org/web/wq/ws/su/npdcssw#tab-w>.

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.

5. Work in the Dry

All work in or adjacent to stream waters 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 submittal to and written approval by the Division.

6. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

7. Riparian Area Protection Rules (Buffer Rules)

Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

Water Quality Certification No. 3883

8. Placement of Culverts and Other Structures in Waters and Wetlands

Culverts required for this project 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. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

Placement of culverts and other structures in waters and streams must be 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 or equal to 48 inches, to allow low flow passage of water and aquatic life.

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 (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 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 to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division 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 submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. Additionally, when roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must 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 must be used where practicable instead of riprap or other bank hardening methods.

9. If concrete is used during the 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 due to the potential for elevated pH and possible aquatic life/ fish kills.
10. Applications for riprap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Riprap Groins in Estuarine and Public Trust Waters) must meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.

Water Quality Certification No. 3883

11. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*. Exceptions to this condition require written approval by the Division.

12. Compensatory Mitigation

In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

13. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.
14. All temporary pipes/ culverts/ riprap pads etc, shall be installed in all streams 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* so as not to restrict stream flow or cause dis-equilibrium during use of this General Certification.
15. Any riprap 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 buried and/or "keyed in" 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.
16. Any rip-rap used for stream stabilization shall be of a size and density so as not to be able to be carried off by wave, current action, or stream flows and 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.
17. A one-time application of fertilizer to re-establish vegetation is allowed in disturbed areas including riparian buffers, but is restricted to no closer than 10 feet from top of bank of streams. Any fertilizer application must comply with all other Federal, State and Local regulations.

Water Quality Certification No. 3883

18. If an environmental document is required under the National or State Environmental Policy Act (NEPA or 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.
19. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.
20. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.
21. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division 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 the Division may reevaluate and modify this General Water Quality Certification.
22. 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 the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.
23. 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.
24. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide 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.

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.

The Director of the North Carolina Division of Water Quality 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 wetland or downstream waters are precluded.

Water Quality Certification No. 3883

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

A handwritten signature in cursive script, appearing to read "Charles Wakild for".

Charles Wakild, P.E.

Director

History Note: Water Quality Certification (WQC) Number 3883 issued March 19, 2012 replaces WQC Number 3687 issued November 1, 2007; WQC Number 3624 issued March 19, 2007; WQC Number 3494 issued December 31, 2004; and WQC Number 3376 issued March 18, 2002. This General Certification is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Quality.

ATTACHMENT A – GEOTECHNICAL

The following Geotechnical Structure Subsurface Investigations are for information only and are not a part of this contract. This information is for investigation only and no accuracy is implied or guaranteed. No claim will be allowed as a result of the use of this information.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-020265	1	39

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT**

**STRUCTURE
SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. SF-020265 F.A. PROJ. NA
 COUNTY ALLEGHANY
 PROJECT DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345
OVER NEW RIVER
 SITE DESCRIPTION _____

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2, 2A	LEGEND
3	FOUNDATION RECOMMENDATIONS
4	NOTES ON PLANS
5	DRILLED PIER PAY ITEM QUANTITIES
6	PILE PAY ITEM QUANTITIES
7	SITE PLAN
8	SUBSURFACE PROFILE
9-36	BORE LOGS, CORE REPORTS, AND ROCK CORE PHOTOGRAPHS
37	SUMMARY OF SOIL LABORATORY TEST RESULTS
38	SUMMARY OF ROCK LABORATORY TEST RESULTS

PERSONNEL

NORVILLE, C. V.
HAMM, J. R.
HUNSBERGER, W. S.
TRIGON

APPENDIX - STRUCTURE FOUNDATION LOADS

INVESTIGATED BY C.V.N / W.S.H.
 CHECKED BY NORVILLE, C. N.
 SUBMITTED BY FALCON
 DATE DECEMBER 2013

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

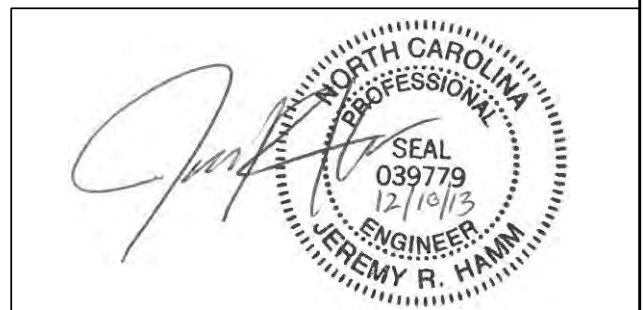
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

DRAWN BY: HUNSBERGER, W. S.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

ROCK DESCRIPTION		TERMS AND DEFINITIONS	
<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>		<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>	
WEATHERED ROCK (WR)		NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.	
CRYSTALLINE ROCK (CR)		FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	
NON-CRYSTALLINE ROCK (NCR)		FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	
COASTAL PLAIN SEDIMENTARY ROCK (CP)		COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	
WEATHERING			
FRESH		ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	
VERY SLIGHT (V SLI.)		ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	
SLIGHT (SLI.)		ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	
MODERATE (MOD.)		SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	
MODERATELY SEVERE (MOD. SEV.)		ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i>	
SEVERE (SEV.)		ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i>	
VERY SEVERE (V SEV.)		ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i>	
COMPLETE		ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	
ROCK HARDNESS			
VERY HARD		CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	
HARD		CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	
MODERATELY HARD		CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	
MEDIUM HARD		CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	
SOFT		CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.	
VERY SOFT		CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	
FRACTURE SPACING		BEDDING	
TERM	SPACING	TERM	THICKNESS
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	> 4 FEET
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET
CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET
		THINLY LAMINATED	< 0.008 FEET
INDURATION			
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.			
FRIABLE		RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY INDURATED		GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
INDURATED		GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	
EXTREMELY INDURATED		SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	
		BENCH MARK:	
		ELEVATION: _____ FT.	
NOTES:			
FIAD - FILLED IMMEDIATELY AFTER DRILLING			

FOUNDATION RECOMMENDATIONS

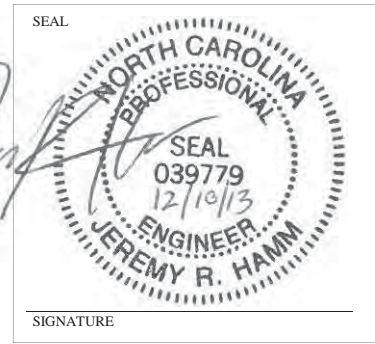
WBS # 17BP.11.R.57 DESCRIPTION Bridge No. 265 on SR 1345 over New River
 T.I.P. NO. SF-020265
 COUNTY Alleghany
 STATION 18+76.70 -L-

	INITIALS	DATE
DESIGN	JRH	12/10/2013
CHECK	CVN	12/10/2013
APPROVAL		

**N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENG. UNIT-WRO**

 _____ ACCEPTED
X _____ ACCEPTED AS NOTED
 _____ RETURNED FOR CORRECTIONS
 _____ SEE LETTER

 DATE: 12/17/2013
 by: Dean Radstone PE



	STATION	FOUNDATION TYPE	FACTORED RESISTANCE	MISCELLANEOUS DETAILS
END BENT 1	16+16.70 -L-	HP 12x53 Steel Piles	90 tons/pile	Average Bottom of Cap Elev. = 2347.14 ft Length of Pile = 20 ft Number of Vertical Piles = 5 Pile Spacing = 7 feet 6 inches
BENT 1	16+81.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2347.73 ft Point of Fixity Elev. = 2327 ft Tip Elev. No Higher Than = 2324 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
BENT 2	17+46.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2347.02 ft Point of Fixity Elev. = 2330 ft Tip Elev. No Higher Than = 2325 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
BENT 3	18+11.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2346.30 ft Point of Fixity Elev. = 2329 ft Tip Elev. No Higher Than = 2325 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
BENT 4	18+76.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2345.59 ft Point of Fixity Elev. = 2327 ft Tip Elev. No Higher Than = 2324 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
BENT 5	19+41.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2344.87 ft Point of Fixity Elev. = 2332 ft Tip Elev. No Higher Than = 2326 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
BENT 6	20+06.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2344.15 ft Point of Fixity Elev. = 2327 ft Tip Elev. No Higher Than = 2323 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
BENT 7	20+71.70 -L-	36-inch Diameter Drilled Piers	400 tons/pier	Average Bottom of Cap Elev. = 2343.44 ft Point of Fixity Elev. = 2332 ft Tip Elev. No Higher Than = 2326 ft Number of Drilled Piers = 3 Pier Spacing = 11 feet 0 inches
END BENT 2	21+36.70 -L-	Cap on HP 12x53 Steel Piles	90 tons/pile	Average Bottom of Cap Elev. = 2343.21 ft Length of Pile = 20 ft Number of Vertical Piles = 5 Pile Spacing = 7 feet 6 inches

TIP # SF-020265

County Alleghany

FOUNDATION RECOMMENDATION NOTES ON PLANS

1. FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS
2. DRILLED PIERS AT BENTS NO. 1, 2, 3, 4, 5, 6, AND 7 ARE DESIGNED FOR A FACTORED RESISTANCE OF 400 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 75, 70, 67, 61, 59, 63, AND 60 TSF, RESPECTIVELY.
3. PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENTS NO. 1, 2, 3, 4, 5, 6, AND 7. DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 2331, 2332, 2332, 2332, 2333, 2333, AND 2333 FT, RESPECTIVELY, WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
4. INSTALL DRILLED PIERS AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 2324 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
5. INSTALL DRILLED PIERS AT BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 2325 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
6. INSTALL DRILLED PIERS AT BENT NO. 3 TO A TIP ELEVATION NO HIGHER THAN 2325 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
7. INSTALL DRILLED PIERS AT BENT NO. 4 TO A TIP ELEVATION NO HIGHER THAN 2324 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 8 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
8. INSTALL DRILLED PIERS AT BENT NO. 5 TO A TIP ELEVATION NO HIGHER THAN 2326 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
9. INSTALL DRILLED PIERS AT BENT NO. 6 TO A TIP ELEVATION NO HIGHER THAN 2323 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 10 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
10. INSTALL DRILLED PIERS AT BENT NO. 7 TO A TIP ELEVATION NO HIGHER THAN 2326 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
11. THE SCOUR CRITICAL ELEVATIONS FOR BENTS NO. 1, 2, 3, 4, 5, 6, AND 7 ARE 2331, 2334, 2334, 2334, 2335, 2334, AND 2335, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
12. DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENTS NO. 1 THROUGH 7.
13. SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTION, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
14. CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
14. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
15. PILES AT END BENTS NO. 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
16. DRIVE PILES AT END BENTS NO. 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
17. STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENTS NO. 1 AND 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
18. THE CONTRACTOR MAY CHOOSE TO CONSTRUCT END BENTS NO. 1 AND 2 BEFORE PLACING FILL. PLACE FILL IN ACCORDANCE WITH ARTICLE 410-8 OF THE STANDARD SPECIFICATIONS.
19. TESTING PILES WITH THE PDA DURING DRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS, AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.

FOUNDATION RECOMMENDATION COMMENTS

1. Bridge end bent slopes of 1.5:1 (H:V) are ok with slope protection.
2. Bridge approach fills for subregional tier bridges are required for both end bents.
3. The design scour elevations at Bents No. 1, 2, 3, 4, 5, 6, and 7 are 2332, 2334, 2334, 2334, 2335, 2334, and 2335, respectively.
4. The factored axial load for End Bents No. 1 & 2 is 90 tons per pile.
5. The factored axial load for Bents No. 1, 2, 3, 4, 5, 6, and 7 is 400 tons per pier.
6. Recommended drilled pier minimum tip elevations minimum penetration into rock are based on recommended permanent casing elevations.

**N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENG. UNIT-WRO**

ACCEPTED
 ACCEPTED AS NOTED
 RETURNED FOR CORRECTIONS
 SEE LETTER

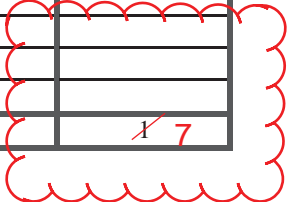
BY: Dean Hardister, PE
DATE: 12/17/2013

DRILLED PIER PAY ITEMS
(For LRFD Projects - Revised 8/15/12)

WBS ELEMENT 17BP.11.R.57 DATE 12/10/2013
 TIP NO. SF-020265 DESIGNED BY JRH
 COUNTY Alleghany CHECKED BY CVN
 STATION 18+76.70 -L-
 DESCRIPTION Bridge No. 265 on SR 1345 over New River

NUMBER OF BENTS WITH DRILLED PIERS 7
 NUMBER OF DRILLED PIERS PER BENT 3
 NUMBER OF END BENTS WITH DRILLED PIERS _____
 NUMBER OF DRILLED PIERS PER END BENT _____

Bent # or End Bent #	DRILLED PIER PAY ITEM QUANTITIES				
	Permanent Steel Casing For 36" Dia. Drilled Pier (yes/no/maybe)	36" Dia. Drilled Piers Not In Soil (per linear ft)	SID Inspections (per each)	SPT Testing (per each)	CSL Testing (per each)
Bent No. 1	yes	24			
Bent No. 2	yes	30			
Bent No. 3	yes	30			
Bent No. 4	yes	33			
Bent No. 5	yes	30			
Bent No. 6	yes	36			
Bent No. 7	yes	30			
TOTALS		213	3	0	7



Notes:

Blanks or "no" represent quantity of zero.

If drilled piers not in soil are required, calculate quantity of " ___ Dia. Drilled Piers Not in Soil" as the difference between the total drilled pier length and the " ___ Dia. Drilled Piers Not in Soil" from the table above. If there is none or zero quantity for drilled piers not in soil in the table above, calculate quantity of " ___ Dia. Drilled Piers" as the total drilled pier length and do not use the " ___ Dia. Drilled Piers in Soil" pay item.

If permanent steel casing is or may be required, calculate quantity of "Permanent Steel Casing for ___ Dia. Drilled Pier" as the difference between the ground line or top of drilled pier elevation whichever is higher and the elevation the permanent casing can not extend below from the foundation recommendations.

If "SID Inspections", "SPT Testing" or "CSL Testing" may be required, show quantities of these pay items on the plans as totals only. If "SID Inspections", "SPT Testing" or "CSL Testing" is required, show quantities of these pay items on the plans for each bent or end bent.

The number of CSL tubes required per drilled pier is equal to one tube per foot of design pier diameter with at least 4 tubes per pier. Calculate the length of each CSL tube as the total drilled pier length plus 12 ft.

