-- STATE OF NORTH CAROLINA--
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

INDUSTRY DRAFT REQUEST FOR PROPOSALS

DESIGN-BUILD PROJECT

TIP U-5798A

July 26, 2019

VOID FOR BIDDING

DATE AND TIME OF PRICE PROPOSAL OPENING: **October 15, 2019 AT 2:00 PM**

CONTRACT ID: C204507

WBS ELEMENT NO.: 44369.3.2

FEDERAL-AID NO.: N/A

COUNTIES: Cumberland County

ROUTE NO. SR 1102 (Gillis Hill Road)

MILES: 1.2 miles

LOCATION: SR 1102 (Gillis Hill Road) from north of SR 1112 (Stoney Point Road) to US 401 (S Raeford Road)

TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS

NOTICE:

ALL PROPOSERS 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 PROPOSER 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. PROPOSERS 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. NOT WITHSTANDING THESE LIMITATIONS ON BIDDING, THE PROPOSER WHO IS AWARDED ANY PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING, REGARDLESS OF FUNDING SOURCES.

_____ 5% BID BOND OR BID DEPOSIT REQUIRED

_____

PROPOSAL FORM FOR THE CONSTRUCTION OF CONTRACT NO. C204507

IN CUMBERLAND COUNTY, NORTH CAROLINA

Date_____ 20_____

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Design-Build Team herein acknowledges that it has carefully examined the location of the proposed work to be known as Contract No. C204507; has carefully examined the Final Request for Proposals (RFP) and all addendums thereto, specifications, special provisions, the form of contract, and the forms of contract payment bond and contract performance bonds, which are acknowledged to be part of the Contract; and thoroughly understands the stipulations, requirements and provisions. The undersigned Design-Build Team agrees to be bound upon their execution of the Contract and including any subsequent award to them by the Secretary of Transportation in accordance with this Contract to provide the necessary contract payment bond and contract performance bond within fourteen calendar days after the written notice of award is received by them.

The undersigned Design-Build Team further agrees to provide all necessary materials, machinery, implements, appliances, tools, labor, and other means of construction, except as otherwise noted, to perform all the work and required labor to design, construct and complete all the work necessary for State Highway Contract No. C204507 in Cumberland County by no later than the dates(s) specified in the Final RFP, and any addenda thereto, and in accordance with the requirements of the Engineer, the Final RFP and Addenda thereto, the 2018 *Standard Specifications for Roads and Structures*, specifications prepared by the Department, at the *Total Amount of Bid for Entire Project* bid by the Design-Build Team in their Price Proposal.

The Design-Build Team shall provide signed and sealed documents prepared by the Design-Build Team, which specifications and plans show the details covering this project and adhere to the items noted above.

The Design-Build Team acknowledges that project documents furnished by the Department are preliminary and provided solely to assist the Design-Build Team in the development of the project design. Unless otherwise noted herein, the Department does not warrant or guarantee the sufficiency or accuracy of any information furnished by the Department.

The Department does not warrant or guarantee the sufficiency or accuracy of any investigations made, nor the interpretations made or opinions of the Department as to the type of materials and conditions to be encountered at the project site. The Design-Build Team is advised to make such independent investigations, as they deem necessary to satisfy their self as to conditions to be encountered on this project. The Design-Build Team shall have no claim for additional compensation or for an extension of contract time for any reason resulting from the actual conditions encountered at the site differing from those indicated in any of the information or documents furnished by the Department except as may be allowed under the provisions of the 2018 *Standard Specifications for Roads and Structures*.

Although the Department has furnished preliminary designs for this project, unless otherwise noted herein, the Design-Build Team shall assume full responsibility, including liability, for the

project design, including the use of portions of the Department design, modification of such design, or other designs as may be submitted by the Design-Build Team.

The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract, and shall indemnify and hold the Department harmless for any additional costs and all claims against the Department or the State which may arise due to errors or omissions of the Department in furnishing the preliminary project designs and information, and of the Design-Build Team in performing the work.

The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2018*, as well as, all design manuals, policy and procedures manuals, and AASHTO publications and guidelines referenced in the Request For Proposals, with all amendments and supplements thereto, are by reference, incorporated and made part of this contract; that, except as herein modified, all the design, construction and Construction Engineering Inspection included in this contract is to be done in accordance with the documents noted above and under the direction of the Engineer.

The contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except by written approval as allowed by the Request for Proposals.

Accompanying the Design-Build Proposal shall be a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Design-Build Team shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by them, as provided in the 2018 *Standard Specifications for Roads and Structures*; otherwise said deposit will be returned to the Design-Build Team.

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STANDARD SPECIAL PROVISIONS

PROPOSAL FORMS - ITEMIZED SHEET, ETC.

*** PROJECT SPECIAL PROVISIONS ***

CONTRACT TIME AND LIQUIDATED DAMAGES

07/12/07 DB1 G04A

The date of availability for this contract is _____, except that the Design-Build Team shall only begin ground disturbing activities as allowed by this Request for Proposals (RFP).

The completion date for this contract is _____.

When observation periods are required by the special provisions, they are not a part of the work to be completed by the completion date and / or intermediate contract times. Should an observation period extend beyond the Final Completion Date, the performance and payment bonds shall remain in full force and effect until the observation period has been completed and the work accepted by the Department.

The liquidated damages for this contract are _____ **Thousand Dollars ($XXXX.00)** per calendar day.

OTHER LIQUIDATED DAMAGES AND INCENTIVES

(3-22-7) (Rev. 2-14-8) DB1 G11

Reference the Transportation Management Scope of Work found elsewhere in this RFP for more information on the following time restrictions and liquidated damages:

Liquidated Damages for Intermediate Contract Time #1 for lane narrowing, lane closure, holiday, and special event time restrictions for US 401 (South Raeford Road) are $1,250.00 per 15-minute period or any portion thereof.

Liquidated Damages for Intermediate Contract Time #2 for lane narrowing, lane closure, holiday, and special event time restrictions for SR 1102 (Gillis Hill Road) are $500.00 per 15-minute period or any portion thereof.

Liquidated Damages for Intermediate Contract Time #3 for multi-vehicle hauling time restrictions for US 401 (South Raeford Road) are $400.00 per occurrence

Liquidated Damages for Intermediate Contract Time #4 for multi-vehicle hauling time restrictions for SR 1102 (Gillis Hill Road) are $250.00 per occurrence

MEASUREMENT AND PAYMENT

This *Measurement and Payment* Project Special Provision shall not apply if the Design-Build Team elects to forego the unit price bid approach and elects to submit an *Alternate Lump Sum Bid for Bridge No. 250075*. (Reference the *Alternate Lump Sum Bid for Bridge No. 250075* Project Special Provision found elsewhere in this RFP)

Reference is made to the following pay items listed on the Itemized Proposal Sheet:

Bridge Length (LF): *Bridge Length* shall be measured from fill face to fill face and paid in units of linear feet, as measured along the centerline of the bridge of actual bridge length

constructed. Work shall include all materials, labor, and equipment to construct the superstructure portion of the bridge, as taken from the bottom of the superstructure to the top of the bridge rail. This work does not include bearing devices, anchors bolts or other such connections.

Payment shall be made under:

Pay Item	**Pay Unit**
Bridge Length Structure No. 250075	Linear Feet

Foundation Length (LF): *Foundation Length* shall be measured from the elevation at the top of the piles or columns atop drilled piers to the average pile tip or drilled pier tip elevation actually installed at a given end bent or interior bent and shall be paid for in units of linear feet. The final foundation pay length per bent or end bent shall be determined by dividing the total pile or columns plus drilled pier lengths, measured as defined above, by the total number of piles or drilled piers per bent or end bent. Work shall include all materials, labor, and equipment to install and construct the foundations, including pile auguring as necessary, regardless of the number of piles or columns / drilled piers per bent, including that portion of the piles or columns / drilled piers that extend into the end bent or interior bent cap. In the event that additional interior bents are required beyond that specified in the Structures Scope of Work, the unit price bid for linear feet of Foundation Length for the closest interior bent shall be used to compensate for the additional length of piles or columns / drilled piers.

Payment shall be made under:

Pay Item	**Pay Unit**
Average Foundation Length at End Bent No. 1 Structure No. 250075	Linear Feet
Average Foundation Length at Interior Bent No. 1 Structure No. 250075	Linear Feet
Average Foundation Length at Interior Bent No. 2 Structure No. 250075	Linear Feet
Average Foundation Length at End Bent No. 2 Structure No. 250075	Linear Feet

Interior Bent Caps (Each): *Interior Bent Caps* shall be measured and paid for by each. Work shall include all material, labor, and equipment to construct each interior bent cap, including the necessary bearing devices, anchors bolts or other such connections.

Payment shall be made under:

Pay Item	**Pay Unit**
Interior Bent Cap Structure No. 250075	Each

End Bents (Each): *End Bents* shall be measured and paid for by each. Work shall include all material, labor, and equipment to construct each end bent, including the necessary bearing devices, anchors bolts or other such connections, and wing walls.

Payment shall be made under:

Pay Item	Pay Unit
End Bents Structure No. 250075	Each

Design and Construction of the Project (LS): *Design and Construction of the Project* shall be paid for as lump sum. No measurement will be made. Work shall include all material, labor and equipment to complete all of the work required by the contract, excluding those specific contract per each pay items listed above. Work shall include all preconstruction activities, including, but not limited to, design, permitting, asbestos assessment of the existing bridge, utility coordination services and other preconstruction services, regardless of the final design, bridge length, foundation length and / or number of bents. Work shall also include all other construction activities required by the contract, including, but not limited to, erosion and sedimentation control, earthwork, drainage, curb and gutter, sidewalk, bike lanes, pavement, traffic signals, signing, bridge approach fills, approach slabs, removal of existing structure, guardrail and water and sewer relocation / protection. Work shall also include all surveying and geotechnical investigative work required by the contract.

Payment shall be made under:

Pay Item	Pay Unit
Design and Construction of the Project	Lump Sum

Right of Way Acquisition (LS): *Right of Way Acquisition* services shall be paid for as lump sum for all parcels from which right of way, control of access and / or an easement(s) is required. Work shall include all labor and services necessary to acquire the right of way, control of access and easements, as required by the Right of Way Scope of Work found elsewhere in this RFP.

Payment shall be made under:

Pay Item	Pay Unit
Right of Way Acquisition	Lump Sum

Adjustments to Quantities and Payment

The Itemized Proposal Sheet provides the quantity of linear feet of *Bridge Length, Foundation Length* and the quantity of *Interior Bent Caps* and *End Bents* to be bid for the bridge site. By submitting this Price Proposal, the Design-Build Team acknowledges that these quantities are intended for bidding purposes and may or may not be the final design quantities. Unless noted otherwise in the Structures Scope of Work found elsewhere in this RFP, in the event that the final design quantities for *Bridge Length, Foundation Length, Interior Bent Caps* and / or *End Bents* differ from those presented in the Itemized Proposal Sheet, adjustment will be made to the partial payments made to Design-Build Team per the applicable contract unit prices.

All contract pay items for this contract shall be considered minor contract items.

No adjustments to the per each pay items will be made until such time that all pertinent design submittals have been approved and all permits for the project have been obtained.

In the event of an increase in any of the above per each pay item quantities, the Design-Build Team shall demonstrate, through the pertinent design submittals, the need for the additional quantities.

In the event of a decrease in any of the above per each pay item quantities, the Design-Build Team will be eligible for an incentive for such reduction. (Reference the *Value Analysis* Project Special Provision found elsewhere in this RFP)

If during the course of the design phase, the Design-Build Team proposes a span arrangement that eliminates the contract line item for *Interior Bent Caps* at the bridge site, then the provisions of Article 104-12 of the *Standard Specifications for Roads and Structures* shall apply.

The Structure Scope of Work found elsewhere in this RFP does not specify a size of superstructure (e.g. AASHTO Type IV Prestressed Concrete Girder) or foundation pile size (e.g. 12 x 53) that shall be used; instead the Design-Build Team shall determine these sizes. No additional compensation or contract time extension will be provided for any increase in the superstructure size or foundation type. However, if during the course of the design or permitting phase, the Design-Build Team demonstrates, to the Department's sole satisfaction, that the foundation type (e.g. steel piles or drilled piers) as specified in the Structures Scope of Work found elsewhere in this RFP will not be adequate, then the provisions of Article 104-7 of the *Standard Specifications for Roads and Structures* shall apply.

If during the course of the design or permitting phase, the Design-Build Team proposes a more economical foundation type or superstructure type from those specified in the Structures Scope of Work found elsewhere in this RFP, then the provisions of Article 104-12 of the *Standard Specifications for Roads and Structures* shall apply.

In the event, that the width of superstructure specified in the Structures Scope of Work found elsewhere in this RFP is inadequate, as demonstrated through the pertinent approved design submittals, then the provisions of Article 104-7 of the *Standard Specifications for Roads and Structures* shall apply. In such case, the unit contract price bid per each for *Interior Bent Caps* and *End Bents* shall be prorated based on the difference in length of cap needed for the bridge width stated herein and the final bridge design width approved by the Department. If the Design-Build Team demonstrates, to the Department's sole satisfaction, that the extra bridge width requires an additional pile, then the payment quantity for *Foundation Length* shall be prorated based on the number of piles needed for the bridge width stated herein and the final bridge design width approved by the Department. The payment quantity for linear feet of *Bridge Length* shall be prorated by multiplying the payment quantity provided in the Itemized Proposal Sheet by the ratio of the final bridge design width divided by the bridge width specified herein. No additional compensation for the lump sum items *Design and Construction of the Project* and *Right of Way Acquisition* will be provided.

ALTERNATE LUMP SUM BID FOR BRIDGE No. 250075

The Design-Build Team may provide an *Alternate Lump Sum Bid for Bridge No. 250075*.

If the Design-Build Team elects to submit an *Alternate Lump Sum Bid for Bridge No. 250075*, the Design-Build Team shall be solely responsible for all costs, including but not limited to, overruns, public involvement, additional design effort, additional construction effort and / or additional environmental agency coordination and approvals. The Design-Build Team shall also forego any additional compensation that would have otherwise been afforded under the *Value Analysis* and *Measurement and Payment* Project Special Provisions found elsewhere in this RFP. In addition, providing an *Alternate Lump Sum Bid for Bridge No. 250075* shall not relieve the Design-Build Team of any contract requirements including permitting agency requirements, hydraulic design requirements, and FEMA compliance requirements.

The *Alternate Lump Sum Bid for Bridge No. 250075* entered on the Itemized Proposal Sheet shall be full compensation for all work necessary for the bridge, including all per each pay items outlined in the *Measurement and Payment* Project Special Provision found elsewhere in this RFP. In the event that the bridge design, upon which the *Alternate Lump Sum Bid for Bridge No. 250075*, is not ultimately accepted by the Department, the Design-Build Team shall be required to design and construct a bridge that does satisfy the Department that all contract and permit conditions (including FEMA) can and will be met. A culvert shall not be acceptable in lieu of a bridge.

The Design-Build Team is cautioned that the bridge description specified in the Structures Scope of Work found elsewhere in this RFP was determined jointly by the Department and the regulatory and permitting agencies, and variations therefrom will likely require subsequent concurrence from these agencies. Prior to exercising the *Alternate Lump Sum Bid for Bridge No. 250075* afforded by this provision, the Design-Build Team shall be fully responsible for engaging the Department to understand the rationale for the bridge description outlined in the Structures Scope of Work found elsewhere in this project.

To elect this option, the Design-Build Team shall enter an *Alternate Lump Sum Bid for Bridge No. 250075* for all work required by the bridge on the Itemized Proposal Sheet. The unit cost and amount for all other line items specific to the bridge shall be left blank on the Itemized Proposal Sheet.

To forego this option, the Design-Build Team shall enter a unit cost and amount for each of the specific unit price and lump sum items and the amount for the *Alternate Lump Sum Bid for Bridge No. 250075* shall be left blank.

Payment shall be made under:

Pay Item Pay Unit	**Pay Unit**
Alternate Lump Sum Bid for Bridge No. 250075	Lump Sum

DESIGN AND CONSTRUCTION ITEMIZATION

(3-21-15) EDB

Reference is made to the *Design and Construction of the Project* pay item referenced in the *Measurement and Payment* Project Special Provision found elsewhere in this RFP. Within 30 days after award of the contract, the Design-Build Team shall submit to the Engineer, an itemization of the anticipated costs associated with the work items contained in the amount bid for *Design and Construction of the Project*. At a minimum, the itemization shall break out the costs for design, preconstruction services, the summation of all typical roadway pay items and a breakdown of all typical bridge pay items.

PAYOUT SCHEDULE

(11-16-09) DB1 G13

No later than 12:00 o'clock noon on the sixth day after the opening of the Price Proposal, the responsive proposer with the lowest price shall submit a proposed Anticipated Monthly Payout Schedule to the office of the State Contract Officer. The information shall be submitted in a sealed package with the outer wrapping clearly marked "Anticipated Monthly Payout Schedule" along with the Design-Build Team name and the contract number. The Anticipated Monthly Payout Schedule will be used by the Department to establish the monthly funding levels for this project. The Anticipated Monthly Payout Schedule shall include a monthly percentage breakdown (in terms of the total contract amount percentages) of the work anticipated to be completed. The schedule shall begin with the Date of Availability and end with the Completion Date.

Submit updates of the Anticipated Monthly Payout Schedule on March 15, June 15, September 15, and December 15 of each calendar year until project acceptance. Submit all updates to the Resident Engineer with a copy to the State Construction Engineer at 1 South Wilmington St, 1543 Mail Service Center, Raleigh, NC 27699-1543.

MOBILIZATION

(3-11-19) DB1 G15B

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 8-1, Subarticle 800-2, MEASUREMENT AND PAYMENT

Delete this subarticle in its entirety and replace with the following:

800-2 MEASUREMENT AND PAYMENT

Five percent of the *Total Amount of Bid for Entire Project* shall be considered the lump sum amount for Mobilization. Partial payments for Mobilization will be made beginning with the first partial pay estimate paid on the contract. Payment will be made at the rate of 50 percent of the lump sum amount calculated for Mobilization. The remaining 50 percent will be paid with the partial pay estimate following approval of all permits required in the Environmental Permits Scope of Work for this project.

SUBMITTAL OF QUANTITIES, FUEL BASE INDEX PRICE AND OPT-OUT OPTION

1/23/14 DB1 G43

(A) **Submittal of Quantities**

Submit quantities on the *Fuel Usage Factor Chart and Estimate of Quantities* sheet, located in the back of this RFP, following the Itemized Proposal Sheet.

The Design-Build Team shall prepare an Estimate of Quantities that they anticipate incorporating into the completed project and upon which the Price Proposal will be based. The quantity breakdown shall include all items of work that appear in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet. Only those items of work which are specifically noted in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet will be subject to fuel price adjustments.

Submittal The submittal shall be signed and dated by an officer of the Design-Build Team. The information shall be copied and submitted in a separate sealed package with the outer wrapping clearly marked "Fuel Price Adjustment" and shall be delivered to the place indicated, and prior to the time indicated, in this Request for Proposals.

Trade Secret Information submitted on the *Fuel Usage Factor Chart and Estimate of Quantities* sheet will be considered "Trade Secret" in accordance with the requirements of G.S. 66-152(3) until such time as the Price Proposal is opened.

(B) **Base Index Price**

The Design-Build Team's Estimate of Quantities will be used on the various partial payment estimates to determine fuel price adjustments. The Design-Build Team shall submit a payment request for quantities of work completed based on the work completed for that estimate period. The quantities requested for partial payment shall be reflective of the work actually accomplished for the specified period. The Design-Build Team shall certify that the quantities are reasonable for the specified period. The base index price for DIESEL #2 FUEL is **$** _____ per gallon.

(C) **Opt Out of Fuel Price Adjustment**

If the Design-Build Team elects not to pursue reimbursement for Fuel Price Adjustments, a quantity of zero shall be entered for all quantities in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet and the declination box shall be checked. Failure to complete this form will mean that the Design-Build Team is declining the Fuel Price Adjustments for this project.

(D) **Change Option**

The proposer will not be permitted to change the option after the *Fuel Usage Factor Chart and Estimate of Quantities* sheet is submitted.

(E) **Failure to Submit**

Failure to submit the completed *Fuel Usage Factor Chart and Estimate of Quantities* sheet in a separate sealed package will result in the Price Proposal being considered irregular by the Department and the Price Proposal may be rejected.

INDIVIDUAL MEETINGS WITH PROPOSERS

(9-1-11) DB1 G048

The Department will provide at least two Question and Answer Sessions to meet with each proposer individually to specifically address questions regarding the Industry Draft and Final Requests for Proposals.

CONFIDENTIAL QUESTIONS

(1-5-07) DB1 G56B

The Design-Build Team will be permitted to ask confidential questions of the Department, which neither the question nor answer will be shared with other proposing teams. For the purpose of this provision, "confidential question" is defined as a private inquiry containing information whose disclosure could alert others to certain details of doing business in a particular manner. The Department will determine if the question is considered a confidential question.

I. Confidential questions arising prior to the second Question and Answer Session will be allowed at the individual team meetings with the Department.

   The Department will answer the confidential question verbally at the meeting if possible. If not answered verbally during the meeting, the Department will answer the confidential question by subtle changes in the Request for Proposals, which will clarify the scope by either allowing or disallowing the request. The revision will be made in such a manner as to not disclose the confidential question.

II. After the second Question and Answer Session, confidential questions may be asked by requesting a meeting with the State Contract Officer. The request shall be in writing and provide sufficient detail to evaluate the magnitude of the request. Questions shall be of such magnitude as to warrant a special meeting. Minor questions will not be acknowledged or answered.

   After evaluation, the State Contract Officer will respond to the question in writing to the Design-Build Team only. Other teams will not be notified of the question or answer.

VALUE ANALYSIS

(9-1-11) EDB1 G57

This *Value Analysis* Project Special Provision shall not apply if the Design-Build Team elects to submit an *Alternate Lump Sum Bid for Bridge No. 250075* and foregoes the unit price bid approach for Bridge No. 250075. (Reference the *Alternate Lump Sum Bid for Bridge No. 250075* and *Measurement and Payment* Project Special Provisions found elsewhere in this RFP)

Value Engineering Proposals, as specified in Article 104-12 of the 2018 *Standard Specifications for Roads and Structures* shall only be accepted for the per each pay items, as defined in the *Measurement and Payment* Project Special Provision found elsewhere in this RFP. Only proposals that alter the requirements of this RFP will be considered as Value Engineering Proposals.

To minimize re-design efforts and costs, the Design-Build Team is encouraged to submit Preliminary Value Engineering Proposals that provide an estimate of cost savings, time savings, span layout, span lengths, foundation types, or other such general information and how they differ from that specified in this RFP. Therefore, full design packages for the proposed structure and that for the structure specified in this RFP are not required, but enough detail shall be provided to clearly show the cost of both options (excluding design cost).

The $10,000 threshold for consideration of a Value Engineering Proposal, as specified in Article 104-12 of the *Standard Specifications for Roads and Structures* shall apply.

Value Engineering Proposals will not be required or allowed for the sole purposes of reducing the depth of foundations or to shorten the bridge length unless a change to the foundation type (drilled piers versus piles) or a change to the superstructure type is proposed and accepted. Instead, such reduction in foundation depth or bridge length shall result in an adjustment in partial payments to the Design-Build Team in accordance with the *Measurement and Payment* Project Special Provision found elsewhere in this RFP. However, as an incentive to the Design-Build Team to provide an economical structural design, the Design-Build Team will be paid a lump sum of 15% of the total partial payment adjustment attributable to the reduced pay item quantities for Foundation Depth and / or Bridge Length, as applicable. Said lump sum payment shall be made upon approval of all design submittals, and receipt of all permits and FEMA compliance for Bridge No. 250075. If the total partial payment adjustments noted above for Bridge No. 250075 is less than $5,000.00, the 15% incentive shall not apply.

SCHEDULE OF ESTIMATED COMPLETION PROGRESS

(9-1-11) (Rev. 8/31/17) DB1 G58

The Design-Build Team's attention is directed to the *Availability of Funds - Termination of Contracts* Standard Special Provision found elsewhere in this RFP. The Department of Transportation's schedule of estimated completion progress for this project, as required by that Standard Special Provision, is as follows:

Fiscal Year	Progress (% of Dollar Value)
2020 (07/01/19 – 06/30/20)	xx% of Total Amount Bid
2021 (07/01/20 – 06/30/21)	xx% of Total Amount Bid
2022 (07/01/21 – 06/30/22)	xx% of Total Amount Bid

The Design-Build Team shall also furnish its own progress schedule in accordance with Article 108-2 of the 2018 *Standard Specifications for Roads and Structures*. Any acceleration of the progress as shown by the Design-Build Team's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE

(10-16-7) (Rev. 12-18-18) 102-15(J) DB1 G66

Description

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

Definitions

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

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

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

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

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

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

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

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

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

Replacement / Substitution – A full or partial reduction in the amount of work subcontracted to a committed (or an approved substitute) MBE / WBE firm.

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

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

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

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

Forms and Websites Referenced in this Provision

Payment Tracking System - On-line system in which the Design-Build Team enters the payments made to MBE and WBE subcontractors who have performed work on the project.

https://apps.dot.state.nc.us/Vendor/PaymentTracking/

DBE-IS *Subcontractor Payment Information* - Form for reporting the payments made to all MBE / WBE firms working on the project. This form is for paper bid projects only.

https://connect.ncdot.gov/business/Turnpike/Documents/Form%20DBE-IS%20Subcontractor%20Payment%20Information.pdf

RF-1 *MBE / WBE Replacement Request Form* - Form for replacing a committed MBE or WBE.

http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf

SAF *Subcontract Approval Form* - Form required for approval to sublet the contract.

http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip

JC-1 *Joint Check Notification Form* - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.

http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf

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

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

Listing of MBE and WBE Subcontractors Form - Form for entering MBE / WBE subcontractors on a project that will meet the Combined MBE / WBE Goal contained elsewhere in this RFP.

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

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

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

Combined MBE / WBE Goal

The Combined MBE / WBE Goal for this project is **10.0%**

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

(A) Minority Business Enterprises **5.0%**

(1) *If the anticipated MBE participation is more than zero*, the Design-Build Team shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above.

(2) *If the anticipated MBE participation is zero*, the Design-Build Team shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.

(B) Women Business Enterprises **5.0%**

(1) *If the anticipated WBE participation is more than zero*, the Design-Build Team shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above.

(2) *If the anticipated WBE participation is zero*, the Design-Build Team shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE participation obtained shall be reported to the Department.

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

Directory of Transportation Firms (Directory)

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

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

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

Listing of MBE / WBE Subcontractors

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

(1) *If the Combined MBE / WBE Goal is more than zero,*

(a) Proposers, at the time the Price 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 Price Proposal to be considered responsive. Proposers shall indicate the total dollar value of the MBE and WBE participation for the contract.

(b) If Proposers 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. **<u>Blank forms will not be deemed to represent zero participation</u>**. Price Proposals submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of Price Proposals. The Department will not consider these Price Proposals for award and the proposal will be rejected.

(c) The Proposer 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 opening of the Price Proposals, that MBE's or WBE's participation will not count towards achieving the Combined MBE / WBE Goal.

(2) *If the Combined MBE / WBE Goal is zero,* entries on the *Listing of MBE and WBE Subcontractors* are not required for the zero goal, however any MBE or WBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

MBE or WBE Prime Contractor

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

MBE / WBE Prime Contractors shall also follow Sections A and B listed under *Listing of MBE / WBE Subcontractor* just as a non-MBE / WBE proposer would.

Written Documentation – Letter of Intent

The Proposer shall submit written documentation for each MBE / WBE that will be used to meet the contract Combined MBE / WBE Goal, indicating the Proposer'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 State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. on the sixth calendar day following opening of, Price Proposals unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day.

If the Proposer fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the Combined MBE / WBE Goal, or if the form is incomplete (i.e. both signatures are not present), the MBE / WBE participation will not count toward meeting the Combined MBE / WBE Goal. If the lack of this participation drops the commitment below the Combined MBE / WBE Goal, the Design-Build Team shall submit evidence of good faith efforts for the Goal, completed in its entirety, to the State Contractor Utilization Engineer or DBE@ncdot.gov no later than 10:00 a.m. on the eighth calendar day following opening of Price Proposals, unless

the eighth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day.

Banking MBE / WBE Credit

If the Price Proposal of the Proposer with the apparent adjusted low price exceeds $500,000.00 and if the committed MBE / WBE participation submitted exceeds the algebraic sum of the Combined MBE / WBE Goal by $1,000.00 or more, the excess will be placed on deposit by the Department for future use by the Proposer. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

When the Proposer with the apparent adjusted low price fails to submit sufficient participation by MBE and WBE firms to meet the contract Combined MBE / WBE Goal, as part of the good faith effort, the Department will consider allowing the Proposer to withdraw funds to meet the Combined MBE / WBE Goal, as long as there are adequate funds available from the Proposer's MBE and WBE bank accounts.

Submission of Good Faith Effort

If the Proposer fails to meet or exceed the Combined MBE / WBE Goal, the Proposer with the apparent adjusted low price shall submit to the Department documentation of adequate good faith efforts made to reach the Combined MBE / WBE Goal.

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. on the sixth calendar day following opening of Price Proposals unless the sixth day falls on an official state holiday. In that situation, it would be due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day. If the Design-Build Team cannot send the information electronically, then one complete set and five copies of this information shall be received under the same time constraints above.

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

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

Adequate good faith efforts mean that the Proposer took all necessary and reasonable steps to achieve the Combined MBE / WBE 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 Proposer 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 Proposer has made. Listed below are examples of the types of actions a Proposer will take in making a good faith effort to meet the goals and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

(A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs / WBEs that are also prequalified subcontractors. The Proposer must solicit this interest within at least ten days prior to the opening of the Price Proposals 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 Proposer must determine with certainty if the MBEs / WBEs are interested by taking appropriate steps to follow up initial solicitations.

(B) Selecting portions of the work to be performed by MBEs / WBEs in order to increase the likelihood that the Combined MBE / WBE Goal will be achieved.

(1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE / WBE participation, even when the Prime Contractor might otherwise prefer to perform these work items with its own forces.

(2) Negotiate with subcontractors to assume part of the responsibility to meet the contract Combined MBE / WBE Goal when the work to be sublet includes potential for MBE / WBE participation (2nd and 3rd tier subcontractors).

(C) Providing interested certified MBEs / WBEs, that are also prequalified subcontractors, with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(D) (1) Negotiating in good faith with interested MBEs / WBEs. It is the Proposer's responsibility to make a portion of the work available to MBE / WBE firms 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 Proposer using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE / WBE firms, and would take a firm's price and capabilities, as well as the contract Combined MBE / WBE Goal into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs / WBEs is not in itself sufficient reason for a proposer's failure to meet the contract Combined MBE / WBE Goal, as long as such costs are reasonable. Also, the ability or desire of a Prime Contractor to

perform the work of a contract with its own organization does not relieve the Proposer of the responsibility to make good faith efforts. Proposing Design-Build Teams 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 Proposer'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 Price Proposals in the Proposer'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 Proposer.

(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 seven days from the opening of the Price Proposals the Business Opportunity and Work Force Development Unit at BOWD@ncdot.gov to give notification of the Proposer's inability to get MBE or WBE quotes.

(I) Any other evidence that the Proposer submits which shows that the Proposer has made reasonable good faith efforts to meet the contract Combined MBE / WBE Goal.

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

(1) Whether the Proposer's documentation reflects a clear and realistic plan for achieving the Combined MBE / WBE Goal.

(2) The Proposers' past performance in meeting the contract goal.

(3) The performance of other proposers in meeting the Combined MBE / WBE Goal. For example, when the Proposer with the apparent adjusted low price fails to meet the Combined MBE / WBE Goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the Proposer with the apparent adjusted low price could have met the Goal. If the Proposer with the apparent adjusted low price fails to meet the Combined MBE / WBE Goal, but meets or exceeds the average MBE and WBE participation obtained by other proposers, the Department may view this, in conjunction with other factors, as evidence of the Proposer with the apparent adjusted low price having made a good faith effort.

If the Department does not award the contract to the Proposer with the apparent adjusted low price, the Department reserves the right to award the contract to the Proposer with the next apparent adjusted low price that can satisfy to the Department that the Combined MBE / WBE Goal can be met or that an adequate good faith effort has been made to meet the Combined MBE / WBE Goal.

Non-Good Faith Appeal

The State Contractual Services Engineer will notify the Design-Build Team verbally and in writing of non-good faith. A Design-Build Team may appeal a determination of non-good faith made by the Goal Compliance Committee. If a Design-Build Team wishes to appeal the determination made by the Committee, they shall provide written notification to the State Contractual Services Engineer or at DBE@ncdot.gov. The appeal shall be made within two business days of notification of the determination of non-good faith.

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

(A) Participation

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

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

standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function.

(D) Joint Venture

When a MBE or WBE performs as a participant in a joint venture, the Design-Build Team 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 Design-Build Team may count toward its MBE or WBE requirement 60.0 percent of its expenditures for materials and supplies required to complete the contract and obtained from a MBE or WBE regular dealer and 100.0 percent of such expenditures from a MBE or WBE manufacturer.

(F) Manufacturers and Regular Dealers

A Design-Build Team 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 Design-Build Team may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE / WBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To

perform a commercially useful function, the MBE / WBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a MBE / WBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the MBE / WBE credit claimed for its performance of the work, and any other relevant factors. If it is determined that a MBE or WBE is not performing a Commercially Useful Function, the Design-Build Team may present evidence to rebut this presumption to the Department.

(B) MBE / WBE Utilization in Trucking

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

(1) The MBE / WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting the Combined MBE / WBE Goal.

(2) The MBE / WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The MBE / WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the participation breakdown. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the Prime Contractor responsible for meeting the individual MBE or WBE participation breakdown.

(5) The MBE / WBE may also subcontract the work to a non-MBE / WBE firm, including from an owner-operator. The MBE / WBE who subcontracts the work to a non-MBE / WBE is entitled to credit for the total value of transportation services provided by the non-MBE / WBE subcontractor not to exceed the value

of transportation services provided by MBE / WBE-owned trucks on the contract. Additional participation by non-MBE / WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE / WBE and the Design-Build Team 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 Design-Build Team has relied on a commitment to a MBE or WBE subcontractor (or an approved substitute MBE or WBE subcontractor) to meet all or part of a contract goal requirement, the Design-Build Team shall not terminate the MBE / WBE subcontractor for convenience. This includes, but is not limited to, instances in which the Design-Build Team seeks to perform the work of the terminated subcontractor with another MBE / WBE subcontractor, a non-MBE / WBE subcontractor, or with the Design-Build Team's own forces or those of an affiliate.

The Design-Build Team must give notice in writing both by certified mail and e-mail to the MBE / WBE subcontractor, with a copy to the Engineer of its intent to request to terminate and / or substitute, and the reason for the request. The Design-Build Team must give the MBE / WBE subcontractor five business days to respond to the Design-Build Team's notice of intent to request termination and / or substitution. If the MBE / WBE subcontractor objects to the intended termination / substitution, the MBE / WBE, within five business days, must advise the Design-Build Team and the Department of the reasons why the action should not be approved. The five-day notice period shall begin on the next business day after written notice is provided to the MBE / WBE subcontractor.

A committed MBE / WBE subcontractor may only be terminated after receiving the Department's written approval based upon a finding of good cause for the proposed termination and / or substitution. For purposes of this section, good cause shall include the following circumstances:

(a) The listed MBE / WBE subcontractor fails or refuses to execute a written contract.

(b) The listed MBE / WBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the MBE / WBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Prime Contractor.
(c) The listed MBE / WBE subcontractor fails or refuses to meet the Prime Contractor's reasonable, nondiscriminatory bond requirements.
(d) The listed MBE / WBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness.
(e) The listed MBE / WBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR Parts 180, 215 and 1,200 or applicable state law.
(f) The listed MBE / WBE subcontractor is not a responsible contractor.
(g) The listed MBE / WBE subcontractor voluntarily withdraws from the Design-Build Team and provides written notice of withdrawal.
(h) The listed MBE / WBE subcontractor is ineligible to receive MBE / WBE credit for the type of work required.
(i) An MBE / WBE owner dies or becomes disabled with the result that the listed MBE / WBE subcontractor is unable to complete its work on the contract.
(j) Other documented good cause that compels the termination of the MBE / WBE subcontractor. Provided, that good cause does not exist if the Prime Contractor seeks to terminate an MBE / WBE it relied upon to obtain the contract so that the Prime Contractor can self-perform the work for which the MBE / WBE subcontractor was engaged or so that the Prime Contractor can substitute another MBE / WBE or non-MBE / WBE subcontractor after contract award.

The Design-Build Team shall comply with the following for replacement of a committed MBE / WBE firm:

(A) Performance Related Replacement

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

If a replacement MBE / WBE is not found that can perform at least the same amount of work as the terminated MBE / WBE, the Design-Build Team 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 MBE / WBE 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 MBE / WBE for specific subbids including, at a minimum:

(a) The names, addresses, and telephone numbers of MBE / WBE who were contacted.

(b) A description of the information provided to MBE / WBE 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 Design-Build Team.

(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 Design-Build Team 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 Design-Build Team shall take all necessary and reasonable steps to replace the MBE / WBE subcontractor with another similarly certified MBE / WBE subcontractor to perform at least the same amount of work to meet the Combined MBE / WBE Goal requirement. If a MBE / WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

All requests for replacement of a committed MBE / WBE firm shall be submitted to the Engineer for approval on Form RF-1 (DBE Replacement Request). If the Prime Contractor or any affiliated companies within the Design-Build Team fails to follow this procedure they may be disqualified from further bidding for a period of up to six months.

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 Design-Build Team 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 Design-Build Team'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 Design-Build Team 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 Design-Build Team shall seek participation by MBEs / WBEs unless otherwise approved by the Engineer.