**INC. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENG. UNIT-WRO**

ACCEPTED
 X ACCEPTED AS NOTED
 RETURNED FOR
 CORRECTIONS
 SEE LETTER

BY: Dean Hardister, PE
 DATE: 12/17/2013

PILE PAY ITEMS

(Revised 8/15/12)

WBS ELEMENT 17BP.11.R.57

DATE 12/10/2013

TIP NO. SF-020265

DESIGNED BY JRH

COUNTY Alleghany

CHECKED BY CVN

STATION 18+76.70 -L-

DESCRIPTION Bridge No. 265 on SR 1345 over New River

NUMBER OF BENTS WITH PILES _____
 NUMBER OF PILES PER BENT _____
 NUMBER OF END BENTS WITH PILES _____
 NUMBER OF PILES PER END BENT _____

Only required for "Predrilling for Piles" & "Pile Excavation" pay items

Bent # or End Bent #	PILE PAY ITEM QUANTITIES						PDA Testing (per each)
	Steel Pile Points (yes/no)	Pipe Pile Plates (yes/no/maybe)	Predrilling For Piles (per linear ft)	Pile Redrives (per each)	Pile Excavation (per linear ft)		
					In Soil	Not In Soil	
End Bent No. 1	yes						X
End Bent No. 2	yes						
TOTALS			0	0	0	0	

Notes:

Blanks or "no" represent quantity of zero.

If steel pile points are required, calculate quantity of "Steel Pile Points" as equal to the number of steel piles.

If pipe pile plates are or may be required, calculate the quantity of "Pipe Pile Plates" as equal to the number of pipe piles.

Show quantity of "PDA Testing" on the plans as total only.

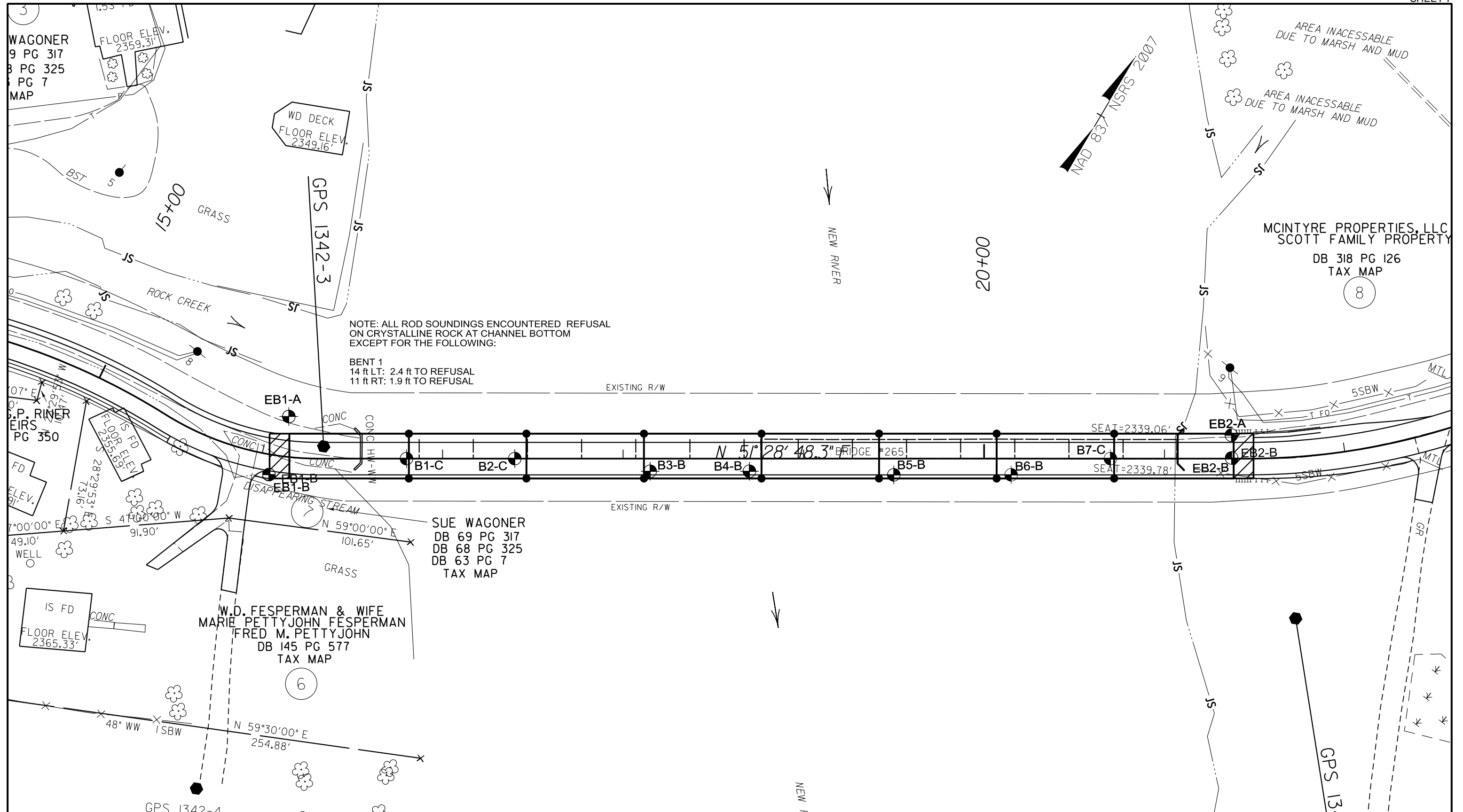
If quantity of "PDA Testing" is 3 or less, reference "Pile Driving Criteria" provision in PDA notes on plans and include "Pile Driving Criteria" provision in the contract.

**N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENG. UNIT-WRO**

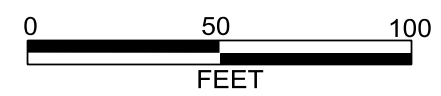
ACCEPTED
 ACCEPTED AS NOTED
 RETURNED FOR CORRECTIONS
 SEE LETTER

BY: Dean Hardister, PE

DATE: 12/17/2013



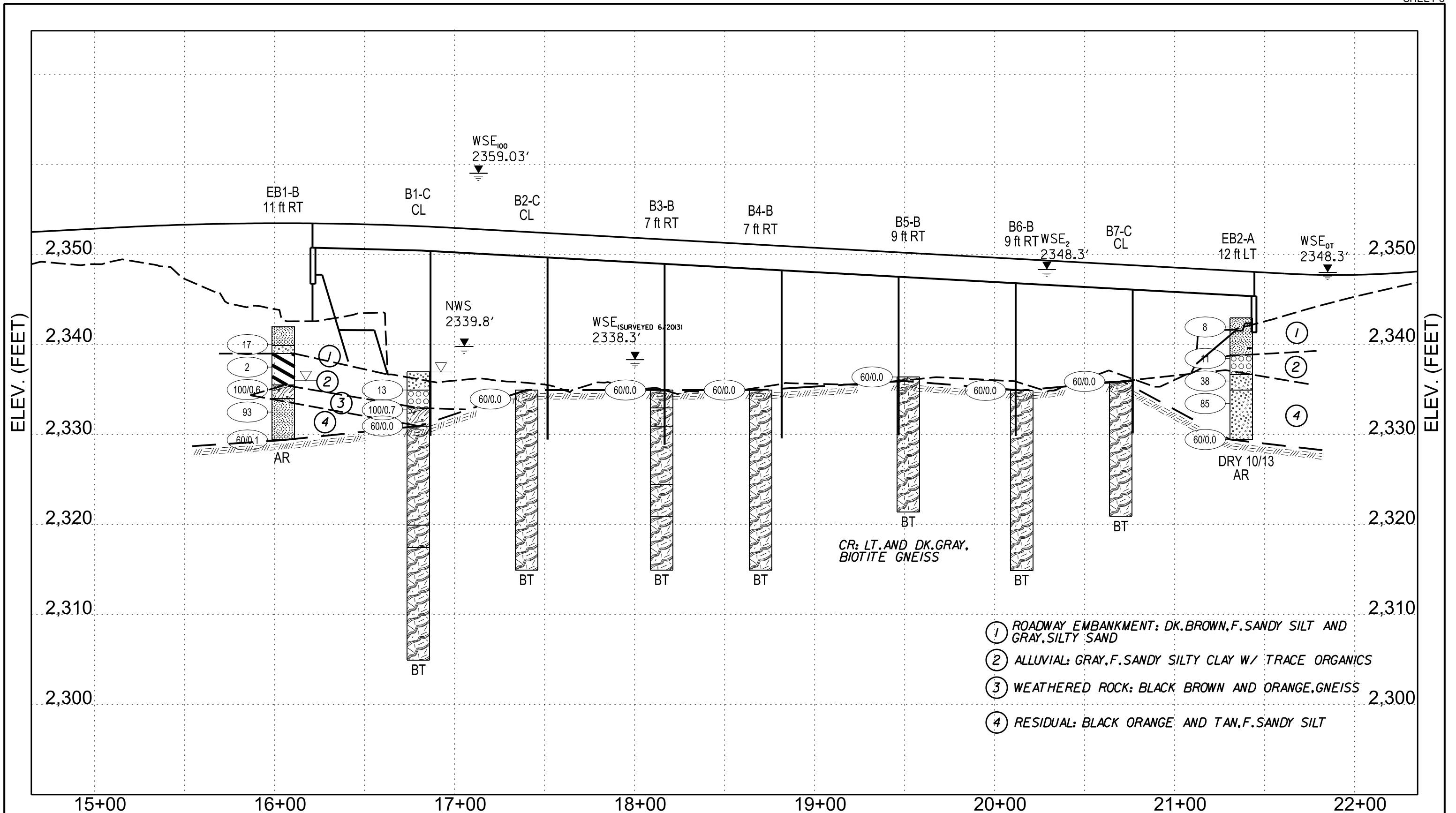
NOTES:
PLANS ADOPTED FROM ELECTRONIC FILES RECEIVED FROM RK&K IN OCTOBER 2013



FALCON ENGINEERING
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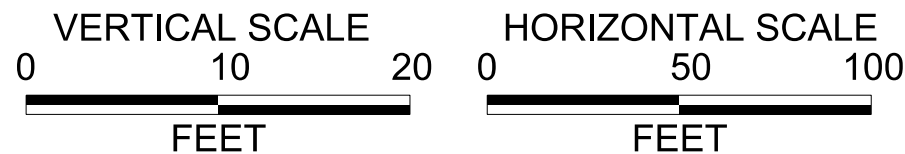
SITE PLAN

REPLACE BRIDGE NO. 265
ON SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP.11.R.57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NOTES:

- GROUNDLINE PROFILE OF -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT, DATED 10/03/13.
- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
- BRIDGE SKEW: 90 DEGREES



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SUBSURFACE PROFILE

REPLACE BRIDGE NO. 265
ON SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP.11.R.57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Hunsberger, W. S.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. EB1-A	STATION 16+12	OFFSET 22 ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,343.0 ft	TOTAL DEPTH 15.2 ft	NORTHING 1,026,718	EASTING 1,358,844
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 93% 12/08/2011		DRILL METHOD Wash Boring	HAMMER TYPE Automatic
DRILLER Wichard, W.	START DATE 10/15/13	COMP. DATE 10/15/13	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						ELEV. (ft)
2345																
	2,342.0	1.0	3	3	2										2,343.0	0.0
2340	2,339.5	3.5	1	1	6										2,340.0	3.0
	2,337.0	6.0													2,338.3	4.7
	2,336.7	6.3													2,336.9	6.1
2335			60/0.1	-	-										2,334.0	9.0
			60/0.0	-	-										2,332.5	10.5
	2,332.7	10.3	4	12	88/0.3										2,332.5	10.5
2330	2,329.5	13.5													2,327.8	15.2
	2,327.8	15.2	100/0.3	-	-										2,327.8	15.2
			60/0.0	-	-											

3" GRAVEL

ROADWAY EMBANKMENT
TAN BROWN AND GRAY, SILTY SAND (A-2-4) W/ GRAVEL, MICACEOUS W/ TRACE ORGANICS

BROWN, FINE SANDY SILT (A-4) W/ MICACEOUS

BLACK AND GRAY, SILTY FINE SAND (A-2-4) W/ GRAVEL, MICACEOUS

CRYSTALLINE ROCK
GRAY AND BLACK, BIOTITE GNEISS (BOULDER)

RESIDUAL
GRAY, SILTY MEDIUM TO COARSE SAND (A-1-b) MICACEOUS

WEATHERED ROCK
ORANGE AND BROWN, BIOTITE GNEISS

Boring Terminated w/ Tricone Refusal at Elevation 2,327.8 ft on CR: BIOTITE GNEISS

Other Samples:
RC-1 (6.3 - 6.6)

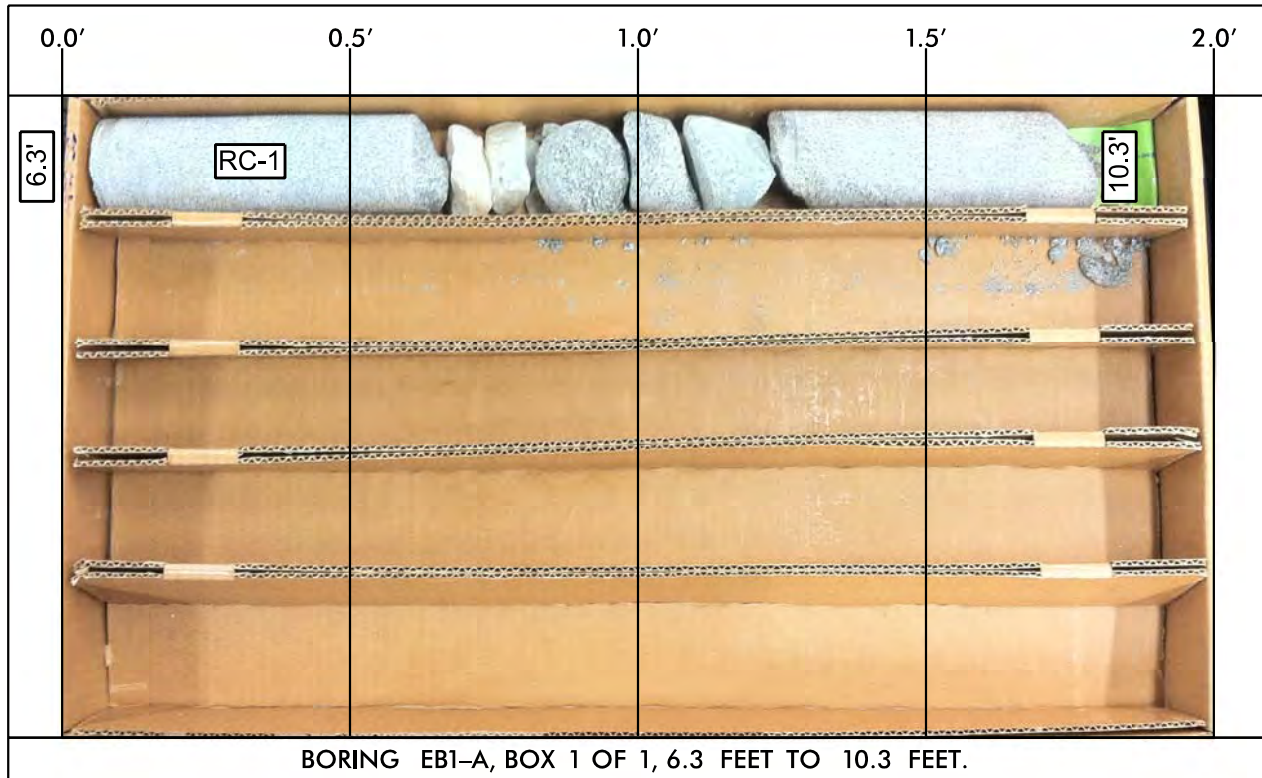
NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Hunsberger, W. S.					
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)				
BORING NO. EB1-A		STATION 16+12		OFFSET 22 ft LT		ALIGNMENT -L-					
COLLAR ELEV. 2,343.0 ft		TOTAL DEPTH 15.2 ft		NORTHING 1,026,718		EASTING 1,358,844					
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 93% 12/08/2011				DRILL METHOD Wash Boring		HAMMER TYPE Automatic					
DRILLER Wichard, W.		START DATE 10/15/13		COMP. DATE 10/15/13		SURFACE WATER DEPTH N/A					
CORE SIZE NQ2		TOTAL RUN 4.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %			
2336.7										Begin Coring @ 6.3 ft	
2335	2,336.7	6.3	4.0	N=60/0.0 2:29/1.0 2:29/1.0 1:15/1.0 1:40/1.0 1:14/1.0 N=100/0.8	(2.0) 50%	(1.2) 30%				CRYSTALLINE ROCK	
	2,334.0									GRAY AND BLACK, BIOTITE GNEISS (BOULDER) (continued)	9.0
	2,332.7	10.3								RESIDUAL	
										GRAY, SILTY MEDIUM TO COARSE SAND (A-1-b) MICACEOUS	10.5
2330										WEATHERED ROCK	
										ORANGE AND BROWN, BIOTITE GNEISS	
										Boring Terminated w/ Tricone Refusal at Elevation 2,327.8 ft on CR: BIOTITE GNEISS	15.2
										Other Samples: RC-1 (6.3 - 6.6)	

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
RALEIGH, NC 27607
PHONE: 919.871.0800
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ROCK CORE PHOTOGRAPHS

REPLACE BRIDGE NO. 265 ON
SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP-11LR-57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Hunsberger, W. S.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. EB1-B	STATION 16+05	OFFSET 11 ft RT	ALIGNMENT -L-
COLLAR ELEV. 2,342.0 ft	TOTAL DEPTH 12.6 ft	NORTHING 1,026,686	EASTING 1,358,855
DRILL RIG/HAMMER EFF./DATE TRI9435		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Wichard, W.	START DATE 10/15/13	COMP. DATE 10/15/13	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2345																
	2,342.0														6" TOPSOIL	0.0
															ROADWAY EMBANKMENT	
2340	2,341.0	1.0	1	4	13										2,339.9 DARK BROWN, FINE SANDY SILT (A-4) W/ TRACE ORGANICS, MICACEOUS	2.1
	2,338.5	3.5	1	1	1										2,339.0 GRAY, SILTY SAND (A-2-4) W/ GRAVEL	3.0
	2,336.0	6.0	17	77	23/0.1										ALLUVIAL	
2335	2,335.5	8.5	20	50	43										2,335.5 GRAY, FINE SANDY CLAYEY SILT (A-4) W/ TRACE ORGANICS, MICACEOUS	6.5
	2,333.5														2,334.0 WEATHERED ROCK	8.0
															RESIDUAL	
2330	2,329.5	12.5	60/0.1	-	-										2,329.5 BLACK ORANGE AND TAN, FINE SANDY SILT (A-4) SAPROLITIC, MICACEOUS	12.5
															2,329.4 CRYSTALLINE ROCK	12.6
															BLACK ORANGE AND GRAY, BIOTITE GNEISS	
Boring Terminated with Standard Penetration Test Refusal at Elevation 2,329.4 ft in CR: BIOTITE GNEISS																

NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Norville, C. V.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. B1-C	STATION 16+80	OFFSET CL	ALIGNMENT -L-
COLLAR ELEV. 2,336.0 ft	TOTAL DEPTH 32.0 ft	NORTHING 1,026,741	EASTING 1,358,910
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Gower, S.	START DATE 10/17/13	COMP. DATE 10/17/13	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2340																
2335	2,335.0	1.0	5	4	9									2,336.0	SANDBAR IN NEW RIVER	0.0
	2,332.5	3.5	19	71/0.2	-									2,334.0	ALLUVIAL GRAY AND BROWN, SILTY FINE SAND (A-2-4) W/ GRAVEL	2.0
2330	2,330.0	6.0	60/0.0	-	-									2,332.0	RESIDUAL TAN AND GRAY, SILTY MEDIUM TO COARSE SAND (A-1-b) W/ ROCK FRAGS.	4.0
														2,330.0	WEATHERED ROCK TAN AND GRAY, BIOTITE GNEISS	6.0
2325															CRYSTALLINE ROCK DK. AND LT. GRAY AND TAN, BIOTITE GNEISS	
2320														2,320.5	DK. AND LT. GRAY AND BROWN, BIOTITE GNEISS	15.5
2315														2,316.0	DK. AND LT. GRAY, BIOTITE GNEISS	20.0
2310														2,313.3	DK. AND LT. GRAY, BIOTITE GNEISS	22.7
2305														2,304.0	Boring Terminated at Elevation 2,304.0 ft in CR: BIOTITE GNEISS	32.0
SUMMARY OF ROD SOUNDING RESULTS: 14 ft LT: REFUSAL AT 2.4 ft 11 ft RT: REFUSAL AT 1.9 ft Other Samples: RC-2 (7.3 - 7.6) RC-3 (12.4 - 12.7)																

NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13

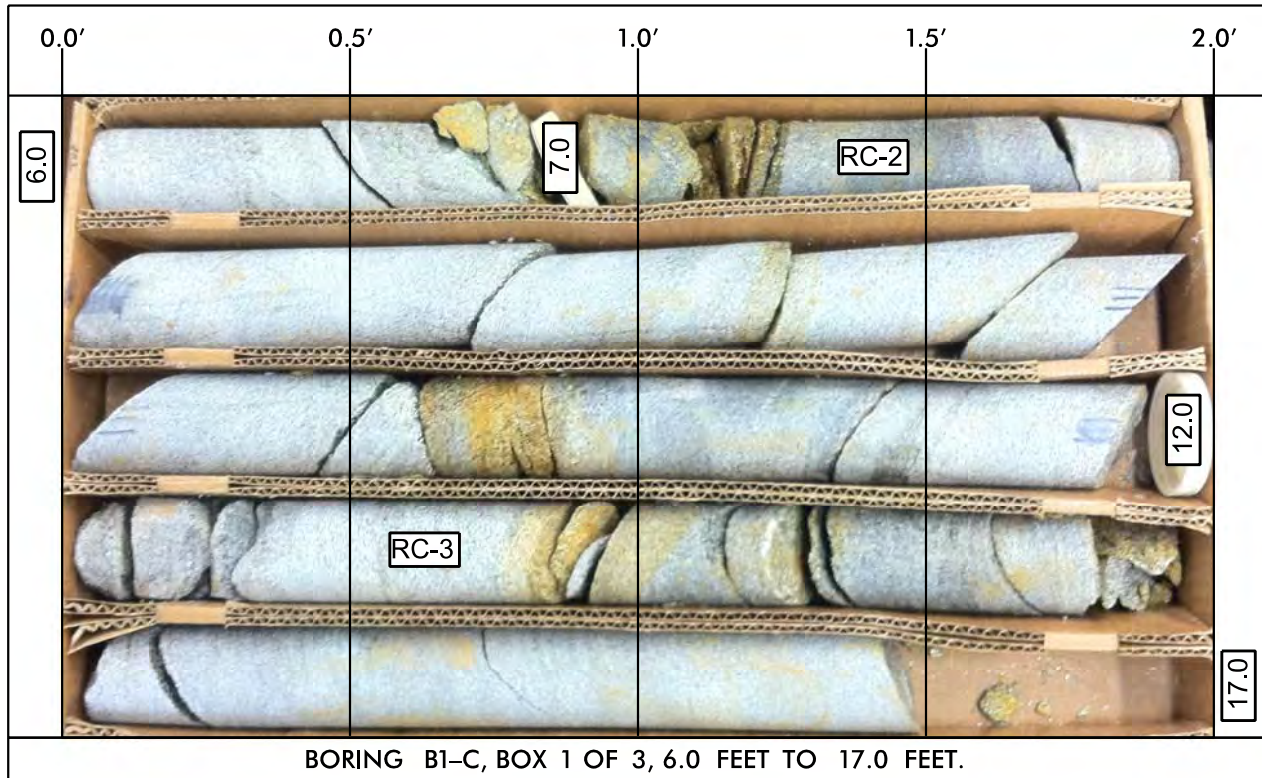


NCDOT GEOTECHNICAL ENGINEERING UNIT

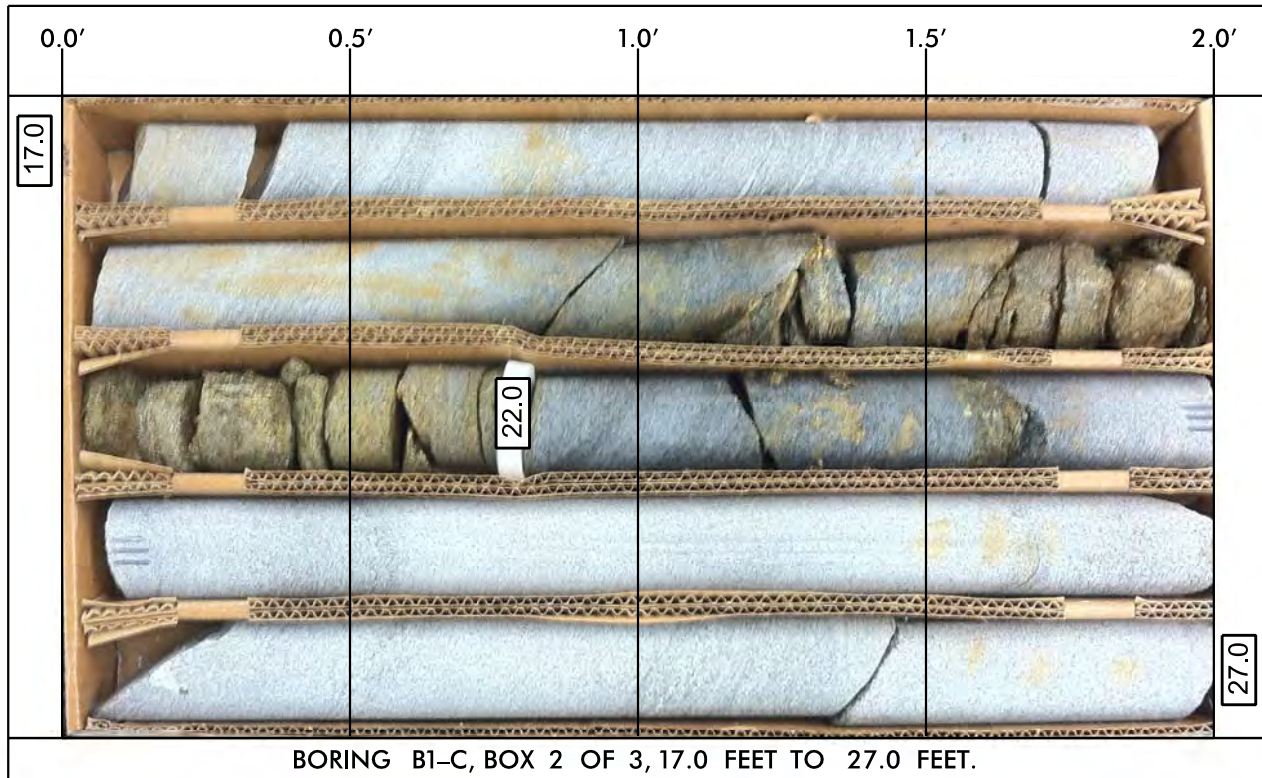
CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.					
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)				
BORING NO. B1-C		STATION 16+80		OFFSET CL		ALIGNMENT -L-					
COLLAR ELEV. 2,336.0 ft		TOTAL DEPTH 32.0 ft		NORTHING 1,026,741		EASTING 1,358,910					
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic					
DRILLER Gower, S.		START DATE 10/17/13		COMP. DATE 10/17/13		SURFACE WATER DEPTH N/A					
CORE SIZE NQ2		TOTAL RUN 26.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)	REC. (%)	RQD (%)			
2330	2,330.0	6.0	1.0	N=60/0.0	(1.0)	(0.4)	(9.5)	(6.3)		Begin Coring @ 6.0 ft	6.0
	2,329.0	7.0	5.0	3:15/1.0	100%	40%	100%	66%		CRYSTALLINE ROCK	
				2:30/1.0	(5.0)	(4.1)				DK. AND LT. GRAY AND TAN, MOD. SEV. TO SLI. WEATHERING, SOFT TO MOD. HARD, CLOSE TO MOD. CLOSELY FRACTURED, BIOTITE GNEISS	
				2:00/1.0	100%	82%					
2325	2,324.0	12.0		2:05/1.0						RMR = 45	
				2:15/1.0						R1=3, R2=14, R3=8, R4=20, R5=0	
			5.0	3:50/1.0	(3.6)	(1.8)					
				3:25/1.0	72%	36%					
2320				5:35/1.0							
	2,319.0	17.0		2:20/1.0	(3.1)	(1.8)	(3.1)	(1.8)		LT. GRAY AND BROWN, MOD. WEATHERING, MOD. HARD, CLOSELY TO MOD. CLOSELY FRACTURED, BIOTITE GNEISS	15.5
				2:35/1.0			69%	40%			
			5.0	1:50/1.0	(5.0)	(2.6)					
				2:15/1.0	100%	52%					
2315				2:40/1.0							
	2,314.0	22.0		3:35/1.0	(2.7)	(0.6)	(2.7)	(0.6)		RMR = 42	20.0
				3:25/1.0	100%	22%	100%	22%		R1=4, R2=9, R3=9, R4=20, R5=0	
			5.0	1:45/1.0	(5.0)	(5.0)				DK. AND LT. GRAY, SEV. TO SLI. WEATHERING, SOFT TO HARD, V. CLOSE TO MOD. CLOSELY FRACTURED, BIOTITE GNEISS	22.7
				1:50/1.0	100%	100%					
2310				2:15/1.0							
	2,309.0	27.0		2:30/1.0	(9.3)	(9.1)	(9.3)	(9.1)		RMR = 26	
				1:50/1.0	100%	90%	100%	98%		R1=3, R2=3, R3=5, R4=15, R5=0	
			5.0	2:05/1.0	(5.0)	(4.5)				LT. GRAY AND BROWN, MOD. WEATHERING, MOD. HARD, CLOSELY TO MOD. CLOSELY FRACTURED, BIOTITE GNEISS	
				2:05/1.0	100%	90%					
2305				2:10/1.0							
	2,304.0	32.0		1:50/1.0						RMR = 63	32.0
										R1=4, R2=20, R3=10, R4=25, R5=0	
Boring Terminated at Elevation 2,304.0 ft in CR: BIOTITE GNEISS											
SUMMARY OF ROD SOUNDING RESULTS:											
14 ft LT: REFUSAL AT 2.4 ft											
11 ft RT: REFUSAL AT 1.9 ft											
Other Samples:											
RC-2 (7.3 - 7.6)											
RC-3 (12.4 - 12.7)											

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



BORING B1-C, BOX 1 OF 3, 6.0 FEET TO 17.0 FEET.