When the Design-Build Team requests changes in the work that result in the reduction or elimination of work that the Design-Build Team committed to be performed by a MBE / WBE, the Design-Build Team 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 Design-Build Team 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 Design-Build Team shall furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60.0% or 100.0%) of expenditures claimed for MBE / WBE credit.

Reporting Minority and Women Business Enterprise Participation

The Design-Build Team shall provide the Engineer with an accounting of payments made to all MBE / 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 Prime Contractor, or other affiliated companies within the Design-Build Team, 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 Design-Build Team to submit the required information in the time frame specified may result in the disqualification of that Prime Contractor and any affiliate companies within the Design-Build Team 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 Prime Contractor and any affiliate companies within the Design-Build Team from being approved for work on future DOT projects until the required information is submitted.

Design-Build Teams 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 Design-Build Team shall report the accounting of payments through the Department's Payment Tracking System.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the 2018 *Standard Specifications for Roads and Structures* may be cause to disqualify the Prime Contractor or any other affiliated company within the Design-Build Team from further bidding for a specified length of time.

CONTRACTOR'S LICENSE REQUIREMENTS

(7-1-95) DB1 G88

If the Design-Build Team does not hold the proper license to perform any plumbing, heating, air conditioning, or electrical work in this contract, he will be required to sublet such work to a contractor properly licensed in accordance with *Article 2 of Chapter 87 of the General Statutes* (licensing of heating, plumbing, and air conditioning contractors) and *Article 4 of Chapter 87* of the *General Statutes* (licensing of electrical contractors).

USE OF UNMANNED AIRCRAFT SYSTEM (UAS)

(7-1-19) DB1 G092

The Design-Build Team shall adhere to all Federal, State and Local regulations and guidelines for the use of Unmanned Aircraft Systems (UAS). This includes, but is not limited to, US 14 CFR Part 107 *Small UAS Rule*, NC GS 15A-300.2 *Regulation of launch and recovery sites,* NC GS 63-95 *Training required for the operation of unmanned aircraft systems*, NC GS 63-96 *Permit required for commercial operation of unmanned aircraft system,* and NCDOT UAS Policy. The required operator certifications include possessing a current Federal

Aviation Administration (FAA) Remote Pilot Certificate, a NC UAS Operator Permit, as well as operating a UAS registered with the FAA.

Prior to beginning operations, the Design-Build Team shall complete the NCDOT UAS - Flight Operation Approval Form and submit it to the Engineer for approval. All UAS operations shall be approved by the Engineer, in writing, prior to beginning the operations.

All Design-Build team members operating UAS shall have UAS specific general liability insurance to cover all operations under this contract.

The use of UAS shall be at the Design-Build Team's discretion. Except as allowed otherwise below, no measurement or payment will be made for the use of UAS. In the event that the Department directs the Design-Build Team to utilize UAS, all costs associated with using UAS will be paid for as extra work, in accordance with Subarticle 104-8(A) of the *Standard Specifications for Roads and Structures*.

SUBSURFACE INFORMATION

(3-22-07) DB1 G119

Available subsurface information will be provided on this project. The Design-Build Team shall be responsible for additional investigations and for verifying the accuracy of the subsurface information supplied by the Department.

COOPERATION BETWEEN CONTRACTORS

(9-1-11) (Rev. 9-7-17) DB1 G133

The Design-Build Team's attention is directed to Article 105-7 of the 2018 *Standard Specifications for Roads and Structures*.

- Project U-2519CA is located approximately one mile east of the SR 1102 (Gillis Hill Road) / US 401 (South Raeford Road) intersection. Project U-2519CA was Let in June 2016.

- Project U-5858 is located approximately 1.1 mile southwest of the SR 1102 (Gillis Hill Road) / SR 1112 (Stoney Point Road) intersection. Project U-5858 has an anticipated March 2022 Let date.

- Project U-5707 / U-5857 are located approximately 1.1 mile southwest of the SR 1102 (Gillis Hill Road) / SR 1112 (Stoney Point Road) intersection. Project U-5707 / U-5857 has an anticipated March 2022 Let date.

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

TWELVE MONTH GUARANTEE

(7-15-03) DB1 G145

(A) The Design-Build Team 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 Design-Build Team will not be responsible for damage due to 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 Design-Build Team shall be responsible for invoking the warranted repair work with the manufacturer. The Design-Build Team'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 Design-Build Team would be wholly responsible for under the terms of the contract. Examples include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Design-Build Team to return to the project to make repairs or perform additional work that the Department would normally compensate the Design-Build Team for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders, etc.) are not parts of this guarantee.

Appropriate provisions of the payment and / or performance bonds shall cover this guarantee for the project. In addition, failure on the part of the responsible entity(ies) of the Design-Build Team to perform guarantee work within the terms of this provision shall be just cause to remove the responsible entity(ies) from the Department's corresponding prequalified list. The Design-Build Team shall be removed for a minimum of six months and will be reinstated only after all work has been corrected and the Design-Build Team requests reinstatement in writing.

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.

OUTSOURCING OUTSIDE THE USA

(9-21-04) (Rev. 5-16-06) DB1 G150

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

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

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

PERMANENT VEGETATION ESTABLISHMENT

(6-11-15) (Rev. 8-30-17) 104 DB01 G160

Establish permanent vegetation stands of the Long Term Stabilization mixtures identified in the Erosion and Sedimentation Control Scope of Work found elsewhere in this RFP. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish 80% coverage of permanent vegetation 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 Erosion and Sedimentation Control Scope of Work found elsewhere in this RFP and the applicable sections of the 2018 *Standard Specifications for Roads and Structures*.

Once the Engineer has determined that 80% coverage of permanent vegetation has been established, the Design-Build Team will be notified to remove the remaining erosion control devices that are no longer needed. The Design-Build Team shall 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.

EROSION & SEDIMENT CONTROL / STORMWATER CERTIFICATION

(1-16-07) (Rev. 9-20-16) 105-16, 225-2, 16 DB1 G180

General

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollutant 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 (E&SC/SW) Supervisor to manage the Design-Build Team and subcontractor(s) operations, ensure 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 shall be 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. The Certified Supervisor shall 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 Design-Build Team's temporary work not shown on the plans developed by the Design-Build Team, 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 Design-Build Team 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 Design-Build Team's operations.
(j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces and / 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 shall be, but are not limited to:

(a) Control project site waste to prevent contamination of surface or ground waters of the state, e.g. from equipment operations / maintenance construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
(b) Inspect erosion and sediment control / stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, and within 24 hours after a rainfall event of 0.5 inch, or greater, that occurs within a 24-hour period. At the discretion of Division of Water Resources personnel, additional monitoring may be required if the receiving stream is 303(d) listed for turbidity and the project has had documented problems managing turbidity.
(c) Maintain an onsite rain gauge or use the Department’s Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
(d) Maintain erosion and sediment control / stormwater inspection records for review by Department and Regulatory personnel upon request.
(e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
(f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
(g) Provide secondary containment for bulk storage of liquid materials.
(h) Provide training for employees concerning general erosion and sediment control / stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
(i) Report violations of the NPDES Permit to the Engineer immediately who will notify the NC Department of Environmental 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 Design-Build Team and subcontractors' construction activities.
(b) Ensure that all operators and / or subcontractor(s) 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 Design-Build Team'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 Design-Build Team 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 Design-Build Team 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 Design-Build Team 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 Designers* and notify the Engineer, in writing, of changes in certified personnel over the life of the contract within two 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 ten calendar days after receiving notice of the proposed adverse action.

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

Failure to appeal within ten calendar days shall result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified shall 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 seven days of hearing the appeal. The decision of the Chief Engineer shall be final and will be made in writing to the certificant.

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

Measurement and Payment

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

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE

(1-22-13) (Rev. 9-7-17) DB1 G181

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

If during any operating day, the downstream water quality exceeds the standard, the Design-Build Team shall do all of the following:

(A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or

(B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.

(C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.

(D) Notify DWR within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

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

The discharge shall be closely monitored when water from the dewatering activities is introduced into jurisdictional wetlands. Any time visible sedimentation (deposition of sediment) on the wetland surface is observed, the dewatering activity will be suspended until turbidity levels in the stilling basin can be reduced to a level where sediment deposition does not occur. Staining of wetland surfaces from suspended clay particles, occurring after evaporation or infiltration, does not constitute sedimentation. No activities shall occur in wetlands that adversely affect the functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

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

To plan, design, construct, and maintain BMPs to address water quality standards, the Design-Build Team shall use the NCDOT *Turbidity Reduction Options for Borrow Pits Matrix,* available at the website noted below:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/TurbidityReductionOptionSheet.pdf

Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWR's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Design-Build Team exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

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

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

CLEARING AND GRUBBING

(9-1-11)(Rev. 8-18-15) DB2 R01

With the exception of areas with Permanent Utility Easements, perform clearing on this project to the limits established by Method "II" shown on Roadway Standard Drawing No. 200.02. In areas with Permanent Utility Easements, clearing shall extend to the right of way limits.

BURNING RESTRICTIONS

(7-1-95) DB2 R05

Open burning shall not be permitted on any portion of the right of way limits established for this project. The Design-Build Team shall 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 Cumberland County. The Design-Build Team shall dispose of the clearing, grubbing and demolition debris by means other than burning and in accordance with state and local rules and regulations.

BUILDING AND APPURTENANCE REMOVAL / DEMOLITION

(9-1-11) (Rev. 9-7-17) DB2 R12B

Unless otherwise as agreed upon by the Department, seal all wells and remove or demolish all buildings and appurtenances, in their entirety, that are located either partially or completely within the project's right of way limits or are located outside the project's right of way limits but within property purchased as an uneconomical remnant in accordance with Sections 205, 210 and 215 of the 2018 *Standard Specifications for Roads and Structures.*

The Department will perform all assessment, removal and disposal of asbestos. Once the Design-Build Team has acquired a parcel and all buildings and appurtenances have been vacated, the Design-Build Team shall immediately notify the Division Right of Way Agent in writing. Upon receipt of the written notification, the Department then requires 60 days to assess and remove any asbestos prior to the Design-Build Team demolishing any building or appurtenance.

In the unlikely event that the Design-Build Team encounters unknown contaminated materials, these materials shall be handled in accordance with Article 107-25 of the 2018 *Standard Specifications for Roads and Structures*.

DRAINAGE PIPE

(9-1-11) DB3 R36

Description

Where shown in the plans developed by the Design-Build Team, the Design-Build Team shall use Reinforced Concrete Pipe, Corrugated Aluminum Alloy Pipe, Aluminized Corrugated Steel Pipe, Corrugated Polyethylene Pipe (HDPE Pipe) or Polyvinyl-Chloride Pipe (PVC Pipe) in accordance with the following requirements:

- All pipe types shall be subject to the maximum and minimum fill height requirements as found on Roadway Standard Drawing No. 300.01 - Sheet 3 of 3. The appropriate Reinforced Concrete Pipe class and the appropriate gage thickness for Corrugated Aluminum Alloy Pipe and Aluminized Corrugated Steel Pipe shall be selected based on fill height.

- Site specific conditions may limit a particular material beyond what is identified in this Project Special Provision. These conditions include, but are not limited to, abrasion, environmental, soil resistivity and pH, high ground water and special loading conditions. The Design-Build Team shall determine if additional restrictions are necessary.

- Slope drains shall be Corrugated Aluminum Alloy Pipe, Aluminized Corrugated Steel Pipe, Corrugated Polyethylene Pipe (HDPE Pipe) or Polyvinyl-Chloride Pipe (PVC Pipe).

- Transverse median drains and open-ended cross drains shall be Reinforced Concrete Pipe, Corrugated Aluminum Alloy Pipe, Aluminized Corrugated Steel Pipe, Corrugated Polyethylene Pipe (HDPE Pipe) or Polyvinyl-Chloride Pipe (PVC Pipe).

- Storm drain system pipes shall be Reinforced Concrete Pipe, Corrugated Polyethylene Pipe (HDPE Pipe) or Polyvinyl-Chloride Pipe (PVC Pipe).

PRICE ADJUSTMENTS FOR ASPHALT BINDER

(9-1-11) (Rev. 8-23-18) DB6 R25

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

The base price index for asphalt binder for plant mix is $ **PRICE TO BE INCLUDED IN THE FINAL RFP** per ton.

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

PRICE ADJUSTMENTS - ASPHALT CONCRETE PLANT MIX

(9-1-11) (Rev. 9-8-17) DB6 R26

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 6-15, Article 609-11 and Page 6-31, Article 610-14

Add the following paragraph before the first paragraph:

The "Asphalt Price" used to calculate any price adjustments set forth in this section shall be $40.00 per theoretical ton. This price shall apply for all mix types.

AUTOMATED MACHINE GUIDANCE

(1-2-11) 801 DB8 R01

General

This Special Provision contains requirements to be followed if the Design-Build Team elects to use Global Positioning System (GPS) machine control grading, and shall be used in conjunction with Section 801 of the 2018 *Standard Specifications for Roads and Structures*. The use of this technology is referenced as Automated Machine Guidance (AMG).

All equipment using AMG shall be able to generate end results that meet the 2018 *Standard Specifications for Roads and Structures*. The Design-Build Team shall perform test sections for each type of work to be completed with AMG to demonstrate that the system has the capability to achieve acceptable results. If acceptable results cannot be achieved, the Design-Build Team shall conform to the requirements for conventional stakeout.

The Design-Build Team shall be responsible for all errors resulting from the use of AMG and shall correct deficiencies to the satisfaction of the Engineer at no cost to the Department.

Submittals

If the Design-Build Team elects to use AMG, a Digital Terrain Model (DTM) of the design surface and all intermediate surfaces shall be developed and submitted to the Engineer for review and acceptance.

At least 90 days prior to beginning grading operations, the Design-Build Team shall submit to the Engineer an AMG work plan to include, but not be limited to, proposed equipment, control software manufacturer and version, types of work to be completed using AMG, project site calibration report, repetitive calibration methods for construction equipment and rover units to be used for the duration of the project, and local GPS base station to be used for broadcasting

differential correction data to rover units (this may include the NC Network RTK). All surveys must be tied to existing project control as established by NCDOT.

Inspection

The Engineer will perform quality assurance checks of all work associated with AMG. If it is determined that work is not being performed in a manner that will assure accurate results, the Engineer may require corrective action at no cost to the Department.

The Design-Build Team shall provide the Engineer with one GPS rover unit for use during the duration of the contract. The rover shall be loaded with the same model that is used with the AMG and have the same capability as rover units used by the Design-Build Team. The rover will be kept in the possession of the Engineer and will be returned to the Design-Build Team upon completion of the contract. All maintenance and repairs required for the rover shall be the responsibility of the Design-Build Team. The Design-Build Team shall provide at least eight hours of formal training to the Engineer on the use of the proposed AMG system.

Subgrade and Base Controls

If the Design-Build Team elects to use AMG for fine grading and placement of base or other roadway materials, the GPS shall be supplemented with a laser or robotic total station. Include details of the proposed system in the AMG work plan. In addition, the following requirements apply for the use of AMG for subgrade and base construction.

- Provide control points at intervals along the project not to exceed 1,000 feet. The horizontal position of these points shall be determined by static GPS sessions or by traverse connection from the original base line control points. The elevation of these control points shall be established using differential leveling from project benchmarks, forming closed loops where practical. A copy of all new control point information shall be provided to the Engineer prior to construction activities.

- Provide control points and conventional survey grade stakes at 500-foot intervals and at critical points such as, but not limited to, PCs, PTs, superelevation transition points, and other critical points as requested by the Engineer.

- Provide hubs at the top of the finished subgrade at all hinge points on the cross section at 500-foot intervals. These hubs shall be established using conventional survey methods for use by the Engineer to check the accuracy of construction.

FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES

(1-17-12) (Rev. 11-22-17) 9, 14, 17 DB9 R05

Description

Foundations for metal poles include foundations for signals, cameras, overhead and dynamic message signs (DMS) and high mount and light standards supported by metal poles or upright trusses. Foundations consist of footings with pedestals and drilled piers with or without grade beams or wings. Anchor rod assemblies consist of anchor rods (also called anchor bolts) with

nuts and washers on the exposed ends of rods and nuts and a plate or washers on the other ends of rods embedded in the foundation.

Construct concrete foundations with the required resistances and dimensions and install anchor rod assemblies in accordance with the contract and accepted submittals. Construct drilled piers consisting of cast-in-place reinforced concrete cylindrical sections in excavated holes. Provide temporary casings or polymer slurry as needed to stabilize drilled pier excavations. Use a prequalified Drilled Pier Contractor to construct drilled piers for metal poles. Define "excavation" and "hole" as a drilled pier excavation and "pier" as a drilled pier.

This provision does not apply to foundations for signal pedestals; see Section 1743 of the 2018 *Standard Specifications for Roads and Structures* and 2018 Roadway Standard Drawing No. 1743.01.

Materials

Refer to the 2018 *Standard Specifications for Roads and Structures*.

Item	Section
Conduit	1091-3
Grout, Type 2	1003
Polymer Slurry	411-2(B)(2)
Portland Cement Concrete	1000
Reinforcing Steel	1070
Rollers and Chairs	411-2(C)
Temporary Casings	411-2(A)

Provide Type 3 material certifications in accordance with Article 106-3 of the 2018 *Standard Specifications for Roads and Structures* for conduit, rollers, chairs and anchor rod assemblies. Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store foundation and anchor rod assembly materials so materials are kept clean and free of damage. Bent, damaged and / or defective materials shall be rejected.

Use conduit type in accordance with the contract. Use Class A concrete for footings and pedestals, Class Drilled Pier concrete for drilled piers and Class AA concrete for grade beams and wings including portions of drilled piers above bottom of wings elevations. Corrugated temporary casings may be accepted at the discretion of the Engineer. A list of approved polymer slurry products is available from:

connect.ncdot.gov/resources/Geological/Pages/Products.aspx

Provide anchor rod assemblies in accordance with the contract consisting of the following:

(A) Straight anchor rods,

(B) Heavy hex top and leveling nuts and flat washers on exposed ends of rods, and

(C) Nuts and either flat plates or washers on the other ends of anchor rods embedded in foundations.

Do not use lock washers. Use steel anchor rods, nuts and washers that meet ASTM F1554 for Grade 55 rods and Grade A nuts. Use steel plates and washers embedded in concrete with a thickness of at least 1/4". Galvanize anchor rods and exposed nuts and washers in accordance with Article 1076-4 of the 2018 *Standard Specifications for Roads and Structures*. It is not necessary to galvanize nuts, plates and washers embedded in concrete.

Construction Methods

Install the required size and number of conduits in foundations in accordance with the plans developed by the Design-Build Team and accepted submittals. Construct top of piers, footings, pedestals, grade beams and wings flat, level and within 1" of elevations shown in the plans developed by the Design-Build Team or approved by the Engineer. Provide an Ordinary Surface finish in accordance with Subarticle 825-6(B) of the 2018 *Standard Specifications* for *Roads and Structures* for portions of foundations exposed above finished grade. Do not remove anchor bolt templates or pedestal or grade beam forms or erect metal poles or upright trusses onto foundations until concrete attains a compressive strength of at least 3,000 psi.

(A) Drilled Piers

Before starting drilled pier construction, hold a predrill meeting to discuss the installation, monitoring and inspection of the drilled piers. Schedule this meeting after the Drilled Pier Contractor has mobilized to the site. The Resident or Division Traffic Engineer, Design-Build Team and Drilled Pier Contractor Superintendent shall attend this predrill meeting.

Do not excavate holes, install piles or allow equipment wheel loads or vibrations within 20 feet of completed piers until 16 hours after Drilled Pier concrete reaches initial set.

Check for correct drilled pier alignment and location before beginning drilling. Check plumbness of holes frequently during drilling.

Construct drilled piers with the minimum required diameters shown in the plans developed by the Design-Build Team. Install piers with tip elevations no higher than shown in the plans developed by the Design-Build Team or approved by the Engineer.

Excavate holes with equipment of the sizes required to construct drilled piers. Depending on the subsurface conditions encountered, drilling through rock and boulders may be required. Do not use blasting for drilled pier excavations.

Contain and dispose of drilling spoils and waste concrete as directed and in accordance with Section 802 of the 2018 *Standard Specifications for Roads and Structures*. Drilling spoils consist of all materials and fluids removed from excavations.

If unstable, caving or sloughing materials are anticipated or encountered, stabilize holes with temporary casings and / or polymer slurry. Do not use telescoping temporary casings. If it becomes necessary to replace a temporary casing during drilling, backfill the excavation, insert a larger casing around the casing to be replaced or stabilize the excavation with polymer slurry before removing the temporary casing.

If temporary casings become stuck or the Design-Build Team proposes leaving casings in place, temporary casings shall be installed against undisturbed material. Unless otherwise approved, do not leave temporary casings in place for mast arm poles and cantilever signs. The Engineer will determine if casings may remain in place. If the Design-Build Team proposes leaving temporary casings in place, do not begin drilling until a casing installation method is approved.

Use polymer slurry and additives to stabilize holes in accordance with the slurry manufacturer's recommendations. Provide mixing water and equipment suitable for polymer slurry. Maintain the required slurry properties at all times except for sand content.

Define a "sample set" as slurry samples collected from mid-height and within two feet of the bottom of holes. Take sample sets from excavations to test polymer slurry immediately after filling holes with slurry, at least every four hours thereafter and immediately before placing concrete. Do not place Drilled Pier concrete until both slurry samples from an excavation meet the required polymer slurry properties. If any slurry test results do not meet the requirements, the Engineer may suspend drilling until both samples from a sample set meet the required polymer slurry properties.

Remove soft and loose material from bottom of holes using augers to the satisfaction of the Engineer. Assemble rebar cages and place cages and Drilled Pier concrete in accordance with Subarticle 411-4(E) of the 2018 *Standard Specifications for Roads and Structures*, except for the following:

(1) Inspections for tip resistance and bottom cleanliness are not required,

(2) Temporary casings may remain in place if approved, and

(3) Concrete placement may be paused near the top of pier elevations for anchor rod assembly installation and conduit placement or

(4) If applicable, concrete placement may be stopped at bottom of grade beam or wings elevations for grade beam or wing construction.

If wet placement of concrete is anticipated or encountered, do not place Drilled Pier concrete until a concrete placement procedure is approved by the Engineer. If applicable,

temporary casings and fluids may be removed when concrete placement is paused or stopped in accordance with the exceptions above provided holes are stable. Remove contaminated concrete from exposed Drilled Pier concrete after removing casings and fluids. If holes are unstable, do not remove temporary casings until a procedure for placing anchor rod assemblies and conduit or constructing grade beams or wings is approved by the Engineer.

Use collars to extend drilled piers above finished grade. Remove collars after Drilled Pier concrete sets and round top edges of piers.

If drilled piers are questionable, pile integrity testing (PIT) and further investigation may be required in accordance with Article 411-5 of the 2018 *Standard Specifications for Roads and Structures*. A drilled pier shall be considered defective in accordance with Subarticle 411-5(D) of the 2018 *Standard Specifications for Roads and Structures* and drilled pier acceptance shall be based in part on the criteria in Article 411-6 of the 2018 *Standard Specifications for Roads and Structures* except for the top of pier tolerances in Subarticle 411-6(C) of the 2018 *Standard Specifications for Roads and Structures*.

If a drilled pier is under further investigation, do not grout core holes, backfill around the pier or perform any work on the drilled pier until the Engineer accepts the pier. If the drilled pier is accepted, dewater and grout core holes and backfill around the pier with approved material to finished grade. If the Engineer determines a pier is unacceptable, remediation shall be required in accordance with Article 411-6 of the 2018 *Standard Specifications for Roads and Structures*. No additional compensation or extension of completion date or time will be allowed for remediation of unacceptable drilled piers or post repair testing.

Permanently embed a plate in or mark top of piers with the pier diameter and depth, size and number of vertical reinforcing bars and the minimum compressive strength of the concrete mix at 28 days.

(B) Footings, Pedestals, Grade Beams and Wings

Excavate as necessary for footings, grade beams and wings in accordance with the plans developed by the Design-Build Team, accepted submittals and Section 410 of the 2018 *Standard Specifications for Roads and Structures*. If unstable, caving or sloughing materials are anticipated or encountered, shore foundation excavations as needed with an approved method. Notify the Engineer when foundation excavation is complete. Do not place concrete or reinforcing steel until excavation dimensions and foundation material are approved by the Engineer.

Construct cast-in-place reinforced concrete footings, pedestals, grade beams and wings with the dimensions shown in the plans developed by the Design-Build Team and in accordance with Section 825 of the 2018 *Standard Specifications for Roads and Structures*. Use forms to construct portions of pedestals and grade beams protruding above finished grade. Provide a chamfer with a 3/4" horizontal width for pedestal and

grade beam edges exposed above finished grade. Place concrete against undisturbed soil or backfill and fill in accordance with Article 410-8 of the 2018 *Standard Specifications for Roads and Structures*. Proper compaction around footings and wings is critical for foundations to resist uplift and torsion forces.

(C) Anchor Rod Assemblies

Size anchor rods for design and the required projection above top of foundations. Determine required anchor rod projections from nut, washer and base plate thicknesses, the protrusion of three to five anchor rod threads above top nuts after tightening and the distance of one nut thickness between top of foundations and bottom of leveling nuts.

Protect anchor rod threads from damage during storage and installation of anchor rod assemblies. Before placing anchor rods in foundations, turn nuts onto and off rods past leveling nut locations. Turn nuts with the effort of one workman using an ordinary wrench without a cheater bar. Report any thread damage to the Engineer that requires extra effort to turn nuts.

Arrange anchor rods symmetrically about center of base plate locations as shown in the plans developed by the Design-Build Team. Set anchor rod elevations based on required projections above top of foundations. Securely brace and hold rods in the correct position, orientation and alignment with a steel template. Do not weld to reinforcing steel, temporary casings or anchor rods.

Install top and leveling (bottom) nuts, washers and the base plate for each anchor rod assembly in accordance with the following procedure:

(1) Turn leveling nuts onto anchor rods to a distance of one nut thickness between the top of foundation and bottom of leveling nuts. Place washers over anchor rods on top of leveling nuts.

(2) Determine if nuts are level using a flat rigid template on top of washers. If necessary, lower leveling nuts to level the template in all directions or if applicable, lower nuts to tilt the template so the metal pole or upright truss will lean as shown in the plans developed by the Design-Build Team. If leveling nuts and washers are not in full contact with the template, replace washers with galvanized beveled washers.

(3) Verify the distance between the foundation and leveling nuts is no more than one nut thickness.

(4) Place base plate with metal pole or upright truss over anchor rods on top of washers. High mount luminaires may be attached before erecting metal poles but do not attach cables, mast arms or trusses to metal poles or upright trusses at this time.

(5) Place washers over anchor rods on top of base plate. Lubricate top nut bearing surfaces and exposed anchor rod threads above washers with beeswax, paraffin or other approved lubricant.

(6) Turn top nuts onto anchor rods. If nuts are not in full contact with washers or washers are not in full contact with the base plate, replace washers with galvanized beveled washers.

(7) Tighten top nuts to snug-tight with the full effort of one workman using a 12" wrench. Do not tighten any nut all at once. Turn top nuts in increments. Follow a star pattern cycling through each nut at least twice.

(8) Repeat (7) for leveling nuts.

(9) Replace washers above and below the base plate with galvanized beveled washers if the slope of any base plate face exceeds 1:20 (5%), any washer is not in firm contact with the base plate or any nut is not in firm contact with a washer. If any washers are replaced, repeat (7) and (8).

(10) With top and leveling nuts snug-tight, mark each top nut on a corner at the intersection of two flats and a corresponding reference mark on the base plate. Mark top nuts and base plate with ink or paint that is not water-soluble. Use the turn-of-nut method for pretensioning. Do not pretension any nut all at once. Turn top nuts in increments for a total turn that meets the following nut rotation requirements:

NUT ROTATION REQUIREMENTS (Turn-of-Nut Pretensioning Method)	
Anchor Rod Diameter, inch	**Requirement**
≤ 1 1/2	1/3 turn (2 flats)
> 1 1/2	1/6 turn (1 flat)

Follow a star pattern cycling through each top nut at least twice.

(11) Ensure nuts, washers and base plate are in firm contact with each other for each anchor rod. Cables, mast arms and trusses may now be attached to metal poles and upright trusses.

(12) Between four and 14 days after pretensioning top nuts, use a torque wrench calibrated within the last 12 months to check nuts in the presence of the Engineer. Completely erect mast arm poles and cantilever signs and attach any hardware before checking top nuts for these structures. Check that top nuts meet the following torque requirements:

TORQUE REQUIREMENTS	
Anchor Rod Diameter, inch	**Requirement, ft-lb**
7/8	180
1	270
1 1/8	380
1 1/4	420
≥ 1 1/2	600

If necessary, retighten top nuts in the presence of the Engineer with a calibrated torque wrench to within ± 10 ft-lb of the required torque. Do not overtighten top nuts.

(13) Do not grout under base plate.

HIGH VISIBILITY TRAFFIC CONTROL DEVICES

Description

In accordance with this RFP, the Design-Build Team shall furnish and install high visibility traffic control devices. High visibility devices include drums, stationary work zone signs and portable work zone signs. All of these devices shall be new. Used devices are not acceptable.

The purpose of high visibility devices is to enhance the conspicuity of the devices in order to improve both safety and mobility through the work zones. In addition, using new devices help to ensure they remain in compliance with required retroreflective properties for the full life of the project and to improve the overall appearance of significant work zones throughout the State.

Materials

A) General

Use materials in accordance with the Manufacturer's recommendations that will retain both durability and retroreflectivity as described elsewhere in this project special provision for a period of at least 36 months.

The following are required high visibility devices to be used for Work Zone Performance applications.

- Drums (Type XI fluorescent orange sheeting)
- Stationary Work Zone Signs
- Rigid Portable Work Zone Signs

All drums shall be new and meet the existing requirements of Section 1089-5 of the 2018 NCDOT *Standard Specifications for Roads and Structures* and shall have Type XI fluorescent orange sheeting that meets the retroreflective requirements of Section 1092-2 of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

All stationary work zone signs shall be new and meet the existing requirements of Section 089-1 of the 2018 NCDOT *Standard Specifications for Roads and Structures*. Legend overlays are prohibited and shall not be accepted on the Interstate / Freeway or associated intersecting roadways. Vertical sign post reflector strips shall be added to all stationary sign supports. Use Grade B fluorescent orange for work zone signs and Grade B fluorescent yellow for exit sign supports. Install strips a minimum of 6' in length on sign supports with one sign mounted and a minimum of 4.5' in length for sign supports with two or more signs mounted vertically.

All portable work zone signs shall be new and have composite substrates as described in Section 1089-1 of the 2018 NCDOT *Standard Specifications for Roads and Structures*. The remainder of the existing requirements of Section 1089-1 of the 2018 NCDOT *Standard Specifications for Roads and Structures* remain. Used sign stands are acceptable.

B) Material Qualifications / Certifications

Only use materials as listed above that are on the NCDOT Approved Products List. In addition, provide a Type 3 Material Certification for all materials in accordance with Section 106-3 and Section 1087-4 of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

(C) Performance

Poor performance of any device or sign at any site, whether or not related to a specific contract may be grounds for removing the material from the NCDOT Approved Products List and / or removing from any project under contract.

Construction Methods

All requirements of Section 1110-3 and Section 1130-3 of the 2018 NCDOT *Standard Specifications for Roads and Structures* shall apply except roll up signs are not permitted for use on US or Interstate routes. The use of skinny drums are prohibited for any nighttime lane closures on Interstates and Freeways.

Maintenance

Replace any sign or drum that prematurely fails due to any damage or defect that causes it to perform unsatisfactorily with an "in kind" device of similar quality and age according to the guidelines set forth in the American Traffic Safety Service Association's (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices. An "in kind" replacement sign or drum is not required to be new, however, it shall be less than 1 year old and have 100% of its original

sheeting area and at least 85% of the retroreflective qualities of a new device, so that it is undetectable adjacent to the original devices and signs placed on the project.

GENERAL

The State will not be bound by oral explanations or instructions given at any time during the bidding process or after award. Only information that is received in response to this RFP will be evaluated; reference to information previously submitted will not suffice as a response to this solicitation.

NO CONTACT CLAUSE

To ensure that information is distributed equitably to all short-listed Design-Build Teams, all questions and requests for information shall be directed to the State Contract Officer through the Design-Build e-mail address. This precludes any Design-Build team member, or representative, from contacting representatives of the Department, other State Agencies or Federal Agencies either by phone, e-mail or in person concerning the Design-Build Project.

USE OF TERMS

Throughout this RFP and all manuals, documents and standards referred to in the RFP, the terms Contractor, Bidder, Design-Builder, Design-Build Team, Team, Firm, Company and Proposer are synonymous.

Throughout this RFP and all manuals, documents and standards referred to in the RFP, the terms NCDOT, Department, Engineer and State are synonymous.

DESIGN REFERENCES

Design references developed and published by NCDOT and those developed and published by other agencies and adopted for use by NCDOT which are to be used in the design of this project may be obtained by contacting the Contract Standards and Development Unit within the Division of Highways. Standard prices for materials, which the Department normally sells for a fee, will be in effect. The Design-Build Team shall be responsible for designing in accordance with the applicable documents and current revisions and supplements thereto.

REVIEW OF SUBMITTALS

Major design milestones and required design submittals shall be identified as activities on a CPM, bar chart or other scheduling tool. This schedule shall be submitted to the Design-Build Unit and Resident Engineer concurrently with the first design submittal, or within 30 days of the contract award, whichever is earlier. The schedule shall be revised and resubmitted as design milestones change or as directed by the Design-Build Unit. Submittals will be reviewed within ten working days (15 days for temporary structures, overhead sign assemblies, MSE walls, FEMA compliance documents, curved steel girder working drawings and temporary shoring) from the date of receipt by NCDOT unless otherwise stipulated in the scope of work. All submittals shall be prepared and submitted in accordance with the *Design-Build Submittal Guidelines* which by reference are incorporated and made a part of this contract. All submittals shall be made simultaneously to the Design-Build Unit and the Resident Engineer. The Department will not accept subsequent submittals until prior submittal reviews have been completed for that item. The Design-Build Team shall inform the Design-Build Unit, in writing,

of any proposed changes to the NCDOT preliminary designs, and / or previously reviewed submittals and obtain approval prior to incorporation. The Design-Build Team shall prioritize submittals in the event that multiple submittals are made based on the current schedule. All submittals shall include pertinent Special Provisions. No work shall be performed prior to Department review and acceptance of the design submittals.

OVERVIEW

The Design-Build Project U-5798A widens SR 1102 (Gillis Hill Road) to a four-lane divided facility from north of SR 1112 (Stoney Point Road) to US 401 (South Raeford Road), a distance of approximately 1.2 mile. The project also replaces Bridge No. 250075 on SR 1102 (Gillis Hill Road) over Little Rockfish Creek.

Project services shall include, but are not limited to:

- **Design Services** – completion of construction plans
- **Construction Services** – necessary to build and ensure workmanship of the designed facility
- **Permit Preparation / Application** – development of all documents for required permits
- **Right of Way –** acquisition of right of way necessary to construct the project
- **As-Constructed Drawings**
- **As-Built Plans**

Construction Engineering Inspection will be provided by the NCDOT Division personnel or will be performed under a separate contract.

NCDOT is currently developing the U-5798 a Minimum Criteria Determination Checklist (MCDC), which is anticipated to be approved in August 2019. It is important for Proposers to note, at this time, the proposed Project remains in the environmental process and that final environmental approvals have not been secured. Additional alternatives, including a no-build alternative, are always considered in the environmental process, and it is possible that the project scope may need to be modified to comply with the environmental process, or that a no-build alternative may be adopted. Nothing contained in the RFP is intended to modify, limit, or otherwise constrain the environmental process or commit NCDOT to undertake any action with respect to this project.

GENERAL SCOPE

The scope of work for this project includes design, construction and management of the project. The design work includes all aspects to widen approximately 1.2 miles of SR 1102 (Gillis Hill Road) and replace Bridge No. 250075. Unless allowed otherwise elsewhere in this RFP, the designs shall meet all appropriate latest versions of AASHTO *Policy on Geometric Design of Highways and Streets,* AASHTO *LRFD Bridge Design Specifications, Manual of Uniform Traffic Control Devices* and all NCDOT design policies that are current as of the Price Proposal submittal date or the Best and Final Offer submittal date, whichever is later.

Unless noted otherwise elsewhere in this RFP, all documents referenced herein shall be the edition / version, including all interim revisions, effective on the Price Proposal submittal date or the Best and Final Offer submittal date, whichever is later.

Construction shall include, but not be limited to, all necessary clearing, grading, roadway, drainage, structures, utility coordination and relocation, and erosion and sediment control work items for the proposed four-lane facility and bridge replacement. Construction engineering and management shall be the responsibility of the Design-Build Team. Construction shall comply with 2018 NCDOT *Standard Specifications for Roads and Structures* and any special provisions.

Areas of work required for this project shall include, but are not limited to the following items:

Roadway Design
Structure Design
Permit Application
Hydraulic Design
Geotechnical Engineering
Foundation Design for Structures and Roadway
Erosion and Sedimentation Control Design and Implementation
Pavement Marking Design
Sign Design
Traffic Signals and Signal Timing Plans
Construction
Project Management
Design and Construction Management
Utility Construction
R/W Utilities, Conflicts and / or Construction
Construction Surveys
Location and Surveys
Right of Way Acquisition

All designs shall be in Microstation format using Geopak software (current version used by the Department).

DESIGN AND CONSTRUCTION PERFORMED BY DESIGN-BUILD TEAM

The design work consists of the preparation of all construction documents to widen approximately 1.2 miles of SR 1102 (Gillis Hill Road) to a four-lane divided facility and replace Bridge No. 250075, as outlined in the Scope of Work section of this RFP. The Design-Build Team shall prepare final designs, construction drawings and special provisions.