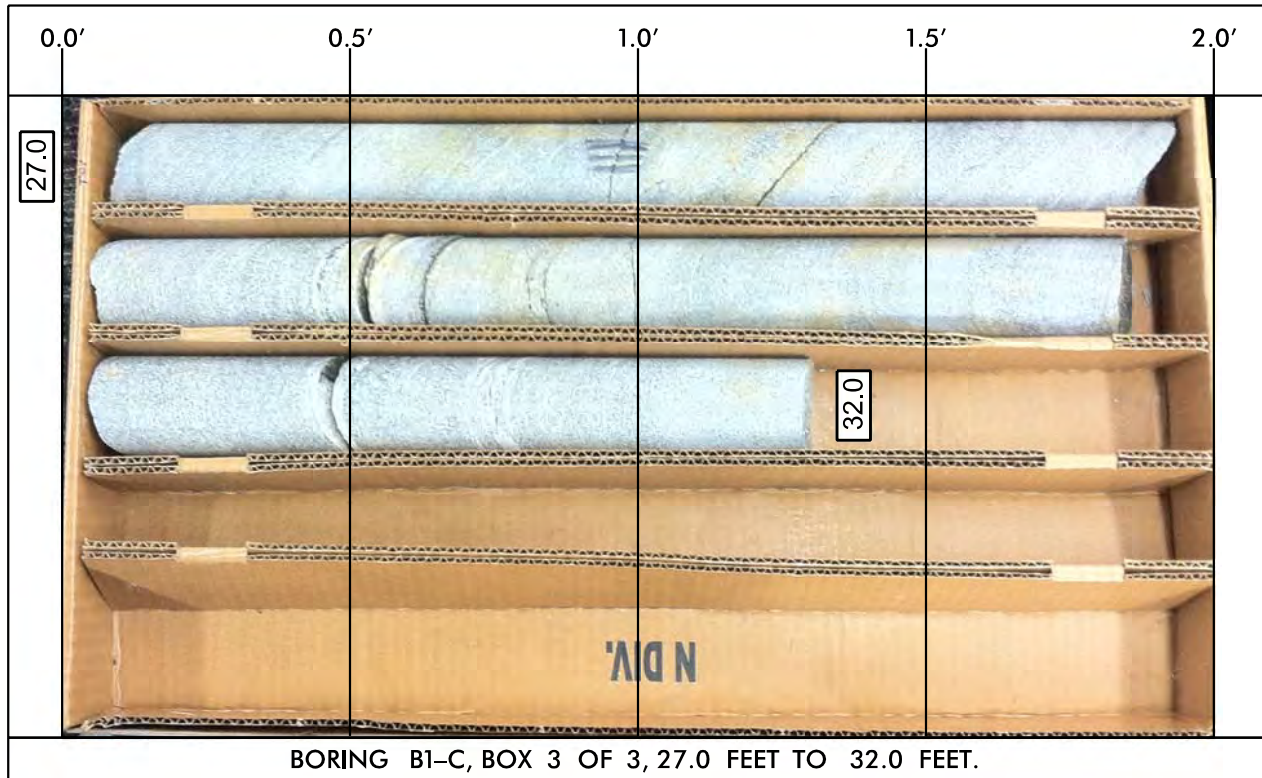
BORING B1-C, BOX 2 OF 3, 17.0 FEET TO 27.0 FEET.



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ROCK CORE PHOTOGRAPHS

REPLACE BRIDGE NO. 265 ON
SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP-11.R.57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



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ROCK CORE PHOTOGRAPHS

REPLACE BRIDGE NO. 265 ON
SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP-11LR-57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.										
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)									
BORING NO. B2-C		STATION 17+40		OFFSET CL		ALIGNMENT -L-										
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,781		EASTING 1,358,961										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Gower, S.		START DATE 10/23/13		COMP. DATE 10/23/13		SURFACE WATER DEPTH 1.6ft										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2335	2,335.0	0.0	60/0.0	-	-										2,335.0	0.0
2330																
2325																
2320																
2315															2,315.0	20.0
<p>Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS</p> <p>SUMMARY OF ROD SOUNDING RESULTS:</p> <p>14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM</p> <p><u>Other Samples:</u> RC-4 (0.8 - 1.1) RC-5 (5.4 - 5.7)</p>																

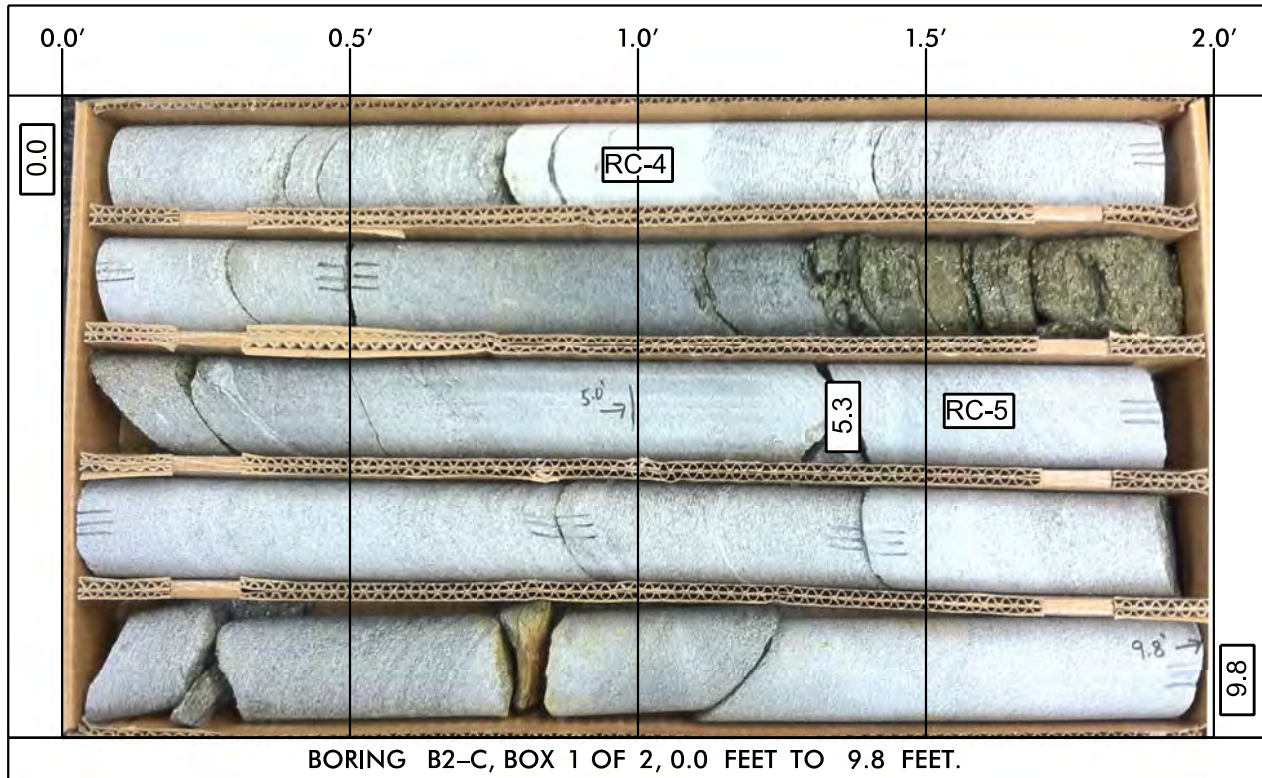
NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



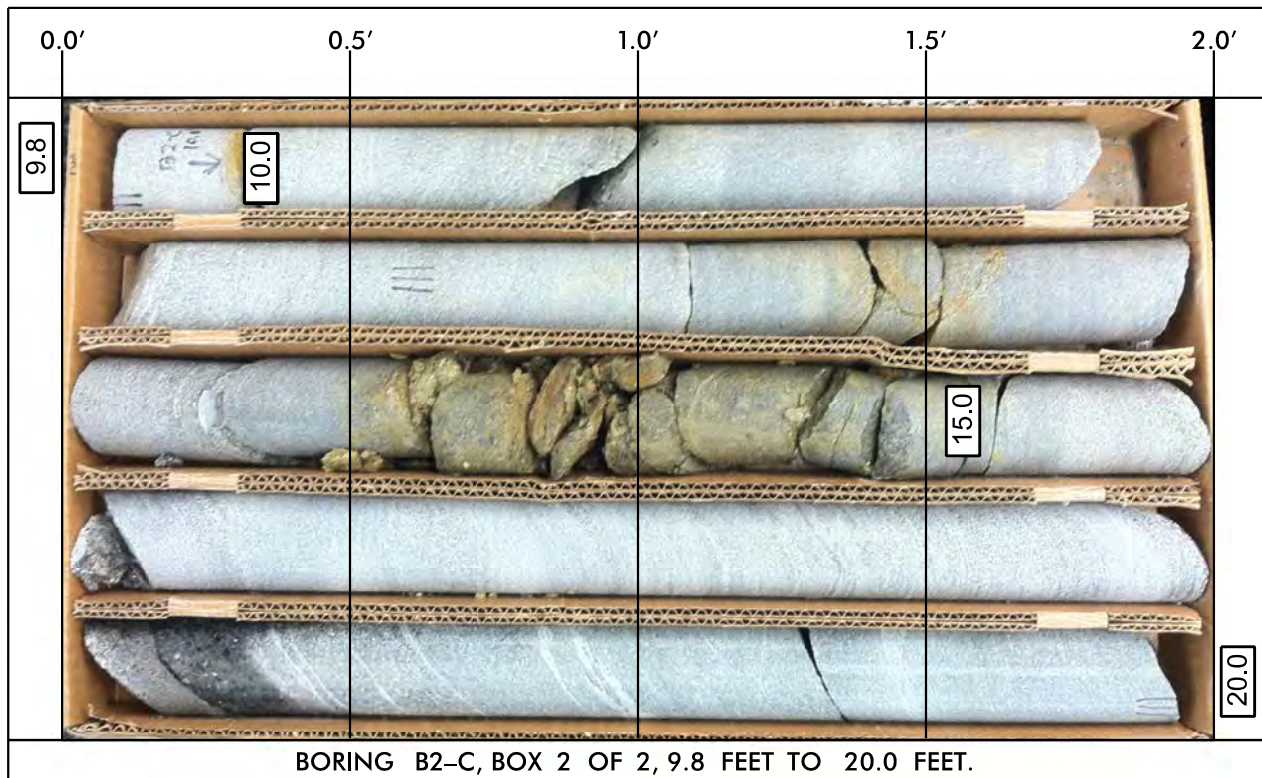
NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.					
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)				
BORING NO. B2-C		STATION 17+40		OFFSET CL		ALIGNMENT -L-					
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,781		EASTING 1,358,961					
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic					
DRILLER Gower, S.		START DATE 10/23/13		COMP. DATE 10/23/13		SURFACE WATER DEPTH 1.6ft					
CORE SIZE NQ2		TOTAL RUN 20.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %			
2335	2,335.0	0.0	5.0	N=60/0.0 3:15/1.0 3:55/1.0 2:45/1.0 2:45/1.0	(5.0) 100%	(2.8) 56%	(20.0) 100%	(14.5) 73%		NEW RIVER CRYSTALLINE ROCK DK. AND LT. GRAY AND BROWN, MOD. SEV. TO MOD. WEATHERING, SOFT TO MOD. HARD, V. CLOSE TO MOD. CLOSELY FRACTURED, BIOTITE GNEISS	
2330	2,330.0	5.0	5.0	2:10/1.0 2:05/1.0 1:55/1.0 1:55/1.0 1:55/1.0	(5.0) 100%	(4.4) 88%				MORE WEATHERED LAYERS FROM 3.1' -4.0' AND 15.1' TO 16.1'	
2325	2,325.0	10.0	5.0	1:55/1.0 2:15/1.0 3:45/1.0 3:30/1.0 2:25/1.0	(5.0) 100%	(3.0) 60%				RMR = 47 R1=4, R2=15, R3=8, R4=20, R5=0	
2320	2,320.0	15.0	5.0	2:25/1.0 2:25/1.0 2:25/1.0 2:40/1.0 3:40/1.0	(5.0) 100%	(4.3) 86%					
2315	2,315.0	20.0								Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS	20.0
SUMMARY OF ROD SOUNDING RESULTS: 14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM											
Other Samples: RC-4 (0.8 - 1.1) RC-5 (5.4 - 5.7)											

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



BORING B2-C, BOX 1 OF 2, 0.0 FEET TO 9.8 FEET.



BORING B2-C, BOX 2 OF 2, 9.8 FEET TO 20.0 FEET.