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall acknowledge that project documents furnished by the Department are preliminary and provided solely to assist the Design-Build Team in the development of the project design. The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract and shall save the State harmless and shall be fully liable for any additional costs and all

claims against the State which may arise due to errors, omissions and negligence of the Design-Build Team in performing the work required by this contract.

There shall be no assignment, subletting or transfer of the interest of the Design-Build Team in any of the work covered by the Contract without the written consent of the State, except that the Design-Build Team may, with prior written notification of such action to the State, sublet property searches and related services without further approval of the State.

The Design-Build Team shall certify all plans, specifications, estimates and engineering data furnished by the Team.

All work by the Design-Build Team shall be performed in a manner satisfactory to the State and in accordance with the established customs, practices, and procedures of the North Carolina Department of Transportation, and in conformity with the standards adopted by the American Association of State Highway Transportation Officials, and approved by the U.S. Secretary of Transportation as provided in Title 23, U.S. Code, Section 109 (b). The decision of the Engineer / State / Department shall control in all questions regarding location, type of design, dimension of design, and similar questions.

Alternate designs, details, or construction practices (such as those employed by other states, but not standard practice in NC) are subject to Department review and acceptance and will be evaluated on a case by case basis.

The Design-Build Team shall not change team members, subconsultants or subcontractors identified in the Statement of Qualifications (SOQ) without written consent of the Engineer or the State Contract Officer. In addition, subconsultants and subcontractors not identified in the SOQ shall not perform any work without written consent by the Engineer. Individual offices of the Design-Build Team not identified in the Statement of Qualifications submitted shall not perform any work without written consent by the Engineer. Failure to comply with this requirement may be justification for removing the Team from further consideration for this project and disqualification from submitting on future Design-Build Projects.

All firms shall be prequalified by the Department for the work they are to perform. Joint Ventures, LLCs or any legal structure that are different than the existing prequalification status must be prequalified prior to the Price Proposal submittal deadline. Subcontractors need only be prequalified prior to performing the work. Design firms should be prequalified prior to the Price Proposal submittal deadline. If not prequalified prior to the Price Proposal submittal deadline, the prime contractor shall be solely responsible for either 1) ensuring that the design firm is prequalified prior to its first design submittal or 2) replacing that firm with a prequalified firm.

ACCESS TO SUBMITTAL SITE

To reduce the submittal review time and increase the efficiency of the review process, the Design-Build Team shall access the project's submittal site. The site will include a library that the Design-Build Team shall use to submit documents to NCDOT for review; and another library that NCDOT will provide submittal responses to the Design-Build Team. The Design-Build Team's Project Manager shall provide a list of team members that will require access to this

portal. This list shall include the name, e-mail address and North Carolina Identity Management (NCID) for each individual team member. Once the list is complete, it shall be submitted to the Design-Build e-mail address (designbuild@ncdot.gov).

To create an NCID account, each individual shall go to NCDOT's Connect website (https://connect.ncdot.gov) and click on the "How to get an Account" link and then, "Create NCID".

The Department will obtain access rights for these individuals and notify the Design-Build Project Manager accordingly. Individuals may then re-enter the "Connect" site and login with their NCID account. Once logged in, the Teamsite "C204507 Project Submittals" link will be apparent on the left side of the webpage.

Excluding roadway design submittals, all submittals for this project shall be electronically submitted to the Teamsite. The Design-Build Team shall submit hard copies of all roadway design submittals. The NCDOT reserves the right to request a hard copy of any submittal or supporting electronic files or calculation needed to complete reviews.

ELECTRONIC PLAN SUBMITTALS AND E-SIGNATURES

The Design-Build Team shall submit all Release for Construction Plans in accordance with the NCDOT e-Signature requirements, including but not limited to providing signed and sealed searchable .pdf files. Reference the website noted below for additional information:

https://connect.ncdot.gov/projects/roadway/pages/private-engineering-firm-resources.aspx

ETHICS POLICY

Employees employed by the Design-Build Team or employees employed by any subconsultant for the Design-Build Team to provide services for this project shall comply with the Department's Ethics Policy. Failure to comply with the Ethics Policy will result in the employee's removal from the project and may result in removal of the Company from the Department's appropriate prequalified list.

APPROVAL OF PERSONNEL

The Department will have the right to approve or reject any personnel, assigned to a project by the Design-Build Team.

In the event of engagement of a former employee of the Department, the Design-Build Team or their subcontractors shall restrict such person or persons from working on any of the Design-Build Team's contracted projects in which the person or persons were "formerly involved" while employed by the State. The restriction period shall be for the duration of the contracted project with which the person was involved. *Former Involvement* shall be defined as active participation in any of the following activities:

Drafting the contract or contract Scopes of Work
Design-Build Team selection
Negotiation of the contract cost (including calculating manhours or fees)
Contract administration

An exception to these terms may be granted when recommended by the Secretary and approved by the Board of Transportation.

The Design-Build Team and their subconsultants / subcontractors shall restrict all personnel embedded within the Department, including but not limited to Design Units and Divisions, from working on any Design-Build procurement / project. Except as allowed otherwise below, the Design-Build Team shall provide a list of all embedded personnel to the Department and a signed Confidentiality Agreement for each embedded employee, as well as their employer and NCDOT Unit Manager. If the Design-Build Team has previously provided a signed Confidentiality Agreement for an embedded employee who's employer and / or NCDOT Unit Manager have not changed, the Design-Build Team shall 1) indicate on the aforementioned list when the original Confidentiality Agreement was provided to the Design-Build Unit (date and TIP Project), 2) provide a copy of the original signed Confidentiality Agreement, or 3) provide a new signed Confidentiality Agreement. The Design-Build Team shall submit the aforementioned list and Confidentiality Agreements to Mr. Ronald E. Davenport, Jr., P.E., State Contract Officer, within ten business days of the issuance of the Industry Draft RFP, and provide updated lists and Confidentiality Agreements, as appropriate, throughout the project procurement / duration.

Failure to comply with the terms stated above in this section shall be grounds for termination of this contract and / or not being considered for selection of work on future contracts for a period of one year.

SUBMITTAL OF THE FUEL USAGE FACTOR CHART AND ESTIMATE OF QUANTITIES AND PRICE PROPOSALS

Fuel Usage Factor Chart and Estimate of Quantities and Price Proposals that do not adhere to all the requirements noted below may be considered non-responsive and may result in the Department not considering the Design-Build Team for award of the contract of reading their Price Proposal publicly.

FUEL USAGE FACTOR CHART AND ESTIMATE OF QUANITIES

The Design-Build Team shall submit one hard copy of the Fuel Usage Factor Chart and Estimate of Quantities sheet found elsewhere in this RFP. The hard copy of the Fuel Usage Factor Chart and Estimate of Quantities sheet will be accepted until **4:00 p.m. Local Time on Tuesday, October 8, 2019,** at the office of the State Contract Officer:

Mr. Ronald E. Davenport, Jr., PE
Contract Standards and Development
1020 Birch Ridge Drive
Century Center Complex- Building B
Raleigh, NC 27610

No Fuel Usage Factor Chart and Estimate of Quantities sheet will be accepted after the time specified.

A hard copy of the Fuel Usage Factor Chart and Estimate of Quantities sheet shall be submitted in a sealed package. The outer wrapping shall clearly indicate the following information:

Fuel Usage Factor Chart and Estimate of Quantities - Hard Copy
Submitted by: (Design-Build Team's Name)
Design-Build Team's Address
Contract Number C204507
TIP Number U-5798A
Cumberland County
SR 1102 (Gillis Hill Road) from north of SR 1112 (Stoney Point Road) to US 401 (South Raeford Road), widen to multi-lanes and replace Bridge No. 250075 over Little Rockfish Creek

If delivered by mail, the sealed package shall be placed in another sealed package that is addressed to the Contract Officer as stated in the Request for Proposals. The outer package shall also bear the statement "Fuel Usage Factor Chart and Estimate of Quantities for the Design-Build of State Highway Contract No. C204507."

PRICE PROPOSALS

Price Proposals shall be submitted electronically in accordance with Articles 102-8(B) in the 2018 NCDOT *Standard Specifications for Roads and Structures*. **No Price Proposals will be received after 2:00 p.m. Local Time on Tuesday, October 15, 2019.**

A Bid Bond or Bid Deposit in the amount of 5% of the Total Amount Bid shall be required. The Bidder shall submit an electronic Bid Bond with each electronic bid submittal unless he elects to furnish a Bid Deposit to the address shown below:

Mr. Ronald E. Davenport, Jr., PE
Contract Standards and Development
1020 Birch Ridge Drive
Century Center Complex- Building B
Raleigh, NC 27610

Opening of Price Proposals

At the time and date specified, the State Contract Officer will open and read the Price Proposals and calculate the percentage difference between the Price Proposals submitted and the Engineer's Estimate.

Best and Final Offer

In the event initial Price Proposals exceed an acceptable range of the Engineer's Estimate or if the Department feels it is necessary for any reason, the Department may choose to make amendments to the details of the RFP and request a Best and Final Offer from all of the previously short-listed teams. Alternately, the Department may choose to redistribute to the short-listed Design-Build Teams another RFP for the project with no amendments to the RFP.

The Design-Build Teams shall submit a revised Price Proposal at the time and date specified in the Best and Final RFP. This will constitute the Design-Build Team's Best and Final Offer. Award of the project may then be made to the Design-Build Team with the lowest Price Proposal on this Best and Final Offer.

Stipend

A stipulated fee of **$8,000.00** will be awarded to each short-listed Design-Build Team that provides a responsive, but unsuccessful, Price Proposal. If a contract award is not made, all short-listed Design-Build Teams that provide a responsive Price Proposal shall receive the stipulated fee. Once award is made, or a decision is made not to award, unsuccessful Design-Build Teams can apply for the stipulated fee by notifying the State Contract Officer, in writing, and providing an original invoice within 60 days of Award. The stipulated fee shall be paid to eligible Design-Build Teams within ninety days after the award of the contract or the decision not to award.

In the event that the Department suspends or discontinues the procurement process prior to the Price Proposal submittal date current at the time of the suspension, no stipulated fee will be paid.

ROADWAY SCOPE OF WORK (7-26-19)

It should be noted that all references to TIP project U-5798 and / or U-5798A in material provided by the Department shall apply to this project.

Throughout this RFP, references to the Preliminary Roadway Plans shall denote the U-5798A Preliminary Plans (25%) provided by the Department.

Throughout this RFP, references to the "mainline" and "-L- Line" shall apply to SR 1102 (Gillis Hill Road).

Project Details

- The Design-Build Team shall design and construct a four-lane divided curb and gutter facility along SR 1102 (Gillis Hill Road) from north of SR 1112 (Stoney Point Road) to US 401 (South Raeford Road). Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct the mainline providing the same or better sidewalks, access, widening, improvements and traffic measures of effectiveness, in the Department's sole discretion, included in the Preliminary Roadway Plans provided by the Department. The -L- Line construction limits shall be of sufficient length to tie to existing based upon the current NCDOT guidelines and standards. The -L- Line shall be designed and constructed to meet a 50 mph design speed for a level urban collector. The -L- Line shall be designed and constructed in accordance with the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, Table 3-8 (e_{max} = 4%). The Design-Build Team shall provide all other design criteria in the first roadway design submittal.

- Except as allowed otherwise elsewhere in this RFP, the Design-Build Team shall design and construct minimum 12-foot lanes with 2'-6" curb and gutter, minimum ten-foot berms and five-foot sidewalks along the mainline. The Design-Build Team shall design and construct four-foot outside bike lanes along both sides of the mainline.

- Except as allowed otherwise elsewhere in this RFP, the Design-Build Team shall design and construct a minimum 17.5-foot (17.5-foot edge of travel lane to edge of travel lane) raised median with 1'-6" curb and gutter along the mainline. The aforementioned 1'-6" curb and gutter may be replaced with 2'-9" curb and gutter on the low side of superelevation.

- The Design-Build Team shall design and construct the northern approach to the Gillis Hill Road / Stoney Point Road intersection in accordance with the following:

  - One 12-foot northbound through lane
  - One 12-foot southbound through lane
  - One 12-foot southbound exclusive right turn lane that is developed from the typical section outside southbound through lane
  - One 12-foot southbound exclusive left turn lane
  - Throughout the exclusive left turn and right turn lanes, as well as the required transition to the proposed four-lane divided typical section, the Design-Build Team shall design and

construct minimum eight-foot shoulders, four-foot of which shall be full-depth paved shoulders.

- The mainline grade point and crown point shall be located at the centerline alignment. (A bifurcated grade shall not be allowed.) The mainline normal crown cross slope shall be 0.02.

- The Design-Build Team shall design and construct at-grade intersections with the lane configurations noted in the August 2018 *Traffic Operations Report* provided by the Department.

- At all intersections impacted by the Design-Build Team's design and / or construction, excluding resurfacing, the Design-Build Team shall design and construct turn lanes that adhere to the greater of the following:

  - All turn lane lengths shall adhere to the NCDOT minimum turn lane lengths as defined in the NCDOT *Roadway Design Manual* (Reference Section 9-1, Figure 4).

  - All lengths for the turn lanes required by the August 2018 *Traffic Operations Report* provided by the Department shall adhere to the NCDOT Recommended Treatment for Turn Lanes. These lengths shall be determined by adding the storage length defined in the aforementioned Memorandum and the minimum deceleration length, as defined in the NCDOT *Roadway Design Manual* (Reference Section 9-1, Figure F-4A).

  - Right turn lanes / tapers shall be provided in accordance with the NCDOT Right Turn Lane Warrants, as defined in the NCDOT *Roadway Design Manual* (Reference Section 9-1, Figure F-4C).

- For all intersection design modifications, the Design-Build Team shall provide a traffic analysis that adheres to the July 1, 2015 NCDOT *Congestion Management Capacity Analysis Guidelines* for the Department's review and acceptance.

- The Design-Build Team shall prepare functional horizontal and vertical designs of the future ultimate Gillis Hill Road / Stoney Point Road intersection improvements, as shown on the U-5798 Public Meeting Map provided by the Department. At a minimum, the functional design shall 1) include all the future ultimate Gillis Hill Road improvement north of the intersection, 2) extend to the limits of the future ultimate Gillis Hill Road exclusive turn lane improvements south of the intersection and 3) include all the future ultimate Stoney Point Road improvements. The Department shall review and accept the aforementioned functional designs prior to the Design-Build Team negotiating right of way and permanent easement acquisitions with property owners impacted by the future ultimate Gillis Hill Road / Stoney Point Road intersection improvements. For all parcels impacted by the U-5988A project, the Design-Build Team shall make a determination of, and acquire the additional right of way and permanent easements required for the future ultimate Gillis Hill Road / Stoney Point Road intersection improvements. The aforementioned required acquisitions shall extend completely through a parcel, terminating on a property line; and shall include but not be limited to, the right of way and permanent easements required for future drainage and future utility relocations. (Reference

the Right of Way Scope of Work found elsewhere in this RFP)

- At all intersections with restricted movements impacted by the Design-Build Team's design and / or construction methods, excluding resurfacing, the Design-Build Team shall provide five-inch keyed-in concrete monolithic channelization islands, regardless of the island dimensions. (Reference Roadway Standard Drawing No. 852.01)

- The Design-Build Team shall bring to the Design-Build Unit's attention any deviations from the proposed control of access and / or right of way shown on the Preliminary Roadway Plans provided by the Department. The proposed control of access and / or right of way limits may deviate in proximity to cultural, historic, or otherwise protected landmarks, including cemeteries, to eliminate / minimize impacts. Prior to negotiating right of way, easement and / or control of access with property owners, the Department shall accept the Right of Way Plans developed by the Design-Build Team.

- The Design-Build Team shall acquire control of access throughout the limits of all U-turn bulb outs.

- Except as required elsewhere in this RFP and / or to eliminate a design exception, the Design-Build Team shall not further impact any cultural, historical or otherwise protected landmark or topographic feature beyond that shown on the Preliminary Roadway Plans provided by the Department. Unless approved otherwise by the Department, in writing, the Design-Build Team shall not acquire right of way, easements and / or control of access from a parcel with the aforementioned features unless shown on the Preliminary Roadway Plans provided by the Department.

- The Design-Build Team shall design and construct all retaining walls with a minimum ten-foot horizontal clearance between the back of the wall and the right of way.

- Throughout construction areas that consist solely of pavement marking obliterations / revisions, the Design-Build Team shall provide a uniform overlay or design and construct a resurfacing grade. Excluding construction areas that consist solely of pavement marking obliterations / revisions that are uniformly overlaid, the Design-Build Team shall design and construct resurfacing grades for all roadways impacted by construction. All uniform overlays and resurfacing grades shall 1) completely cover the entire pavement surface (travel lanes and paved shoulders) and 2) be extended on a one-way roadway of a divided facility, as required, to provide the same limits for both directions of travel. All resurfacing grades shall adhere to the design criteria and standards, provide all required pavement wedging and adhere to the minimum requirements noted below. For purposes of determining the required resurfacing limits only, the term "construction" below will not apply to construction areas that consist solely of pavement marking obliterations / revisions. (Reference the Pavement Management Scope of Work found elsewhere in this RFP)

    - The Design-Build Team shall resurface all lanes and shoulders of an undivided facility throughout the limits of proposed widening and construction.

- For both divided and undivided facilities, the Design-Build Team shall resurface all lanes and shoulders within the outermost construction limits of all proposed widening and construction, including **all** gaps along the facility where construction activities are not required.

- Excluding the modifications required herein, the Design-Build Team shall inform the Design-Build Unit, in writing, of all proposed design revisions, including but not limited to the following:

  - After contract award, the Design-Build Team shall inform the Design-Build Unit, in writing, of any proposed deviations to the preliminary design shown on the Preliminary Roadway Plans provided by the Department. The Design-Build Team shall be responsible for all activities, as deemed necessary by the Department, resulting from changes to the NCDOT preliminary design, including but not limited to, public involvement, NEPA re-evaluation and / or coordination with other stakeholders. The Department shall not honor any requests for additional contract time or compensation for completion of the required activities resulting from changes to the NCDOT preliminary design.

  - After the Department has reviewed and accepted the Design-Build Team's design submittals, the Design-Build Team shall inform the Design-Build Unit, in writing, of any changes to previously reviewed submittals.

  The proposed design revisions noted above shall be subject to the Department's review and acceptance.

- Design exceptions will not be allowed.

- Prior to recording the Right of Way Plans, the Design-Build Team shall locate and install right of way markers that delineate the proposed right of way for all parcels within the project limits. Prior to recording the Right of Way Plans, the Design-Build Team shall locate and install iron pins and metal caps with fiberglass right of way markers to delineate the aforementioned proposed right of way. For all parcels, the Design-Build Team shall locate and install iron pins and metal caps with fiberglass markers that delineate all proposed permanent easements within the project limits. The Design-Build Team shall replace all existing and proposed right of way and permanent easement markers / monuments damaged and / or relocated during construction. A Professional Land Surveyor registered in North Carolina shall certify the placement of all right of way and permanent easement markers / monuments. In accordance with NCDOT Policy, the Department will furnish the metal caps with fiberglass markers.

General

- Unless noted otherwise elsewhere in this RFP, the design shall be in accordance with the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, and 2013 Errata, 2002 NCDOT *Roadway Design Manual*, including all revisions effective on the Price Proposal submittal date, January 2018 NCDOT *Roadway Standard Drawings*, or as superseded by detail sheets located at **https://connect.ncdot.gov/resources/Specifications/Pages/2018-Roadway-Standard-Drawings.aspx,**

Roadway Design Policy and Procedure Manual, Roadway Design Guidelines for Design-Build Projects, 2018 NCDOT *Standard Specifications for Roads and Structures,* the Highway Capacity Manual, 6th Edition, and the 2011 AASHTO *Roadside Design Guide*, 4th Edition and 2015 Errata.

- If the NCDOT *Roadway Design Manual*, including all revisions, the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets* and 2013 Errata, the 2018 NCDOT *Roadway Standard Drawings* and / or any other guidelines, standards or policies have desirable and / or minimum values, the Design-Build Team shall use the desirable values unless noted otherwise elsewhere in this RFP. Similarly, in case of conflicting design parameters, and / or ranges, in the various resources, the proposed design shall adhere to the most conservative values, unless noted otherwise elsewhere in this RFP.

- The Design-Build Team shall provide a Drainage Summary Sheet, Earthwork Summary Sheet, Guardrail Summary Sheet, (permanent and temporary) and Pavement Removal Summary Sheet in the Final Roadway Plans and RFC Roadway Plans.

- At all intersections, the Design-Build Team shall not exceed a 0.05 roll-over between the outside edge of travel lane of the primary roadway and the beginning of the proposed grade for the secondary roadway.

- Unless noted otherwise elsewhere in this RFP, all bridge rail offsets shall be the greater of 1) the bridge rail offset as indicated in the NCDOT *Roadway Design Manual*, 2) the approach roadway paved shoulder width, or 3) the offset required to achieve stopping sight distance (maximum 12-foot). Narrower bridge rail offsets based on bridge length will not be allowed. The Design-Build Team will not be required to widen existing bridges solely to provide the aforementioned minimum bridge rail offsets.

- Unless noted otherwise elsewhere in this RFP, the maximum allowable cut and fill slope shall be 3:1. (Reference the Geotechnical Scope of Work found elsewhere in this RFP)

- Outside the project limits, the Design-Build Team will not be allowed to use the NCDOT right of way and / or property for borrow or waste sites. Within the project limits, the Design-Build Team shall adhere to the following:

  - Only clean waste material may be wasted within the NCDOT right of way or property.

  - Excluding crushed concrete, debris shall not be buried within the NCDOT right of way or property.

  - Normal grading operations shall occur, including but not limited to, grading to drain all existing embankments supporting removed roadway sections.

- Unless noted otherwise elsewhere in this RFP, all guardrail / guiderail placement shall be in accordance with the NCDOT *Roadway Standard Drawings* and / or approved details in lieu of standards. Along all 3:1 fill slopes, constructed at fill heights that are equal to or greater than

12 feet, the Design-Build Team shall install guardrail. Along all fill slopes steeper than 3:1, constructed at fill heights that are equal to or greater than six feet, the Design-Build Team shall install guardrail. Throughout the project limits, the Design-Build Team shall upgrade all existing guardrail in accordance with the aforementioned requirements, regardless if the Design-Build Team's design and / or construction impacts the guardrail. The guardrail / guiderail design shall be submitted for review with the Preliminary Plans submittal.

- The Design-Build Team shall be responsible for the evaluation of the algebraic difference in rates of cross slope (roll-over) between existing shoulders and roadways and the associated suitability for carrying traffic during construction, if necessary. In the event that the roll-over is found to be unacceptable for the proposed temporary traffic patterns, the Design-Build Team shall be responsible for providing cross slopes that meet design standards and eliminate roll-over concerns.

- In accordance with the March 19, 2019 memo from Ms. Brenda Moore, PE, State Roadway Design Engineer, and Mr. Brian Hanks, PE, State Structures Engineer, the Design-Build Team will not be required to submit separate Structure Recommendations. Instead, in accordance with the aforementioned Memo, the Design-Build Team shall submit the roadway design information required to develop the Structure General Drawings with the Preliminary Roadway Plans submittal.

- Unless noted otherwise elsewhere in this RFP, the design speed for all roadways shall be the greater of the minimum design speed for the facility type, as specified in the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, or the anticipated / actual posted speed plus five mph. If a speed limit is not physically posted on an existing facility, General Statues mandate the speed limit as 55 mph, resulting in a 60 mph design speed outside the City limits; and 35 mph, resulting in a 40 mph design speed inside the City limits.

- Within the vehicle recovery area, the Design-Build Team shall design and construct single face concrete barrier in front of the traffic face of all retaining walls, and all elements acting as a retaining wall. The aforementioned concrete barrier shall be located 1) beyond the typical section shoulder point and / or 2) a minimum of 12-foot behind the face of curb and gutter, requiring the Design-Build Team to widen the outside shoulder / berm beyond the typical section width. Between the single face concrete barrier and all retaining walls, and all elements acting as a retaining wall, the Design-Build Team shall install minimum one-inch thick joint material. (Reference Section1028-1 of the 2018 *Standard Specifications for Roads and Structures*)

- The Design-Build Team shall design and construct all raised medians in accordance with the following:

  - The Design-Build Team shall install a four-inch concrete cap on all raised medians that are eight feet wide or narrower, measured face to face from the surrounding mountable concrete curb and gutter.

- All grass covered raised medians shall be designed and constructed with topsoil and appropriate cross slope and median drain with pipe to prevent groundwater and surface water infiltration into the subgrade and / or pavement structure. Prior to construction of the grass covered raised median and / or median drain with pipe, the Design-Build Team shall submit to the Design-Build Unit, for review and acceptance, the proposed number of drains, drain locations within the typical section, topsoil specifications and construction details. Within all proposed grass covered raised median limits, the Design-Build Team shall completely remove and dispose of the existing pavement structure.

- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct all lane drops from the outside travel way.

- A sag vertical curve low point will not be allowed on any proposed bridge or approach slab.

- Excluding grades required to tie to existing, the minimum longitudinal grade shall be 0.30%, unless noted otherwise elsewhere in this RFP.

- At all intersections impacted by the Design-Build Team's design and / or construction methods, excluding resurfacing, a WB-62 design vehicle shall be required for all turning movements. (For side-by-side turning maneuvers, WB-62 for the outside movement only and SU-30 for inside movement.)

- Any variations in the Department's proposed design and / or construction methods that nullify any decisions reached between the Department and the environmental agencies; and / or require additional coordination with the environmental agencies shall be the sole responsibility of the Design-Build Team. The Department will not allow any contract time extensions or additional compensation associated with any coordination or approval process resulting from design and / or construction modifications. (Reference the Environmental Permits Scope of Work found elsewhere in this RFP)

- Excluding undeveloped parcels, the Design-Build Team shall design and construct a minimum of one driveway per parcel. The Design-Build Team shall design and construct all driveways to adhere to the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* and the minimum requirements noted below. Excluding the maximum grade requirement, if the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* and the requirements noted below have conflicting design parameters, the proposed design shall adhere to the aforementioned Policy:

  - The Design-Build Team shall provide horizontal and vertical alignments for all driveways that require 100 feet or longer to tie to existing.

  - Driveways shall not be installed in median U-turn bulb outs or right turn lanes, including their taper.

  - Excluding grades required to tie to existing, the maximum driveway grade shall be 10.0%.

- For shoulder sections, the minimum driveway turnout for residential and commercial properties shall be 16'-0" and 24'-0", respectively, or the existing width, whichever is greater.

- For curb and gutter sections, the minimum driveway turnout for residential and commercial properties shall be 20'-0" and 28'-0", respectively, or the existing width, whichever is greater.

- The Design-Build Team shall contact Mr. Gary W. Thompson, North Carolina Geodetic Survey Director, prior to disturbing any geodetic monument.

- The Design-Build Team shall identify the need for any special roadway design details (i.e. any special drainage structures, rock embankment, rock plating, special guardrail, retaining walls, concrete barrier designs, etc.) and shall provide special design drawings. The Contract Standards and Development Unit may have special details available that can be provided to the Design-Build Team upon request.

- A 4:1 back slope shall extend from the back of the expressway gutter to the clear zone limit. Beyond that, a maximum 3:1 cut slope will be acceptable. The expressway gutter centerline shall be located at the hinge / shoulder point. Expressway gutter shall not be installed in fill sections. Expressway gutter shall only be used to minimize impacts to existing structures, and / or cultural, historical or otherwise protected landmarks or topographic features.

- At all locations with paved shoulders that extend beyond the typical width (i.e. to the face of single face barrier, guardrail, edge of expressway / shoulder berm gutter, etc.), the Design-Build Team shall taper the wider paved shoulder width to the typical paved shoulder width using an 8:1 taper. (Reference the Pavement Management Scope of Work found elsewhere in this RFP)

- Shoulder berm gutter shall not be installed in cut sections.

- Cut and fill slope transitions shall not exceed one increment (e.g. 3:1 to 4:1) per 50 feet.

- The Design-Build Team shall design and construct horizontal and vertical curves at all Points of Intersections (PIs) on the horizontal and vertical alignments, respectively.

- All paved shoulders shall be tapered at 8:1 to the existing pavement at tie-in points.

- Once all changes have been accepted by the Department and incorporated into the "Release for Construction" roadway plans, the Design-Build Team shall provide a PDF of the sealed plans to the Design-Build Unit.

NCDOT Information Supplied

- The NCDOT will provide a copy of the U-5798 Minimum Criteria Determination Checklist (MCDC), the latest list of environmental commitments, municipal agreements and all pertinent

approvals and correspondence. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall adhere to all commitments stated in the environmental documents.

- The NCDOT will provide electronic surveys to the Design-Build Team. Any supplemental surveys, including but not limited to additional topography, existing and proposed roadway, structure sites, underground and overhead utilities, existing and proposed drainage, wetland delineation, right of way, parcel names, and deed research and descriptions shall be the responsibility of the Design-Build Team to acquire and process. All supplemental surveys shall adhere to the Location and Survey Unit's September 28, 2018 *Proc 2018-4 – L&S Implementation of SharePoint Site Guidelines* and *Proc 2018-6 – L&S Required PEF Attestations for Individually Developed Survey Products* Memorandums. The Design-Build Team shall modify / incorporate boundary information used for the determination and valuation of property solely under the direct supervision of a Professional Land Surveyor registered in North Carolina. Known existing utilities have been located and will be included with the survey data. The Design-Build Team shall be responsible for confirming the location of the utilities and the type / size of facilities. All supplemental Subsurface Utility Engineering (SUE) work shall be the responsibility of the Design-Build Team.

- The NCDOT will provide the U-5798 Preliminary Roadway Plans, and corresponding electronic design files, developed by the Department. The Design-Build Team is cautioned that the electronic files are provided solely to assist the Design-Build Team in the development of the project design. The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of the project design, including, but not limited to, the use of the NCDOT's design, the use of portions of the NCDOT's design or modifications to the NCDOT's design.

- The NCDOT will provide final pavement designs for U-5798A. The Design-Build Team shall be responsible for all temporary pavement designs. (Reference the Pavement Management Scope of Work found elsewhere in this RFP)

- The NCDOT will provide a Geotechnical Subsurface Investigation for U-5798A. The Design-Build Team shall be responsible for any additional geotechnical information, all geotechnical recommendations, as well as supplemental structural and roadway investigations. (Reference the Geotechnical Engineering Scope of Work found elsewhere in this RFP).

ENVIRONMENTAL PERMITS SCOPE OF WORK (1-24-19)

General

The Design-Build Team shall be responsible for preparing all documents necessary for the Department to obtain the environmental permits required for the project construction. Permit applications shall be required for the US Army Corps of Engineers (USACE) Section 404 Permit and the NC Department of Environmental Quality (DEQ) Division of Water Resources (NCDWR) Section 401 Water Quality Certification.

The Design-Build Team shall not begin ground-disturbing activities, including utility relocations in jurisdictional areas, until the environmental permits have been issued (this does not include investigative borings covered under a Nationwide Permit No. 6 and utility relocation work outside jurisdictional resources noted below).

The Design-Build Team shall coordinate with the Design-Build Unit to determine if a Preconstruction Notification (PCN) is required for the Nationwide Permit No. 6. If a PCN is required, the Design-Build Team shall submit all necessary documents and forms to the Design-Build Unit for submittal to the appropriate agencies and shall not perform any geotechnical investigative work within the jurisdictional resource(s) requiring a PCN prior to obtaining the required approval. If a PCN is not required, the Design-Build Team may proceed with geotechnical investigations inside and outside jurisdictional resources, provided all of the Nationwide Permit No. 6 General Conditions are followed.

The Design-Build Team may begin utility relocation work prior to obtaining the aforementioned permits provided that (1) the Department is notified in writing and provides written approval prior to beginning work; (2) such activities are outside jurisdictional resources; and (3) a meeting is held with the Department and permitting agencies prior to beginning work, if necessary.

There will be no direct contact between the Design-Build Team and representatives of the environmental agencies. No contact between the Design-Build Team and the environmental agencies shall be allowed either by phone, e-mail or in person, without representatives of the Department's Environmental Analysis Unit (EAU) - Environmental Coordination and Permitting Group (ECAP) or the Division's Environmental Officer (DEO) present. A representative from the Design-Build Unit shall be included on all correspondence.

Any variations in the Department's proposed design and / or construction methods that nullify decisions reached between the Department and the environmental agencies; and or require additional coordination with the environmental agencies shall be the sole responsibility of the Design-Build Team. The Department will not allow any contract time extensions or compensation associated with this additional coordination.

Project U-5798A is not in the Merger Process used by the environmental agencies and the Department to obtain environmental permits. On Non-Merger Projects, the Department has committed to coordination efforts with the environmental agencies. Thus, the Design-Build

Team shall participate and present information for an interagency hydraulic design review meeting and an interagency permit impacts meeting. These meeting shall adhere to the Concurrence Point 4B and Concurrence Point 4C requirements of the Merger Process used by the environmental agencies and the Department to obtain environmental permits. Specifically, the Design-Build Team shall follow the appropriate details in the document titled "Section 404 / NEPA Merger Process Information" which can be found at the website noted below:

https://connect.ncdot.gov/resources/Environmental / Pages/Merger-Process-Guide.aspx

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall be bound by the terms of all signed planning documents, and approved minutes and commitments of all interagency meetings. The Design-Build Team shall be held accountable for meeting all permit conditions. The Design-Build Team shall be required to staff any personnel necessary to provide permit compliance.

Unless noted otherwise elsewhere in this RFP, the Department will not honor any requests for additional contract time or compensation for any efforts required in order to obtain any permit or permit modification, including but not limited to public involvement, additional design effort, additional construction effort, and / or additional environmental agency coordination and approvals.

Permit Application Process and Timeframe for all Permits except the Nationwide Permit No. 6 for Geotechnical Investigations

It shall be the Design-Build Team's responsibility to acquire information and prepare permit drawings that reflect the impacts and minimization efforts resulting from the aforementioned interagency hydraulic design review meeting and interagency permit impacts meeting, and from the project as designed by the Design-Build Team. Further, it shall be the Design-Build Team's responsibility to provide these permit impact sheets (drawings) depicting the design and construction details to the Department as part of the permit application. The Design-Build Team shall be responsible for developing the permit application for all jurisdictional impacts. The permit application shall include all utility relocations required by the project. At a minimum, the permit application shall consist of the following:

- Cover Letter
- Minutes from the interagency hydraulic design review meeting and interagency permit impacts meeting
- Completed forms (Section 404 ENG 4345, etc.) appropriate for impacts
- Division of Mitigation Services Acceptance Letter
- Stormwater Management Plan
- Permit drawings with and without contours and, if necessary, utility drawings with and without contours
- Wetland Permit Impact Summary Sheets
- Half-size plans

- Mitigation Plan (if required by the Design-Build Team's design and / or construction methods)

The Department will re-verify and update, as needed, the required environmental data that expires prior to permit issuance. These include, but are not limited to, federally protected species, re-verification of wetland jurisdictional areas, historic and archaeological sites, and 303d (impaired) streams.

Excluding the Nationwide Permit No. 6 for geotechnical investigations, the Design-Build Team shall submit one permit application for the entire project. The Design-Build Team shall not submit multiple applications to develop a "staged permitting" process to expedite construction activities in a phased fashion.

Direct coordination between the Design-Build Team, the Design-Build Unit, Resident Engineer, Division Environmental Officer (DEO) and the Department's Environmental Analysis Unit (EAU) shall be necessary to ensure proper permit application development. Upon completion of the permit application package, the Design-Build Team shall concurrently forward the package to the Design-Build Unit, Resident Engineer, Division Environmental Officer, Hydraulics Unit and EAU for review and approval. After all revisions are complete, the Department will subsequently forward the permit application package to the appropriate environmental agencies.

Any temporary construction measures, including de-watering, construction access, etc. shall be addressed in the permit application. Impacts that result from so-called temporary measures may not be judged to be temporary impacts by the environmental agencies. These issues shall be addressed by the Design-Build Team and reviewed by EAU prior to the interagency hydraulic design review meeting and the interagency permit impacts meeting; and resolved with the environmental agencies during the aforementioned meetings.

The Design-Build Team shall clearly indicate the location and impacts of haul roads and utility relocations in jurisdictional areas. The Design-Build Team shall also identify all proposed borrow and waste sites. Further, the Design-Build Team shall describe the construction methods for all structures that impact jurisdictional resources. The temporary impact descriptions (haul roads, utility relocations, work bridges, etc.) shall include restoration plans, schedules and disposal plans. The aforementioned information, descriptions and details shall be presented during the interagency hydraulic design review meeting and the interagency permit impacts meeting; and be included in the permit application.

The NCDOT hereby commits to ensuring, to the greatest extent practicable, that the footprint of the impacts in areas under the jurisdiction of the Federal Clean Water Act will not be increased during the Design-Build effort. In accordance with the Department of Water Resources' NCG 010000, all fill material shall be stabilized and maintained to prevent sediment from entering adjacent waters or wetlands. The Design-Build Team shall be responsible for ensuring that the design and construction of the project will not impair the movement of aquatic life.

Requests made for permit modifications shall only be allowed if the Engineer determines it to be in the best interest of the Department and shall be strongly discouraged. The Design-Build Team shall not take an iterative approach to hydraulic design issues. Prior to submitting the permit application package, the hydraulic design shall be complete and accepted by the Department.

Permit Timeframe

The Design-Build Team should expect it to take up to 11 months to accurately and adequately complete all designs necessary for the permit application, submit the permit application package to the Department, and obtain permit approvals from the environmental agencies. Environmental agency review time will be approximately 120 days from receipt of a "complete" permit application package. No requests for additional contract time or compensation will be allowed if the permits are obtained within this 11-month period. With the exception of location and survey work, utility relocation work outside jurisdictional resources that adhere to the aforementioned requirements, permitted investigative borings covered under a Nationwide Permit No. 6 and / or Preconstruction Notification secured by the Design-Build Team, no mobilization of personnel, materials, or equipment for site investigation or construction of the project shall occur prior to obtaining the permits (either within the 11-month period or beyond the 11-month period). The Department will not honor any requests for additional contract time or compensation, including idle equipment or mobilization or demobilization costs, for the Design-Build Team mobilizing personnel, materials (or ordering materials), or equipment prior to obtaining all permits. The Department will consider requests for contract time extensions for obtaining the permits only if the Design-Build Team has pursued the work with due diligence, the delay is beyond the Team's control, and the 11-month period has been exceeded. If time were granted, it would be only for that time exceeding the 11-month period. This 11-month period is considered to begin on the Date of Availability, as noted elsewhere in this RFP.

The Design-Build Team is advised herein that the approximate timeframes listed above for the NCDWR and the USACE to review a permit application package begin only after a fully complete and 100% accurate submittal.

Mitigation Responsibilities of the Design-Build Team

As required by the NEPA Process and the USACE / EPA Section 404(b)(1) Guidelines, to offset potential wetland and surface water impacts, the Department has reviewed the roadway project corridor for potential on-site mitigation opportunities. Since no on-site mitigation opportunities were identified, the Department will acquire the compensatory mitigation for unavoidable impacts to wetlands and surface waters due to the project construction from the NC Division of Mitigation Services. The amount of mitigation acquired will be based on impacts, as identified in the Department's preliminary design.

Any changes proposed by the Design-Build Team to any design or construction details provided by the Department shall be approved by the Department prior to being submitted to the environmental agencies for their approval.

Should additional jurisdictional impacts result from revised design and / or construction methods, to the extent that the final total mitigation required exceeds the total mitigation required for the Department's preliminary design, suitable compensatory mitigation for wetlands and / or surface waters shall be the sole responsibility of the Design-Build Team. Therefore, it is important to note that additional mitigation will have to be approved by the environmental agencies and such approval shall require, at a minimum, the preparation and approval of a Mitigation Plan before permits are approved. To mitigate for these additional jurisdictional impacts, the Design-Build Team shall be responsible for all costs associated with acquiring suitable mitigation. Construction of any on-site mitigation shall be performed by a contractor that has successfully constructed similar on-site mitigation. In the absence of suitable on-site mitigation, the Design-Build Team shall be responsible for all costs associated with acquiring additional mitigation from the NC Division of Mitigation Services or an approved compensatory mitigation banking source.

The Design-Build Team shall analyze all new areas to be impacted that have not been analyzed during the NEPA Process, including but not limited to borrow sites, waste sites, haul roads and staging areas that are located outside the project right of way. This analysis shall include performing all environmental assessments. These assessments shall require the Design-Build Team to engage the services of an NCDOT prequalified environmental consultant to conduct a full environmental investigation to include, but not be limited to, Federally Listed Threatened and Endangered Species, wetlands, surface waters, avoidance and minimization in jurisdictional areas, compensatory mitigation, FEMA compliance, and historical, archaeological, and cultural resources surveys in these areas. The environmental consultant shall obtain concurrence through EAU, from the U.S. Fish & Wildlife Service, to document compliance with Section 7 of the *Endangered Species Act* for those species requiring such concurrence. In addition, the Design-Build Team shall identify additional mitigation required, identify the amount of time beyond the aforementioned 11-month period, and fulfill all other requirements that the environmental agencies impose to obtain the permit. Any contract time extensions resulting from additional environmental assessments required by the Design-Build Team's design and / or construction methods impacting areas outside those previously analyzed through the NEPA Process shall be solely at the Department's discretion.

Commitments

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize wetland and surface water impacts; and to provide full compensatory mitigation of all remaining wetland and surface water impacts. Avoidance measures were taken during the planning and NEPA Process and minimization measures were incorporated as part of the preliminary design provided by the Department. The Design-Build Team shall incorporate these avoidance and minimization features, plus any minimization identified during the interagency hydraulic design review meeting and the interagency permit impacts meeting, into the design and / or construction methods at no additional cost or contract time extension.

All work by the Design-Build Team must be accomplished in strict compliance with the plans submitted with the permit application package and in compliance with all conditions of the

permits and certifications issued by the environmental agencies. The Design-Build Team shall provide each of its contractors and / or agents associated with the construction or maintenance of this project with a copy of the permits and certifications.

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall strictly adhere to these commitments, as well as others, including but not limited to, those included in the U-5798 Minimum Criteria Determination Checklist, all permits, all interagency meetings, and all site visits.

If the Design-Build Team discovers any previously undocumented historic or archaeological resources while conducting the authorized work, they shall immediately suspend activities in that area and notify, in writing, the NCDOT Historic Architecture Group Leader, the NCDOT Archaeology Group Leader and NCDOT Project Team Lead, as listed below, who will initiate any required State / Federal coordination after a timely initial assessment. The Design-Build Team shall also immediately notify a representative from the Design-Build Unit. Inadvertent or accidental discovery of human remains shall be handled in accordance with North Carolina General Statutes 65 and 70. All questions regarding these discoveries shall be addressed to Ms. Mary Pope Furr, NCDOT Historic Architecture Group Leader at (919) 707-6068, Mr. Matthew Wilkerson, NCDOT Archaeology Group Leader at (919) 707-6089 or Ms. Pam Williams, NCDOT Project Team Lead at (919) 707-6608.

Archaeological boundary

There is an archaeological boundary adjacent to Bridge No. 250075. The Design-Build Team shall not perform any construction activity within this boundary until the archaeological issues have been resolved. The Department is currently in the process of mitigating impacts to the archaeological site; and it is anticipated that the mitigation efforts will be completed by November 19, 2019. Any mitigation measures required by the Design-Build Team to resolve the archaeological issues will be paid for as Extra Work in accordance with Article 104-8(A) of the *Standard Specifications for Roads and Structures*.

EROSION AND SEDIMENTATION CONTROL SCOPE OF WORK (5-30-19)

The NCDOT Roadside Environmental Unit shall review and accept all Erosion and Sedimentation Control Plans. Clearing & Grubbing and Final Grade Release for Construction (RFC) Erosion Control Plans shall be submitted, accepted and distributed to all NCDOT personnel listed in the Design-Build Submittal Guidelines before **any** land disturbing activities, including clearing and grubbing, can commence. If the Design-Build Team chooses to perform the work in discrete sections, then a complete set of Clearing & Grubbing and Final Grade RFC Erosion Control Plans shall be submitted, accepted, and distributed, as noted above, prior to land disturbing activities, including clearing and grubbing, commencing in that section. No land disturbing activities, including clearing and grubbing, shall occur in any location that does not have accepted Clearing & Grubbing and Final Grade RFC Erosion Control Plans. Refer to the most recent versions of the NCDOT *Erosion and Sediment Control Design and Construction Manual* and the NCDEQ - *Erosion and Sediment Control Planning and Design Manual* for erosion control design guidelines not addressed in this Scope of Work.

To ensure adherence with the April 1, 2019 NCG-010000 General Construction Permit, issued by the North Carolina Department of Environmental Quality, Division of Water Resources, the Design-Build Team shall formally submit a project-wide Vegetation Management Procedure for the Department's review and acceptance prior to any land disturbing activities. After this initial review, the Design-Build Team shall concurrently provide the Resident Engineer and Roadside Environmental Field Operations Engineer updated versions of the Vegetation Management Procedure on a monthly basis. These updated versions will not require formal submittal to the Design-Build Unit, but will be subject to review comments by the aforementioned field personnel. All versions of the Vegetation Management Procedure shall include, but not be limited to, 1) provisions for the early establishment of grasses / vegetation, 2) provisions for obtaining the required 80% permanent vegetation stand, as defined in the April 1, 2019 NCG-01000 General Construction Permit and in accordance with the *Permanent Vegetation Establishment* Project Special Provision found elsewhere in this RFP, by the project final completion date, and 3) procedure and schedule details for fertilizer topdressing, supplemental seeding, mowing and repair seeding. The Vegetation Management Procedure shall be closely coordinated with the grading and hauling operations.

From the beginning through the end of construction, the Design-Build Team shall maintain comprehensive "red-line" As-Constructed Drawings that detail when and where permanent / temporary / repair seeding and fertilizer topdressing have been performed.

Erosion and Sedimentation Control Plans shall at a minimum address the following:

I. Complete Set of Plans

A. Clearing and Grubbing Phase

1. Use correct NCDOT symbology.

2. Protect existing drainage structure inlets with Rock Inlet Sediment Trap Type 'A' (RIST-A), Rock Inlet Sediment Trap Type 'C' (RIST-C), Rock Pipe Inlet Sediment Trap Type 'A' (PIST-A), etc.
3. Utilize adequate perimeter controls (temporary silt ditches (TSD), temporary silt fence (TSF), etc.).
4. Clean Water Diversions (CWD) shall not be used to divert offsite runoff through the project construction limits.
5. Utilize skimmer basins and rock measures with sediment control stone (Temporary Rock Sediment Dam Type 'B' (TRSD-B), Temporary Rock Silt Check Type 'A' (TRSC-A), etc.) at drainage outlets.
6. Take into account topography and show existing contour lines on Clearing & Grubbing Plans only.
7. Utilize Temporary Rock Silt Checks Type 'B' (TRSC-B) or wattles to reduce velocity in existing ditches with spacing of 250 feet divided by percentage of ditch grade. Also utilize TRSC-B's in proposed TSD's and temporary diversions (TD).
8. Protect existing streams; do not place erosion control devices in live streams unless permitted by the Division of Water Resources 401 Certification and the Army Corps of Engineers 404 Permit.
9. Sediment basins shall be sized to provide adequate silt storage for 3600 cubic feet per disturbed acre with surface area equal to 435 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using 10-year peak rainfall data (NCDEQ - *Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service website **https://hdsc.nws.noaa.gov/hdsc/pfds/** for partial duration (ARI) time series type). A Sediment Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit upon request.
10. Skimmer Basins shall be sized to provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (NCDEQ - *Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service website **https://hdsc.nws.noaa.gov/hdsc/pfds/** for partial duration (ARI) time series type). Skimmer Basins shall be designed to dewater in two to three days. A Skimmer Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit upon request.
11. Design Riser Basins to the following standards:
    a. Surface Area shall be determined by Equation A (sq. feet) = Q10 (cfs) * 435.
    b. Volume requirement shall be 1800 cubic feet per disturbed acre draining to the riser basin.
    c. Riser Pipe shall have a cross-sectional area 1.5 times that of the barrel pipe.
    d. The riser pipe shall be non-perforated with a skimmer attached to the bottom of the pipe, one foot from the bottom of the basin.
    e. See NCDEQ - *Erosion and Sediment Control Planning and Design Manual* for additional design criteria.
12. The minimum and maximum length to width ratio of all Sediment Basins shall be 2:1 and 6:1, respectively.
13. Coir Fiber Baffles shall be installed in all silt basins and sediment dams at drainage outlets. For silt basins with a 20-foot or longer length, three Coir Fiber Baffles shall

be installed with a spacing of 1/4 the basin length. For silt basins with a length less than 20 feet, a minimum of two Coir Fiber Baffles shall be installed, with a spacing of 1/3 the basin length. The Design-Build Team will not be required to show the individual baffles on the Erosion Control Plans, but shall be required to incorporate the Coir Fiber Baffle Detail on the Erosion Control Plans.

14. Include any culvert and / or pipe construction sequence plan sheets in the Clearing & Grubbing Plans; all pipes 48 inches or larger, or any combination of pipes that total 48 inches or more shall require a construction sequence. Prior to installation of pipes smaller than 48 inches in jurisdictional areas, the Design-Build Team shall submit a phasing plan for managing the watercourse to the Resident Engineer for review and acceptance. The phasing plan shall be in accordance with the *Best Management Practices for Construction and Maintenance Activities*.
15. During construction, provide temporary sediment basins that dewater from the surface at all permanent stormwater devices.
16. Utilize Coir Fiber Wattles with Polyacrylamide (PAM) and / or TRSC-As with Matting and PAM in temporary and permanent, existing and proposed ditches at a spacing of 50 feet in areas where sediment basins are not feasible at drainage outlets and in areas where sediment basins at drainage outlets with sediment traps (i.e. PIST-A, RIST-A, etc.), cannot be properly sized to surface area and / or sediment storage requirements due to safety concerns, right of way restrictions, utility conflicts, or other construction limitations approved by the NCDOT Roadside Environmental Unit.
17. Place a device utilizing PAM at all sediment basin inlets.
18. At a maximum spacing of 200 feet, and as directed, utilize Special Sediment Control Fence drainage breaks in silt fence.
19. Do not place erosion control devices that require excavation (i.e. sediment basins, silt ditches, etc.) in wetlands.
20. Within the entire project limits, provide disturbed and undisturbed drainage areas in MicroStation Format.
21. For all drainage outlets where the runoff cannot be treated with a sediment basin and / or the sediment basin cannot be constructed to the required sediment storage or surface area requirements, provide a written explanation.
22. Excluding perimeter Sediment Basins that will function only during Clearing and Grubbing operations, all perimeter Sediment Basins shall be placed outside of fill slopes.

B. Final Grade Phase

1. Use correct NCDOT symbology.
2. Protect existing and proposed drainage structure inlets with RIST-A, RIST-C, PIST-A, etc.
3. Utilize adequate perimeter controls (TSD, TSF, etc.).
4. Clean Water Diversions (CWD) shall not be used to divert offsite runoff through the project construction limits.

5. Utilize TRSC-B's or wattles to reduce velocity in existing and proposed ditches with spacing of 250 feet divided by percentage of ditch grade. Also utilize TRSC-B's in proposed TSD's and TD's.
6. Utilize temporary slope drains and earth berms at top of fill slopes eight feet or higher and a fill slope steeper than 4:1, or where there are superelevations above 0.04 and fills are greater than five feet. Maximum slope drain spacing shall be 200 feet.
7. Utilize a rock energy dissipater at the outlet of all slope drains.
8. Devices at all drainage turnouts shall utilize skimmer or sediment control stone (TRSD-B, TRSC-A, etc.) and a spillway with an adequately designed base length to distribute outflow.
9. Sediment basins shall be sized to provide adequate silt storage for 3600 cubic feet per disturbed acre with surface area equal to 435 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using 10-year peak rainfall data (NCDEQ - *Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service website **https://hdsc.nws.noaa.gov/hdsc/pfds/** for partial duration (ARI) time series type). A Sediment Basin Designer Spreadsheet will be provided by NCDOT Roadside Environmental Unit upon request.
10. Skimmer Basins shall be sized to provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (NCDEQ - *Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service website **https://hdsc.nws.noaa.gov/hdsc/pfds/** for partial duration (ARI) time series type). Skimmer Basins shall be designed to dewater in two to three days. A Skimmer Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit upon request.
11. Design Riser Basins to the following standards:
    a. Surface Area shall be determined by Equation A (sq. feet) = Q10 (cfs) * 435.
    b. Volume requirement shall be 1800 cubic feet per disturbed acre draining to the riser basin.
    c. Riser Pipe shall have a cross-sectional area 1.5 times that of the barrel pipe.
    d. The riser pipe shall be non-perforated with a skimmer attached to the bottom of the pipe, one foot from the bottom of the basin.
    e. See NCDEQ - *Erosion and Sediment Control Planning and Design Manual* for additional design criteria.
12. Provide matting for erosion control (straw) in all ditch lines, including but not limited to temporary ditch lines (TDs) utilized to divert offsite runoff around construction areas, where the velocity is greater than 2.0 feet / sec, and the shear stress is 1.55 psf or less. For ditch lines with shear stress above 1.55 psf, but not greater than 2.5 psf, install matting for erosion control (excelsior). For ditch lines with a shear stress above 2.5 psf, rip rap shall be utilized, except at locations that the design will not allow (clear / recovery zone, etc.), where Permanent Soil Reinforcement Mat shall be installed.
13. Unless otherwise approved by the Roadside Environmental Field Operations Engineer, provide matting for erosion control on all slopes (cut and fill) that are steeper than 4:1 and a height of eight feet or greater.
14. Along all slopes (cut and fill) that are 30 feet or higher, place parallel rows of 12-inch Excelsior Wattles at a spacing height of 20 feet.

15. The minimum and maximum length to width ratio of all Sediment Basins shall be 2:1 and 6:1, respectively.
16. Coir Fiber Baffles shall be installed in all silt basins and sediment dams at drainage outlets. For silt basins with a 20-foot or longer length, three Coir Fiber Baffles shall be installed with a spacing of 1/4 the basin length. For silt basins with a length less than 20 feet, a minimum of two Coir Fiber Baffles shall be installed, with a spacing of 1/3 the basin length. The Design-Build Team will not be required to show the individual baffles on the Erosion Control Plans, but shall be required to incorporate the Coir Fiber Baffle Detail on the Erosion Control Plans.
17. During construction, provide temporary sediment basins that dewater from the surface at all permanent stormwater devices.
18. Utilize Coir Fiber Wattles with Polyacrylamide (PAM) and / or TRSC-As with matting and PAM in temporary and permanent, existing and proposed ditches at a spacing of 50 feet in areas where sediment basins are not feasible at drainage outlets, and in areas where sediment basins at drainage outlets with sediment traps (i.e. PIST-A, RIST-A, etc.) cannot be properly sized to surface area and / or sediment storage requirements due to safety concerns, right of way restrictions, utility conflicts, or other construction limitations approved by the NCDOT Roadside Environmental Unit.
19. Place a device utilizing PAM at all sediment basin inlets.
20. At a maximum spacing of 200 feet, and as directed, utilize Special Sediment Control Fence drainage breaks in silt fence.
21. Do not place erosion control devices that require excavation (i.e. sediment basins, silt ditches, etc.) in wetlands.
22. Within the entire project limits, provide disturbed and undisturbed drainage areas in MicroStation Format.
23. For all drainage outlets where the runoff cannot be treated with a sediment basin and / or the sediment basin cannot be constructed to the required sediment storage or surface area requirements, provide a written explanation.
24. All perimeter Sediment Basins shall be placed outside of fill slopes.

C. Intermediate Phase

Intermediate Erosion Control Plans shall only be required if design modifications and / or site conditions require additional erosion control design or design revisions to the RFC Clearing and Grubbing and / or RFC Final Grade Erosion Control Plans. Intermediate Plans shall be submitted for review and shall be accepted prior to construction of any aspect impacted by the revised erosion control design. For any intermediate phase, comply with Section B, “Final Grade Phase” above.

II. Detail Sheets and Notes

A. Provide project specific special notes and details, including but not limited to, skimmer basin, coir fiber wattle with Polyacrylamide (PAM), etc.
B. Provide matting summary sheet(s): matting for erosion control, permanent soil reinforcement mat, and coir fiber mat.

C. Provide reforestation sheet(s): regular, wetland, streambank and / or buffer showing appropriate species.

III. Title Sheet

A. Show correct notes: NCG-01, HQW, ESA, clearing and grubbing, etc.
B. Show correct standards for project
C. List standard NCDOT symbology
D. Show name and certification number of Level III certified individual responsible for designing and / or reviewing Erosion and Sedimentation Control Plans
E. Show name of primary NCDOT Roadside Environmental Unit Erosion and Sedimentation Control Plan reviewer

IV. Special Provisions

A. Erosion Control Special Provisions are available at the following website:

https://connect.ncdot.gov/resources/roadside/Pages/Soil-Water.aspx

B. References in Erosion Control Special Provisions from the aforementioned website to Method of Measurement, Basis of Payment, or any other statement regarding direct payment for Erosion & Sediment Control measures shall be disregarded.

C. *Erosion & Sediment Control / Stormwater Certification* Project Special Provision found elsewhere in this RFP.

V. Miscellaneous

A. Plan submittals shall include all pertinent design information required for review, such as design calculations, drainage areas, etc.
B. The NCDOT Roadside Environmental Unit will provide a sample set of Erosion and Sedimentation Control Plans (including any special details or special provisions used by the NCDOT Roadside Environmental Unit) and MicroStation Erosion Control Workspace to the Design-Build Team for reference upon request.
C. Plans shall address any environmental issues raised during the permitting process.
D. The Design-Build Team shall allow sufficient time in the proposed schedule to address any comments to the Erosion and Sedimentation Control Plans, as deemed necessary by the NCDOT Roadside Environmental Unit.
E. Temporary access and haul roads, other than public roads, constructed or used in connection with the project shall be considered a part of the project and addressed in the Erosion and Sedimentation Control Plans. Temporary access and haul roads located within the footprint and / or the right of way / easement corridor of the project shall be part of the highway Erosion and Sedimentation Control Plans. Temporary access and haul roads associated with borrow pits and staging areas shall be included in the Reclamation Plan.
F. At a minimum, the Design-Build Team shall install Floating Turbidity Curtain at Little Rockfish Creek where construction activities create surface fill impacts and where sufficient erosion and sediment control devices cannot be installed to contain sediment and / or turbidity impacts.

G. To contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment, provide Concrete Washout Structures at egress points. Concrete Washout Structures must collect and retain all concrete waste water and solids so that this material does not migrate to surface waters or into the ground water. The Concrete Washout Structures are not intended for concrete waste not associated with washout operations. The Concrete Washout Structures may include devices above or below ground and / or commercially available devices designed specifically to capture concrete waste water. Concrete Washout Structure options may be found in the special provision, available at the website noted in Section IV above. For construction details of an above grade and below grade Concrete Washout Structure, reference the website noted below:

https://connect.ncdot.gov/resources/roadside/SoilWaterDocuments/ConcreteWashoutStructuredetail.pdf

H. Borrow or waste areas that are part of the project shall require a separate Reclamation Plan, unless the borrow or waste activity is regulated under the *Mining Act of 1971*, or is a landfill regulated by the NCDEQ - Division of Waste Management (DWM). For newly created borrow pit(s) that require dewatering, Borrow Pit(s) Dewatering Basins shall be required and shall be in accordance with the applicable special provisions available at the website noted in Section IV above. The Design-Build Team shall submit the location and permit number for waste / borrow sites covered by the aforementioned Mining Act or regulated by the NCDEQ - DWM concurrently to the Design-Build Unit and the Resident Engineer. For Reclamation Procedures, see:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/ContractedReclamationProcedures.pdf

I. Whenever the Engineer determines that significant erosion and sedimentation continues despite the installation of approved protective practices, the Design-Build Team shall be required to, and shall, take additional protective action.
J. An accepted Erosion and Sedimentation Control Plan shall not exempt the Design-Build Team from making every effort to contain sediment onsite.
K. Any Erosion Control Design revision made during the construction of the project shall be submitted to the NCDOT Roadside Environmental Unit by the 15th of each month via the Design-Build Unit. At anytime requested by the Engineer or the NCDOT Roadside Environmental Unit, the Design-Build Team shall provide an updated version of the Erosion and Sedimentation Control Plans for distribution to all parties involved in the construction process.
L. The Design-Build Team shall comply with the North Carolina Administrative Code *Title 15A Environmental Quality* Chapter 4, Sedimentation Control.
M. A pre-submittal meeting shall take place between the NCDOT Roadside Environmental Unit Soil & Water Engineering Section, the Design-Build Team, and any other pertinent NCDOT personnel before any Erosion and Sedimentation Control Designs are submitted to the NCDOT Roadside Environmental Unit. Erosion and Sedimentation Control Plan submittals shall only be reviewed and accepted by the NCDOT Roadside Environmental Unit after the Erosion and Sedimentation Control Pre-Submittal Meeting. The Design-

Build Team shall be required to submit a tentative Erosion and Sedimentation Control Plan submittal schedule at the pre-submittal meeting.

N. At a minimum, the Design-Build Team shall bring one erosion control plan sheet with a Clearing & Grubbing erosion control design to the Erosion and Sedimentation Control Pre-Submittal Meeting.

O. All RFC Erosion and Sedimentation Control Plans, including any red line revisions, shall be kept on site at all times throughout the duration of the project.

P. Immediately after the clearing and grubbing erosion control measures have been installed for the entire project, or for individual sections if the Design-Build Team has divided the project into construction segments, the Design-Build Team's erosion and sedimentation control designer shall field verify constructed dimensions and installation of all erosion control devices. After this initial inspection(s), the aforementioned designer shall review the project conditions a minimum of every 30 days during the heavy grading operations, and as directed by the Engineer, to verify the field conditions of disturbed areas draining to erosion control devices and to ensure that the erosion control devices provide the current field condition requirements for sediment storage and surface area. During construction, the NCDOT may conduct separate field inspections of the project conditions and the erosion control devices. The erosion and sedimentation control designer shall make appropriate design revisions to the Clearing and Grubbing, Intermediate Erosion Control Plans and / or Final Grade Erosion Control Plans resulting from / required by the Design-Build Team and / or the Departmental field inspections for the Department's review and acceptance, in accordance with the Design-Build Submittal Guidelines. The Design-Build Team shall concurrently provide written documentation of all field verifications / inspections performed by the Design-Build Team to the NCDOT Roadside Environmental Unit, Soil and Water Engineering and Field Operations Section, and the Resident Engineer. At a minimum, this documentation shall detail what was observed during the field verification / inspection and all resulting required actions with a timeframe for implementation. When the project conditions no longer warrant, in the sole discretion of the Department, inspections by the erosion and sedimentation control designer may cease.

Q. The Design-Build Team's erosion and sedimentation control designer shall submit design calculations, for the Department's review and acceptance, for all modifications to the Erosion and Sedimentation Control Plans that result in dimension modifications and / or relocations, other than minor shifts to accurately place, to the devices noted below:

- Riser Basin
- Skimmer Basin and all devices with Skimmers
- Temporary Rock Sediment Dam Type A
- Temporary Rock Sediment Dam Type B
- Temporary Rock Silt Check Type A
- Culvert Construction Sequences
- Temporary and Permanent Stream Channel Relocations

R. Erosion & Sediment Control / Stormwater Certification shall be required according to the Project Special Provision found elsewhere in this RFP.

S. Prior to installation of any erosion control devices, the Design-Build Team shall verify boundaries of jurisdictional areas in the field and delineate with Safety Fence or flagging. For guidance on Safety Fence and flagging in jurisdictional areas, see:

https://connect.ncdot.gov/resources/roadside/Pages/Field-Operations-Documents.aspx

T. Once RFC Erosion and Sedimentation Control Plans are issued, any major design change or addition, any change that involves calculations, and any addition, deletion, or relocation of a sediment basin shall be submitted to the NCDOT Roadside Environmental Unit, via the Design-Build Unit, for review and acceptance. Minor changes such as moving silt fence, adding or moving temporary ditches (unless adding new runoff flow to a sediment basin), and adding or moving slope drains shall be reviewed by the Engineer in the field.

U. All erosion control measures with stone extending beyond the construction limits shall be considered temporary fill. If impacted wetland areas are permitted as Hand Clearing, then the aforementioned temporary fill shall be permitted as Temporary Fill in Hand Cleared Areas for Erosion Control. (Reference the Environmental Permits Scope of Work found elsewhere in this RFP)

V. Sediment basins that drain directly into jurisdictional water or have a total drainage area of one acre or more shall be designed and constructed with outlet structures that only withdraw water from the surface. For sediment basins that do not drain directly into jurisdictional water or have less than one acre of total drainage area, surface dewatering outlets or stone outlets may be provided.

W. In accordance with the requirements noted herein, the Design-Build Team shall be responsible for erosion control design, erosion control plans, erosion control plan implementation and maintenance of erosion control measures for all utility installation and relocation work performed by the Design-Build Team. To ensure that the Design-Build Team's erosion control designs, erosion control plan implementation and / or maintenance of erosion control measures do not conflict with the erosion control design, erosion control plan implementation and / or maintenance of erosion control measures for utility installation and / or relocation work performed by others, the Design-Build Team shall coordinate with the utility companies performing Utilities by Others (UBO) work.

X. Ground Cover Stabilization Requirements - NCG010000 (7 - 14 Days)

Ground cover stabilization shall comply with the timeframe guidelines specified by the North Carolina Department of Environmental Quality, Division of Water Resources NCG-010000 General Construction Permit that became effective on April 1, 2019. Excluding the slopes noted below, temporary and permanent ground cover stabilization shall be provided within seven calendar days from the last land-disturbing activity. The Design-Build Team shall label all slopes subject to the seven-day ground cover stabilization requirements on all Erosion and Sedimentation Control Plans submitted to the Department for review and acceptance.

For the slopes noted below, temporary and / or permanent ground cover stabilization shall be provided within 14 calendar days from the last land-disturbing activity:

Slopes between 2:1 and 3:1, with a slope length of ten feet or less
Slopes 3:1 or flatter, with a slope length of 50 feet or less
Slopes 4:1 or flatter

Temporary and / or permanent ground cover stabilization shall be provided in accordance with the provisions in this RFP, the Vegetation Management Procedure developed by the Design-Build Team and the April 1, 2019 NCG-010000 General Construction Permit.

Y. Additional Ground Cover Stabilization Requirements

Once the Design-Build Team identifies the area for stabilization due to inactivity, the Design-Build Team shall obtain concurrence from the Engineer and adhere to the following options based on the estimated amount of time the area will remain inactive. If the area stabilized exceeds the estimated timeframe, the Design-Build Team shall implement the next level of stabilization as directed by the Engineer.

All application rates noted below are in pounds per acre.

Short Term Stabilization - For areas that will remain inactive for up to 21 days

Erodible areas shall be stabilized utilizing non-vegetative cover. Non-vegetative cover options include straw mulch, hydraulic applied erosion control products or rolled erosion control products. If straw mulch is used, it shall provide 100% groundcover and be tacked sufficiently to hold the mulch in place for the duration of the inactive period. All other methods shall be installed according to the manufacturer's directions.

Mid-Term Stabilization -For areas that will remain inactive for up to 90 days

Erodible areas shall be stabilized utilizing the following stabilization protocol:

March 1 - August 31	**September 1 - February 28**
50# German or Browntop Millet	50# Rye Grain or Wheat
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

At the Engineer's sole discretion, the use of limestone on sandy soils that require topsoil for stabilization may be eliminated. The Design-Build Team shall consult with, and obtain written approval from, the NCDOT Roadside Environmental Unit prior to eliminating limestone.

Upon obtaining written approval from the Engineer, the Design-Build Team may use wood mulch and / or ground clearing and grubbing debris as an option for

Mid-Term Stabilization. If approved, the aforementioned mulch and / or debris shall be installed at a thickness that prevents erosion.

Long Term Stabilization - For areas that will remain inactive for more than 91 days

Erodible areas shall be stabilized utilizing the following stabilization protocol:

All Roadway Areas

March 1 – August 31	**September 1 – February 28**
10# Centipede *	10# Centipede *
50# Tall Fescue Cultivars **	50# Tall Fescue Cultivars **
25# Bermudagrass (hulled)	35# Bermudagrass (unhulled)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

* On cut and fill slopes 2:1 or steeper, the Design-Build Team shall apply centipede at a rate of five pounds per acre.

Riparian and Wetland Locations

March 1 – August 31	**September 1 – February 28**
18# Creeping Red Fescue Cultivars ***	18# Creeping Red Fescue Cultivars ***
6# Indiangrass	6# Indiangrass
8# Little Bluestem	8# Little Bluestem
4# Switchgrass	4# Switchgrass
25# Browntop Millet	35# Rye Grain
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Waste and Borrow Areas

March 1 – August 31	**September 1 – February 28**
75# Tall Fescue Cultivars **	75# Tall Fescue Cultivars **
25# Bermudagrass (hulled)	35# Bermudagrass (unhulled)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

**** Approved Tall Fescue Cultivars**

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

***** Approved Creeping Red Fescue Cultivars**

Aberdeen Boreal Epic Cindy Lou

From January 1 – December 31, the Design-Build Team shall apply an additional 20# of Sericea Lespedeza on cut and fill slopes 2:1 or steeper.

Fertilizer shall be 10-20-20 analysis or a different analysis that provides a 1-2-2 ratio applied at a rate that provides the same amount of plant food as a 10-20-20 analysis and as directed.

Soil Analysis

If vegetation establishment indicates a deficiency in soil nutrients or an incurred pH level is present, the Design-Build Team shall take soil samples and apply additional soil amendments to the affected area and as directed.

Fertilizer Topdressing

In accordance with the requirements noted below, the Design-Build Team shall apply a minimum of one Fertilizer Topdressing application to all permanently seeded areas immediately prior to completion of the project, twice during every growing season from April 1st through September 30th, and at other times as directed.

Fertilizer used for topdressing shall be 10-20-20 analysis applied at a rate of 500 pounds per acre; or a different analysis that provides a 1-2-2 ratio applied at a rate that provides the same amount of plant food as a 10-20-20 analysis and as directed.

Fertilizer used for waste and borrow areas shall be 16-8-8 grade applied at a rate of 500 pounds per acre; or a different analysis that provides a 2-1-1 ratio applied at a rate that provides the same amount of plant food as a 16-8-8 analysis and as directed.

Supplemental Seeding

For all supplemental seeding, the kinds of seed and proportions shall be the same as specified above for *Long Term Stabilization*, with the exception that centipede seed shall not be allowed in the seed mix. The rate of application for supplemental seeding shall be between 25# to 75# per acre. Prior to topdressing, the Design-Build Team shall determine the actual rate per acre for supplemental seeding and submit the supplemental seeding rate and areas to the Department for review and acceptance.

To prevent disturbance of existing vegetation, minimum tillage equipment, consisting of a sod seeder, shall be used to incorporate seed into the soil where degree of slope allows. Where degree of slope prevents the use of a sod seeder, a clodbuster (ball and chain) may be used.

Mowing

The minimum mowing height shall be four inches.

EROSION CONTROL COORDINATION MEETINGS

Preliminary Construction Meeting

Prior to any land disturbing activity, the Engineer will schedule a meeting with Division construction personnel, Design-Build Team senior management, Design-Build Team project staff, NCDOT project staff, consultant engineering / inspection staff, NCDOT Construction Unit, NCDOT Roadside Environmental Unit, Land Quality, Department of Water Resources and any other party associated with activities that impact the overall effectiveness of the project's erosion control.

During this meeting, the attendees shall review the Design-Build Team's Traffic Control Plans and identify potential erosion control issues. All attendees will provide comments, recommendations and supportive information to help facilitate resolution to the aforementioned potential erosion control issues.

Construction Meetings

Once construction begins, the Engineer will schedule monthly meetings to review the erosion control status. All parties listed above for the Preliminary Construction Meeting shall participate in these monthly construction meetings.

During the construction meetings, the erosion control efforts / issues to date will be reviewed and discussed. Additionally, the upcoming construction phases will be reviewed to identify potential erosion control issues. After the construction meeting, a project review may occur to identify site specific issues and identify solutions. The Design-Build Team shall be responsible for all actions, corrections and / or resolutions resulting from the construction meetings and / or subsequent site visits.

The NCDOT senior management will discuss issues that are repeatedly identified on inspection reports and / or discussed during the construction meetings with the Design-Build Team's senior management.

If project activities do not change the erosion control status / conditions, the Engineer may elect to change the construction meeting frequency or cancel a meeting.

EROSION CONTROL DAMAGES

The Design-Build Team shall observe and comply with Federal and State Laws, Local Laws, Ordinances, and Regulations; as well as Orders and Decrees of Bodies having any jurisdiction or authority in accordance with Section 107 of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

The Design-Build Team shall take all reasonable precautions to comply with all regulations of all authorities having jurisdiction over public and private land governing the protection of erosion and

sedimentation. Any fines, remediation required or charges levied against the Department for failing to comply with all rules and regulations concerning erosion and sediment control, due to the Design-Build Team's negligence, carelessness, or failure to implement the Erosion and Sedimentation Control Plans and Specifications; or failure to maintain an approved Storm Water Pollution Prevention Plan (SWPPP), regardless of absence of neglect, shall be deducted from monies due the Design-Build Team. In addition to said fines, remediation required, or charges levied, any associated engineering costs or actions taken by the Department in order for the Department to comply with rules and regulations, as a result of the Design-Build Team's negligence, carelessness, or failure to implement the Erosion and Sedimentation Control Plans and Specifications; and / or the SWPPP, regardless of absence of neglect, shall be deducted from the monies due to the Design-Build Team.

GEOTECHNICAL ENGINEERING SCOPE OF WORK (5-31-19)

I. GENERAL

All geotechnical data, tests, computations and supporting subsurface investigations and documentation submitted by the Design-Build Team shall be provided in English Units.

Obtain the services of a firm prequalified for geotechnical work by the NCDOT Geotechnical Engineering Unit at:

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

The prequalified geotechnical firm shall prepare foundation design recommendation reports for use in designing structure foundations, roadway foundations, retaining walls and temporary structures.

The Engineer of Record who prepares the foundation design recommendation reports shall be a Professional Engineer registered in the State of North Carolina who has completed a minimum of three geotechnical design projects of scope and complexity similar to that anticipated for this project using the load and resistance factor design (LRFD) method and in accordance with the latest edition of the AASHTO *LRFD Bridge Design Specification*.

The prequalified geotechnical firm shall also determine if additional subsurface information, other than that required and noted elsewhere in this RFP, is required based upon the subsurface information provided by the NCDOT and the final roadway and structure designs. If a determination is made that additional subsurface information is required; the Design-Build Team shall use a prequalified geotechnical firm to perform all additional subsurface investigation and laboratory testing in accordance with the current NCDOT Geotechnical Engineering Unit *Guidelines and Procedures Manual for Subsurface Investigations*. Submit additional information collected by the Design-Build Team to the Geotechnical Engineering Unit, via the Design-Build Unit, for review and acceptance. The Design-Build Team shall provide the final Subsurface Investigation report in electronic and hardcopy format to the NCDOT for its records.