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ROCK CORE PHOTOGRAPHS

REPLACE BRIDGE NO. 265 ON
SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP-11.R-57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.									
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)								
BORING NO. B3-B		STATION 18+15		OFFSET 7 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,817		EASTING 1,359,016									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Gower, S.		START DATE 10/22/13		COMP. DATE 10/22/13		SURFACE WATER DEPTH 1.9ft									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2335	2,335.0	0.0	60/0.0	-	-									2,335.0	0.0
2330														2,333.0	2.0
														2,331.0	4.0
2325															
														2,324.5	10.5
2320														2,321.0	14.0
2315														2,315.0	20.0
<p>Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS</p> <p>SUMMARY OF ROD SOUNDING RESULTS:</p> <p>14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM</p> <p><u>Other Samples:</u> RC-6 (0.0 - 0.3) RC-7 (5.6 - 5.9)</p>															

NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Norville, C. V.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. B3-B	STATION 18+15	OFFSET 7 ft RT	ALIGNMENT -L-
COLLAR ELEV. 2,335.0 ft	TOTAL DEPTH 20.0 ft	NORTHING 1,026,817	EASTING 1,359,016
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Gower, S.	START DATE 10/22/13	COMP. DATE 10/22/13	SURFACE WATER DEPTH 1.9ft

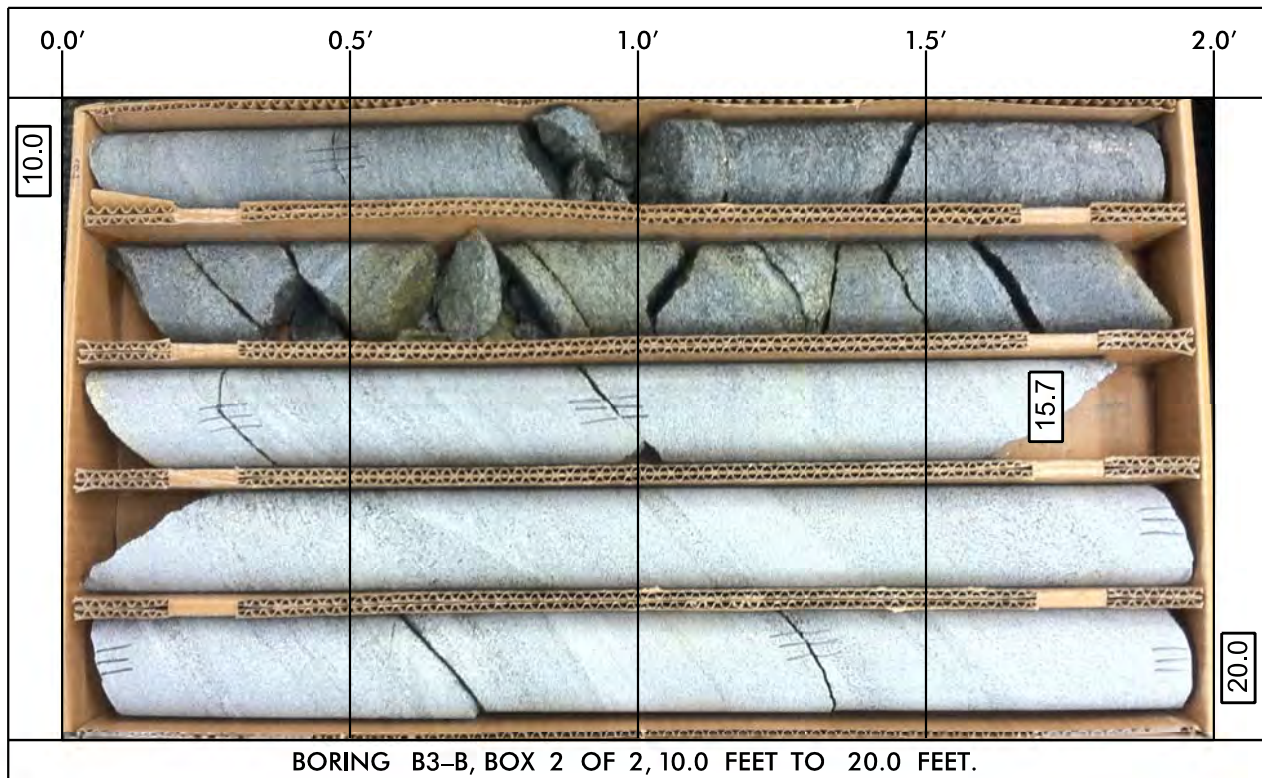
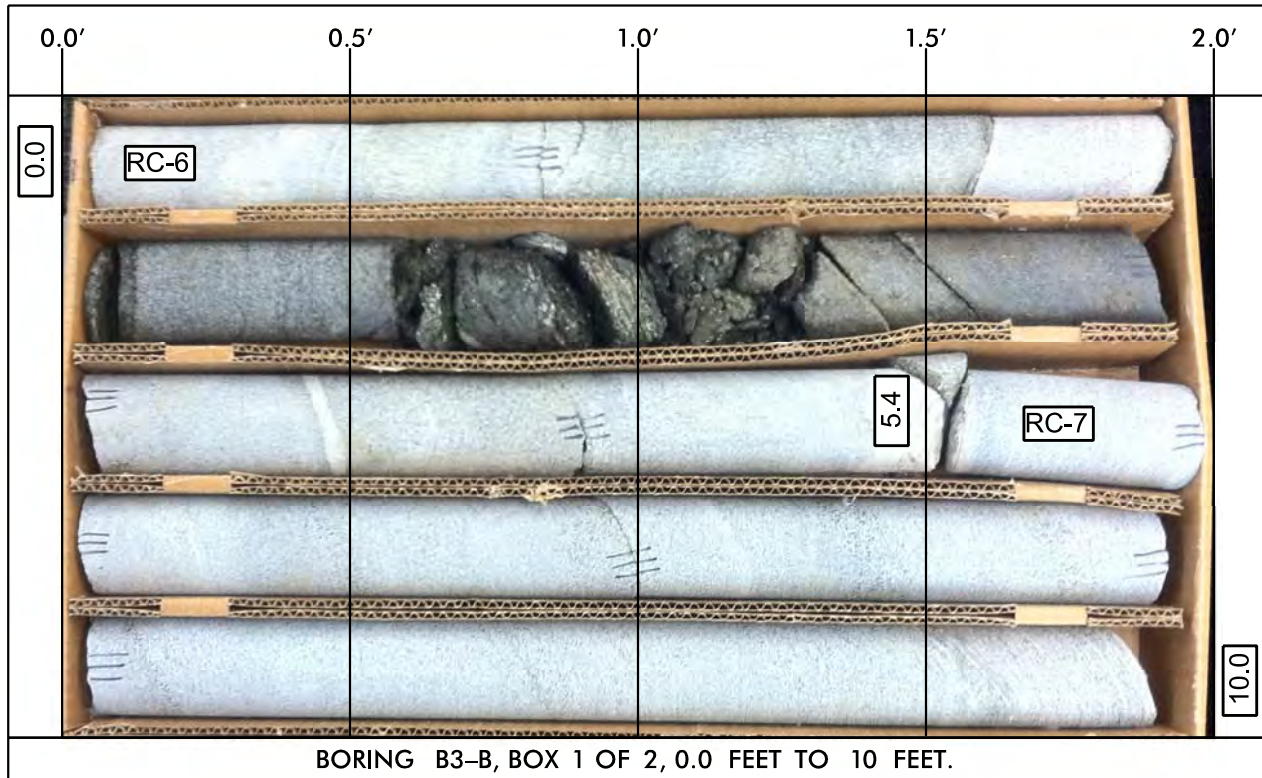
CORE SIZE NQ2	TOTAL RUN 20.0 ft		
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)
			DRILL RATE (Min/ft)
			RUN REC. (ft) %
			RUN RQD (ft) %
			SAMP. NO.
			STRATA REC. (ft) %
			STRATA RQD (ft) %
			L O G
			ELEV. (ft)
			DEPTH (ft)

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
2335	2,335.0	0.0	5.0	N=60/0.0 3:55/1.0 3:55/1.0 4:10/1.0 4:05/1.0 4:10/1.0 3:55/1.0	(5.0) 100%	(3.4) 68%		(2.0) 100%	(2.0) 100%		NEW RIVER CRYSTALLINE ROCK LT. AND DK. GRAY, SLI. WEATHERED, HARD, MOD. CLOSELY FRACTURED, BIOTITE GNEISS	2.0
2330	2,330.0	5.0	5.0	3:15/1.0 3:15/1.0 3:15/1.0 3:20/1.0 3:35/1.0	(5.0) 100%	(5.0) 100%		(2.0) 100%	(0.5) 25%		RMR = 61 R1=5, R2=20, R3=11, R4=25, R5=0 DK. GRAY AND BLACK, SEV. TO MOD. WEATHERING, SOFT TO MOD. HARD, CLOSELY FRACTURED, BIOTITE GNEISS	4.0
2325	2,325.0	10.0	5.0	3:15/1.0 3:20/1.0 3:05/1.0 3:05/1.0	(5.0) 100%	(2.1) 42%		(3.5) 100%	(0.8) 23%		RMR = 27 R1=4, R2=3, R3=5, R4=15, R5=0 LT. AND DK. GRAY, SLI. WEATHERED, HARD, MOD. CLOSELY FRACTURED, BIOTITE GNEISS	10.5
2320	2,320.0	15.0	5.0	3:10/1.0 3:05/1.0 2:55/1.0 3:20/1.0 3:20/1.0	(5.0) 100%	(5.0) 100%		(6.0) 100%	(5.7) 95%		RMR = 66 R1=8, R2=20, R3=13, R4=25, R5=0 DK. GRAY AND BLACK, SEV. TO MOD. WEATHERING, SOFT TO MOD. HARD, CLOSELY FRACTURED, BIOTITE GNEISS	14.0
2315	2,315.0	20.0	5.0	3:10/1.0 3:05/1.0 2:55/1.0 3:20/1.0 3:20/1.0	(5.0) 100%	(5.0) 100%		(6.0) 100%	(5.7) 95%		RMR = 27 R1=4, R2=3, R3=5, R4=15, R5=0 LT. AND DK. GRAY, SLI. WEATHERED, HARD, MOD. CLOSE TO CLOSELY FRACTURED, BIOTITE GNEISS RMR = 56 R1=5, R2=20, R3=11, R4=20, R5=0 Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS	20.0

SUMMARY OF ROD SOUNDING RESULTS:
14 ft LT: REFUSAL AT CHANNEL BOTTOM
11 ft RT: REFUSAL AT CHANNEL BOTTOM

Other Samples:
RC-6 (0.0 - 0.3)
RC-7 (5.6 - 5.9)

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



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ROCK CORE PHOTOGRAPHS

REPLACE BRIDGE NO. 265 ON
SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP-11.R-57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.									
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)								
BORING NO. B4-B		STATION 18+70		OFFSET 7 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,857		EASTING 1,359,067									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Gower, S.		START DATE 10/22/13		COMP. DATE 10/22/13		SURFACE WATER DEPTH 2.5ft									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2335	2,335.0	0.0	60/0.0	-	-									2,335.0	0.0
2330									2,331.8	3.2
2325									2,329.0	6.0
2320										
2315									2,315.0	20.0
<p>Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS</p> <p>SUMMARY OF ROD SOUNDING RESULTS:</p> <p>14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM</p> <p><u>Other Samples:</u> RC-8 (0.5 - 2.0) RC-9 (4.9 - 6.4)</p>															

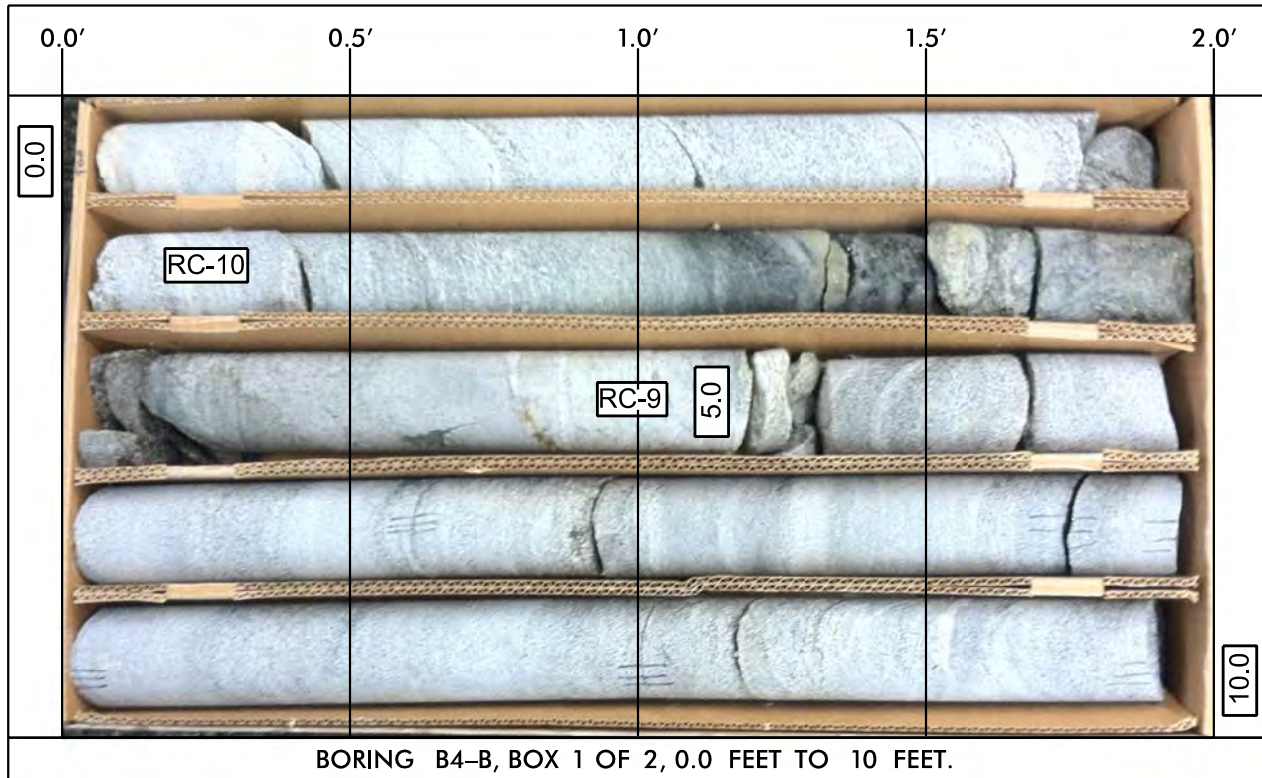
NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