Unless noted otherwise herein, the Design-Build Team shall design foundations, embankments, slopes and retaining walls in accordance with the current edition of the AASHTO *LRFD Bridge Design Specifications*, NCDOT *LRFD Driven Pile Foundation Design Policy,* all applicable NCDOT Geotechnical Engineering Unit Standard Provisions, NCDOT *Structures Management Unit Manual* and NCDOT *Roadway Design Manual*. The NCDOT *LRFD Driven Pile Foundation Design Policy* is located on the NCDOT Geotechnical Engineering Unit's website at:

https://connect.ncdot.gov/resources/Geological/Pages/default.aspx

For *Geotechnical Guidelines For Design-Build Projects*, the Design-Build Team shall adhere to the guidelines located at the following website:

https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

A minimum of two standard penetration test (SPT) / rock core borings shall be required per bent for all bent lengths of 50 feet or less. Additional SPT / rock core borings shall be required across the roadway typical section for each bent more than 50 feet long and the borings shall be spaced no greater than 50 feet apart. All borings for pile-supported bents shall be located within 25 feet of the centerline of each bent location to be counted for these minimum requirements. All borings for bents with spread footing or drilled pier foundations shall be performed at opposite ends of each bent, but not greater than 50 feet apart along the bent line, as required by the bent length noted above, to be counted for these minimum requirements. For structure sites with multiple bridges, borings may be performed between bridges along the bent projection provided the distance between any two borings does not exceed 50 feet. The Design-Build Team shall extend all borings to a depth of 15 feet or four foundation element diameters, whichever is greater, below the foundation element to show a complete subsurface profile. The Design-Build Team shall be responsible for obtaining the borings noted above for all bents where subsurface information is not sufficient or is warranted by variability in the geology unless the prequalified geotechnical firm submits documented justification that the subsurface investigation provided by the NCDOT is adequate for design purposes and the justification is acceptable to the Department. Any deviations to the requirements noted above shall require acceptance from the NCDOT Geotechnical Engineering Unit prior to the foundation design submittal.

The maximum spacing between borings for retaining walls shall be 100 feet, with a minimum of two borings; one at each end of the wall. Drill borings for retaining walls a minimum depth below the bottom of the wall equal to twice the maximum wall height.

II. ADDITIONAL DESIGN REQUIREMENTS

A. Structure Foundations

- Spread footings will not be allowed for bridge foundations.

- Permanent steel casings shall be required for drilled piers that are constructed in six inches or more of water. Permanent steel casings shall also be required for drilled piers constructed on stream banks and within ten feet of the top of stream banks.

- When the weathered rock or rock elevation is below the 100-year hydraulic scour elevation, the 100-year and 500-year design scour elevations shall be equal to the 100-year and 500-year hydraulic scour elevations from the bridge survey report developed by the Design-Build Team and accepted by the NCDOT Hydraulics Unit. When the weathered rock or rock elevation is above the 100-year hydraulic scour elevation, the 100-year design scour elevation may be considered equal to the top of the weathered rock or rock elevation, whichever is higher, and the 500-year design scour elevation may be set two feet below the 100-year design scour elevation.

- End bent fill slopes up to 35 feet in height (defined as the difference between grade point elevation and finished grade at toe of slope) shall be 1.5:1 (H:V) or flatter. End bent fill slopes with heights greater than 35 feet shall be 2:1 or flatter. All end bent cut slopes shall be 2:1 or flatter. All end bent slope protection shall be in accordance with the Structures Management Unit Standard Drawings SP1 and SP2.

- Analyze drilled pier and pile bent foundations using either L-Pile or FB-Pier. Design drilled piers and vertical piles in pile bents with a sufficient embedment in soil and / or rock to achieve "fixity".

- For box culverts, the Design-Build Team shall submit details for undercut of unsuitable material or recommendations for use of more than one foot of conditioning material to the NCDOT Geotechnical Engineering Unit, via the Design-Build Unit, for review and acceptance.

- Retaining walls and / or taller headwalls / end walls shall not be used to reduce the length of proposed culverts and / or the length of culvert extensions.

- Add steel pile points and cutting shoes to all driven steel H-piles and all driven open-ended pipe piles driven into weathered rock and / or rock, respectively.

B. Roadway Foundations

- Unless noted otherwise herein, all unreinforced proposed fill and cut slopes, except bridge end bent slopes (Reference Section A - Structure Foundations), shall be 3:1 (H:V) or flatter. Reinforced soil slopes shall only be used if 1) the NCDOT Geotechnical Standard Details No. 1803.1 and / or No. 1803.2 are applicable or 2) detailed design calculations and a slope stability analysis are submitted and approved prior to construction.

- Reinforced soil fill slopes shall only be used to minimize impacts to existing structures, and / or cultural, historical or otherwise protected landmark or topographic features.

- In accordance with the project specifications, Roadway Standard Drawings, and the Erosion and Sedimentation Control Scope of Work found elsewhere in this RFP, provide drainage recommendations including but not limited to the need for lateral ditches, underdrains, etc. for the existing mainline, excluding the transitions required to tie to existing to meet the following conditions:

    - Maintain a minimum two-foot vertical separation between the groundwater table and the bottom of the Class IV aggregate subgrade.

    - Coarse aggregate (No. 57 stone) shall be used for subsurface / pipe underdrains and shoulders.

- All ditches that intersect the water table and are below cut slopes requiring Class B rip rap plating, shall be lined with Class B rip rap that is a minimum of six feet wide and 12 inches deep, for their entire length.

- Calculate and report estimated settlement and rate of settlement at bridge approach embankments within 250 feet of end bents. Add wait periods, settlement monitoring, and soil improvement techniques that keep long term settlements equal to or less than one inch prior to performing fine grading of the subgrade.

- A minimum of two embankment settlement gages shall be required at each end bent when a waiting period of more than one month is recommended in the foundation design recommendation reports developed by the Design-Build Team. Install settlement plates at least one foot below original grade and begin monitoring prior to placing the first lift of the embankment.

- Calculate and report estimated settlement and rate of settlement for roadway embankments. Add wait periods, settlement monitoring, and soil improvement techniques that keep long term settlements equal to or less than two inches prior to performing fine grading of the subgrade.

- Where computed settlement is greater than six inches in roadway embankments, monitor settlement across the width of the embankment at a maximum spacing interval of 250 feet using settlement gages or other approved methods.

- Soil improvement techniques that mitigate long term settlement problems or transfer the embankment load to a deeper bearing stratum are acceptable means to accelerate construction. All soil improvement techniques shall follow the current industry standard practices and the guidelines of *Ground Improvement Methods FHWA publication NHI-04-001* or *Geosynthetic Design and Construction Guidelines FHWA-HI-95-038.*

- Mitigate all unsuitable soils to the extent required to improve the stability of the proposed embankment, walls or subgrade. Use any suitable material to backfill undercut areas except when employing shallow undercut in accordance with Section 505 of the 2018 *Standard Specifications for Roads and Structures* which requires the use of Select Material, Class IV. For undercut backfilling in water, use Select Material, Class III.

- Conduct proofrolling in accordance with Section 260 of the 2018 *Standard Specifications for Roads and Structures*. In areas where proofrolling fails or is not practical, the Engineer will conduct DCP testing in accordance with the following.

    - The Engineer will conduct DCP testing on the soils beneath the pavement base at a spacing of 100 feet when the Design-Build Team has notified the Department a location has been prepared (Reference the Pavement

Management Scope of Work found elsewhere in this RFP). If the DCP tests indicate poor soils beneath the pavement base, the Engineer will provide direction to undercut and place Class IV subgrade stabilization. Payment of the Class IV subgrade stabilization for these undercut areas will be paid for as extra work in accordance with Subarticle 104-8(A) of the 2018 *Standard Specifications for Roads and Structures* at the unit price of $50.00 per cubic yard (in place volume). This payment will be considered full compensation for the subgrade undercut, removal and proper disposal of the undercut material, and the placement and compaction of the Class IV subgrade stabilization.

C. Permanent Retaining Wall Structures

- Retaining walls will not be allowed at any location where more than five feet of scour is calculated at the base of the wall.

- For design and construction of mechanically stabilized earth (MSE) retaining walls, refer to the NCDOT *Policy for Mechanically Stabilized Earth Retaining Walls* which can be found at the NCDOT Geotechnical Engineering Unit's website at:

  https://connect.ncdot.gov/resources/Geological/Pages/Products.aspx

- With the exception of walls covered by a Geotechnical Engineering Unit Standard Detail, design and construct permanent retaining walls in accordance with the applicable NCDOT Geotechnical Engineering Unit Project Special Provisions, which can be provided upon request by the Design-Build Team. Geotechnical Provisions and Notes can be found at the NCDOT Geotechnical Engineering Unit's website at:

  https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Provisions_Notes.aspx

- Submit a wall layout and design for each retaining wall. The wall layout submittal shall include at least the following.

  - Wall envelope with top of wall, bottom of wall, existing ground, and finished grade elevations at incremental stations
  - Wall alignment with stations and offsets
  - Typical sections showing top and bottom of wall, drainage, embedment, slopes, barriers, fences, etc.
  - Roadway plan sheets showing the wall (half size)
  - Roadway cross sections sheets showing the wall (half size)
  - Traffic Control Plans showing the wall (half size)

- For project retaining walls requiring a design not covered by a Geotechnical Engineering Unit Standard Drawing, the wall layout submittal shall also include the following.

    - Calculations for sliding, overturning, bearing capacity, global stability, and settlement
    - Details of conflicts with utilities and drainage structures

- Locate retaining walls at toes of slopes unless restricted by right of way limits. The Design-Build Team shall submit global stability calculations for slopes at retaining walls and obtain acceptance from the NCDOT prior to construction. All slopes behind walls shall be 2:1 (H:V) or flatter.

- Cut wall (e.g., soil nail walls, soldier pile walls) anchors (where necessary) shall be located within the project right of way.

- Due to anticipated high groundwater elevations, walls shall be designed to handle hydrostatic forces and incorporate horizontal drains that aid in drainage of ground water behind the wall.

- Drainage over the top of retaining walls and sags in the top of walls shall not be allowed. Direct runoff above and below walls away from walls, if possible, or collect runoff at the walls and transmit it away. Curb and gutter or cast-in-place single faced barrier with paving up to the wall shall be required when runoff cannot be directed away from the back or front of the wall. In accordance with the NCDOT Roadway Design Manual - Section 6-7A, Figure 3, the Design-Build Team shall design and construct a paved concrete ditch, with a minimum 12-inch depth, at the top of all retaining walls with slopes draining towards the wall, and a four-foot bench between the wall and fill / cut slopes steeper than 6:1 (H:V).

- Precast or cast-in-place coping shall be required for walls without a cast-in-place face with the exception of when a barrier is integrated into the top of the wall. Extend coping or cast-in-place face a minimum of 12 inches above where the finished or existing grade intersects the back of the wall.

- The Design-Build Team shall provide a six-foot chain-link fence or handrail, as directed by the Engineer, on top of the facing, coping or barrier, or immediately behind, all proposed walls and existing walls to remain in place that are a minimum of 30.0” tall and will not have a slope behind the wall in the final condition.

D. Temporary Structures

- Design temporary retaining structures, which include earth retaining structures and cofferdams, in accordance with current allowable stress design AASHTO *Guide Design Specifications for Bridge Temporary Works,* the *Temporary Shoring* Standard Special Provision found elsewhere in this RFP and the applicable

NCDOT Project Special Provisions available upon request by the Design-Build Team. The only submittal required to use the standard sheeting design is the "Standard Shoring Selection Form".

- Traffic control barrier on top of walls shall be in accordance with the NCDOT Work Zone Traffic Control Unit details available upon request by the Design-Build Team. If anchored barrier is required, then anchor the barrier in accordance with NCDOT 2018 Roadway Standard Drawing No. 1170.01.

III. ADDITIONAL CONSTRUCTION REQUIREMENTS

- Prior to incorporating recommended remedial measures into the project, the Design-Build Team shall investigate, propose, and submit proposed remedial measures to the NCDOT Geotechnical Engineering Unit for review and acceptance for any construction problems related to the following.
    - Foundations
    - Retaining walls
    - Sound barrier walls
    - Subgrades
    - Settlement
    - Slopes
    - Construction vibrations

- The prequalified geotechnical firm which prepares the foundation designs shall review and approve all pile driving hammers and drilled pier construction sequences. After the prequalified geotechnical firm has approved these submittals, the Design-Build Team shall submit them to the NCDOT for review and acceptance prior to beginning construction. Hammer approvals shall be submitted prior to performing any pile driving and shall be performed using GRLWEAP Version 2010 or later.

- The prequalified geotechnical firm which prepares the original foundation designs shall be responsible for any necessary changes to the foundation designs revising analysis, recommendations, and reports as needed. All changes shall be based upon additional information, subsurface investigation and / or testing. Send copies of revised designs, including additional subsurface information, calculations and any other supporting documentation to the NCDOT for review and acceptance.

- The prequalified geotechnical firm which prepares the embankment design for a bridge or roadway fill shall review any necessary settlement monitoring data at least weekly and provide monthly updates to the NCDOT Geotechnical Engineering Unit. This firm shall issue a release letter ending the wait period for an embankment fill once the settlement criteria listed elsewhere in this RFP has been met. Settlement monitoring data and recommendations shall be submitted to the Design-Build Unit for review and acceptance prior to issuing a release letter.

- The Design-Build Team shall be responsible for any damage and / or claim caused by construction, including but not limited to damage caused by vibration (see Article 107-14 of the 2018 *Standard Specifications for Roads and Structures*). The Design-Build Team shall be responsible for deciding if any pre- and post-construction monitoring and inventories need to be conducted. Any monitoring and inventory work shall be performed by a prequalified consulting firm.

- Prequalification of contractors is not required for pile excavation or drilled-in pile holes that are 30 inches in diameter or less. Class A concrete or grout shall be required to backfill holes for drilled-in piles.

- Use Pile Driving Analyzer (PDA) testing on a minimum of two production piles for each pile size and type for each bridge with driven piles using the approved hammer driving system for the pile. The two test piles shall not be located at the same bent to meet this requirement. PDA test piles shall be spread out across the bridge to provide data across the bridge site. Drive criteria at each bent shall be based on the PDA test pile most representative of the conditions at the bent and shall be approved by NCDOT. PDA testing shall be performed during initial drive and as necessary for re-strikes of the tested pile. Changes in hammer driving systems and / or additional similar hammer driving systems shall require additional PDA testing. Additional PDA testing may be warranted based on AASHTO *LFRD Bridge Design Specifications* and shall be recommended as needed by the geotechnical foundation design engineer and submitted to the NCDOT for review and acceptance.

- The PDA Consultant shall perform PDA testing, provide PDA reports, and develop pile driving inspection charts or tables. All recommendations shall be submitted to NCDOT for review and acceptance prior to driving any additional production piles at the applicable bridge.

- For drilled piers the following shall apply.

    - Use current NCDOT inspection forms for drilled piers available on the NCDOT Geotechnical Engineering Unit's webpage. Construct and inspect drilled piers in accordance with Section 411 of the 2018 *Standard Specifications for Roads and Structures* and the *Drilled Piers* Project Special Provision located on the NCDOT Geotechnical Engineering Unit's website.

    - The Department will inspect drilled piers using the Shaft Inspection Device (SID) for any pours using the wet method of concrete placement and for any drilled pier excavations that cannot be visually inspected or have remained open longer than 24 hours that cannot be dewatered due to unstable soil or rock.

- The Design-Build Team shall notify Matt Hilderbran, PE by e-mail (mrhilderbran@ncdot.gov) a minimum of five days prior to required SID testing, followed by a confirmation two days prior to required SID testing. The Design-Build Team shall notify Matt Hilderbran of all SID testing cancellations as soon as possible at the e-mail address noted above and at (919) 329-4015.

- Install Crosshole Sonic Logging (CSL) tubes in all drilled piers. CSL test a minimum of 25% of drilled piers at each bridge or one per bent, whichever is greater. If a CSL test identifies any defect in the drilled pier, the Department has the right to request additional CSL testing and / or tomography as needed. The Department will determine which piers will be CSL tested. Submit CSL and tomography test information and results to the Geotechnical Engineering Unit, via the Design-Build Unit, for review and acceptance.

- Drilled pier tip elevations shall not be changed during construction unless the prequalified geotechnical firm which prepares the bridge foundation design redesigns the drilled pier from either an SPT / rock core boring, performed in accordance with ASTM standards at the subject pier location, or observations of the drilled pier excavation. If a drilled pier is designed based on a boring, do not drill a boring inside an open drilled pier excavation. Locate the boring within three pier diameters of the center of the subject pier and drill to a depth of two pier diameters below the revised tip elevation. If a drilled pier is redesigned based upon observations of the drilled pier excavation, the geotechnical engineer of record shall be present during the excavation to determine the actual subsurface conditions.

- The geotechnical grade point shall be defined as the location where the proposed subgrade and natural ground intersect. At all geotechnical grade points, the Design-Build Team shall undercut the existing soils within two feet of the bottom of the proposed subgrade in accordance with the requirements below.

  - The undercut shall extend along the profile to a point where the elevation difference from the bottom of the proposed subgrade to natural ground is greater than two feet, or to 25 feet on each side of the geotechnical grade point, whichever is less.

  - The lateral extent of the undercut shall extend to a point where the elevation difference from the bottom of the proposed subgrade to natural ground is greater than two feet or to one foot outside of the paved shoulder / face of curb of the proposed roadway typical section, whichever is less.

  - The base of the undercut shall parallel the proposed subgrade.

- Send copies of any inspection forms related to foundations, settlement, sound barrier walls, or retaining walls to the NCDOT for review and acceptance.

HYDRAULICS SCOPE OF WORK (5-30-19)

1 GENERAL

1.1 Design Team Qualification

The Design-Build Team's hydraulic design firm(s) shall be on the NCDOT's list of firms qualified to perform all hydraulic design work required under this contract. The firm must be prequalified for Tier II hydraulic design work under NCDOT's normal prequalification procedures prior to the Price Proposal submittal date.

1.2 Pre-Design Meeting

The Design-Build Team shall hold a pre-design meeting with the Design-Build Unit, and the NCDOT Hydraulics Review Engineer upon acceptance of the Preliminary Roadway Plans developed by the Design-Build Team.

2 PROJECT SCOPE

2.1 Project Specific Details

2.1.1 Direct connections from impervious surfaces to the receiving waters shall be minimized to the maximum extent practicable.

3 DESIGN REQUIREMENTS

3.1 Storm Drainage System Design

3.1.1 The Design-Build Team shall design all storm drainage systems using Geopak Drainage, including but not limited to incorporating discharges from allowable routing programs.

3.1.2 Raised median island cuts will not be allowed.

3.1.3 All drainage system improvements shall be contained within the right of way. When tying directly to existing downstream systems outside the right of way that are hydraulically deficient during the design storm, the Design-Build Team shall provide an OTCB or 2GI within the right of way limits.

3.1.4 Open-ended Berm Drainage Outlets on cut slopes greater than 12 feet in height will not be permitted. Instead, an OTCB inlet structure shall be used.

3.1.5 The Design-Build Team shall use a minimum ditch grade of 0.3%. The Design-Build Team shall avoid constructing ditches in wetlands.

3.1.6 At a minimum, the Design-Build Team shall install traffic bearing grated drop inlets with cast iron double frame and grates at the following locations:

- Within a temporary travel lane
- Within four feet of a temporary and / or permanent travel lane.

3.1.7 All frame and grates located within 30 feet of SR 1102 (Gillis Hill Road) travelway shall be bicycle and pedestrian safe.

3.1.8 Existing and proposed longitudinal pipe (trunkline) shall not be located beneath the proposed roadway travel lanes.

3.1.9 The Design-Build Team shall provide additional outlet protection at all pipe outlets with a ten-year partial flow velocity greater than 15 fps. The aforementioned outlet protection shall mitigate erosive velocities to receiving downstream channels.

3.2 Hydraulic Spread

3.2.1 The hydraulic spread shall not encroach into any operational lane beyond the limits noted below:

- For roadways, the hydraulic spread shall not exceed the values specified in Table 10-1 of the current *North Carolina Division of Highways Guidelines for Drainage Studies and Hydraulics Design*. For lanes adjacent to the median, the design spread shall not exceed three (3) feet into the travel lane.
- For shoulder facilities, including those with expressway gutter and shoulder berm gutter, the hydraulic spread shall not encroach into a permanent travel lane and shall not encroach more than two feet into an operational temporary travel lane.
- For bridges on alignments with design speeds greater than 45 mph, the hydraulic spread shall not encroach into an operational permanent or temporary through lane on a bridge. The hydraulic spread shall not encroach more than a distance that equals half the lane width or six feet, whichever is less, into an operational permanent or temporary exclusive turn lane.

3.3 Bridge Drainage

3.3.1 The Design-Build Team shall analyze spread for all bridges identified in the Structures Scope of Work found elsewhere in this RFP and, as necessary, provide mitigation that adheres to the hydraulic spread requirements noted above. If required, the Design-Build Team shall adhere to the bridge drainage system requirements noted below:

- The Design-Build Team shall design bridge drainage without the use of bridge scuppers (open grated inlets) or closed / suspended drainage systems. If deck drains are used on the bridge, they shall be vertical pipes at the flow line through the deck with no elbow and shall be consistent with that shown in the current NCDOT Stormwater Best Management Practices Toolbox.
- The Design-Build Team shall use 4” deck drains adjacent to pedestrian facilities.
- The Design-Build Team shall provide bridge drainage features that prevent direct discharge into waterways or onto any existing / future greenway, travel lanes or paved shoulders.
- The maximum allowable deck drain spacing shall be 12-foot on center.

3.4 Hydroplaning Analysis

3.4.1 The Design-Build Team shall perform a hydroplaning risk assessment and, as necessary, provide mitigation that minimizes hydroplaning risk for all new and existing roadways within the construction limits.

3.4.2 The Design-Build Team shall utilize one of the following methods to perform the hydroplaning risk assessment:

- *Hydraulic Engineering Circular 22,* 3rd Edition, 2009
- *AASHTO Highway Drainage Guidelines*, 2007
- *AASHTO Drainage Manual,* 2014
- *GDOT Drainage Design for Highways,* 2017
- *FDOT Hydroplaning Risk Analysis Design Guidance,* HP Program, 2014

3.4.3 The Design-Build Team shall give particular attention to areas with zero superelevation in a crest and / or sag vertical curve, and superelevation reversal points.

3.4.4 The Design-Build Team shall develop a Final Design Hydroplaning Risk Assessment Report that shall be included with the Preliminary Roadway Plans submittal for the Department's review and acceptance.

3.5 Stormwater Management

3.5.1 In accordance with the NCDOT Stormwater Best Management Practices Toolbox and the NCDOT Post-Construction Stormwater Program, effective on the Price Proposal submittal date, the Design-Build Team shall develop a Stormwater Management Plan that, at a minimum, demonstrates the following:

- To the maximum extent practicable, stormwater runoff shall be diverted away from surface waters.
- To the maximum extent practicable, on-site stormwater control measures shall be employed to minimize water quality impacts.
- Underground detention will not be allowed. No additional right of way will be acquired solely for stormwater management.

3.5.2 In accordance with the *Guidelines for Drainage Studies and Hydraulics Design,* including all addenda, memos and revisions, the Design-Build Team shall prepare Outlet Analyses for the increases in discharge due to the proposed project and take appropriate action to ensure that any increases are appropriately mitigated. Such mitigation measures shall first consider long-term maintenance of the proposed mitigation. Except as otherwise noted, improvements to receiving channels shall be implemented before implementing any basin type structures.

3.6 Drainage Structures

3.6.1 Throughout this RFP, the term *drainage structures* shall include box culverts, cross pipes and storm drainage systems.

3.6.2 In accordance with the *Guidelines for Drainage Studies and Hydraulics Design,* the Design-Build Team shall provide a Bridge Survey Report for the Little Rockfish Creek crossing to the Department for review and acceptance.

3.6.3 The Design-Build Team shall replace all existing metal pipes within the project construction limits with the appropriate pipe type, in accordance with the *Drainage Pipe* Project Special Provision found elsewhere in this RFP.

3.6.4 The Design-Build Team shall develop discharges for all drainage structures based upon the future build-out land use projections. At a minimum, the Design-Build Team shall use a level of future urbanization with a percent impervious area based on the future land use of Cumberland County / municipal zoning maps and shall be no less than 20% throughout the project. The Design-Build Team shall not include the effects of storage when computing discharges for hydraulic design and analysis for areas less than 50% impervious and / or areas without storm drainage systems. For drainage areas where impervious surfaces are greater than 50% and / or areas with storm drainage systems, routing will be allowed. EPA SWMM, USACE HMS, Win TR-20, HydroCAD or equivalent are acceptable programs for routing. A storm drainage duration of 24 hours shall be used in developing the hydrograph.

3.6.5 Revise the *Guidelines for Drainage Studies and Hydraulic Design as follows:*

(1) Table 7-2, Peak Discharge Method Selection

(A) Rational Method is acceptable up to 64 acres.

(B) Delete the NCDOT Hwy. Hydrologic Charts column

(2) Delete Appendix C - NCDOT Hydrologic Charts

(3) Section 15.6 Temporary Encroachment in Regulatory Floodway

(A) Section 15.6 is not applicable on this project. The Design-Build Team shall assume all liability for any flood damages resulting from the temporary encroachment.

3.6.6 For all existing and proposed box culverts and pipes (including all extensions), a minimum 1.5-foot freeboard shall be required below the shoulder point during the design storm. The Design-Build Team shall not steepen slopes, reduce easements and / or reduce right of way solely to obtain the aforementioned freeboard requirement.

3.6.7 A maximum HW/D = 1.2 shall be not be exceeded for all existing and proposed box culverts and pipes (including all extensions) during the design storm.

3.6.8 All existing and proposed storm drainage systems shall maintain a hydraulic grade line that is a minimum of 0.5 feet below the inlet rim elevation or top of junction box; and shall adhere to all other requirements as identified in Chapter 10 of the *Guidelines for Drainage Studies and Hydraulic Design*.

3.6.9 Cross drainage shall be conveyed with a single drainage structure (pipe or box culvert). Multiple lines of pipe, supplemental pipes, and / or more than three (3) box culvert barrels serving the same watershed shall not be allowed.

3.6.10 The maximum pipe diameter shall be 72 inches, including but not limited to pipes that are upsized to allow for a buried inlet / outlet condition.

3.6.11 For all cross structures requiring a hydraulically effective waterway opening of thirty square feet or more, excluding any area that is buried below the streambed, a reinforced concrete box culvert shall be required. The minimum reinforced concrete box culvert barrel height (inside dimension) shall be eight (8) feet, with a minimum six-foot clear opening height above the streambed. The minimum reinforced concrete box culvert barrel width (inside dimension) shall be six (6) feet.

3.6.12 Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall remove or fill with flowable fill all pipes not retained for drainage purposes.

3.6.13 Within the existing / proposed right of way, the Design-Build Team shall analyze all drainage structures for hydraulic and structural deficiencies that are located within the existing / proposed right of way. Using the hydraulic discharges for the future build-out land use projections, existing drainage structures that do not adhere to the requirements in Sections 9.5.1.3 and 9.5.2.3 of the *Guidelines for Drainage Studies and Hydraulic Design,* including all addenda, memos and revisions, and / or the freeboard, backwater, and HW/D requirements noted above, shall be deemed hydraulically deficient.

3.6.14 Based on the above analyses, the Design-Build Team shall provide the appropriate hydraulic mitigation for 1) all hydraulically deficient drainage structures and 2) all hydraulically and structurally deficient drainage structures, including but not limited to replacement. For major hydraulic crossings (crossings requiring a hydraulically effective waterway opening of thirty (30) square feet or more, excluding any area that is buried below the streambed), the Design-Build Team shall 1) remove all hydraulically, or hydraulically and structurally deficient box culvert(s) and / or pipe(s), and 2) replace the aforementioned box culvert(s) and / or pipe(s) with a box culvert. Inlet improvements outside the right of way shall not be allowed to mitigate for hydraulically deficient box culverts and / or pipes. Based on build-out discharges, the Design-Build Team shall identify all hydraulically deficient drainage structures and note their proposed mitigation in the first hydraulic design submittal.

3.6.15 To ensure that all pipes and box culverts retained for drainage purposes are structurally sound, the Design-Build Team shall provide appropriate documentation, in the Department's sole discretion, for the Department's review and approval prior to any hydraulic design submittal. At a minimum, the aforementioned documentation shall include a video inspection of each pipe and box culvert retained for drainage purposes, and a corresponding inspection report. The video inspection shall be performed with a Closed Circuit Television Video (CCTV) steerable pipe crawler / rover that is tethered to a cable reel and capable of capturing 360° views from within the pipe or box culvert. The inspection report shall identify the elements noted below for each pipe and box culvert retained for drainage purposes:

- Structural integrity of each joint, in its entirety, including but not limited to joint failure, joint separation and joint offsets
- Longitudinal, transverse circumferential and multi-directional cracking
- Spalling
- Seepage and infiltration into the pipe
- Pipe failures, including but not limited to deferential settlement, material deformation and puncture holes

The Design-Build Team shall also provide the location of each item noted above, as measured from the outlet end of the pipe. If, for any reason, the video inspection or report is incomplete or inconclusive, the Design-Build Team shall perform another inspection and develop another report at no additional cost to the Department. Prior to performing

any storm drain clean-out required for the aforementioned video inspections, the Design-Build Team shall obtain approval from the Engineer. In accordance with Subarticle 104-8(A) of the 2018 *Standard Specifications for Roads and Structures*, required storm drain clean-out will be paid for as extra work.

3.6.16 As directed by the Engineer, the Design-Build Team shall provide the appropriate structural mitigation for all structurally deficient box culverts and / or pipes. Structural mitigation, for structural deficiencies in box culverts and / or pipes, including but not limited to, all repairs and replacement will be paid for as extra work in accordance with Subarticle 104-8(A) of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

3.6.17 All proposed drainage boxes, including but not limited to catch basins, drop inlets and junction boxes, shall have a grate or manhole access.

4 PERMIT COORDINATION AND FEMA REGULATED STREAMS

4.1 Permit Coordination

The Design-Build Team shall conduct an interagency hydraulic design review meeting and an interagency permit impacts meeting prior to submittal of the environmental permit package. (Reference the Environmental Permits Scope of Work found elsewhere in this RFP.) All work resulting from the interagency hydraulic design review meeting and the interagency permit impacts meeting shall be the Design-Build Team's responsibility. A minimum of five weeks prior to the appropriate interagency meeting, the Design-Build Team shall provide 1) hydraulic plans and 2) permit drawings, calculations, and impact sheets for the USACE 404 Permit and the NCDWR Section 401 Certification to the Design-Build Unit. The Design-Build Team shall take minutes of the interagency hydraulic design meeting and the interagency permit impacts meeting, and provide them to the Department within three business days of the aforementioned meetings.

4.2 FEMA Regulated Streams

For all FEMA regulated streams impacted by the Design-Build Team's design and / or construction, the Design-Build Team shall adhere to the current *Guidelines for Drainage Studies* and *Hydraulics Design*, including all addenda, memos and revisions, and the following requirements:

4.2.1 The Design-Build Team shall prepare a CLOMR or MOA package for the Department's submittal to the North Carolina Floodplain Mapping Program (NCFMP). The Design-Build Team shall obtain NCFMP approval prior to performing any construction activity in a FEMA regulated floodplain.

4.2.2 Where a CLOMR is required, the spanning structure shall be designed such that only 0.5 feet of rise occurs between the Corrected Effective and the Revised Conditions for the 100-year water surface elevation.

4.2.3 The Design-Build Team shall notify the Design-Build Unit, in writing, of all structures that may require purchase due to an increase in the 100-year water surface elevation. The Department will be responsible for all surveys to ascertain insurable structures within the impacted area of the floodplain(s). The Design-Build Team shall discuss the extent and

limits of the rise in water elevation in the floodplain(s), identify potentially impacted insurable structures, specify areas anticipated to require additional surveys and estimate the anticipated additional right of way impacts outside the project construction limits in the first hydraulic design submittal. (Reference the Right of Way Scope of Work found elsewhere in this RFP.)

4.2.4 The Department will be responsible for all fees associated with the CLOMR(s) and / or MOA(s).

4.2.5 The Design-Build Team shall ensure that construction and / removal of all structures in FEMA regulated floodplains adheres to the approved CLOMR(s) and / or MOA(s). Within three months of completion of work in a FEMA-regulated floodplain, the Design-Build Team shall provide As-Built Plans of the site, and a completed As-Built Certification Review Form that verifies construction adheres to the approved CLOMR(s) and / or MOA(s).

4.2.6 The Design-Build Team shall prepare a new FEMA model and / or package and be responsible for all associated costs resulting from any construction variation from the approved CLOMR(s) and / or MOA(s).

4.2.7 The Department will allow no direct contact between the Design-Build Team and the NCFMP representatives. No contact between the Design-Build Team, the NCFMP and / or personnel under contract with NCFMP shall be allowed by phone, e-mail, or in person, without NCDOT representatives present. A representative from the Design-Build Unit shall be included on all correspondence.

4.2.8 Temporary impacts due to construction and / or on-site detour traffic that 1) last longer than one year and / or 2) encroaches into the floodway, shall be reviewed by the Design-Build Team for changes in the water surface elevations that could impact structures or have adverse impacts to the surrounding property. The results of the review shall be submitted to the Hydraulics Unit in a report format for the Department's coordination with NCFMP.

5 GENERAL STANDARDS

Perform all work in accordance with the latest publication of the following that are effective on the Price Proposal submittal date, including all revisions, errata, addenda, etc., unless noted otherwise elsewhere in this RFP:

- NCDOT *Best Management Practices for Construction and Maintenance Activities*
- NCDOT *Design-Build Submittal Guidelines*
- NCDOT *Guidelines for Drainage Studies and Hydraulics Design,* excepted as may be amended herein
- NCDOT Hydraulics Unit website:

  https://connect.ncdot.gov/resources/hydro/pages/default.aspx
- NCDOT *Post-Construction Stormwater Program*
- NCDOT *Stormwater Best Management Practices Toolbox*

In case of conflicting design parameters, and / or ranges, in the various resources, the proposed design shall adhere to the *Guidelines for Drainage Studies and Hydraulics Design*, including all addenda, memos and revisions, unless noted otherwise elsewhere in this RFP.

PAVEMENT MANAGEMENT SCOPE OF WORK (5-29-19)

SR 1102 (GILLIS HILL ROAD) REQUIREMENTS

SR 1102 (Gillis Hill Road) Pavement Resurfacing / Uniform Overlay

Excluding the sections of SR 1102 (Gillis Hill Road) that consist solely of pavement marking obliterations and / or revisions the Design-Build Team shall resurface the existing SR 1102 (Gillis Hill Road) pavement that remains in place (travel lanes and shoulders) with a minimum 3.0" S9.5B and use the alternate pavement design chosen, as defined above, for all widening and new location. However, the Design-Build Team shall not install the final surface course layer along the northern leg of the SR 1102 (Gillis Hill Road) / Stoney Point intersection that is not being designed or constructed to the ultimate improvements. (Reference the Roadway Scope of Work found elsewhere in this RFP)

Throughout the SR 1102 (Gillis Hill Road) construction limits that consist solely of pavement marking obliterations and / or revisions, the Design-Build Team shall uniformly overlay the existing pavement to remain in place (travel lanes and shoulders) with 1.5" of S9.5B.

SR 1102 (Gillis Hill Road) Widening and New Location

The pavement design for the SR 1102 (Gillis Hill Road) travel lanes, and the SR 1102 (Gillis Hill Road) outside paved shoulders shall consist of one of the alternates below. Except as allowed otherwise below, the Design-Build Team shall maintain the same pavement design throughout the SR 1102 (Gillis Hill Road) construction limits. The Design-Build Team shall not install the final surface course layer along the northern leg of the SR 1102 (Gillis Hill Road) / Stoney Point intersection that is not being designed or constructed to the ultimate improvements. (Reference the Roadway Scope of Work found elsewhere in this RFP)

ALTERNATE 1 – ASPHALT PAVEMENT (FULL-DEPTH ASPHALT)

SR 1102 (Gillis Hill Road) Travel Lane and Outside Shoulder Pavement Design

The pavement design for the SR 1102 (Gillis Hill Road) travel lanes and outside paved shoulders shall consist of the following:

3.0" S9.5B
4.0" I19.0C
4.0" B25.0C

ALTERNATE 2 – ASPHALT PAVEMENT (AGGREGATE BASE COURSE)

SR 1102 (Gillis Hill Road) Travel Lane and Outside Shoulder Pavement Design

Except as allowed otherwise below, the pavement design for the SR 1102 (Gillis Hill Road) travel lanes and outside paved shoulders shall consist of the following:

3.0” S9.5B
4.0” I19.0C
6.0” ABC

OTHER REQUIREMENTS

-Y- Line pavement designs are not required on this project.

Longitudinal joints of all surface course layers shall not be located in the final traffic pattern wheel path.

Unless noted otherwise elsewhere in this RFP, the minimum narrow widened width shall be six feet. The minimum narrow widened width may be reduced to four feet only if the Design-Build Team demonstrates that their equipment properly compacts narrow widening and obtains prior Department written approval. Tapers that tie proposed pavement to existing pavement are excluded from the narrow widening requirements noted above. For tapers that tie proposed pavement to existing pavement, the Design-Build Team may use 4.0” of B25.0C in lieu of 6.0” ABC.

In areas where the existing -L- Line paved shoulders are proposed to be incorporated into a permanent travel lane, the Design-Build Team shall be responsible for evaluating the existing paved shoulder regarding its suitability for carrying the projected traffic volumes. In the event that the existing paved shoulder is found to be inadequate, the Design-Build Team shall be responsible for upgrading the existing paved shoulder to an acceptable level or replacing the existing paved shoulder. The Design-Build Team shall submit their evaluation and proposed use of existing paved shoulders to the Design-Build Unit for review and acceptance or rejection.

The Design-Build Team shall place a minimum of 6” ABC or 4” B25.0C under all single face barrier, expressway / shoulder berm gutter and curb and gutter.

All driveways, up to the radius point, shall be constructed with the full-depth pavement design of the intersecting roadway. The entire impacted length of all non-concrete driveways with a 10% grade shall be constructed with 1.5” S9.5B and 8” ABC with prime coat. Unless otherwise noted above, the Design-Build Team shall adhere to the following for all driveway construction:

- For existing gravel and soil driveways, use 8” ABC.
- For existing asphalt driveways, use 1.5” S9.5B and 8” ABC with prime coat, or 2.0” S9.5B and 6” ABC with prime coat.
- For existing concrete driveways, use 6” jointed concrete reinforced with woven wire mesh.

The Design-Build Team shall be responsible for the design of all temporary pavements and for the evaluation of existing shoulders and roadways regarding their suitability for carrying traffic during construction, if necessary. In the event that the existing shoulders and / or roadways are found to be inadequate for the proposed temporary traffic volumes and duration, the Design-Build Team shall be responsible for upgrading the pavement to an acceptable level. Temporary pavements shall be designed in accordance with the NCDOT *Pavement Design Procedure - AASHTO 1993 Method* dated January 4, 2019.

The rate of application and the maximum and minimum thickness per application and layer shall be in accordance with the NCDOT Roadway Design Manual and 2019 Asphalt QMS manual.

When a uniform overlay or resurfacing grade ties to an existing curb, bridge and / or pavement, the Design-Build Team shall perform incidental milling, such that the new pavement ties flush with the existing feature(s). When tying to the aforementioned feature(s), the Design-Build Team shall not reduce the minimum required surface layer pavement thickness noted above. At existing pavement ties, the Design-Build Team shall perform incidental milling for a minimum distance of six feet at curb sections, and 25 feet per surface course lift at bridges and the beginning / end of construction. The Design-Build Team shall not perform incidental milling more than 72 hours prior to placement of the asphalt surface layer.

PAVEMENT MARKINGS SCOPE OF WORK (7-23-19)

General

The Design-Build Team shall prepare Final Pavement Marking Plans in accordance with the latest edition of the *Manual on Uniform Traffic Control Devices (MUTCD)* effective on the Price Proposal submittal date, the 2018 NCDOT Roadway Standard Drawings, the *Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects*, the *Design-Build Submittal Guidelines* and the contract requirements contained herein.

Final Pavement Marking Plan Requirements

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience designing and sealing Pavement Marking Plans for NCDOT on comparable projects.

The Design-Build Team shall develop Pavement Marking Plans that maintain all types of traffic (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities, in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130), as defined by the *Manual for Uniform Traffic Control Devices (MUTCD).*

The Design-Build Team shall show and station all curb ramps in the Pavement Marking Plans for signalized intersections, non-signalized intersections and points of pedestrian crossings. Curb ramps shall be constructed per current ADA standards and with guidance from the 2018 NCDOT Roadway Standard Drawings. If the roadway geometry does not allow for the use of standard details, contact the Contract Standards and Development Unit for alternate approved curb ramp designs.

Final Pavement Marking Project Limits

The Design-Build Team shall install all pavement markings and markers located within and outside the project limits, resulting from the project construction. The Final Pavement Marking Plans shall address all required modifications to existing pavement markings and markers located outside the project limits to ensure appropriate tie-ins. At a minimum, the Design-Build Team shall modify existing pavement markings and markers located outside the project limits to ensure that all lanes in each direction are open to traffic.

Pavement Markings, Markers and Delineation

The Design-Build Team shall submit a complete set of Final Pavement Marking Plans that includes the -L- Line and, all -Y- Lines and service roads for review and acceptance. The Design-Build Team shall not place any final pavement markings or markers until the aforementioned Final Pavement Marking Plans are reviewed and accepted by the Department.

The Design-Build Team shall coordinate with the Transportation Management Plans for necessary traffic control devices that will remain at the completion of the project.

The Design-Build Team shall use pavement marking and marker products that conform to all NCDOT requirements and are listed on the NCDOT's Approved Products List. The use of any devices that are not shown on the Approved Products List shall require written approval from the NCDOT Signing and Delineation Unit prior to incorporation.

The Design-Build Team shall install pavement markings and markers in accordance with the 2018 *Standard Specifications for Roads and Structures*, and in accordance with the manufacturer's procedures and specifications.

The Design-Build Team shall install pavement markings and pavement markers on the final surface as follows:

Road	Marking	Marker
-L- Line, -Y- Lines and service roads	Thermoplastic	Snowplowable
Concrete Bridge Decks	Cold Applied Plastic Type II	Raised

On asphalt surfaces, the Design-Build Team shall install Heated-in-Place Thermoplastic or Extruded Thermoplastic markings for stop bars, symbols, characters, crosswalks, and diagonals.

Using approved methods, the Design-Build Team shall remove residue and surface laitance on concrete bridge decks prior to placing final pavement marking materials. In accordance with approved methods and the 2018 *Standard Specifications for Road and Structures*, the Design-Build Team shall remove curing compound from all other concrete surfaces prior to placing final pavement marking materials.

The Design-Build Team shall only remove pavement markings from asphalt surfaces by grinding.

The Design-Build Team shall only remove pavement markings from concrete surfaces by hydroblasting or grinding.

The Design-Build Team shall tie proposed pavement marking lines to existing pavement marking lines.

The Design-Build Team shall replace any pavement markings that have been damaged by the end of each day's operation.

RIGHT OF WAY SCOPE OF WORK (3-14-16)

**** NOTE ** Prior to beginning the right of way acquisition process, the Design-Build Team shall meet with the appropriate NCDOT Location and Surveys, Right of Way and Design-Build Unit personnel.**

The Design-Build Team shall carry out the following responsibilities for all right of way, control of access and / or easement acquisitions required by the Design-Build Team's design, including all design revisions required by this RFP, and / or construction methods:

- Excluding acquisition services required outside of the project construction limits due solely to a rise in the floodplain water elevation on insurable structures, the Design-Build Team shall employ qualified, competent personnel who are currently **approved by the NCDOT Right of Way Branch,** herein after referred to as the Department, to provide all services necessary to perform all appraisal (except appraisal review and updated appraisals required soley for condemned parcels), negotiation and relocation services required for all right of way, control of access and easements, including but not limited to Permanent Utility Easements, necessary for completion of the project in accordance with Session Law 2017-137 and G.S. 136-28.1 of the General Statutes of North Carolina, as amended, and in accordance with the requirements set forth in the *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way*, the *North Carolina Department of Transportation's Right of Way Manual*, the *North Carolina Department of Transportation's Rules and Regulations for the Use of Right of Way Consultants*, the *Code of Federal Regulations*, and Chapter 133 of the *General Statutes of North Carolina* from Section 133-5 through 133-18, hereby incorporated by reference, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The Design-Build Team shall field stake all right of way, control of access and easements, including but not limited to Permanent Utility Easements, in accordance with the requirements noted above. For a list of firms currently approved, the Design-Build Team should contact Mr. Terry Niles, in the NCDOT Right of Way Branch, at 919-707-4400. The Design-Build Team shall perform the services as set forth herein and furnish and deliver to the Department reports accompanied by all documents necessary for the settlement of claims and the recordation of deeds, or necessary for condemnation proceedings covering said properties. The Design-Build Team, acting as an agent on behalf of the State of North Carolina, shall provide right of way acquisition services for TIP U-2896A in Cumberland County.

- Acquisition services required ouside of the project construction limits due solely to a rise in the floodplain water elevation on insurable structures will be considered extra work and paid for in accordance with Article 104-7 of the January 2018 NCDOT *Standard Specifications for Roads and Structures*.

- With respect to the payments, costs and fees associated with the acquisition of right of way, control of access and / or easements, the Department will be responsible for only direct payments to property owners for negotiated settlements, recording fees, any relocation benefits, and deposits and fees involved in the filing of condemnation claims. The Department will assume responsibility for all costs associated with the litigation of

condemned claims, including testimony by the appraiser(s). The Design-Build Team shall be responsible for all other acquisition related payments, costs and fees, including but not limited to attorney fees required for all non-condemnation acquisitions.

- A Department representative will be available to provide technical guidance on right of way acquisition procedures and to make timely decisions on approving relocation benefits and approving administrative adjustment settlements on behalf of the Department over and above the authority granted to the Department Right of Way Consultant Project Managers.

- The Design-Build Team shall verify / determine the prior rights and / or compensable interest for an existing utility prior to acquiring the corresponding Permanent Utility Easement. (Reference the Utilities Coordination Scope of Work found elsewhere in this RFP)

- The Design-Build Team shall submit a right of way project tracking report and right of way quality control plan to the Department. The Department standard forms and documents shall be used to the extent possible.

- The Design-Build Team shall provide a current title certificate for each parcel as of the date of closing or the date of filing of condemnation, unless required otherwise in the December 21, 2018 NCDOT *Right of Way Manual*.

- The Department will prepare all Condemnation Maps. The Design-Build Team shall prepare all Final Condemnation Reports. Upon approval of the Final Condemnation Report, the Department will require a minimum of eight weeks to file the condemnation claim. For all plan revisions on condemned parcels that modify the area acquired, modify the control of access and / or impact the appraised value, the Design-Build Team shall be responsible for the following:

    - The Design-Build Team shall notify the Division Right of Way Agent, the Area Negotiator, Area Appraiser and the Attorney General, in writing, that revisions have been made that impact a condemned parcel, and provide updated plan sheets and revised area takes.

    - The Design-Build Team shall consult with the Attorney General and the Area Appraiser to determine the status of the negotiations and appraisal(s).

    - If the Attorney General and / or Area Appraiser recommend an updated appraisal, the Design-Build Team shall provide an updated Summary Sheet to the Area Appraiser for the Department's use in obtaining an updated appraisal(s).

    - Upon receipt of the approved updated appraisal(s), the Design-Build Team shall develop a revised written offer. If settlement is not reached, the Design-Build Team shall submit an updated Final Condemnation Report. If settlement is reached, the Design-Build Team shall notify the Attorney General and Area Appraiser in writing and submit an updated Final Condemnation Report with all necessary documentation.

- The Department will be responsible for payment for the additional deposit to the Attorney General's Office and the Attorney General will prepare and file an Amendment to the Declaration of Taking.

- The following shall be required:

  - Unless otherwise approved by the NCDOT Assistant State Negotiator, in writing, the Design-Build Team shall provide right of way, control of access and easement descriptions in metes and bounds format (bearings and distances). The Design-Build Team shall provide exhibits, diagrams and / or other information required to verify the aforementioned descriptions.

  - In accordance with the December 21, 2018 NCDOT *Right of Way Manual*, the Design-Build Team may prepare red-line adjustments for parcels that are not condemned. The Department must approve a red-line adjustment, in writing, prior to the Design-Build Team making an offer based on the red-line adjustment.

  - The Design-Build Team shall prepare, execute and record documents conveying title to acquired properties to the Department with the Register of Deeds.

  - The Design-Build Team shall deliver all executed and recorded deeds and easements to the Department.

  - For all property purchased in conjunction with the project, title shall be acquired in fee simple or easement and shall be conveyed to "The North Carolina Department of Transportation", free and clear of all liens and encumbrances except permitted encumbrances.

- In accordance with the Location and Survey Unit's September 28, 2018 *Proc 2018-3 - Creating NCDOT Right of Way Plan Sheets for LET Projects* and *Proc 2018-5 - Elimination of Need to Request Control Sheets and Property Ties and RW Series Development Timeline* Memorandums (references to timelines in the aforementioned Memos shall be disregarded), the Design-Build Team shall develop the following right of way items:

  - Right of Way series of plan sheets ("R/W" series of plan sheets) that delineate the existing property information, property ties, proposed centerline data, existing and proposed right of way, existing and proposed easements, and existing and proposed control of access. The "R/W" series of plan sheets shall be signed and sealed by a Professional Land Surveyor registered in the State of North Carolina. The Professional Land Surveyor's signature and seal shall attest that the right of way monuments were placed under their responsible charge.

  - A table of control points for the proposed centerline alignments ("D series of plan sheets).

- A table of proposed right of way and permanent easement control points ("E" series of plan sheets) that shall be signed and sealed by a Professional Land Surveyor registered in the State of North Carolina.

- It is understood and agreed by and between the parties hereto that all reports, surveys, studies, specifications, memoranda, estimates, etc., secured by and for the Design-Build Team shall become and remain the sole property of the Department upon termination or completion of the work, and the Department shall have the right to use same for any public purpose without compensation to the Design-Build Team.

- The Design-Build Team shall prepare appraisals in accordance with the Department's *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way Acquisitions*. The Design-Build Team's appraiser shall be on the Department's approved state certified appraiser list. The Design-Build Team may request its state certified appraiser be added to the approved state certified appraiser list, subject to approval by the Department's State Appraiser.

- The Department will develop or contract with a private firm to develop and provide a second appraisal for parcels as noted below:

  - All parcels with an initial appraisal, with just compensatin, equal to or grater than one million dollars ($1,000,000.00).

  - All parcels where the initial appraisal indicates damages to the remaining property equal to or greater than two hundred fifty thousand dollars ($250,000.00), where damages to the remaining property are defined as a loss in value to the remaining land, and / or improvements and / or a cost to cure.

- The NCDOT, or its agent, will provide appraisal reviews complying with The Department's *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way Acquisitions*. The reviewer will ensure that the appraisal meets the Department's guidelines and requirements, conforms to acceptable appraisal standards and techniques, does not include any non-compensible items or exclude any compensible items and that the value conclusions are reasonable and based on facts presented in the appraisal. The reviewer has the authority to approve, adjust, request additional data or corrections, or not to recommend and request another appraisal. Within ten business days from the date of receipt, all appraisals and / or appraisal corrections will be reviewed by NCDOT Review Appraisers or Review Appraisers under contract to the corresponding NCDOT Area Appraisal Office. The NCDOT will sign as approving any and all appraisals to be used in acquisitions.

- The NCDOT will provide relocation reviews and approvals for all Replacement Housing Payment calculations and all Rent Supplement Payment calculations prior to the Design-Build Team making any offers to the displacees. Within five business days of the receipt of the Replacement Housing Payment or Rent Supplement Payment calculation documentation, which shall include all documentation required for an Evaluation Package, the Department will approve the calculation, and the signed FRM15-D will be returned to the Design-Build

Team, or a request for an updated calculation or documentation will be presented to the Design-Build Team for further handling. At this time, the Relocation Coordinator in the NCDOT Right of Way Unit is the approving authority for the aforementioned calculations.

- The Design-Build Team shall coordinate with the Health Department to determine if septic systems can be relocated / modified to remain operational. To assist with the aforementioned determinations, the Design-Build Team may utilize a third-party consultant to perform the septic system inspections only if the Health Department approves the third-party consultant, in writing, prior to the inspections beginning. The Department will only be responsible for the Health Department fees and / or third-party fees associated with these determinations. The Design-Build Team shall determine the relocation / modification design and construction costs required for the septic systems to remain operational and include these costs in the property right of way appraisals. (Reference the Utilities Coordination Scope of Work found elsewhere in this RFP)

- ALL Claims for Payment involving relocation benefits must be submitted to the NCDOT Relocation Coordinator in the Right of Way Unit for approval and processing.

- At the conclusion of the right of way acquisition process, the Design-Build Team shall provide a right of way certification to the Division Right of Way Agent.

- The Design-Build Team shall prepare Right of Way Transmittal Summaries and / or Narrative Appraisals for all right of way, control of access and easement acquisitions. Claim Reports will not be allowed for any acquisition.

- In accordance with Chapter 133 of the *General Statutes of North Carolina,* Section 133-40, the Council of State must approve acquisition of property with contaminated soil. Thus, prior to acquiring right of way, control of access and / or easement from any parcel with contaminated soil, the Design-Build Team shall provide a written priority list of all properties with contaminated soil that require right of way, control of access and / or easement acquisition to the Division Right of Way Agent, the Area Negotiator, the Area Appraiser, and the Real Property Coordinator, Terry Niles. At a minimum the aforementioned priority list shall contain the following information:

    - Project TIP Number, description and county

    - Parcel number(s) requiring acquisition of contaminated soil

    - Acquisition Appraisal(s)

    - GeoEnvironmental Impact Evaluation and Hazardous Materials Report provided by the Department

    - Description, with metes and bounds, of the area(s) to be acquired

The Department will require 90 days from receipt of the information noted above to coordinate with the Council of State and obtain their approval for the acquisition of contaminated property.

SIGNING SCOPE OF WORK (7-23-18)

Project Description

The Design-Build Team shall prepare Signing Plans for the entire project limits, including but not limited to, advance and other necessary signing outside of the roadway construction limits.

Websites and References

The Design-Build Team shall prepare Signing Plans in accordance with the information on the following websites, the version of the following references effective on the Price Proposal submittal date, and the contract requirements contained herein:

- The Signing and Delineation Unit website

  https://connect.ncdot.gov/resources/safety/Pages/Signing-and-Delineation.aspx

- Traffic Engineering Practices, Policies, and Legal Authority (TEPPL)

  https://connect.ncdot.gov/resources/safety/Teppl/Pages/Teppl-Select-Topics.aspx

- *Manual on Uniform Traffic Control Devices* (MUTCD)

  http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm

- *NC Supplement to the Manual on Uniform Traffic Control Devices*

  https://connect.ncdot.gov/resources/safety/TrafficSafetyResources/2009%20NC%20Supplement%20to%20MUTCD.pdf

- *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals* (AASHTO)

  https://bookstore.transportation.org/collection_detail.aspx?ID=126

- *Guidelines for Preparation of Signing Plans for Design-Build Projects*

  https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

- *Design-Build Submittal Guidelines*

  https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

- NCDOT *Standard Specifications for Roads and Structures*

- NCDOT *Roadway Standard Drawings*

In the case of conflicting design parameters, and / or ranges, in the various resources, the proposed design shall adhere to the most conservative values, unless noted otherwise elsewhere in this RFP.

Signing Requirements

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience in the preparation, design, and sealing of Signing Plans for NCDOT on comparable projects.

Signs to be Furnished by Design-Build Team

The Design-Build Team shall furnish signs in accordance with the specifications provided by the NCDOT.

Signing Project Limits

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall fabricate and install all Type E signs (warning and regulatory) and supports required through the construction limits of the mainline, as well as all -Y- Lines, service roads and turn-arounds / cul-de-sacs. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall fabricate and install all signs required beyond the roadway construction limits of the mainline, and all -Y- Lines, service roads and turn-arounds / cul-de-sacs to ensure adequate advance signage and spacing is provided.

Sign Designs

The Design-Build Team shall size and locate all Type E signs (warning and regulatory) for the mainline, all -Y- Lines, all service roads and all turn-arounds / cul-de-sacs.

Speed Limit

The posted speed limit for the mainline shall be 45 mph. (Reference the Roadway Scope of Work found elsewhere in this RFP)

Sign Locations

The Design-Build Team shall determine the station location of all signs.

To avoid placing a sign or sign structure in a location that might be in conflict with future roadway projects and / or limit its usefulness / lifespan, the Design-Build Team shall coordinate all proposed sign designs and locations with the Department.

Ground Mounted Sign Supports

The Design-Build Team shall fabricate and install ground mounted signs supports in accordance with the NCDOT Roadway Standard Drawings.

Unless otherwise approved by the Department, the vertical mounting height for ground mounted Type E signs shall be a minimum of seven feet and maximum of eight feet from the edge of the travel lane to the bottom of the sign.

Unless noted otherwise elsewhere in this RFP, all Type E signs shall be installed on U-channel posts in accordance with the NCDOT Roadway Standard Drawings.

Removal and Disposal of Existing Signs

The Design-Build Team shall determine which existing signs and sign supports will not be needed or relevant when the project is completed. The Design-Build Team shall remove and dispose of these signs and sign supports.

Sign Maintenance

During project construction, the Design-Build Team shall maintain all existing signs within the project limits (including temporary sign installations that may be required by the Transportation Management Plans) to ensure the signs are in good condition, perform as intended, and are visible to motorists. (Reference Articles 901-4 and 1092-2 of the NCDOT *Standard Specifications for Roads and Structures*) All signs and supports remaining / existing at project completion shall be plumb, oriented correctly and adhere to AASHTO requirements.

CADD Files

After acceptance of RFC Signing Plans, the Design-Build Team shall provide the final Signing Plans to the Department in .pdf and MicroStation format.

Construction Revisions

After submittal of RFC Signing Plans, the Design-Build Team shall submit all construction revisions to the Department for review and acceptance prior to incorporation.

STRUCTURES SCOPE OF WORK (6-6-19)

Project Details

The Design-Build Team shall design and construct all structures necessary to complete the project, including but not limited to, the following:

- Replace Bridge No. 250075 on Gillis Hill Road over Little Rockfish Creek

All bridges shall meet the geometric criteria shown in the accepted Preliminary Roadway Plans and Hydraulic Bridge Survey Report prepared by the Design-Build Team.

Bridge rails shall be per Standard Drawing BMR34 (2-Bar Metal Rail).

Vertical abutment walls and / or retaining walls shall not be allowed in lieu of spill through slopes.

The number of expansion joints for each structure shall be kept to a minimum. Structures shall be integral if the criteria listed in the NCDOT *Structures Management Unit Manual* is met. The criteria in Section 6.2.3.2 of the NCDOT *Structures Management Unit Manual* shall apply to all roadways, including Secondary Routes that meet the criteria for North Carolina Routes.

The Design-Build Team shall provide five-foot sidewalks and four-foot bicycle lanes on both sides of the bridge.

Link slabs will be allowed on spans up to 100'.

Unless noted otherwise elsewhere in this RFP, the following will not be allowed on the project:

- Cored slab, box beam, fracture critical, deck girder and cast-in-place deck slab bridges
- Precast bridge barrier rails
- Precast reinforced box culverts
- Metal plate arch culverts
- Interior pile bents at roadway grade separations
- Attachment of sign structures to bridges
- Bridge attachments in the overhang of roadway grade separations
- Casting of conduit in the bridge deck or barrier rail for roadway bridges
- Bridge piers adjacent to a roadway shoulder, excluding interior median piers
- Modular expansion joints
- Monotube or cantilever DMS (if required on project) support structures

Note that the bridge length in the table below is measured from fill face to fill face. The Design-Build Team shall ensure that the model used for FEMA compliance includes the correct span lengths and end points (end of beam).

Structure Number	Site Description	Out-Out Width (feet)	Fill Face to Fill Face Length (feet)	Bent Placement Limitations	Nos. of Spans	End Bent #1 Foundation Length (and estimated tip elevation)	End Bent #2 Foundation Length (and estimated tip elevation)	Interior Bent Foundation Length (and estimated tip elevation)	Foundation Type
250075	SR 1102 (Gillis Hill Road) over Little Rockfish Creek	82.583	280	*see below	3	90 (81)	90 (64)	110 IB 1 (51) IB 2 (46)	12 x 53 @ End Bents 30 x 0.625 @ Interior Bents

NOTES:

Assumed Foundation Type at End Bents is Driven Steel H-Piles with factored resistance of 120 tons.

Assumed Foundation Type at Interior Bents is Driven open ended Steel Pipe Piles with factored resistance of 450 tons.

The estimated tip elevations are based on an examination of the borings and taking into account roughly 15 to 20 feet of scour depth and are shown for informational purposes. The estimated tip elevations are not necessarily true elevations but may instead relate to an assumed benchmark noted on the boring logs; benchmarks were not always accessible at the time of borings. Foundation length was determined by comparing the existing grade and bridge seat elevations with the estimated pile tip elevations, taking into account any adjustment needed to the assumed benchmark, as appropriate.

* A minimum of ten feet landward from top of bank, or a minimum of 15 feet into the stream from the toe of the bank

General

The Design-Build Team's primary design firm shall be on the Department's list of firms qualified for structure design and maintain an office in North Carolina.

Except as allowed otherwise elsewhere in this RFP, designs shall be in accordance with the latest edition of the AASHTO *LRFD Bridge Design Specifications* (with exceptions noted in the NCDOT *Structures Management Unit Manual*), NCDOT *LRFD Driven Pile Foundation Design Policy*, NCDOT *Structures Management Unit Manual* (including Policy Memos) and NCDOT *Bridge Policy Manual.*

Use of Florida Department of Transportation Prestressed Florida I-Beams (FIB), the Prestressed Concrete Committee for Economic Fabrication (PCEF) prestressed concrete girders, and Modified Bulb Tee girders will be allowed. However, the structural details associated with the aforementioned items, including but not limited to mild reinforcing and reinforcing cover, shall be subject to Department review and acceptance post-award.

Unless noted otherwise elsewhere in this RFP, all construction and materials shall be in accordance with 2018 NCDOT *Standard Specifications for Roads and Structures*, NCDOT Structures Management Unit Project Special Provisions and NCDOT Structures Management Unit Standard Drawings.

Alternate designs, details or construction practices (such as those employed by other states, but not standard practice in NC) are subject to Department review and approval and will be evaluated on a case by case basis.

TRANSPORTATION MANAGEMENT SCOPE OF WORK (2-1-19)

1. PRINCIPLE STANDARDS

1.1. Standards

The Design-Build Team shall design the Transportation Management Plans (TMP) in accordance with the requirements of this RFP and the version of the standards listed below that are effective on the Price Proposal submittal date.

- NCDOT *Standard Specifications for Roads and Structures*
- NCDOT *Roadway Standard Drawings*
- NCDOT *Supplement to the Manual on Uniform Traffic Control Devices* (NCSMUTCD)
- *FHWA Manual on Uniform Traffic Control Devices (MUTCD)*
- NCDOT *Roadway Design Manual*
- Americans with Disabilities Act of 1990 (ADA)
- *AASHTO A Policy on Geometric Design of Highways and Streets*
- *AASHTO Roadside Design Guide*
- *FHWA Standard Highway Signs and Markings*
- *NCDOT Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects*
- NCDOT *Design-Build Submittal Guidelines*
- FHWA *Rule on Work Zone Safety and Mobility* (23 CFR 630 Subpart J and K)
- Transportation Research Board *Highway Capacity Manual*

1.2. Additional References

The Design-Build Team shall use the references provided on the site below as supplementary guidelines and requirements for the design and implementation of the Transportation Management Plans.

https://connect.ncdot.gov/projects/WZTC/Pages/default.aspx

1.3. Prequalification

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience developing TMPs on comparable projects for the North Carolina Department of Transportation (NCDOT) and maintains Prequalification Code 00247 (Traffic Management Plan - Level 3 and 4).

2. TRANSPORTATION MANAGEMENT PLANS

2.1. General Contents of Transportation Management Plans

2.1.1 The Design-Build Team shall prepare Transportation Management Plans (TMP) that

include Temporary Traffic Control Plans (TTCP) and Traffic Operations Plans (TOP). The TOP shall include demand management strategies, corridor network management strategies, and traffic incident management and enforcement strategies.

2.1.2 The Design-Build Team shall produce TMP for each phase of work that impacts road users. The TMP shall include details of all planned detours, traffic control devices, striping and signage applicable to each phase of work. The information on the TMP shall be of sufficient detail to allow verification of design criteria and safety requirements, including but not limited to, typical sections, alignment, striping layout, drop off conditions and temporary drainage. The Design-Build Team shall develop TMP that include procedures to communicate TMP information to the public about road and travel conditions within the work zone and affected roadway network.

2.2. Transportation Management Phasing Concept

A Transportation Management Phasing Concept (TMPC) shall be prepared by the Design-Build Team to present the Design-Build Team's approach to all areas covered under the TMP, including, but not limited to, hauling of materials to, from, and within the project right of way. The Design-Build Team shall submit the TMPC for Department review and acceptance and shall address NCDOT comments on the TMPC prior to commencing production of the TMP for each phase of work or any construction. Any changes to the TMPC after acceptance by NCDOT shall require a submittal for review and acceptance prior to any future phasing submittals.

3. GENERAL DESIGN AND CONSTRUCTION REQUIREMENTS

3.1. Temporary Barrier Systems

Placement of temporary barrier systems shall be shown on the TMPC. Temporary guardrail may be used in leu of temporary barrier where conditions dictate its use. Temporary barrier systems shall be designed in accordance with the following requirements:

3.1.1. Determine the need for temporary barrier in accordance with the FHWA *Rule on Temporary Traffic Control Devices* (23 CFR 630 Subpart K). Reference the NCDOT Work Zone Traffic Control website noted below for examples and *Guidelines for the Use of Positive Protection in Work Zones*.

https://connect.ncdot.gov/projects/WZTC/Pages/Design-Resources.aspx

3.1.2. The Design-Build Team shall adhere to the AASHTO Roadside Design Guide in determining the length of need, flare rate and clear zone. The Design-Build Team shall adhere to the possible deflection of the proposed temporary barrier system in accordance with NCHRP-350 *Recommended Procedures for the Safety Performance Evaluation of Highway Features* deflections from crash testing and MASH (2016 AASHTO Manual for Assessing Safety Hardware). Providing less than the minimum deflection distance shall require the use of anchored temporary barrier systems in accordance with the NCDOT *Standard Specifications for Roads and Structures*.

3.1.3. All temporary barrier systems utilized for traffic control shall be placed on a paved surface. Unless permitted otherwise by the barrier manufacturer, the paved surface shall extend a minimum of two feet behind all unanchored barrier.

3.1.4. The Design-Build Team shall not place temporary barrier within 200 feet of any merging taper, including but not limited to, existing and proposed lane drop merges, and / or temporary lane closure merges. All lanes shall first be closed using channelizing devices and pavement markings.

3.1.5. Along all shifting tapers, including but not limited to, existing, temporary, and / or proposed shifting tapers, the Design-Build Team shall provide a minimum six-foot offset to temporary barrier.

3.1.6. When barrier is placed on a roadway shoulder, the Design-Build Team shall install shoulder closure signs and devices in advance of the barrier in accordance with the NCDOT Roadway Standard Drawings.

3.1.7. The Design-Build Team shall only use an NCDOT approved temporary traffic barrier system.

3.1.8. The Design-Build Team shall install temporary traffic barrier system a maximum of two weeks prior to beginning work in any location. Once the temporary traffic barrier system is installed at any location, proceed in a continuous manner to complete the proposed work in that location.

3.1.9. Temporary traffic barrier used for traffic control shall not act as a retaining wall.

3.1.10. Once the temporary traffic barrier system is installed and no work has been or will be performed behind the temporary traffic barrier system for a period longer than two months, remove / reset the temporary traffic barrier system unless the barrier is protecting traffic from a hazard.

3.1.11. Excluding water filled barrier, protect the approach end of temporary traffic barrier systems at all times during the installation and removal of the barrier by either a truck mounted impact attenuator (maximum 72-hour duration) or a temporary crash cushion.

3.1.12. Excluding water filled barrier, protect the approach end of temporary traffic barrier systems from oncoming traffic at all times by a temporary crash cushion unless the approach end of the temporary traffic barrier system is offset from oncoming traffic as follows:

Posted speed limit (mph)	Minimum offset (feet)
40 or less	15
45 - 50	20
55	25
60 mph or higher	30

3.1.13. Install temporary traffic barrier system with the traffic flow, beginning with the upstream side of traffic. Remove the temporary traffic barrier system against the traffic flow, beginning with the downstream side of traffic.

3.1.14. Install drums to close or keep closed the closed sections of the roadway until the temporary traffic barrier system can be placed or after the temporary traffic barrier system has been removed. The distance, in feet, between drums shall not be greater than twice the posted speed limit (mph).

3.1.15. The Design-Build Team shall not install a crash cushion less than four feet in front of existing guardrail.

3.1.16. The Design-Build Team shall provide the proper connection between the existing guardrail or bridge rail and the temporary traffic barrier system; and include this information in the appropriate plans.

3.2. Temporary Alignments

3.2.1. The minimum allowable design speed for temporary alignments on secondary roads shall be the higher of 10 mph below the posted speed limit or 35 mph.

3.2.2. The NCDOT Roadway Standard Drawing No. 1101.11 shall be used to calculate the length of temporary merges for lane closures and temporary traffic shifts.

3.2.3. For temporary traffic patterns that will remain in place for a period longer than three days, including but not limited to traffic shifts, merges and temporary alignments, breaks in the superelevation and / or breaks in a normal crown section will not be allowed within the shifting taper. Excluding the aforementioned temporary traffic patterns, breaks in the superelevation and / or breaks in a normal crown section shall only occur on a lane line or lane midpoint, and shall not exceed 0.04.

3.2.4. Temporary traffic shifts that are not covered by a standard and / or require vertical grades shall be considered a temporary alignment. All temporary alignments shall adhere to the NCDOT *Roadway Design Manual*, including all revisions, AASHTO *A Policy on Geometric Design of Highways and Streets* and the most current Transportation Research Board *Highway Capacity Manual*.

3.3. Maintenance of Access

3.3.1. Maintain access to all residences, schools, bus stops, mass transit facilities (park and ride lots), emergency services and businesses at all times. Prior to incorporation, obtain written approval from the Engineer on the method to maintain access.

3.3.2. In accordance with the Department's Policy on Evaluating Temporary Accommodations for Pedestrians during Construction, found on the website noted below, the Design-Build

Team shall maintain pedestrian accommodations in all areas as follows:

Roadway	Minimum Level of Pedestrian Accommodation
US 401 (South Raeford Road) SR 1102 (Gillis Hill Road)	Absence of Need

https://connect.ncdot.gov/projects/WZTC/Work%20Zone%20Traffic%20Control%20Documents/AccomPedinWZProc.pdf

3.3.3. Prior to incorporation, obtain written approval from the Engineer for all road and / or access point closures.

3.4. Off-Site Detours

3.4.1. Prior to incorporation, all offsite detour routes shall receive Department written approval and allow for all roads and lanes to remain open to traffic, unless otherwise governed by an Intermediate Contract Time specific herein. Submit detour routes and all associated sign designs for review and acceptance prior to incorporation.

3.4.2. The Design-Build Team shall investigate all detour routes including, but not limited to, analyzing traffic capacity, investigating impacts to emergency services and schools, analyzing design characteristics to ensure the design supports the traffic volumes (existing traffic volumes plus detoured traffic volumes), and investigating pavement structural adequacy including any bridge postings on the detour route. The Design-Build Team shall submit recommendations resulting from the aforementioned investigations / analyses for the Department's review and acceptance.

3.4.3. As determined by the Engineer, the Design-Build Team shall provide all improvements required to accommodate detoured traffic prior to utilizing detour routes.

3.4.4. Offsite detours that have non-signalized at-grade railroad crossings shall not be allowed.

3.4.5. All proposed road closures, detour routes, durations and justifications shall be provided with the TMPC.

3.4.6. Unless approved otherwise by the controlling government entity, in writing, use only state-maintained roads for offsite detour routes.

3.5. Impacts to Other Network Roadways

3.5.1. The Design-Build Team shall coordinate with the Division Maintenance Engineer, Resident Engineer, Division Traffic Engineer and Statewide Transportation Operations Center (STOC) to manage traffic operations within the work zone and other roadways within the network that may be affected by the work zone activities. Coordination shall include, but not be limited to, providing notification of planned lane or road closures,

traffic detours, public information, traffic management, access management, incidents, etc.

3.5.2. On all roads, the Design-Build Team shall make all modifications to existing pavement markings, markers and / or signing located outside the project limits that are necessitated by the TMP. Additionally, the Design-Build Team shall readjust the markings, markers, and / or signing located outside the project limits to the existing / proposed pattern when the temporary changes are no longer needed.

3.5.3. All on-site detours shall meet the minimum number of existing lanes per direction and shall adhere to all temporary alignment requirements noted elsewhere in this RFP. A pavement transition, suitable for the posted speed limit shall be provided at all on-site detour interfaces.

3.5.4. The Design-Build Team shall not place traffic on lanes containing rumble strips.

3.5.5. The Design-Build Team shall take steps to minimize disruptions to existing roadway facilities during construction and shall demonstrate how the traffic control phasing minimizes inconvenience to motorists on all roads.

4. LANE AND ROAD CLOSURE NOTIFICATION

4.1. Lane Closure Notice (LCN)

4.1.1. The Design-Build Team shall issue a Lane Closure Notice (LCN) to NCDOT and affected government entities a minimum of thirty (30) calendar days prior to the publication of any notices or placement of any traffic control devices associated with lane closures, detour routing or other change in traffic control requiring lane closures. The Design-Build Team will be allowed to issue a single LCN for multiple / consecutive lane closures that occur in the same location.

4.1.2. For a LCN utilizing a non-NCDOT controlled facility, the Design-Build Team shall secure concurrence, in writing, from the controlling government entity. A LCN shall contain the estimated date, time, duration and location of the proposed work. The Design-Build Team shall keep NCDOT informed of any and all changes or cancellations of proposed lane closures prior to the date of their implementation.

4.1.3. If an emergency condition should occur, a LCN shall be provided to NCDOT within two days after the event. For non-NCDOT controlled facilities, the Design-Build Team shall immediately notify the controlling government entity.

4.2. Road Closure Notice (RCN)

4.2.1. Proposed road closures on any road shall be approved by the Engineer prior to incorporation in the TMP.

4.2.2. The Design-Build Team shall issue a Road Closure Notice (RCN) to NCDOT and affected

government entities a minimum of thirty (30) calendar days prior to the publication of any notices or placement of any traffic control devices associated with road closures, detour routing or other change in traffic control requiring road closures.

4.2.3. For a RCN utilizing a non-NCDOT controlled facility, the Design-Build Team shall secure concurrence, in writing, from the controlling government entity. A RCN shall contain the estimated date, time, duration, and location of the proposed work. The Design-Build Team shall keep NCDOT and any other affected government entity informed of any and all changes or cancellations of proposed road closures prior to the date of their implementation.

4.2.4. If an emergency condition should occur, a RCN shall be provided to NCDOT within two days after the event. For non-NCDOT controlled facilities, the Design-Build Team shall immediately notify the controlling government entity.