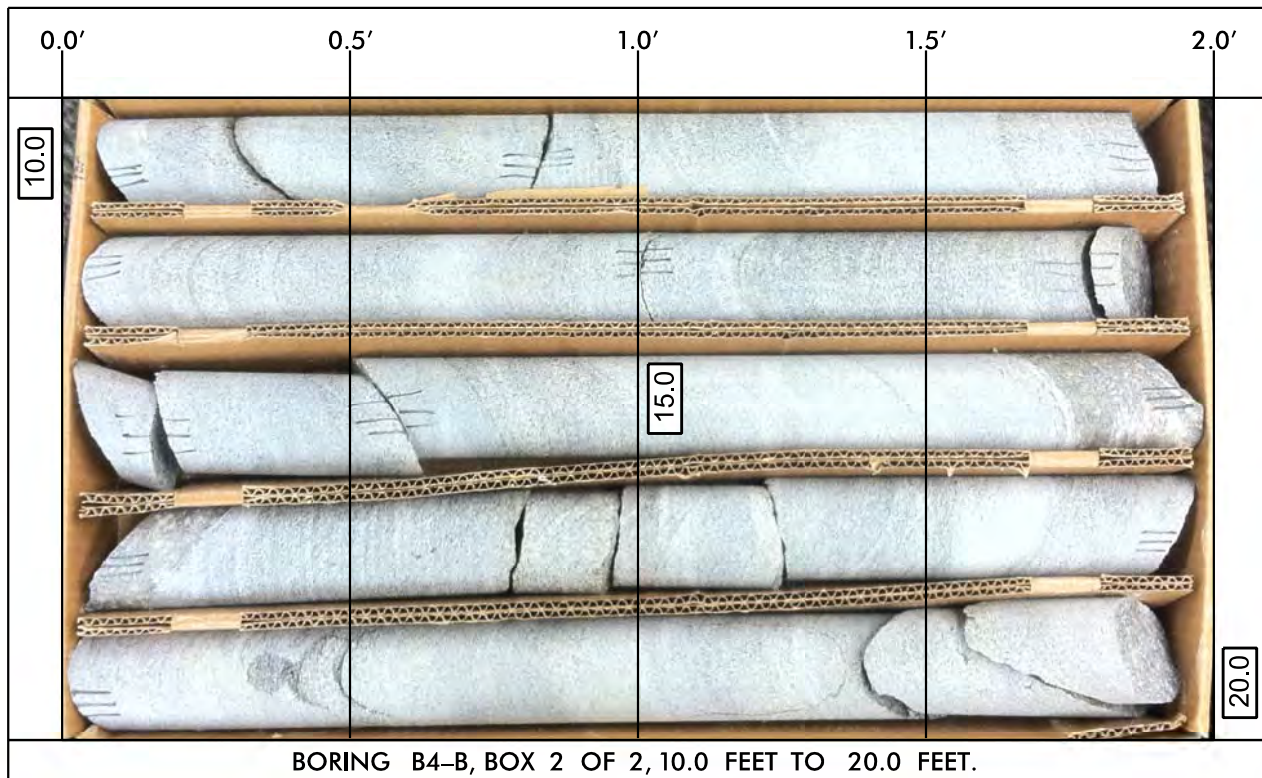
NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.							
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER									GROUND WTR (ft)				
BORING NO. B4-B		STATION 18+70		OFFSET 7 ft RT		ALIGNMENT -L-		0 HR. N/A					
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,857		EASTING 1,359,067		24 HR. N/A					
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011					DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER Gower, S.		START DATE 10/22/13		COMP. DATE 10/22/13		SURFACE WATER DEPTH 2.5ft							
CORE SIZE NQ2		TOTAL RUN 20.0 ft											
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)	
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %				
2335	2,335.0	0.0	4.0	N=60/0.0 3:15/1.0 3:40/1.0 3:40/1.0 4:35/1.0	(4.0)	(1.8)		(3.2)	(2.1)		<p style="text-align: center;">NEW RIVER</p> <p style="text-align: center;">CRYSTALLINE ROCK</p> <p>LT. AND DK. GRAY, SLI. WEATHERED, HARD, MOD. CLOSE TO WIDELY FRACTURED, BIOTITE GNEISS</p> <p style="text-align: right;">3.2</p> <hr/> <p style="text-align: center;">RMR = 38 R1=4, R2=13, R3=6, R4=15, R5=0</p> <p>2,329.0</p> <hr/> <p>LT. AND DK. GRAY, SEV. TO MOD. WEATHERED, HARD, MOD. CLOSE TO WIDELY FRACTURED, BIOTITE GNEISS</p> <p style="text-align: right;">6.0</p> <hr/> <p style="text-align: center;">RMR = 32 R1=5, R2=7, R3=5, R4=15, R5=0</p> <p>LT. AND DK. GRAY, SLI. WEATHERED, HARD, MOD. CLOSE TO WIDELY FRACTURED, BIOTITE GNEISS</p> <hr/> <p style="text-align: center;">RMR = 54 R1=5, R2=20, R3=9, R4=20, R5=0</p> <p>2,315.0</p> <hr/> <p>Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS</p> <p style="text-align: center;">SUMMARY OF ROD SOUNDING RESULTS:</p> <p>14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM</p> <p>Other Samples: RC-8 (0.5 - 2.0) RC-9 (4.9 - 6.4)</p>		
	2,331.0	4.0						(2.5)	(1.0)				
2330	2,329.0	6.0	2.0	2:45/1.0 2:55/1.0	(1.7)	(1.3)		89%	36%				
			5.0	2:15/1.0 2:15/1.0 2:20/1.0 2:05/1.0 2:10/1.0	(5.0)	(5.0)		100%	94%				
2325	2,324.0	11.0											
			5.0	2:50/1.0 3:15/1.0 3:15/1.0 3:30/1.0 3:45/1.0	(5.0)	(5.0)		100%	100%				
2320	2,319.0	16.0											
			4.0	3:05/1.0 3:40/1.0 3:40/1.0 3:35/1.0	(4.0)	(3.1)		100%	78%				
2315	2,315.0	20.0											

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



BORING B4-B, BOX 1 OF 2, 0.0 FEET TO 10 FEET.



BORING B4-B, BOX 2 OF 2, 10.0 FEET TO 20.0 FEET.



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ROCK CORE PHOTOGRAPHS

REPLACE BRIDGE NO. 265 ON
SR 1345 OVER NEW RIVER
ALLEGHANY COUNTY, NORTH CAROLINA
WBS NO.: 17BP-11.R-57 TIP NO.: SF-020265
FALCON PROJECT NO.: G13041.00



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Norville, C. V.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. B5-B	STATION 19+50	OFFSET 9 ft RT	ALIGNMENT -L-
COLLAR ELEV. 2,336.0 ft	TOTAL DEPTH 15.0 ft	NORTHING 1,026,896	EASTING 1,359,120
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Gower, S.	START DATE 10/22/13	COMP. DATE 10/22/13	SURFACE WATER DEPTH 2.8ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
2340																	
														▼	---	WATER SURFACE (10/22/13)	
2335	2,336.0	0.0	60/0.0	-	-										2,336.0	NEW RIVER	
																0.0	CRYSTALLINE ROCK
2330																	LT. AND DK. GRAY, BIOTITE GNEISS
2325																	
															2,321.0	15.0	Boring Terminated at Elevation 2,321.0 ft in CR: BIOTITE GNEISS
																	SUMMARY OF ROD SOUNDING RESULTS: 14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM
																	Other Samples: RC-10 (2.0 - 2.3) RC-11 (7.0 - 7.3)

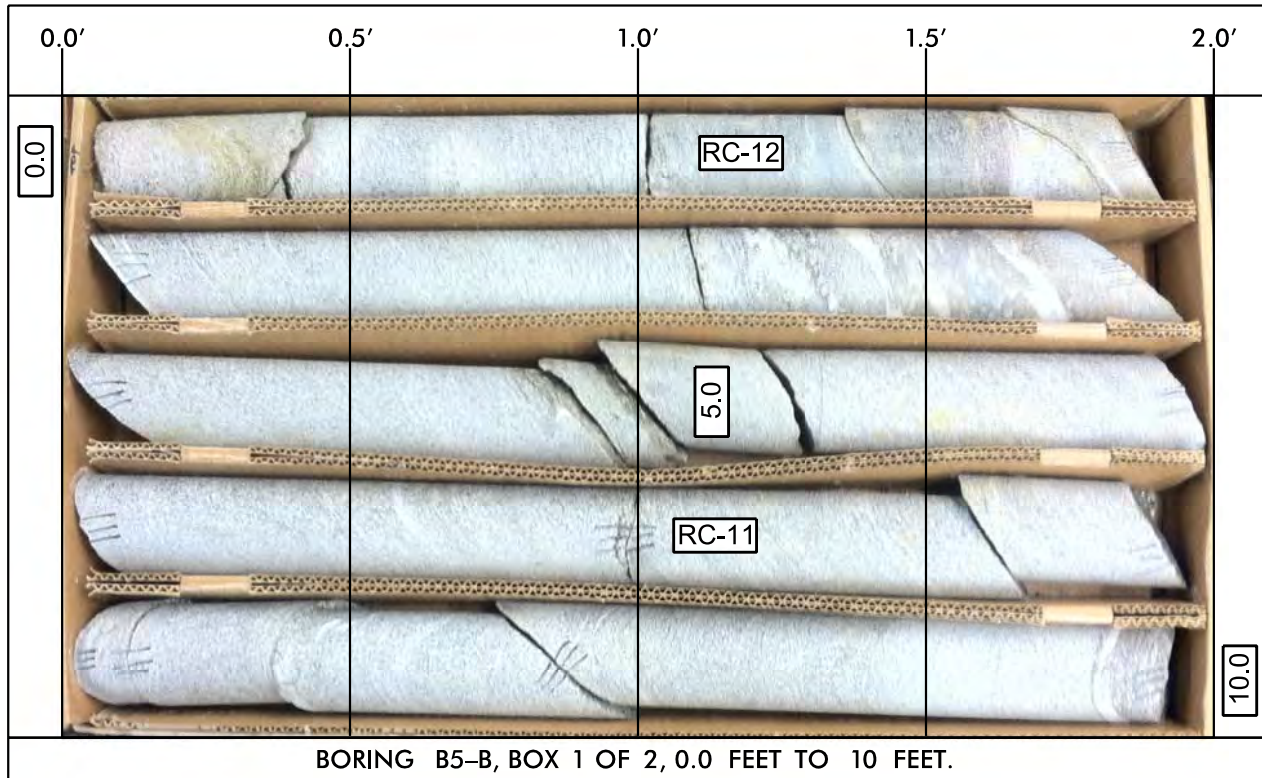
NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



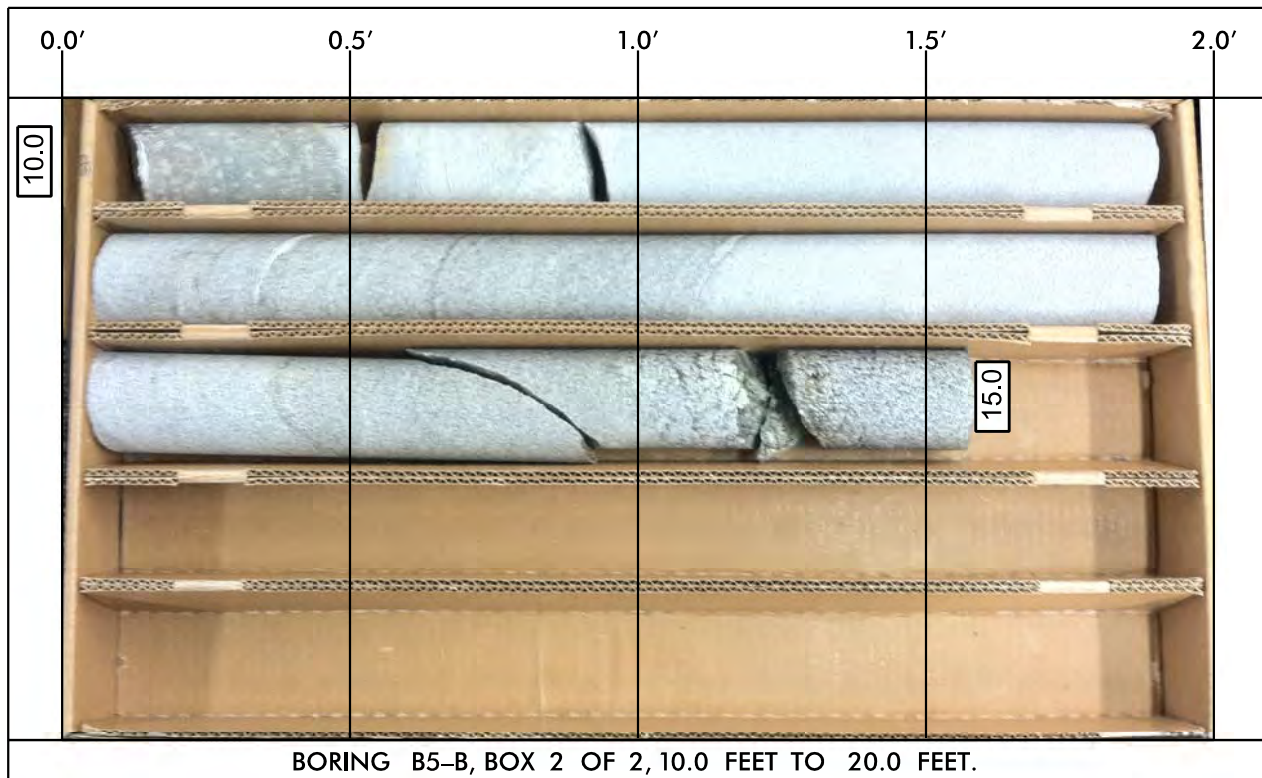
NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.						
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER									GROUND WTR (ft)			
BORING NO. B5-B		STATION 19+50		OFFSET 9 ft RT		ALIGNMENT -L-		0 HR. N/A				
COLLAR ELEV. 2,336.0 ft		TOTAL DEPTH 15.0 ft		NORTHING 1,026,896		EASTING 1,359,120		24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER Gower, S.		START DATE 10/22/13		COMP. DATE 10/22/13		SURFACE WATER DEPTH 2.8ft						
CORE SIZE NQ2		TOTAL RUN 15.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)	
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %				
2336												
2335	2,336.0	0.0	5.0	N=60/0.0 3:55/1.0 3:45/1.0 3:30/1.0 3:50/1.0 4:10/1.0	(5.0) 100%	(3.9) 78%	(15.0) 100%	(10.5) 70%		NEW RIVER CRYSTALLINE ROCK LT. AND DK. GRAY, SLI. WEATHERED, HARD. CLOSE TO WIDELY FRACTURED, BIOTITE GNEISS RMR = 48 R1=4, R2=15, R3=9, R4=20, R5=0		
2330	2,331.0	5.0	5.0	2:50/1.0 2:50/1.0 3:10/1.0 3:15/1.0 3:15/1.0	(5.0) 100%	(5.0) 100%						
2325	2,326.0	10.0	5.0	2:45/1.0 2:45/1.0 3:05/1.0 2:45/1.0 3:15/1.0	(5.0) 100%	(4.6) 92%						
	2,321.0	15.0										2,321.0
Boring Terminated at Elevation 2,321.0 ft in CR: BIOTITE GNEISS SUMMARY OF ROD SOUNDING RESULTS: 14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM Other Samples: RC-10 (2.0 - 2.3) RC-11 (7.0 - 7.3)												

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



BORING B5-B, BOX 1 OF 2, 0.0 FEET TO 10 FEET.