5. PROJECT OPERATIONS REQUIREMENTS - TIME RESTRICTIONS

Unless permitted otherwise elsewhere in this RFP, maintain the existing number of travel lanes on all roads. The Design-Build Team shall adhere to the minimum lane width requirements noted below that will not be considered lane narrowing:

- Existing travel lanes that are 11-foot wide or wider, maintain minimum 11-foot travel lanes.
- Existing travel lanes that are narrower than 11 feet, maintain the existing travel lane widths.

At the midpoint of the turn, multi-lane turn lanes at intersections shall be 15 feet in width.

The following are Time Restrictions and notes that shall be included with the TMP General Notes, unless noted otherwise elsewhere in this RFP:

5.1. Intermediate Contract Times #1 and #2 for Lane Narrowing, Lane Closure, Holiday and Special Event Restrictions

5.1.1. Unless allowed otherwise elsewhere in this RFP, the Design-Build Team shall maintain the existing traffic pattern and shall not close or narrow a lane of traffic during the periods and times listed below.

Intermediate Contract Time #	Road Name	Day	Time Restrictions
#1	US 401 (South Raeford Road)	Monday through Sunday	6:00 a.m. to 7:00 p.m.
#2	SR 1102 (Gillis Hill Road)	Monday through Friday	6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.

5.1.2. The Design-Build Team shall not install, reset and / or remove any traffic control device during the periods and times listed above.

5.1.3. In addition, the Design-Build Team shall not close or narrow a lane of traffic on the aforementioned facilities, detain and / or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy. At a minimum, these requirements / restrictions shall apply to the following schedules:

- For any unexpected occurrence that creates unusually high traffic volumes, as directed by the Engineer.
- For New Year's between the hours of 6:00 a.m. December 31st and 7:00 p.m. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until 7:00 p.m. the following Tuesday.
- For Easter, between the hours of 6:00 a.m. Thursday and 7:00 p.m. Monday.
- For Memorial Day, between the hours of 6:00 a.m. Friday and 7:00 p.m. Tuesday.
- For Independence Day, between the hours of 6:00 a.m. July 3rd and 7:00 p.m. July 5th. If Independence Day is on a Friday, Saturday, Sunday or Monday, then between the hours of 6:00 a.m. the Thursday before Independence Day and 7:00 p.m. the Tuesday after Independence Day.
- For Labor Day, between the hours of 6:00 a.m. Friday and 7:00 p.m. Tuesday.
- For Thanksgiving Day, between the hours of 6:00 a.m. Tuesday and 7:00 p.m. Monday.
- For Christmas, between the hours of 6:00 a.m. the Friday before the week of Christmas Day and 7:00 p.m. the following Tuesday after the week of Christmas Day.

5.1.4. **Liquidated Damages for Intermediate Contract Time #1 for the above lane narrowing, lane closure, holiday, and special event time restrictions for US 401 (South Raeford Road) are $1,250.00 per 15-minute period or any portion thereof.**

5.1.5. **Liquidated Damages for Intermediate Contract Time #2 for the above lane narrowing, lane closure, holiday and special event time restrictions for SR 1102**

(Gillis Hill Road) are $500.00 per 15-minute period or any portion thereof.

6. PROJECT OPERATIONS REQUIREMENTS – HAULING RESTRICTIONS

6.1. General

6.1.1. The Design-Build Team shall adhere to the hauling restrictions noted in the NCDOT *Standard Specifications for Roads and Structures*.

6.1.2. The Design-Build Team shall address how hauling will be conducted in the TMPC, including but not limited to, hauling of any materials to and from the site and hauling material within the NCDOT right of way.

6.2. Hauling Limitations

The Design-Build Team shall conduct all hauling operations as follows:

6.2.1. The Design-Build Team shall not conduct any hauling operations against the flow of traffic of an open travelway unless an approved temporary traffic barrier or guardrail separates the traffic from the hauling operation.

6.2.2. All hauling entrances, exits and crossings shall be shown on the TMP and be in accordance with the NCDOT Roadway Standard Drawings.

6.2.3. Haul vehicles shall not enter and / or exit an open travel lane at speeds more than 10 mph below the posted speed limit. Haul vehicle acceleration to within 10 mph of the posted speed limit shall only occur on a paved surface.

6.2.4. Hauling operations that perpendicularly cross a roadway shall require approved Traffic Control Plans and shall be subject to the lane narrowing, lane closure and holiday time restrictions listed in ICT #1 and ICT #2. Hauling operations shall not perpendicularly cross US 401 (South Raeford Road).

6.3. Intermediate Contract Times #3 and #4 for Multi-Vehicle Hauling Time Restrictions

6.3.1. Excluding hauling operations that are conducted entirely behind a temporary traffic barrier or guardrail, multi-vehicle hauling of vehicles exceeding 15,000 pounds of gross vehicle weight shall not be allowed ingress and egress from any open travel lane during the time restrictions noted below.

Intermediate Contract Time #	Road Name	Day	Time Restrictions
#3	US 401 (South Raeford Road)	Monday through Sunday	6:00 a.m. to 7:00 p.m.
#4	SR 1102 (Gillis Hill Road)	Monday through Friday	6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.

6.3.2. **Liquidated Damages for Intermediate Contract Time #3 for the above multi-vehicle hauling time restrictions for US 401 (South Raeford Road) are $400.00 per occurrence.**

6.3.3. **Liquidated Damages for Intermediate Contract Time #4 for the above multi-vehicle hauling time restrictions for SR 1102 (Gillis Hill Road) are $250.00 per occurrence.**

7. ADDITIONAL PROJECT OPERATIONS REQUIREMENTS

7.1. Lane and Shoulder Closure Requirements

7.1.1. The Design-Build Team shall not install more than one mile of lane closure in any one direction on any roadway within the project limits or in conjunction with this project, measured from the beginning of the merge taper to the end of the lane closure.

7.1.2. The Design-Build Team shall not install more than one lane closure in any one direction on any roadway within the project limits or in conjunction with this project.

7.1.3. The Design-Build Team shall remove lane closure devices from the lane when work is not being performed behind the lane closure or when a lane closure is no longer needed.

7.1.4. When barrier is placed on the roadway shoulder, the Design-Build Team shall install shoulder closure signs and devices in advance of the barrier using the NCDOT Roadway Standard Drawings.

7.1.5. When personnel and / or equipment are working within 15 feet of an open travel lane, the Design-Build Team shall close the nearest open shoulder using the NCDOT Roadway Standard Drawings, unless the work area is protected by an approved temporary traffic barrier or guardrail.

7.1.6. When personnel and / or equipment are working on the shoulder adjacent to an undivided facility and within five feet of an open travel lane, the Design-Build Team shall, at a minimum, close the nearest open travel lane using the NCDOT Roadway Standard Drawings, unless the work area is protected by an approved temporary traffic barrier or

guardrail.

7.1.7. When personnel and / or equipment are working on the shoulder adjacent to a divided facility and within ten feet of an open travel lane, the Design-Build Team shall, at a minimum, close the nearest open travel lane using the NCDOT Roadway Standard Drawings, unless the work area is protected by an approved temporary traffic barrier or guardrail.

7.1.8. When personnel and / or equipment are working within a lane of travel of an undivided or divided facility, the Design-Build Team shall, at minimum, close the lane using the NCDOT Roadway Standard Drawings. The Design-Build Team shall conduct the work so that all personnel and / or equipment remain within the closed travel lane.

7.1.9. The Design-Build Team shall not perform work involving heavy equipment within 15 feet of the edge of travelway when work is being performed behind a lane closure on the opposite side of the travelway.

7.2. Pavement Edge Drop off Requirements

7.2.1. Using suitable compacted material, the Design-Build Team shall backfill at a 6:1 slope up to the edge and elevation of the existing pavement in areas adjacent to an open travel lane that has an edge of pavement drop-off as follows:

- Elevation differences that exceed two inches on roadways with posted speed limits of 45 mph or greater and a paved shoulder four-foot wide or less.
- Elevation differences greater than three inches on roadways with posted speed limits less than 45 mph and with a paved shoulder four-foot wide or less.
- Refer to the current AASHTO *Roadside Design Guide* for proper treatment of all other conditions.

7.2.2. Do not exceed a difference of two inches in elevation between open lanes of traffic for nominal lifts of 1.5 inches. Install advance warning “UNEVEN LANES” signs (W8-11) 1,000 feet in advance and a minimum of every half mile throughout the uneven area.

7.3. Traffic Pattern Alterations

The Design-Build Team shall notify the Engineer in writing at least thirty (30) calendar days prior to any traffic pattern alteration.

7.4. Signing

7.4.1. The Design-Build Team shall install advance work zone warning signs when work is within 40 feet from the edge of travel lane and no more than three days prior to the beginning of construction.

7.4.2. When no work is being conducted for a period longer than one week, the Design-Build Team shall remove or cover all advance work zone warning signs, as directed by the Engineer. Stationary work zone warning signs shall be covered with an opaque material that prevents reading of the sign at night by a driver traveling in either direction.

7.4.3. When portable work zone signs are not in use for periods longer than 30 minutes, the Design-Build Team shall lay the portable work zone sign flat on the ground and collapse the sign stand and lay it flat on the ground.

7.4.4. The Design-Build Team shall install and maintain all detour signing and devices required for road closures. Within and outside the project limits, the Design-Build Team shall cover or remove all detour signs and devices required for road closures when a detour is not in operation.

7.4.5. The Design-Build Team shall ensure proper signing (including but not limited to guide signs) is in place at all times during construction, as required by the *MUTCD*. All temporary signing shall be shown on the Traffic Control Plans or Temporary Signing Plans to be reviewed and approved by the Work Zone Traffic Control Section and / or the Signing and Delineation Unit prior to incorporation.

7.5. Traffic Control Devices

7.5.1. The Design-Build Team shall use traffic control devices that conform to all NCDOT requirements and are listed on the NCDOT Approved Products List. The Approved Products List may be referenced on the website noted below:

https://apps.ncdot.gov/vendor/approvedproducts/

The use of any devices that are not shown on the NCDOT Approved Products List shall require written approval from the Design-Build Unit prior to incorporation.

7.5.2. Within1000’ of a signalized intersection, channelizing device spacing shall not exceed a distance in feet equal to the posted speed limit. Beyond 1000’ of a signalized intersection, channelizing device spacing shall not exceed a distance in feet equal to twice the posted speed limit. Channelization devices shall be spaced ten feet on-center in radii. Channelization devices shall be two feet off the edge of an open travelway, when lane closures are not in effect. Skinny drums shall only be allowed as defined in Section 1180 of the NCDOT *Standard Specifications for Roads and Structures*.

7.5.3. Place Type III barricades, with "ROAD CLOSED" signs (R11-2) attached, of sufficient length to close entire roadway. Stagger or overlap barricades to allow for ingress or egress.

7.5.4. Place sets of three drums perpendicular to the edge of the travelway on 500-foot centers when unopened lanes are closed to traffic. These drums shall be in addition to channelizing devices.

7.5.5. Portable changeable message signs should be placed off the shoulder of the roadway and

behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the portable changeable message sign, it should be placed off the shoulder and outside of the clear zone. If a portable changeable message sign must be placed on the roadway shoulder or within the clear zone, it shall be delineated with retroreflective temporary traffic control (TTC) devices. When portable changeable message signs are not being used to display TTC messages, they should be relocated such that they are outside of the clear zone or shielded behind a traffic barrier, and turned away from traffic. If relocation or shielding is not practical, the portable changeable message signs shall be delineated with retroreflective TTC devices

7.5.6. The Design-Build Team shall provide, operate and maintain a minimum of four Changeable Message Signs (CMSs) for use on the project as determined by the Engineer.

7.6. Temporary Pavement Markings, Markers and Delineation

7.6.1. The Design-Build Team shall install pavement markings and markers in accordance with the NCDOT *Standard Specifications for Roads and Structures*, and in accordance with the manufacturer's procedures and specifications.

7.6.2. Temporary pavement markings on concrete surfaces shall only be removed by hydroblasting.

7.6.3. Prior to shifting traffic to a new pattern, the Design-Build Team shall 1) remove all conflicting markers and snowplowable marker castings, and 2) remove all conflicting markings by traditional methods or mask / conceal the conflicting markings.

7.6.4. The Design-Build Team shall tie proposed pavement marking lines to existing pavement marking lines.

7.6.5. The Design-Build Team shall show temporary pavement markings on the Transportation Management Plans that meet the requirements of the RFP and the *Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects*.

7.6.6. The Design-Build Team shall use pavement marking and marker products that conform to all NCDOT requirements and are listed on the NCDOT Approved Products List. The use of any devices that are not shown on the NCDOT Approved Products List shall require written approval from the Design-Build Unit prior to incorporation.

7.6.7. The Design-Build Team shall install temporary pavement markings that are the same width as existing pavement markings. For roadways that do not have existing pavement markings, the Design-Build Team shall install temporary pavement markings that are the same width required for the final pavement markings in the Pavement Markings Scope of Work found elsewhere in this RFP.

7.6.8. The Design-Build Team shall install temporary pavement markings and temporary pavement markers on the interim surface or temporary pattern as follows:

Road	Marking	Marker
US 401 (South Raeford Road) SR 1102 (Gillis Hill Road)	Any Marking on the Approved Product List	Raised Temporary

7.6.9. The Design-Build Team may use any type of pavement markings on the NCDOT Approved Products List for temporary patterns. However, the Design-Build Team shall maintain a minimum retroreflectivity for pavement markings (existing and temporary markings) at all times during construction, as follows:

White: 125 mcd/lux/m2
Yellow: 100 mcd/lux/m2

7.6.10. When using Cold Applied Plastic Type 4 pavement markings, place temporary raised markers half on and half off edge lines and centerlines to help secure the tape to the roadway. Markers shall be spaced the appropriate distance apart as described by the NCDOT *Roadway Standard Drawing* No. 1250.01, Sheet 1 of 3.

7.6.11. By the end of each day's operation, the Design-Build Team shall remove all conflicting markings and remove / replace all conflicting / damaged pavement markers.

7.6.12. The Design-Build Team shall trace existing and / or proposed monolithic island locations with the proper color pavement marking prior to removal and / or installation. The Design-Build Team shall place drums to delineate existing and / or proposed monolithic islands after the removal and / or before installation.

7.6.13. The Design-Build Team shall not place temporary markings other than Cold Applied Plastic Type 4 - Removable Tape on any final pavement surface unless the temporary markings are placed in the exact location of the final pavement markings.

7.6.14. Unless noted otherwise elsewhere in this RFP, removal of the temporary pavement markings on asphalt surfaces shall be accomplished by an NCDOT approved system to minimize damage to the road surface. Temporary pavement markings shall not be obscured with any type of black pavement markings (paint or other material). The Design-Build Team shall remove all temporary pavement markings without removing more than 1/32 inch of the pavement surface.

7.7. Temporary Traffic Signals

7.7.1. Use the following notes if the Design-Build Team proposes temporary traffic signals for maintenance of traffic:

- Notify the Engineer in writing a minimum of two months before a temporary traffic signal installation is required.
- Shift and revise all signal heads as shown on the accepted Traffic Signal Plans.

7.8. Traffic Control Supervisor

7.8.1. The Design-Build Team shall furnish a Traffic Control Supervisor for the project who is knowledgeable of TMP design, devices and application, and has full authority to ensure traffic is maintained in accordance with the plans and specifications developed by the Design-Build Team.

7.8.2. The Traffic Control Supervisor shall be on the project site overseeing all road closures and median crossover operations to ensure traffic control devices are properly installed and adjusted as necessary. The Traffic Control Supervisor shall also make necessary changes to the traffic control operations and aide in the monitoring of traffic queuing.

7.8.3. The Design-Build Team shall furnish a Traffic Control Supervisor that has the following qualifications:

- A minimum 24 months of On-the-Job Training in supervision and work zone set up and implementation on similar projects.
- Be certified by responsible party (contractor or NCDOT) to have the required experience and training and is qualified to perform the duties of this position. If certified by the Contractor, a notarized certification letter shall be furnished to the Engineer at the preconstruction meeting. The letter shall state the Traffic Control Supervisor is qualified, and state that the Traffic Control Supervisor has the authority to ensure traffic is maintained in accordance with the contract documents.

7.8.4. The Traffic Control Supervisor for the project shall perform the following:

- During construction, be available or on call 24 hours per day, 7 days per week to direct / make any necessary changes in the traffic control operations in a timely and safe manner. The Design-Build Team shall provide NCDOT the name of the Traffic Control Supervisor and support personnel, and the phone numbers(s) where they can be reached 24 hours per day, seven days per week.
- Coordinate and cooperate with traffic control supervisors of adjacent, and overlapping construction projects, as well as construction projects in proximity to the subject project, to ensure safe and adequate traffic control setup is maintained throughout the project at all times, including periods of construction inactivity.
- Coordinate and cooperate with the NCDOT Division Incident Management staff.
- Coordinate and cooperate with the NCDOT Statewide Operations Center (STOC) to ensure proper messages are displayed on the CMSs.
- Coordinate with hospitals, emergency medical services (EMS), fire departments, and law enforcement throughout construction to alert these entities to traffic control impacts that may affect their services.
- Provide traffic control setup that ensures safe traffic operations and workers' safety throughout the construction area.
- Attend all scheduled traffic control coordination meetings, as required by the

Engineer.

- Monitor traffic delays and backups within the work zone.

7.9. Work Zone Lighting

7.9.1. In accordance with the *Standard Specifications for Road and Structures,* the Design-Build Team shall provide portable temporary lighting to conduct night work.

7.10. Law Enforcement

7.10.1. Law enforcement officers shall be used during any rolling road block operation and to direct traffic when installing / removing / shifting traffic signal heads at intersections. Law enforcement officers may be used to maintain traffic through the work area and / or intersections. The use of law enforcement officers shall adhere to the following requirements:

- The Design-Build Team shall be responsible for coordinating with the law enforcement agency for the use of law enforcement officers.
- The Design-Build Team shall only utilize officers who are outfitted with law enforcement uniforms and marked vehicles, which are equipped with proper lights mounted on top of the vehicle and agency emblems.
- The Design-Build Team shall coordinate with the Engineer where and how law enforcement officers will be used during construction.

7.10.2. The Design-Build Team shall address where and how law enforcement officers will be used in the TMPC.

7.11. Temporary Shoring for the Maintenance of Traffic

7.11.1. The Design-Build Team shall be responsible for all required temporary shoring, including, but not limited to, designing, providing, installing, maintaining and removing. Temporary shoring for the maintenance of traffic shall be defined as shoring necessary to provide lateral support to the side of an excavation or embankment parallel to an open travelway when a theoretical 2:1 (H:V) slope from the bottom of the excavation or embankment intersects the existing ground line closer than five feet from the edge of pavement of the open travelway. The Design-Build Team shall identify locations where temporary shoring for maintenance of traffic will be required on the Transportation Management Phasing Concept. The Design-Build Team shall install temporary traffic barrier as shown on the *PCB at Temporary Shoring Locations* detail available on the Work Zone Traffic Control website noted below. The aforementioned detail provides design information on the temporary traffic barrier location in relation to the temporary shoring and traffic location. (Notes related to Temporary Shoring are not required in the General Notes sheet for the TMP)

7.11.2. The NCDOT Geotechnical Engineering Unit and Work Zone Traffic Control websites have more information on temporary shoring. The Design-Build Team shall adhere to the

additional shoring requirements located on the websites noted below:

https://connect.ncdot.gov/resources/Geological/Pages/default.aspx

https://connect.ncdot.gov/projects/WZTC/Pages/default.aspx

7.11.3. On the appropriate traffic control details, the Design-Build Team shall identify where temporary shoring will be used by providing station limits, offsets, cut sections, the type of shoring and where temporary traffic barrier will be located, if needed.

7.12. Coordination

7.12.1. At a minimum, the Design-Build Team shall coordinate with all Contractors and NCDOT Resident Engineers in charge of any project in proximity to this project for any work that may affect the construction, traffic operations, and / or placement of temporary traffic control devices (including advanced warning signs) on all roads within the project limits and associated with this project.

7.12.2. At a minimum, the Design-Build Team shall coordinate with the Division Traffic Engineer, law enforcement, emergency services and the Work Zone Traffic Control Section to schedule and attend Traffic Safety and Operations Meetings. These meetings shall be held to monitor and assess safety and mobility during construction. The Traffic Safety and Operations Meetings shall be held on an as needed basis during project construction. Additional Traffic Safety and Operations Meetings shall be held to address any specific issue, as directed by the Engineer.

7.13. Miscellaneous

7.13.1. The Design-Build Team shall provide proper drainage for all temporary alignments and / or traffic shifts.

7.13.2. All traffic control devices, including bridge barrier rails, shall be placed / located a minimum two-foot offset (shy distance) from the edge of an open travel lane.

TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS SCOPE OF WORK (5-28-19)

I. GENERAL

The Design-Build Team shall design and prepare plans for the temporary traffic signal installations required by the construction phasing and / or detour routes, permanent traffic signal installations, traffic signal revisions, and signal communication plans for connection to a new closed loop system. This work shall include, but not be limited to, the preparation of Traffic Signal Plans, Metal Pole Loading Diagrams, Electrical and Programming Details, Utility Make-Ready Plans, Signal Communication Fiber Optic Communication and Splicing Plans, Wireless Communication Plans, and Project Special Provisions. These plans shall be prepared in accordance with the *Design-Build Submittal Guidelines* and the *Guidelines for the Preparation of ITS & Signal Plans by Private Engineering Firms* available on the Design-Build Unit's website located at:

https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience designing and sealing Traffic Signal and Signal Communications Plans for NCDOT on comparable projects.

A pre-design meeting **shall** take place between the NCDOT ITS & Signals Unit, the Design-Build Team, Division Traffic Engineer, Regional Traffic Engineer, the City of Fayetteville Traffic Services Division, and any other pertinent NCDOT personnel. All Traffic Signal and Signal Communications Plan submittals shall be concurrently submitted for review to the NCDOT ITS & Signals Unit and the City of Fayetteville Traffic Services Division. Final approval on all Traffic Signal and Signal Communications Plans submittals will ultimately be the responsibility of the NCDOT ITS & Signals Unit. All Traffic Signal and Signal Communications Plans shall be accepted by the ITS & Signals Unit prior to beginning traffic signal construction or plan implementation.

The Design-Build Team shall coordinate and implement all signal designs at the appropriate time as directed by the Engineer. Prior to final design and installation, the Design-Build Team shall coordinate all signal phasing recommendations with the Division Traffic Engineer, the Regional Traffic Engineer, the City of Fayetteville and the NCDOT ITS & Signals Unit. Prior to placing traffic in a new pattern, all traffic signals shall be installed and operational, including but not limited to, signal system timing plans and interconnection to the Signal System, if required below.

Except as noted otherwise elsewhere in this RFP, the Design-Build Team shall maintain, monitor and adjust the traffic signals, both vehicle and pedestrian, as needed throughout the project construction. The Design-Build Team shall be responsible for the design and implementation of all temporary signal designs, including but not limited to signal system timing plans, needed to maintain vehicular and pedestrian traffic during construction, and all final traffic signal timing plans for the ultimate traffic configurations. If necessary, temporary traffic signal designs and implementation, shall include, but not be limited to, new local controller, signal timing, cables, poles, signal span, controllers, cabinets, and / or signal heads. Prior to implementation, all signal system timing plans shall be reviewed and accepted by the NCDOT ITS & Signals Unit.

Throughout the project construction, the Design-Build Team shall maintain full actuation of the traffic signals located within the project limits, unless allowed otherwise by the Engineer in writing.

To connect sidewalk networks, the Design-Build Team shall provide crosswalks and pedestrian signal heads for all approaches, as appropriate, based on field conditions. Crosswalks and pedestrian signal heads will not be required where there is no sidewalk.

Unless noted otherwise below, all new final signal installations shall utilize galvanized metal strain poles or metal poles with mast arms for support, based on the individual intersection designs. All temporary signal installations may utilize wood poles for signal supports. All plans and associated design material and specifications shall be reviewed and accepted by NCDOT before installation.

The Design-Build Team shall deliver all existing cabinets and their contents, including but not limited to fiber modems, telephone modems, radio equipment, that are not reinstalled on this project to the Division 6 Traffic Services Traffic Signal Department located at 450 Transportation Drive, Fayetteville, NC 28301. The Design-Build Team shall dispose of and / or retain ownership of all other traffic signal equipment.

The Design-Build Team shall be responsible for providing a safe and economical design for the public. The Design-Build Team shall prepare all plans and designs in accordance with the current ITS & Signals Unit design standards, including but not limited to, the version of the following documents effective on the Price Proposal submittal date:

- NCDOT *Standard Specifications for Roads and Structures*
- NCDOT *Standard Roadway Drawings*
- ITS & Signals Unit Project Special Provisions
- ITS & Signals Unit Design Manual
- *Manual on Uniform Traffic Control Devices (MUTCD)*
- *North Carolina Supplement to the Manual on Uniform Traffic Control Devices (NCMUTCD)*
- *Guidelines for the Preparation of ITS & Signal Plans by Private Engineering Firms*
- Traffic Systems Operations' Project Special Provisions - (Special Provisions for the Preparation of Coordinated Traffic Signal System Timing Plans - Version 2011.1)

Links to additional ITS & Signals Unit design standards and aides are available on the website noted below:

https://connect.ncdot.gov/resources/safety/Pages/ITS-and-Signals.aspx

II. TRAFFIC SIGNALS

Unless allowed otherwise or elsewhere in this RFP, the Design-Build Team shall modify two (2) existing traffic signals. All of these signals shall be interconnected as noted in the table below. (Reference Section III for the system interconnection requirements.) The traffic signal detection for the final traffic patterns shall be inductive detection loops. The Design-Build Team may provide video detection only for temporary traffic patterns during construction.

Unless allowed otherwise elsewhere in this RFP, the required traffic signal work and signal communications for each intersection are listed below:

NCDOT - Existing Signals		
Signal Inventory Number	**Intersection Description**	**Work Requirements**
06-0849 (Existing)	US 401 (South Raeford Road) at SR 1102 (Gillis Hill Road)	The Design-Build Team shall modify existing traffic signals as needed to match all temporary construction phasing and the proposed final traffic patterns. This may require signal phasing changes, signal head changes, system detectors and / or system interconnection equipment. The Design-Build Team shall design and install new, fully actuated traffic signals with 2070LX controllers operating ACS/3 Software in a 170 cabinet with an auxiliary output file, including base extenders. The Design-Build Team shall provide Flashing Yellow Arrow signal heads at all protected / permissive and permissive left turns and U-Turn movements, including time of day phasing options, as appropriate. The Design-Build Team shall install new galvanized metal strain poles at these locations. The Design-Build Team shall provide crosswalks and **pedestrian signal heads** at each approach with existing or proposed sidewalk. The Design-Build Team shall maintain these signals in the Fayetteville Signal System. See Section III for signal communication requirements for both temporary and permanent operations.
06-1243 (Existing)	SR 1102 (Gillis Hill Road) at Wal-Mart Driveway	

III. SIGNAL COMMUNICATION PLANS

Design, furnish, and install a new Single Mode Fiber Optic (12-fiber) cable communications system along SR 1102 (Gillis Hill Road) between US 401 (South Raeford Road) and SR 1112 (Stoney Point Road). Install the fiber on joint use utility poles or in an underground conduit system. Interconnect the new fiber optic communications cable with existing fiber optic communications.

MAINTAIN CITY OF FAYETTEVILLE SIGNAL SYSTEM

The Design-Build Team shall maintain signal communications to the Fayetteville Signal System throughout project construction. The Design-Build Team shall work with the utility pole owners

to determine the new pole line and to determine attachment heights for the new fiber optic cable (Normally 40" below power). Prior to removal of existing fiber optic cable, the Design-Build Team shall install new SMFO (12-fiber) cable on the new utility poles or in an underground conduit system along SR 1102 (Gillis Hill Road) between US 401 (South Raeford Road) and SR 1112 (Stoney Point Road). **Cut over to new fiber shall be completed within 24-hours.** THE DESIGN-BUILT TEAM SHALL *CONTACT THE CITY OF FAYETTEVILLE 10 DAYS PRIOR TO ANY WORK ON THE FAYETTEVILLE SIGNAL SYSTEM FIBER OPTIC CABLE.* The following signal / splice locations are in the existing Fayetteville Signal System:

SIN #06-0849 - US 401 (South Raeford Road) at SR 1102 (Gillis Hill Road)
SIN #06-1243 - SR 1102 (Gillis Hill Road) at Wal-Mart Driveway
SIN #06-1131 - SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road)

Upon completion of all splice terminations, the Design Build Team shall ensure that the Fayetteville Signal System is back up to normal function. Work shall not be complete until the City of Fayetteville Signal System is back up and operational.

The Design-Build Team shall ensure that the communications cable infrastructure and electronic field equipment provided under this project is compatible and fully interoperable with the existing system hardware.

MATERIALS

Conduit, Spare Cable and Junction Boxes

Where aerial installation is not feasible, the Design-Build Team shall furnish and install two (2) two-inch conduits and all necessary hardware, including tracer wire, junction box markers, and delineator markers by plowing, trenching, or directional drilling along SR 1102 (Gillis Hill Road) between US 401 (South Raeford Road) and SR 1112 (Stoney Point Road).

The Design-Build Team shall furnish and install new *Oversized Heavy-Duty Junction Boxes* with minimum inside dimensions of 30" (l) x 15" (w) x 24" (d) along the underground fiber routes with the exception of locations where a splice enclosure is installed. The Design-Build Team shall furnish and install new *Special Oversized Heavy-Duty Junction Boxes* with minimum inside dimensions of 36" (l) x 36" (w) x 24" (d) for installation of underground splice enclosures.

The Design-Build Team shall coil and store 20 feet of spare SMFO (12-fiber) drop cable in each of the new cabinets and in each junction box. The Design-Build Team shall install an additional 100 feet of spare SMFO (12-fiber) communications cable and 100 feet of spare (12-fiber) drop cable on storage racks.

Fiber Optic Cable / Drop Cable

In accordance with Section 1098-10 of the 2018 NCDOT *Standard Specifications for Roads and Structures,* the Design-Build Team shall furnish and install a SMFO (12-fiber) communications cable, drop cables, and all necessary hardware to all signal cabinets within the project limits.

The Design-Build Team shall furnish and install new SMFO (12-fiber) communications cable along SR 1102 (Gillis Hill Road) and install new 12 fiber drop cables to all signal cabinets installed by this project.

In accordance with Section 1731 of the 2018 *Standard Specifications for Roads and Structures,* the Design-Build Team shall comply with all testing requirements.

Fiber Optic Splice Centers

The Design-Build Team shall furnish and install fiber-optic splice enclosures and all necessary hardware where required to join fiber optic cables. The Design-Build Team shall comply with Section 1731 of the 2018 *Standard Specifications for Roads and Structures*.

The Design-Build Team shall furnish and install fiber-optic interconnect centers and all necessary hardware in each signal cabinet to terminate fiber-optic drop cables. The Design-Build Team shall comply with Section 1731 of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

The Design-Build Team shall modify existing splice enclosures impacted by the project, if necessary. Prior to entering any existing splice enclosures, the Design-Build Team shall obtain approval from the Engineer.

Within enclosures, the Design-Build Team shall provide the necessary number of hinged mountable splice trays to store the number of splices required, plus the capacity to house twelve (12) additional splices. The Design-Build Team shall provide a fiber containment basket for storage of loose buffer tubes that are expressed through the enclosure. The Design-Build Team shall ensure enclosures allow sufficient space to prevent damage of the buffer tubes when coiled.

PLANS AND SUBMITTALS

The Signal Communications or Conduit Routing Plans shall consist of the three (3) major items listed below:

- Signal Communications Plans, including Fiber Optic Splice Plans
- Project Special Provisions
- Catalog Cut Sheets (Material Submittals)

Prior to construction, the Design-Build Team shall provide a detailed set of Communications Cable & Conduit Routing Plans, Splice Plans, and Project Special Provisions for the Department's review and approval. No construction related to the installation of the communications system shall begin until NCDOT has approved the RFC plans and specifications.

When existing equipment (network equipment, cables, fiber, conduit, etc.) is replaced, the Design-Build Team shall replace existing equipment with new equipment. All material, equipment and work shall adhere to the *Standard Specifications for Roads and Structures* requirements. Materials, where applicable, shall be pre-approved on the Department's QPL. The QPL web site is:

https://connect.ncdot.gov/resources/safety/Pages/default.aspx

Prior to incorporation, the Design-Build Team shall provide detailed specifications for all material, equipment and / or work that is not covered in the 2018 *Standard Specifications for Roads and Structure* for Department review and approval. The Design-Build Team shall provide specifications and plans that address the material requirements and construction methods. No equipment or material shall be installed until it has been approved by the Department in writing. Catalog cuts will not be required for items on the QPL. Items not listed on the QPL shall require Department written approval prior to incorporation.

The Design-Build Team shall furnish all necessary equipment for a complete LAN, including but not limited to field-hardened Field Ethernet Switches.

LOCAL AREA NETWORK

For the Ethernet based system the Design-Build Team shall furnish and install equipment that complies with IEEE Standard 802. The Design-Build Team shall collaborate with the City of Fayetteville Signal System Network Operator to furnish the necessary network configuration data, including but not limited the Project IP addresses, default gateway, subnet mask, VLAN, and configuration files to program the field Ethernet switches. LAN equipment shall be fully integrated, providing local device failover and fault tolerance, virus protection, user authentication, and security functions to prevent unauthorized user and data from entering the LAN.

The Design-Build Team shall ensure that the Field Ethernet Switches installed in the signal cabinets are fully compatible with the City of Fayetteville Signal System existing Network Management Software.

The Design-Build Team shall ensure that all plans and designs conform to the NCDOT and NC Statewide IT Policies and Standards as described at:

https://www.scio.nc.gov/mission/itPoliciesStandards.aspx.

The Design-Build Team shall submit all architecture of the IT modules for review and approval by NCDOT IT and the NC Office of Information Technology architecture groups.

INTEGRATION & TESTING

The Design-Build Team shall integrate and test the signals interconnected back into the Fayetteville Signal System. The Design-Build Team shall develop a system test plan and procedures to test the components of the system to ensure that the Fayetteville Signal System is operational and submit to the Engineer for review and approval. This includes, but is not limited to the fiber optic communications cable, Ethernet Switches (if required), the grounding system, and the remote access by cellular modem. Upon completion of the system installation and integration, the Design-Build Team shall conduct component and system tests in accordance with the approved test plans and procedures. The Design-Build Team shall be responsible for providing all necessary test equipment.

In case of failures and substandard performance, the Design-Build Team shall identify the cause of failure and / or substandard performance, repair or replace the faulty parts and components and

repeat the test. If the problem persists, the Design-Build Team shall replace the entire unit causing the problem prior to repeating the test at no additional cost.

After successful completion of all units and system test, the Design-Build Team shall submit the test reports, along with the record of repairs and part replacements, to the Engineer.

OTHER CODES AND STANDARDS

All ITS materials shall conform to the latest version of the applicable standards of the National Electrical Code (NEC), National Electric Manufacturer's Association (NEMA), the Underwriters' Laboratories, Inc. (UL), the Electronic Industries Association (EIA), the International Municipal Signal Association (IMSA), and the National Electrical Safety Code (NESC). All materials and workmanship must conform to the requirements of the NESC, standards of the American Society for Testing and Materials (ASTM); American National Standards Institute (ANSI). Comply with all federal laws, state laws, and city codes in accordance with the 2018 NCDOT *Standard Specifications for Roads and Structures*.

SUBMITTALS

Submit a 60% set of preliminary plans and 100% set of project plans, including specifications for materials, catalog cuts, and installation and testing requirements for review and acceptance by the Department. No construction of the ITS devices and / or communications cable shall begin until the Department has accepted the 100% plans and specifications. Provide the Department with a minimum of 10 working days for each review.

QUALIFIED PRODUCTS LIST

Submit a listing of items on the NCDOT 2018 Qualified Products List (QPL) to receive approval for use on the project. Catalog cuts will not be required for items on the QPL. The QPL website is:

https://connect.ncdot.gov/resources/safety/Pages/default.aspx

IV. SIGNAL SYSTEM TIMING PLANS

The Design-Build Team shall review the phasing and timing of each traffic signal installation to ensure optimal operation at all times, with special care and attention given in conjunction with all alterations of traffic patterns and as an integral part of all traffic management plans.

All Signal System Timing Plans shall be completed by a firm prequalified by NCDOT in *Discipline Code 210 – Signal System Timing Development and Implementation* and under the direct charge of a North Carolina licensed Professional Engineer.

Signal System Timing Plans shall be prepared in accordance with the latest edition of the following:

- NCDOT Traffic Management and Signal Systems Unit Design Manual
- NCDOT Signal System Timing Philosophy Manual

- The Manual on Uniform Traffic Control Devices (MUTCD)
- Customary practices for plan preparation, including CADD conventions, of the NCDOT ITS & Signals Unit

Signal System Timing Plans shall be designed to address all possible traffic needs, reflect existing time-of-day scheduling and address the following items:

- Weekday peak / non-peak traffic periods (a.m., p.m., mid-day, off-peak, etc.)
- School / University start / end and / or class change peak periods
- Seasonal traffic patterns
- Pre-scheduled holiday traffic patterns
- Incident management traffic patterns (detour routes, alternate routes, evacuation routes, etc.)
- Other special event traffic operations

For Signal System Timing Plans to run properly and effectively, the signalized corridor(s) shall be reviewed to verify the items below. Note that adjustments may be required in order to work around some of these issues during construction.