BORING B5-B, BOX 2 OF 2, 10.0 FEET TO 20.0 FEET.





NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.									
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)								
BORING NO. B6-B		STATION 20+15		OFFSET 9 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,937		EASTING 1,359,171									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Gower, S.		START DATE 10/21/13		COMP. DATE 10/21/13		SURFACE WATER DEPTH 2.1ft									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2335	2,335.0	0.0	60/0.0	-	-									2,335.0	0.0
2330														2,333.0	2.0
2325														2,328.2	6.8
2320															
2315														2,315.0	20.0
<p>Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS</p> <p>SUMMARY OF ROD SOUNDING RESULTS:</p> <p>14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM</p> <p><u>Other Samples:</u> RC-12 (0.9 - 1.2) RC-13 (2.8 - 3.1)</p>															

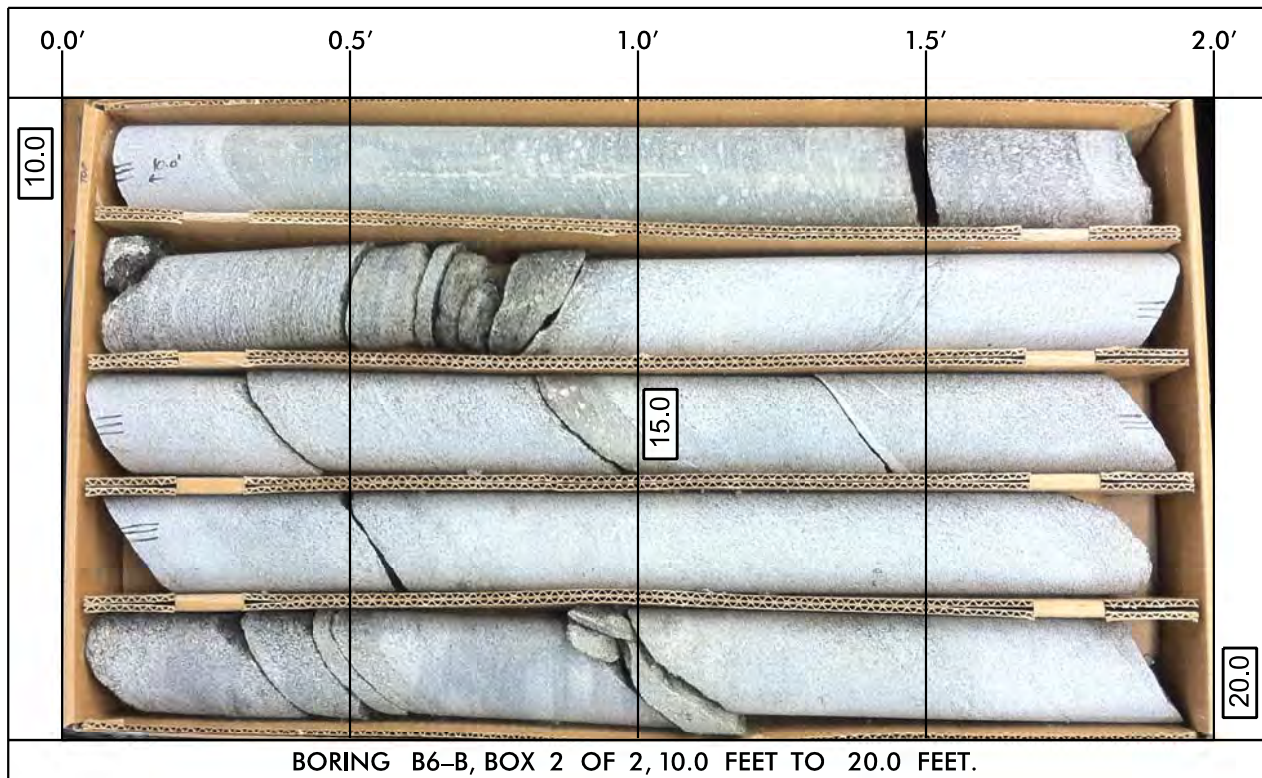
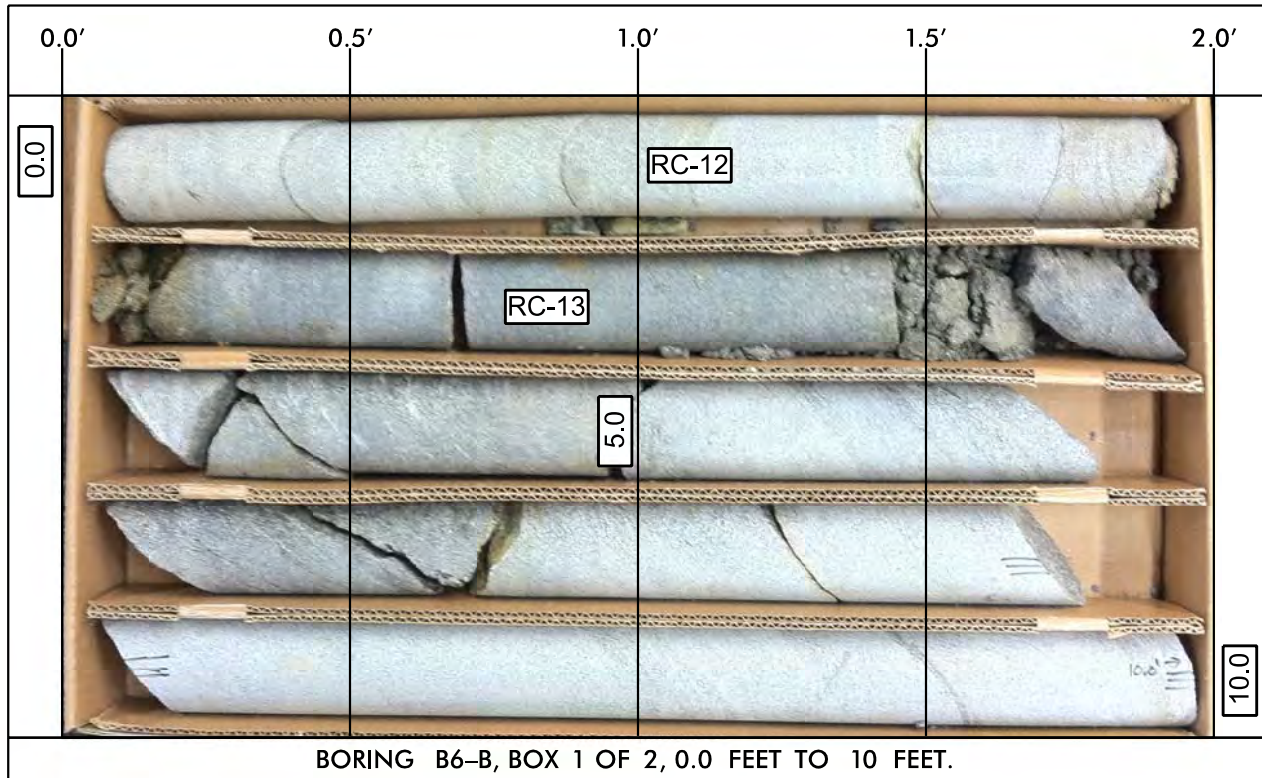
NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.					
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)				
BORING NO. B6-B		STATION 20+15		OFFSET 9 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 2,335.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 1,026,937		EASTING 1,359,171					
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic					
DRILLER Gower, S.		START DATE 10/21/13		COMP. DATE 10/21/13		SURFACE WATER DEPTH 2.1ft					
CORE SIZE NQ2		TOTAL RUN 20.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %			
2335	2,335.0	0.0	4.0	N=60/0.0 3:20/1.0 2:45/1.0 2:40/1.0 4:25/1.0	(3.8) 95%	(2.8) 70%					
2330	2,331.0	4.0	2.0	2:45/1.0 2:40/1.0 4:25/1.0	(2.0) 100%	(1.3) 65%	(2.0) 100%	(2.0) 100%		2,333.0	2.0
	2,329.0	6.0	5.0	2:25/1.0 2:30/1.0	(5.0) 100%	(5.0) 100%	(4.6) 96%	(2.1) 44%		2,328.2	6.8
2325	2,324.0	11.0	5.0	2:25/1.0 2:40/1.0 1:55/1.0 2:10/1.0 2:10/1.0	(5.0) 100%	(4.0) 80%	(13.2) 100%	(12.1) 92%			
			2320	2,319.0	16.0	2:35/1.0 2:40/1.0 2:30/1.0 2:30/1.0 2:25/1.0	(5.0) 100%	(3.1) 78%			
2315	2,315.0	20.0	4.0	2:25/1.0 2:15/1.0 2:15/1.0 2:30/1.0	(4.0) 100%	(3.1) 78%				2,315.0	20.0
<p>Boring Terminated at Elevation 2,315.0 ft in CR: BIOTITE GNEISS</p> <p>SUMMARY OF ROD SOUNDING RESULTS:</p> <p>14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM</p> <p>Other Samples: RC-12 (0.9 - 1.2) RC-13 (2.8 - 3.1)</p>											

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13





NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Norville, C. V.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. B7-C	STATION 20+70	OFFSET CL	ALIGNMENT -L-
COLLAR ELEV. 2,336.0 ft	TOTAL DEPTH 15.0 ft	NORTHING 1,026,984	EASTING 1,359,216
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Gower, S.	START DATE 10/21/13	COMP. DATE 10/21/13	SURFACE WATER DEPTH 1.0ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
2340																	
2335	2,336.0	0.0	60/0.0	-	-					60/0.0				WATER SURFACE (10/21/13) NEW RIVER	2,336.0	0.0	
2330														CRYSTALLINE ROCK LT. AND DK. GRAY, BIOTITE GNEISS			
2325																	
																2,321.0	15.0
Boring Terminated at Elevation 2,321.0 ft in CR: BIOTITE GNEISS SUMMARY OF ROD SOUNDING RESULTS: 14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM Other Samples: RC-14 (1.0 - 1.3) RC-15 (6.6 - 6.9)																	

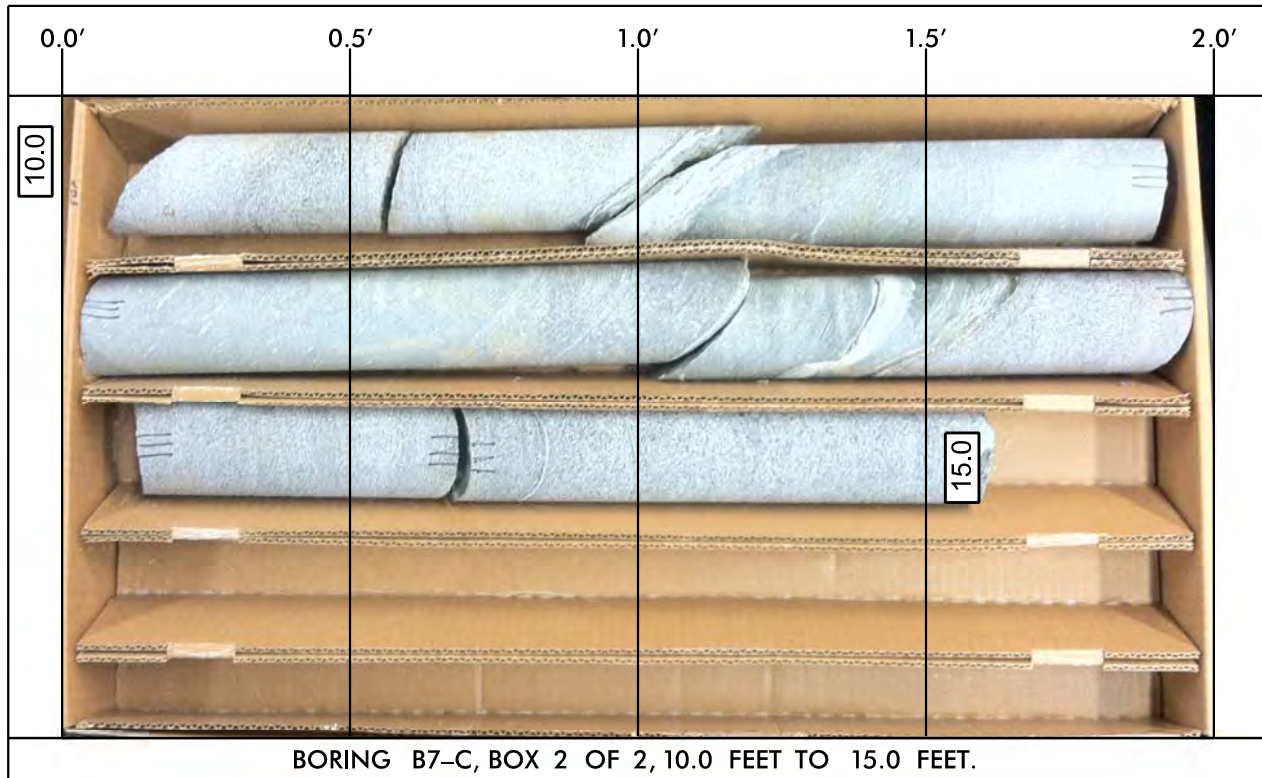
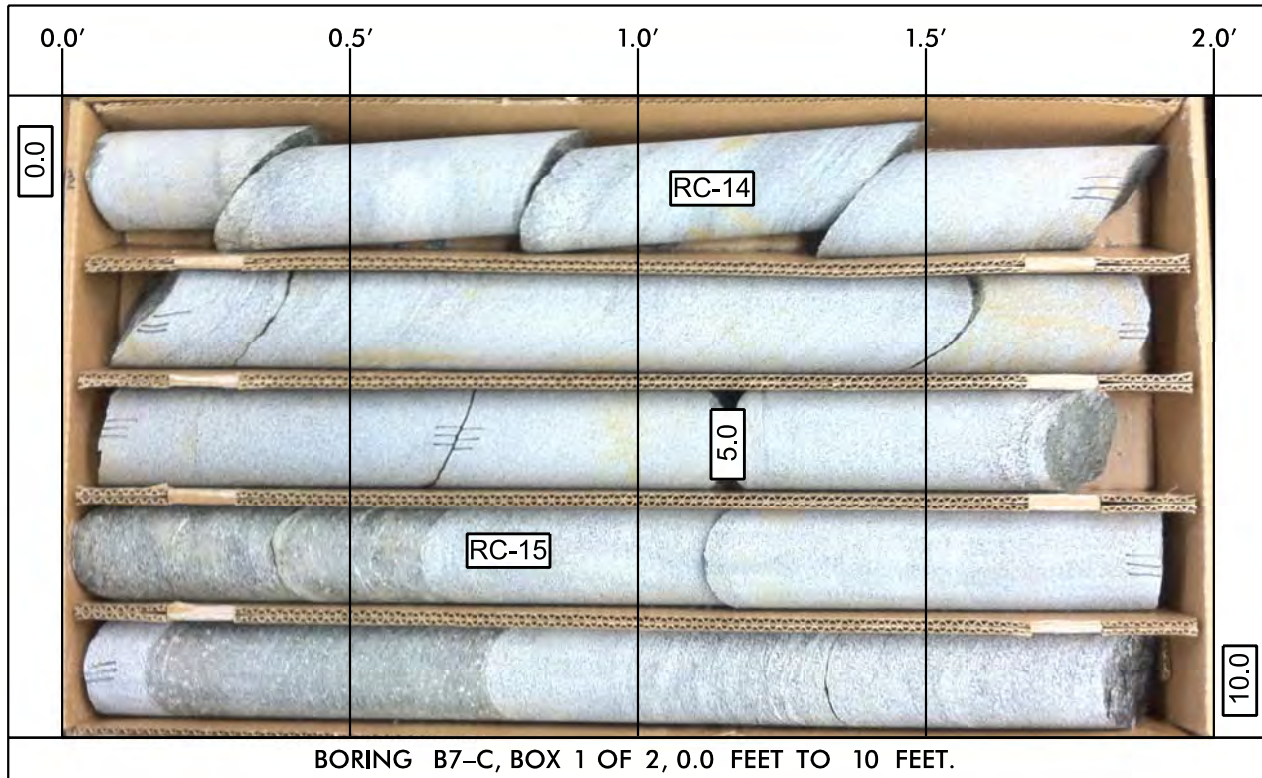
NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13



NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Norville, C. V.					
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER									GROUND WTR (ft)		
BORING NO. B7-C		STATION 20+70		OFFSET CL		ALIGNMENT -L-		0 HR. N/A			
COLLAR ELEV. 2,336.0 ft		TOTAL DEPTH 15.0 ft		NORTHING 1,026,984		EASTING 1,359,216		24 HR. N/A			
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011					DRILL METHOD H.S. Augers		HAMMER TYPE Automatic				
DRILLER Gower, S.		START DATE 10/21/13		COMP. DATE 10/21/13		SURFACE WATER DEPTH 1.0ft					
CORE SIZE NQ2		TOTAL RUN 15.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %			
2336											
2335	2,336.0	0.0	5.0	N=60/0.0 3:15/1.0 2:45/1.0 2:50/1.0 2:50/1.0 2:50/1.0	(5.0) 100%	(4.7) 94%	(15.0) 100%	(14.7) 98%		NEW RIVER CRYSTALLINE ROCK LT. AND DK. GRAY, SLI. WEATHERED, HARD, CLOSE TO MOD. CLOSELY FRACTURED, BIOTITE GNEISS RMR = 54 R1=5, R2=20, R3=9, R4=20, R5=0	
2330	2,331.0	5.0	5.0	2:45/1.0 3:10/1.0 2:50/1.0 2:50/1.0 3:05/1.0	(5.0) 100%	(5.0) 100%					
2325	2,326.0	10.0	5.0	3:10/1.0 3:05/1.0 3:05/1.0 3:25/1.0 3:25/1.0	(5.0) 100%	(5.0) 100%					
	2,321.0	15.0								2,321.0	15.0
Boring Terminated at Elevation 2,321.0 ft in CR: BIOTITE GNEISS											
SUMMARY OF ROD SOUNDING RESULTS: 14 ft LT: REFUSAL AT CHANNEL BOTTOM 11 ft RT: REFUSAL AT CHANNEL BOTTOM											
Other Samples: RC-14 (1.0 - 1.3) RC-15 (6.6 - 6.9)											

NCDOT CORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13





NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57	TIP SF-020265	COUNTY ALLEGHANY	GEOLOGIST Hunsberger, W. S.
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER			GROUND WTR (ft)
BORING NO. EB2-A	STATION 21+37	OFFSET 12 ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,343.0 ft	TOTAL DEPTH 13.5 ft	NORTHING 1,027,035	EASTING 1,359,259
DRILL RIG/HAMMER EFF./DATE TRI9435		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Wichard, W.	START DATE 10/15/13	COMP. DATE 10/15/13	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2345															
	2,343.0	0.0												2,343.0	0.0
			3	3	5										
2340	2,339.5	3.5												2,338.9	4.1
			2	5	6										
	2,337.0	6.0												2,336.7	6.3
			14	16	22										
2335	2,334.5	8.5												2,335.0	8.0
			32	36	49										
2330	2,329.5	13.5												2,329.5	13.5
			60/0.0	-	-										

NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13

3" TOPSOIL

ROADWAY EMBANKMENT
ORANGE AND BROWN, FINE SANDY SILT (A-4) W/ GRAVEL

ALLUVIAL
GRAY AND ORANGE, SILT, MEDIUM TO COARSE SAND (A-1-b) W/ GRAVEL

RESIDUAL
GRAY AND ORANGE, SILTY FINE TO MEDIUM SAND (A-2-4) W/ ROCK FRAGMENTS
GRAY AND TAN, SILTY SAND (A-2-4) MICACEOUS

Boring Terminated with Standard Penetration Test Refusal at Elevation 2,329.5 ft on CR: BIOTITE GNEISS



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.11.R.57		TIP SF-020265		COUNTY ALLEGHANY		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 21+37		OFFSET CL		ALIGNMENT -L-										
COLLAR ELEV. 2,342.0 ft		TOTAL DEPTH 10.3 ft		NORTHING 1,027,025		EASTING 1,359,267										
DRILL RIG/HAMMER EFF./DATE TRI9435				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Wichard, W.		START DATE 10/16/13		COMP. DATE 10/16/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2345																
2340	2,341.0	1.0	6	7	5										EXISTING PAVEMENT	0.0
	2,338.5	3.5	5	6	7										2" BITUMINOUS CONCRETE 4" AGGREGATE BASE COURSE	0.9
2335	2,336.0	6.0	8	7	9										ROADWAY EMBANKMENT GRAY BROWN AND ORANGE, SILTY SAND (A-2-4) W/ GRAVEL	5.5
	2,333.5	8.5	40	60/0.4	-										ALLUVIAL BROWN TAN AND GRAY, SILTY MEDIUM TO COARSE SAND (A-1-a) W/ GRAVEL	8.5
	2,332.5	9.5	100/0.3	-	-										WEATHERED ROCK TAN BROWN AND GRAY, BIOTITE GNEISS	10.2
	2,331.8	10.2	60/0.1	-	-										CRYSTALLINE ROCK BLACK AND GRAY, BIOTITE GNEISS	10.3
															Boring Terminated by Auger Refusal at Elevation 2,331.7 ft in CR: BIOTITE GNEISS	

NCDOT BORE SINGLE REPLACE BRIDGE 267 OVER NEW RIVER.GPJ NC_DOT.GDT 12/10/13

FALCON ENGINEERING, INC.

AASHTO SOIL CLASSIFICATION AND GRADATION SHEET

REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER

WBS NO.: 17BP.11.R.57 , TIP NO.: SF-020265

ALLEGHANY COUNTY, NORTH CAROLINA

FALCON ENGINEERING, INC. PROJECT NO: G13041.00

Boring		Sample	Total Sample			Coarse Sand (%)	Fine Sand (%)	Silt/Clay (%)	Atterberg Limit Test Results			Natural Moisture Content (%)
AASHTO Classification			Percent Passing						LL	PL	PI	
Station	Offset (feet)	Depth (feet)	#10	#40	#200							
EB1-B		SS-1	100	97	69	3	28	69	40	31	9	43.0
A-4												
16+05	11' RT	3.5-5.0										
EB2-B		SS-2	28	15	6	14	9	6	20	NP	NP	9.3
A-1-a												
21+37	CL	6.0-7.5										



SIGNATURE:

NCDOT No.:

123-01-0509

Notes: LL = Liquid limit
 PL = Plastic limit
 PI = Plasticity index = LL - PL

SUMMARY OF ROCK CORE TEST RESULTS

REPLACE BRIDGE NO. 265 ON SR 1345 OVER NEW RIVER

WBS NO.: 17BP.11.R.57 , TIP NO.: SF-020265

ALLEGHANY COUNTY, NORTH CAROLINA

FALCON ENGINEERING, INC. PROJECT NO: G13041.00

Sample No.	Boring	Depth (feet)	Rock Type	Geologic Map Unit	Run RQD	Length (feet)	Diameter (feet)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus (psi)	Strata Rock Mass Rating (RMR)
RC-1	EB1-A	6.3-6.6	Biotite Gneiss	Zatm	30%	0.34	0.16	167.5	13,645	1,814,356	47
RC-2	B1-C	7.3-7.6	Biotite Gneiss	Zatm	36%	0.33	0.16	175.0	1,600 *	219,567	25
RC-3	B1-C	12.4-12.7	Biotite Gneiss	Zatm	52%	0.34	0.16	171.0	4,571	583,404	32
RC-4	B2-C	0.8-1.1	Biotite Gneiss	Zatm	56%	0.34	0.16	168.4	6,864	1,262,390	42
RC-5	B2-C	5.4-5.7	Biotite Gneiss	Zatm	88%	0.35	0.16	172.4	6,388	1,069,110	51
RC-6	B3-B	0.0-0.3	Biotite Gneiss	Zatm	68%	0.34	0.16	169.9	7,398	1,019,714	25
RC-7	B3-B	5.6-5.9	Biotite Gneiss	Zatm	100%	0.34	0.16	169.7	15,982	2,351,030	72
RC-8	B4-B	0.5-0.8	Biotite Gneiss	Zatm	45%	0.35	0.16	171.1	5,184 *	1,029,816	32
RC-9	B4-B	4.9-5.2	Biotite Gneiss	Zatm	65%	0.35	0.16	174.2	8,458	958,443	35
RC-10	B5-B	2.0-2.3	Biotite Gneiss	Zatm	78%	0.35	0.16	177.7	6,608	1,532,336	49
RC-11	B5-B	7.0-7.3	Biotite Gneiss	Zatm	100%	0.34	0.16	177.0	4,120 *	850,228	64
RC-12	B6-B	0.9-1.2	Biotite Gneiss	Zatm	70%	0.34	0.16	175.2	3,918	831,327	32
RC-13	B6-B	2.8-3.1	Biotite Gneiss	Zatm	70%	0.34	0.16	166.8	7,006	689,099	32
RC-14	B7-C	1.0-1.3	Biotite Gneiss	Zatm	94%	0.37	0.16	173.4	10,351	2,272,509	55
RC-15	B7-C	6.6-6.9	Biotite Gneiss	Zatm	100%	0.35	0.16	180.1	7,452	1,848,573	57

* Failure closely following foliation plane and may not be indicative of overall rock unconfined compressive strength.

SIGNATURE:



NCDOT No.:

123-01-0509

Notes: LL = Liquid limit
 PL = Plastic limit
 PI = Plasticity index = LL - PL

INFORMATION FROM STRUCTURAL ENGINEER

Project: New River Bridge **Bridge:** Bridge #265

Bent No.: End Bent 1 **Preferred Pile Type:** HP 12x53

Number of Piles per bent: 5 **Bot. of Cap El.** 2347.14*

Design Scour Elevation:(see BSR) n/a **Vertical Abut.** NO

Front Slope: 1.5:1

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	kip	kip-ft	kip-ft	kip-ft
Factored Bent Reaction		890				

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 1 **Drilled Shaft Dia.:** 3'-0"

Number of Drilled Shafts per bent: 3 **Bot. of Cap El.** 2347.73*

Design Scour Elevation:(see BSR) 2330

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 2 **Drilled Shaft Dia.:** 3'-0"

Number of Drilled Shafts per bent: 3 **Bot. of Cap El.** 2347.02*

Design Scour Elevation:(see BSR) 2329.5

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 3 Drilled Shaft Dia.: 3'-0"
 Number of Drilled Shafts per bent: 3 Bot. of Cap El. 2346.30*
 Design Scour Elevation:(see BSR) 2329

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 4 Drilled Shaft Dia.: 3'-0"
 Number of Drilled Shafts per bent: 3 Bot. of Cap El. 2345.59*
 Design Scour Elevation:(see BSR) 2329.5

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 5 Drilled Shaft Dia.: 3'-0"
 Number of Drilled Shafts per bent: 3 Bot. of Cap El. 2344.87*
 Design Scour Elevation:(see BSR) 2330

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 6 Drilled Shaft Dia.: 3'-0"
 Number of Drilled Shafts per bent: 3 Bot. of Cap El. 2344.15*

Design Scour Elevation:(see BSR) 2330

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: Bent 7 Drilled Shaft Dia.: 3'-0"
 Number of Drilled Shafts per bent: 3 Bot. of Cap El. 2343.44*

Design Scour Elevation:(see BSR) 2330

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	Kip	kip-ft	kip-ft	kip-ft
Max Axial		-800	7	85		
Max Long. Shear		-490	-12	-15		
Max Trans. Shear	15	-410				485

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.

Bent No.: End Bent 2 Preferred Pile Type: HP 12x53
 Number of Piles per bent: 5 Bot. of Cap El. 2341.71*

Design Scour Elevation:(see BSR) NA Vertical Abut. NO
 Front Slope: 1.5:1

Load Combination (Load is per Bent)	Fx	Fy	Fz	Mx	My	Mz
	Kip	Kip	kip-ft	kip-ft	kip-ft	kip-ft
Factored Bent Reaction		890				

*Note: Cap has a super of 0.04 to the left. Elevation given is the average bottom of cap elevation.