- Existing geometrics and signal phasing match the Signal System Timing Plans
- Speed limits and distances between intersections match the signal system timing plans
- All equipment is in necessary working order including controllers, detectors, communication, etc.
- Verify that field programming matches the most-recent traffic signal Plan of Record (POR) or applicable temporary signal design configuration.
    - Any discrepancies that may affect the plan design shall be brought to the attention of the Deputy Division Traffic Engineer so that a course of action to correct the changes can be made prior to development and implementation of the coordination plans.
- Some examples of issues that could affect the Signal System Timing Plans and / or operations include, but are not limited to the following:
    - loops not detecting vehicles
    - pedestrian push buttons that don’t work
    - signal heads rotated or displays not functioning
    - communication issues with local controllers
    - blank controller screens
    - programming discrepancies with the most-recent Plan of Record

For signal systems with existing timing plans in place, the Design-Build Team shall contact the Deputy Division Traffic Engineer, Central Office System Timing group, and / or the City of Fayetteville Traffic Services Division in order to obtain *Synchro*, *Tru-Traffic*, and signal timing database files for the system.

- The Design-Build Team shall update all files given to them to reflect the final configuration of the system and return the updated files to NCDOT.

For signal systems without existing timing plans in place, the Design-Build Team shall create digital files in *Synchro* and *Tru-Traffic* that reflect the final configuration of the Signal System Timing Plans.

- Develop *Synchro* network model for existing conditions.
    - Interpolation of traffic counts is acceptable for non-critical intersections when count data is not available.
    - Ensure that all intersection geometrics, timing data, and phasing data in *Synchro* match field conditions and signal timing database files.
- Ensure that all settings in *Synchro* and *Tru-Traffic* match.
- Develop / update signal timing database.
    - Develop / update local and system graphics in the signal system central software
        - Graphics shall include all detectors and phase indications, as well as the coordination plan and cycle length timer.
- Ensure all enabled vehicles detectors have logging and diagnostics enabled
    - Make the necessary assignments and enable data logging if not properly implemented already

The Design-Build Team shall fine-tune final Signal System Timing Plans after they are implemented to ensure they operate as efficiently as possible.

UTILITIES COORDINATION SCOPE OF WORK (6-21-19)

**** NOTE ** Within 45 days of contract execution, the Design-Build Team shall meet with representatives of all the utility companies and the appropriate NCDOT Utility and Design-Build personnel.**

The Design-Build Team shall obtain the services of a Professional Services Firm (PSF) knowledgeable in the NCDOT Utility Coordination Process involved with utility relocation / installation and highway construction. The aforementioned PSF shall be responsible for coordinating all utility relocations, removals and / or adjustments where the Design-Build Team and utility owner, with concurrence from the Department, determine that such work is essential for highway safety and performance of the required highway construction. Coordination shall be for all utilities whether or not they are specifically identified in this Scope of Work and shall include any necessary utility agreements when applicable. NCDOT will be the approving authority for all utility agreements and approval of plans.

During the procurement phase and throughout the life of the project, the Design-Build Team will only be allowed direct contact with the utility owners when the aforementioned PSF is present.

In accordance with the requirements herein, the Design-Build Team shall relocate / coordinate the relocation of all existing facilities that are 1) in physical conflict with the construction, 2) within the existing or proposed right of way and structurally inadequate, and / or 3) within the existing or proposed right of way and consist of unacceptable material. (Reference the NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way - January 1, 1975, Revised April 1, 1993) Proposed / relocated underground facilities that are located beneath the pavement structure shall only be allowed to cross the roadway as close to perpendicular as possible.

Project Details

The Design-Build Team shall be responsible for verifying the utility locations, type of facilities, and identifying the utility owners in order to coordinate the relocation of any utilities, known and unknown, in conflict with the project. The following utilities are known to be located within the project construction limits:

Utility Owner	Utility Type	Cost Responsibility
CenturyLink	Telecommunications	Utility Company (normally)
Fayetteville PWC	Power / Fiber Optic	Power = NCDOT (w/ Approved Prior Rights) / Fiber Optic = PWC
Fayetteville PWC	Water and Sewer	Design-Build Team (NCDOT has obtained a letter from PWC allowing the Design-Build Team to work on their facilities)
Lumbee River EMC	Power (Distribution)	NCDOT (w/ Approved Prior Rights)
Piedmont Natural Gas	Gas (Distribution)	Utility Company (normally)
Spectrum (TWC)	CATV	Utility Company (normally)

Water and Sewer

After the Department accepts the Preliminary Roadway Plans developed by the Design-Build Team, a pre-design meeting shall take place between representatives from the water and sewer facility owners and the appropriate Utilities Unit and Design-Build Unit representatives. The Department will only accept water and sewer design submittals after the aforementioned pre-design meeting has been held.

If the Design-Build Team's design and / or construction, including but not limited to haul roads and all temporary conditions resulting from the Design-Build Team's methods of operation or sequence of work, requires the relocation and / or protection of the existing water and / or sewer facilities structural integrity, including but not limited to encasement, lining and bridging, designs shall be coordinated with the NCDOT Utilities Unit. All costs associated with the design and construction for relocation and / or protection of these existing water and / or sewer facilities structural integrity, including but not limited to encasement, lining and bridging, shall be the responsibility of the Design-Build Team and shall be included in the lump sum bid for the *Design and Construction of the Project* pay item. The Design-Build Team shall develop designs; prepare all plans for needed agreements and permits; submit permits directly to the agencies and obtain approval from the agencies. The Design-Build Team shall be responsible for all permit fees.

For all parcels with access to existing water and / or sewer facilities that the project subdivides, the Design-Build Team shall design and construct water / sewer facility extensions to all sub-divided parcels, including but not limited to the sub-divided parcel with the existing water / sewer access, if necessary. The aforementioned water facility extensions shall be installed completely within the right of way. The aforementioned sewer facility extensions shall be installed completely within the right of way or a recorded easement. All costs associated with the design and construction of water / sewer facility extensions to sub-divided parcels shall be included in the Design-Build Team's lump sum bid for the *Design and Construction of the Project* pay item.

The Design-Build Team shall coordinate all water and sewer designs with the NCDOT Utilities Unit and the utility owners or their representatives.

The relocation and / or encasement of all water and sewer facilities shall be done in accordance with the NCDOT policies and standards, as well as the latest water and sewer design requirements / specifications from each individual utility company. In the event of conflicting design parameters in the requirements noted above, the proposed design shall adhere to the most conservative values. The materials and appurtenances proposed by the Design-Build Team shall require approval by both NCDOT and the aforementioned appropriate utility owner prior to installation.

The Design-Build Team shall concurrently submit all water and sewer design submittals to the State Utilities Manager, via the Design-Build Unit, and the appropriate utility owner for review and acceptance. All water and sewer design submittals shall include a title sheet, plan sheets, profile sheets and special provisions, if required. All water and sewer design submittals shall include all the aforementioned information in a full-size .pdf and hard copy, and a half-size hard copy. The Department will send the plans, with the appropriate agreement, to the utility owner for their review and concurrence. Excluding the Release for Construction Water and / or Sewer Plans, the Design-Build Team shall allow the utility owners 30 days to review each water and / or sewer design submittal. At a minimum, the water and / or sewer design submittals shall consist of the following:

(A) Preliminary Water and / or Sewer Plans shall be submitted after the Department accepts the 100% Hydraulic Plans.

(B) Final Water and / or Sewer Plans shall be submitted after the Department accepts the Right of Way / 60% Roadway Plans.

(C) Release for Construction Water and / or Sewer Plans shall be submitted after the Department accepts the Final Water and / or Sewer Plans.

Upon completion of the water and sewer relocations and protective measures, the Design-Build Team shall provide lump sum construction costs for the relocations and protective measures that are separated by individual utility owner and TIP Project.

Utility Relocation Plans

Excluding water and sewer conflicts, if the Design-Build Team's design and / or construction create a utility conflict, the Design-Build Team shall request that the utility owner submit relocation plans (Highway Construction Plans to be provided by the Design-Build Team to utility owners) that show existing utilities and proposed utility relocations for approval by the NCDOT.

In .pdf format, the Design-Build Team shall electronically submit one half-size set and one full size set of the Utility Relocation Plans to the NCDOT State Utilities Manager, via the Design-Build Unit, for review and approval. The Department shall approve the Utility Relocation Plans prior to any utility relocation work beginning. The Design-Build Team shall also be responsible for submitting the appropriate agreements to be used with the Utility Relocation Plans (See

Agreements Section found elsewhere in this Scope of Work). After the review process is complete, the NCDOT Utilities Unit will submit an electronic copy of the authorization letter to the Design-Build Team. The NCDOT Utilities Unit will also submit an electronic copy of the approved Utility Relocation Plans, estimate and agreement to the Department's Resident Engineer. If the Utility Relocation Plans are approved subject to changes, it shall be the Design-Build Team's responsibility to coordinate these changes with the appropriate utility owner.

Prior Rights and Compensable Interest

The Design-Build Team shall verify / determine the prior rights and compensable interest for all utility relocations. Typically, affidavits, recorded easements or NCDOT agreements can serve as evidence of prior rights. The Design-Build Team shall provide documentation that verifies / determines the prior rights and / or compensable interest. If the verification process is not complete prior to right of way acquisition, the Design-Build Team shall provide documentation of all Permanent Utility Easement costs. A compensable interest shall be identified as follows:

(A) Existing or prior easement rights within the project limits, either by recorded right of way or adverse possession.

(B) Entities covered under *General Statute 136-27.1* and *136-27.2.* Statute requires the NCDOT to pay the non-betterment cost for certain water, sewer and gas relocations.

(C) Utilities that have a joint-use agreement that constitutes a compensable interest with entities that have existing or prior easement rights within the project limits.

Work Performed by Design-Build Team for Utility Owners

If the Design-Build Team elects to make arrangements with a utility owner for proposed utility construction not required herein, in which the utility owner shall be responsible for the costs of work to be performed by the Design-Build Team, the Design-Build Team shall be responsible for negotiating all costs associated with the proposed construction. Once the Design-Build Team and the utility owner agree on a plan and a lump sum estimated cost for the utility construction, the Design-Build Team shall electronically submit one half-size set and one full size set of the utility construction drawings, in .pdf format, to the State Utilities Manager, via the Design-Build Unit, for further handling. Each set shall include a title sheet, plan sheets, profiles and special provisions, if required. Also, a letter from the utility owner agreeing to the plans and lump sum cost must accompany this package. The NCDOT will reimburse the Design-Build Team the estimated lump sum cost under a Supplemental Agreement. The necessary Utility Construction Agreement (UCA) to the utility owner for reimbursement shall be a two party agreement between the NCDOT and the utility owner; and will be developed and executed by the Department.

If the Design-Build Team is requested, in writing, by a utility owner to relocate facilities not impacted by the project's construction, upgrade existing facilities and / or incorporate new facilities as part of the highway construction, designs shall be coordinated with the utility owner and NCDOT Utilities Unit. The associated design and construction costs shall be negotiated and agreed upon between the Design-Build Team and the utility owner. The Design-Build Team shall develop

designs; prepare all plans for needed agreements and permits; submit permits directly to the agencies and obtain approval from the agencies. The Design-Build Team shall be responsible for all permit fees.

Cable TV

The cost in relocating CATV due to highway construction shall be the responsibility of the CATV Company; however, 1) if the CATV Company can validate a recorded easement for facilities outside the maintained NCDOT right of way, the Department will bear the relocation expense; and 2) if the adjustment is needed on existing utility poles to accommodate a proposed NCDOT Traffic Management System Fiber Optic Communication Cable Project, the Design-Build Team shall be responsible for the relocation cost.

The NCDOT will not permit CATV to place poles within the highway right of way but will allow down guys for their facilities within the highway right of way. Under most circumstances, the CATV Company will continue a joint-use attachment with the local power and telephone company. If the CATV proposed relocation places buried facilities within the highway right of way then plans and encroachment agreements shall be required by the NCDOT.

Communication Cables / Electrical Services for ITS

Prior to establishing the location for new meter poles, the Design-Build Team shall coordinate with the local power distribution company concerning accessibility of E/C service and safety in maintenance of the meter.

Prior to installation, the Design-Build Team shall provide plans for review and approval for all service taps that require a parallel installation within the control of access (C/A).

Parallel service installation within a C/A shall be buried and located as close to the right of way line as practical. Only due to unusual circumstances will parallel aerial service installations within the C/A be allowed. The Design-Build Team shall justify the allowance of parallel aerial service installation and obtain NCDOT approval prior to installation

The Design-Build Team shall be responsible for all coordination activities, including deposit fees, required for the utility company to provide service taps. Prior to the Design-Build Team developing the associated design and / or instructing the utility company to proceed with providing the service taps, the Design-Build Team shall obtain written approval of the service tap locations from the Resident Engineer.

The Design-Build Team shall be responsible for all costs associated with providing communication cables / electrical service from the service tap to the ITS devices.

Adjusting Existing Utilities due to Proposed Traffic Management Systems Fiber Optic Communications Cables

The Design-Build Team shall be responsible for all costs for coordinating and adjusting any utilities that are in conflict with any proposed communication cables.

Requirements for Attachments to Existing and / or Proposed Structures

The Design-Build Team shall avoid attachments to structures where feasible. Attachments shall only be considered when other alternatives are cost prohibitive and / or are not feasible due to environmental or geographical features. All utility related attachments must be evaluated and approved by the State Utilities Manager, including any existing attachments to any structure(s) that require modification or replacement. Attachments shall be prohibited under the following conditions:

(A) No attachments shall be allowed to a bridge located parallel within the C/A carrying the freeway over streams, other roadways or railroads. (No parallel utility installations within the C/A)

(B) No attachments shall be allowed to cored-slab bridges.

(C) No attachments shall be allowed to curved bridges.

Attachments to structures, if approved by the State Utilities Manager, shall meet the following criteria:

(A) No attachments shall be allowed below the bottom of the beams and / or girders.

(B) Drilling of, or attachments to, beams and / or girders shall not be allowed. Attachments shall only be allowed to the bottom of the bridge deck.

(C) For water and sewer force mains, only restrained joint ductile iron pipe shall be allowed.

(D) A minimum of 18” of clearance to beams and / or girders shall be maintained, if possible.

Documentation of adverse conditions or cost estimates of all feasible alternatives shall be submitted to the NCDOT State Utilities Manager, via the Design-Build Unit, when seeking approval of a structure attachment. Cost estimates shall consider all costs involved with each alternative and impacts to the utility and the highway project as a whole.

General

The Design-Build Team shall not commence work at points where the highway construction operations are adjacent to utility facilities, until making arrangements with the utility owner to

protect against damage that might result in expense, loss, disruption of service or other undue inconvenience to the public or utility owner. The Design-Build Team shall be responsible for damage to the existing or relocated utilities resulting from the Design-Build Team's operations. In the event of interruption of any utilities by the project construction, the Design-Build Team shall promptly notify the utility owner and cooperate with the utility owner in the prompt restoration of service.

The Design-Build Team shall accommodate utility adjustments, reconstruction, new installation and routine maintenance work that may be underway or take place during the progress of the contract.

If total property acquisition is unavoidable due to encroachment into wells and / or septic systems, the Design-Build Team shall investigate and determine if extending water and / or sewer lines to the affected property is cost effective. If the Department concurs with the determination that a utility extension is cost effective, the costs associated with the utility design and construction shall be addressed in accordance with Article 104-7 of the 2018 NCDOT *Standard Specifications for Roads and Structures*.

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall be required to use the guidelines as set forth in the following:

(A) *NCDOT Utility Manual - Policies & Procedures for Accommodating Utilities on Highway Rights of Way* and the NCDOT *Utilities Policy Manual*. If the two aforementioned manuals contradict each other, the *Utilities Policy Manual* shall govern. Reference the website noted below for the current version of the NCDOT utility manuals, and additional information on the transition to the new utility manuals that shall be adhered to:

https://connect.ncdot.gov/municipalities/Utilities/Pages/UtilitiesManuals.aspx

(B) *Federal Aid Policy Guide* - Subchapter G, Part 645, Subparts A & B

(C) *Federal Highway Administration's Program Guide, Utility Adjustments & Accommodations on Federal Aid Highway Projects*

(D) *NCDOT Construction Manual* Section 105-8

(E) *NCDOT Right of Way Manual* - Chapter 16 Utility Relocations

(F) *NCDEQ Public Water Supply* - Rules governing public water supply

(G) *NCDEQ Division of Water Resources* - Title 15A - Environment and Natural Resources

Agreements

If a utility company can provide evidence of prior rights of way or a compensable interest in their facilities, the Design-Build Team shall coordinate the non-betterment utility relocation costs with the utility company and develop the Utility Relocation Agreement, (URA).

The NCDOT State Utilities Manager must execute approved agreements on Design-Build projects. The URA's and Encroachment Agreements are available from the NCDOT Utilities Unit. Reference the *NCDOT Utility Manual Policies & Procedures for Accommodating Utilities on Highway Rights of Way* for the different types of Encroachment Agreements available for use.

The Design-Build Team shall develop a preliminary Utility Analysis and Routing Report (UARR (p)) to identify potential utility conflicts, determine preliminary alignments and schedules for the relocation of each utility, and identify any anticipated Permanent Utility Easements (PUE). The aforementioned UARR (p) shall be submitted to the NCDOT Utility Unit, via the Design-Build Unit, for review a minimum of ten days before the Right of Way Plans submittal.

The Design-Build Team shall submit all utility agreements and all supporting documents to the NCDOT State Utilities Manager, via the Design-Build Unit, in electronic format. Prior to submittal, all agreements shall be signed electronically by an authorized representative of the utility owner. These electronic agreement packets will be reviewed, approved and signed electronically by the NCDOT Utilities Manager, or designated representative, before being distributed to the field.

The Design-Build Team shall utilize the NCDOT Standard Utility Encroachment Agreements, as necessary, in relocating utilities. The Encroachment Agreements shall be used under the following conditions:

(A) If a utility company is not occupying a valid right of way / compensable interest and the proposed relocation will place the relocated utilities within the existing or proposed highway right of way.

(B) For **all** new utility installations, not covered under a Utility Construction Agreement and within the existing or proposed highway right of way. This includes all water, sewer and gas lines owned by entities covered under *General Statute 136-27.1* and *136-27.2.*

***** STANDARD SPECIAL PROVISIONS *****

PLANT AND PEST QUARANTINES

(Imported Fire Ant, Gypsy Moth, Witchweed, Emerald Ash Borer, Guave Root Knot Nematode and Other Noxious Weeds)

(8-31-13)(Rev. 4-1-19) DB1 G130

Within Quarantined Area

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

Originating in a Quarantined County

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

Contact

Contact the N.C. Department of Agriculture / United States Department of Agriculture at 1-800-206-9333, 919-707-3730, or **https://www.ncagr.gov/plantindustry/Plant/quaran/table2.htm** to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

Regulated Articles Include

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

ROCK AND BROKEN PAVEMENT FILLS

(12-29-15) (Rev. 8-31-17) 235 DB2 R85

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 2-23, Article 235-2 MATERIALS, add the following after Line 15:

Item	Section
Geotextile for Rock and Broken Pavement Fills, Type 2	1056

Provide Type 2 geotextile for filtration geotextiles. Use rip rap and No. 57 stone from either a quarry or onsite material to fill voids in rock and broken pavement fills. Provide small and large size rip rap with stone sizes that meet Class A and B in accordance with Table 1042-1 and No. 57 stone with a gradation that meets Table 1005-1 or use similar size onsite material approved by the Engineer.

Page 2-24, Subarticle 235-3(B) Embankment Formation, Lines 18 - 19, delete the third sentence in the seventh paragraph.

Page 2-24, Subarticle 235-3(B) Embankment Formation, **Lines 21 - 23**, replace the eighth paragraph with the following:

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

Remove any rocks, debris or pavement pieces from the roadbed larger than two inches within 12" of the subgrade or finished grade, whichever is lower.

POLYPROPYLENE CULVERT PIPE

(7-1-19) 305, 310 DB3 R35

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 3-5, Article 305-1 DESCRIPTION, Lines 12 - 14, replace with the following:

Where shown in the plans developed by the Design-Build Team, the Design-Build Team may use reinforced concrete pipe, aluminum alloy pipe, aluminized corrugated steel pipe, HDPE pipe, polypropylene pipe, or PVC pipe in accordance with the following requirements.

Page 3-5, Article 305-2 MATERIALS, add the following after **Line 16:**

Item	Section
Polypropylene Pipe	1032-9

Page 3-6, Article 310-2 MATERIALS, add the following after **Line 9**:

Item	Section
Polypropylene Pipe	1032-9

Page 3-6, Article 310-4 SIDE DRAIN PIPE, Lines 24 - 25, replace the first sentence of the second paragraph with the following:

Where shown in the plans developed by the Design-Build Team, side drain pipe may be Class II reinforced concrete pipe, aluminized corrugated steel pipe, corrugated aluminum alloy pipe, polypropylene pipe, HDPE pipe or PVC pipe.

Page 3-7, Article 310-5 PIPE END SECTIONS, **Lines 2 - 4**, replace the second sentence with the following:

Both corrugated steel and concrete pipe end sections will work on concrete pipe, corrugated steel pipe, polypropylene pipe, and HDPE smooth lined corrugated plastic pipe.

Page 10-60, add Article 1032-9:

(A) General

Use polypropylene pipe from sources participating in the Department's Polypropylene Pipe QA/QC Program. A list of participating sources is available from the Materials and Tests Unit. The Department will remove a manufacturer of polypropylene pipe from this program if the monitoring efforts indicated that non-specification material is being provided or test procedures are not being followed.

Use polypropylene culvert pipe that meets AASHTO M 330 for Type S or Type D, or ASTM F2881 or ASTM F2764 Double or Triple wall; and has been evaluated by NTPEP.

(B) End Treatments, Pipe Tees and Elbows

End treatments, pipe tees and elbows shall meet AASHTO M 330, Section 7.7, or ASTM F2764, Section 6.6.

(C) Marking

Clearly mark each section of pipe, end section, tee and elbow and other accessories according to the Department's Polypropylene Pipe QC/QA Program:

(1) AASHTO or ASTM Designation
(2) The date of manufacture
(3) Name or trademark of the manufacturer

When polypropylene pipe, end sections, tees and elbows have been inspected and accepted a sticker shall be applied to the inside of the pipe. Do no use pipe sections, flared end sections, tees or elbows which do not have this seal of approval.

BRIDGE APPROACH FILLS

(10-19-10) (Rev. 11-22-17) 422 DB4 R02A

Description

Bridge approach fills consist of backfilling behind bridge end bents with select material or aggregate to support all or portions of bridge approach slabs. Install drains to drain water from bridge approach fills and geotextiles to separate approach fills from embankment fills, ABC and natural ground as required. For bridge approach fills behind end bents with mechanically stabilized earth (MSE) abutment walls, reinforce bridge approach fills with MSE wall reinforcement connected to end bent caps. Construct bridge approach fills in accordance with the contract, accepted submittals and Roadway Standard Drawing No. 422.01, Roadway Standard Drawing No. 422.02 or Roadway Detail Drawing No. 422D10.

Define bridge approach fill types as follows:

Approach Fills – Bridge approach fills in accordance with Roadway Standard Drawing No. 422.01, Roadway Standard Drawing No. 422.02 or Roadway Detail Drawing No. 422D10

Standard Approach Fill – Type I Standard Bridge Approach Fill in accordance with Roadway Standard Drawing No. 422.01

Modified Approach Fill – Type II Modified Bridge Approach Fill in accordance with Roadway Standard Drawing No. 422.02

Reinforced Approach Fill – Type III Reinforced Bridge Approach Fill in accordance with Roadway Detail Drawing No. 422D10

Materials

Refer to Division 10 of the 2018 *Standard Specifications for Roads and Structures*.

Item	Section
Geotextiles, Type 1	1056
Portland Cement Concrete	1000
Select Materials	1016
Subsurface Drainage Materials	1044

Provide Type 1 geotextile for separation geotextiles and Class B concrete for outlet pads. Use Class V or Class VI select material for standard and modified approach fills. For an approach fill behind a bridge end bent with an MSE abutment wall, backfill the reinforced approach fill with the same aggregate type approved for the reinforced zone in the accepted MSE wall submittal. For MSE wall aggregate, reinforcement and connector materials, see the *Mechanically Stabilized Earth Retaining Walls* provision. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For PVC drain pipes, use pipes with perforations that meet AASHTO M 278.

Construction Methods

Excavate as necessary for approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place separation geotextiles or aggregate until approach fill dimensions and foundation material are approved.

For reinforced approach fills, cast MSE wall reinforcement or connectors into end bent cap backwalls within 3" of locations shown in the accepted MSE wall submittals. Install MSE wall reinforcement with the orientation, dimensions and number of layers shown in the accepted MSE wall submittals. If a reinforced approach fill is designed with geogrid reinforcement embedded in an end bent cap, cut geogrids to the required lengths and after securing ends of geogrids in place, reroll and rewrap portions of geogrids not embedded in the cap to protect geogrids from damage. Before placing aggregate, pull geosynthetic reinforcement taut so that it is in tension and free of kinks, folds, wrinkles or creases.

Attach separation geotextiles to end bent cap backwalls and wing walls with adhesives, tapes or other approved methods. Overlap adjacent separation 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 separation geotextiles or MSE wall reinforcement.

Install continuous perforated PVC drain pipes with perforations pointing down in accordance with 2018 Roadway Standard Drawing No. 422.01 or 422.02. Connect drain pipes to outlet pipes just beyond wing walls. Connect PVC pipes, fittings and outlet pipes with solvent cement in accordance with Article 815-3 of the 2018 *Standard Specifications for Roads and Structures* and place outlet pads in accordance with Roadway Standard Drawing No. 815.03.

Install drain pipes so water drains towards outlets. If the groundwater elevation is above drain pipe elevations, raise drains up to maintain positive drainage towards outlets. Place pipe sleeves in or under wing walls so water drains towards outlets. Use sleeves that can withstand wing wall loads.

Place select material or aggregate in 8" to 10" thick lifts. Compact fine aggregate for reinforced approach fills in accordance with Subarticle 235-3(C) of the 2018 *Standard Specifications for Roads and Structures* except compact fine aggregate to a density of at least 98%. Compact select material for standard or modified approach fills and coarse aggregate for reinforced approach fills with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, MSE wall reinforcement or drains when placing and compacting select material or aggregate. End dumping directly on geosynthetics is not permitted. Do not operate heavy

equipment on geosynthetics or drain pipes until they are covered with at least 8" of select material or aggregate. Replace any damaged geosynthetics or drains to the satisfaction of the Engineer. When approach fills extend beyond bridge approach slabs, wrap separation geotextiles over select material or aggregate as shown in Roadway Standard Drawing No. 422.01 or Roadway Detail Drawing No. 422D10.

For temporary walls, use welded wire reinforcement for welded wire facing and Type 5 geotextile for reinforcement geotextiles. Use Type 5 geotextile with lengths and an ultimate tensile strength as shown in Roadway Standard Drawing No. 422.03. Provide Type 1 geotextile for separation geotextiles and Class B concrete for outlet pads. Use Class V or Class VI select material for alternate approach fills and temporary walls. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For PVC drain pipes, use pipes with perforations that meet AASHTO M 278.

ALTERNATE BRIDGE APPROACH FILLS FOR INTEGRAL ABUTMENTS

(11-21-17) 422 DB4 R02B

Description

At the Design-Build Team's option, use Type A Alternate Bridge Approach Fills instead of Type I or II Bridge Approach Fills to support bridge approach slabs for integral bridge abutments. An alternate bridge approach fill shall consist of constructing an approach fill with a temporary geotextile wall before placing all or a portion of the concrete for the backwall and wing walls of the integral end bent cap. The temporary geotextile wall shall be designed for a crane surcharge, shall remain in place and be aligned so the wall face functions as a form for the end bent cap backwall and wing walls. Install drains, welded wire facing and geotextiles and backfill approach fills and temporary walls with select material as required. Define "geotextiles" as separation or reinforcement geotextiles, "temporary wall" as a temporary geotextile wall and "alternate approach fill" as a Type A Alternate Bridge Approach Fill in accordance with 2018 Roadway Standard Drawing No. 422.03.

Materials

Refer to Division 10 of the 2018 *Standard Specifications for Roads and Structures*.

Item	Section
Geotextiles	1056
Portland Cement Concrete	1000
Select Materials	1016
Subsurface Drainage Materials	1044
Welded Wire Reinforcement	1070-3

For temporary walls, use welded wire reinforcement for welded wire facing and Type 5 geotextile for reinforcement geotextiles. Use Type 5 geotextile with lengths and an ultimate tensile strength as shown in 2018 Roadway Standard Drawing No. 422.03. Provide Type 1 geotextile for separation geotextiles and Class B concrete for outlet pads. Use Class V or Class VI select material for alternate approach fills and temporary walls. Provide PVC pipes,

fittings and outlet pipes for subsurface drainage materials. For PVC drain pipes, use pipes with perforations that meet AASHTO M 278.

Construction Methods

Excavate as necessary for alternate approach fills and temporary walls in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place geotextiles until approach fill dimensions and foundation material are approved.

Install geotextiles as shown in 2018 Roadway Standard Drawing No. 422.03. Attach separation geotextiles to end bent cap backwalls and wing walls as needed with adhesives, tapes or other approved methods. 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 geotextiles.

Install continuous perforated PVC drain pipes with perforations pointing down in accordance with 2018 Roadway Standard Drawing No. 422.03. Connect drain pipes to outlet pipes just beyond wing walls. Connect PVC pipes, fittings and outlet pipes with solvent cement in accordance with Article 815-3 of the 2018 *Standard Specifications for Roads and Structures* and place outlet pads in accordance with 2018 Roadway Standard Drawing No. 815.03.

Install drain pipes so water drains towards outlets. If the groundwater elevation is above drain pipe elevations, raise drains up to maintain positive drainage towards outlets. Place pipe sleeves in or under wing walls so water drains towards outlets. Use sleeves that can withstand wing wall loads.

At the Design-Build Team’s option, construct bottom portion of integral end bents before temporary walls as shown in 2018 Roadway Standard Drawings No. 422.03. Erect and set welded wire facing so facing functions as a form for the end bent cap backwall. Place welded wire facing adjacent to each other in the horizontal and vertical directions to completely cover the temporary wall face. Stagger welded wire facing to create a running bond by centering facing over joints in the row below.

Wrap reinforcement geotextiles at the temporary wall face in accordance with 2018 Roadway Standard Drawing No. 422.03 and cover geotextiles with at least 3" of select material. Place layers of reinforcement geotextiles within 3" of locations shown in 2018 Roadway Standard Drawing No. 422.03. Before placing select material, pull reinforcement geotextiles taut so they are in tension and free of kinks, folds, wrinkles or creases. Install reinforcement geotextiles with the direction shown in 2018 Roadway Standard Drawing No. 422.03. Do not splice or overlap reinforcement geotextiles so seams are parallel to the temporary wall face.

Place select material in 8" to 10" thick lifts and compact select material with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geotextiles or drains when placing and compacting select material. End dumping directly on geotextiles is not permitted. Do not operate heavy equipment on geotextiles or drain pipes until they are covered with at least 8" of select material. Replace any damaged geotextiles or drains to the satisfaction of the Engineer.

When alternate approach fills extend beyond bridge approach slabs, wrap separation geotextiles over select material as shown in 2018 Roadway Standard Drawing No. 422.03.

Temporary walls shall be designed for a surcharge pressure in accordance with 2018 Roadway Standard Drawing No. 422.03. If the crane surcharge will exceed the wall design, contact the Engineer before positioning the crane over reinforcement geotextiles.

AUTOMATED FINE GRADING

(9-1-11) (Rev. 9-13-17) DB5 R05

On mainline portions and ramps of this project, prepare the subgrade and base beneath the pavement structure in accordance with the applicable sections of the 2018 *Standard Specifications for Roads and Structures* except use an automatically controlled fine grading machine utilizing string lines, laser controls, or other approved methods to produce final subgrade and base surfaces meeting the lines, grades, and cross sections required by the plans developed by the Design-Build Team or established by the Engineer.

STABILIZATION OF COASTAL PLAIN SANDS

(10-02-14) (Rev. 9-13-17) 510 DB05 R12

Description

As directed by the Engineer, stabilize sandy subgrade material with Class IV aggregate to prevent rutting of the subgrade prior to paving directly on the subgrade. Remove material as needed in cut areas prior to placing the Class IV aggregate.

Materials

Refer to Division 10

Item	Section
Select Material, Class IV	1016

Use Class IV Select Material for Class IV Aggregate Stabilization.

Construction Methods

As directed by the Engineer, place aggregate by end dumping aggregate on approved subgrade soils to provide a working platform and reduce wheel rutting of subgrade material. Place the Class IV aggregate stabilization to a thickness of two to three inches.

Maintenance

Maintain aggregate stabilization in an acceptable condition and minimize the use of heavy equipment on aggregate in order to avoid damaging the subgrade. Provide and maintain drainage ditches and drains as required to prevent entrapping water in aggregate stabilization.

AGGREGATE SUBGRADE

(3-9-18) DB05 R017A

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 5-8, Article 505-1 DESCRIPTION, Lines 4 - 6, replace the paragraph with the following:

Construct aggregate subgrades in accordance with the contract. Install geotextile for soil stabilization and place Class IV subgrade stabilization at locations shown in the plans developed by the Design-Build Team and as directed.

Undercut natural soil materials if necessary to construct aggregate subgrades. Define "subbase" as the portion of the roadbed below the Class IV subgrade stabilization. For Type 2 aggregate subgrades, undercut subbases as needed. The types of aggregate subgrade with thickness and compaction requirements for each shall be as shown below.

Type 1 – A 6 to 24 inch thick aggregate subgrade with Class IV subgrade stabilization compacted to 92% of AASHTO T 180 as modified by the Department or to the highest density that can be reasonably obtained.

Type 2 – A 12-inch thick aggregate subgrade on a proof rolled subbase with Class IV subgrade stabilization compacted to 97% of AASHTO T 180 as modified by the Department.

Page 5-8, Article 505-3 CONSTRUCTION METHODS, Line 12, insert the following after the first sentence of the first paragraph:

For Type 2 aggregate subgrades, proof roll subbases in accordance with Section 260 before installing geotextile for soil stabilization.

Page 5-8, Article 505-3 CONSTRUCTION METHODS, Lines 16 - 17, replace the last sentence of the first paragraph with the following:

Compact ABC as required for the type of aggregate subgrade constructed.

FINAL SURFACE TESTING

(4-26-16) (Rev. 9-13-17) DB6 R45

On all mainline travel lanes, including but not limited to auxiliary lanes, and -Y- Line travel lanes with 1) two or more layers of asphalt, 2) one mile or greater in length, and 3) a posted speed limit of 45 mph or greater, perform smoothness acceptance testing of the longitudinal profile of the finished pavement surface using an Inertial Profiler in accordance with Sections 610 and 710 of the 2018 *Standard Specifications for Roads and Structures.* The North Carolina Hearne Straightedge will not be permitted.

MILLING ASPHALT PAVEMENT
(12-17-18) 607 DB6 R59

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 6-5, Article 607-2, EQUIPMENT, Lines 14 - 16, delete the seventh sentence of this Article and replace with the following:

Use either a non-contacting laser or sonar type ski system with a minimum of three referencing stations mounted on the milling machine at a length of at least 24 feet.

ASPHALT CONCRETE PLANT MIX PAVEMENTS
(12-12-18) 610, 1012 DB6 R65

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 6-14, Table 609-3, LIMITS OF PRECISION FOR TEST RESULTS, replace with the following:

TABLE 609-3
LIMITS OF PRECISION FOR TEST RESULTS

Mix Property	Limits of Precision
25.0 mm sieve (Base Mix)	± 10.0%
19.0 mm sieve (Base Mix)	± 10.0%
12.5 mm sieve (Intermediate & Type P-57)	± 6.0%
9.5 mm sieve (Surface Mix)	± 5.0%
4.75 mm sieve (Surface Mix)	± 5.0%
2.36 mm sieve (All Mixes, except S4.75A)	± 5.0%
1.18 mm sieve (S4.75A)	± 5.0%
0.075 mm sieve (All Mixes)	± 2.0%
Asphalt Binder Content	± 0.5%
Maximum Specific Gravity (G_{mm})	± 0.020
Bulk Specific Gravity (G_{mb})	± 0.030
TSR	± 15.0%
QA retest of prepared QC Gyratory Compacted Volumetric Specimens	± 0.015
Retest of QC Core Sample	± 1.2% (% Compaction)
Comparison QA Core Sample	± 2.0% (% Compaction)
QA Verification Core Sample	± 2.0% (% Compaction)
Density Gauge Comparison of QC Test	± 2.0% (% Compaction)
QA Density Gauge Verification Test	± 2.0% (% Compaction)

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

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

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

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

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

TABLE 610-3
MIX DESIGN CRITERIA

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

A. Based on 20 year design traffic.

B. Volumetric Properties based on specimens compacted to N_{des} as modified by the Department.

C. Dust to Binder Ratio ($P_{0.075}$ / P_{be}) for Type S4.75A is 1.0 - 2.0.

D. NCDOT-T-283 (No Freeze-Thaw cycle required).

E. TSR for Type S4.75A & B25.0C mixes is 80% minimum.

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

TABLE 610-5
BINDER GRADE REQUIREMENTS (BASED ON RBR%)

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

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

B. Maximum Recycled Binder Replacement (%RBR) is 18% for mixes using PG 76-22 binder.

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

TABLE 610-6
PLACEMENT TEMPERATURES FOR ASPHALT

Asphalt Concrete Mix Type	Minimum Surface and Air Temperature
B25.0C	35° F
I19.0C	35° F
S4.75A, S9.5B, S9.5C	40° F [A]
S9.5D	50° F

A. For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50° F.

Page 6-21, Article 610-8, SPREADING AND FINISHING, Lines 34 - 35, delete the second sentence and replace with the following:

Use an MTV for all surface mix regardless of binder grade on Interstates, US Routes, and NC Routes (primary routes) that have four or more lanes and are median divided.

Page 6-21, Article 610-8, SPREADING AND FINISHING, Lines 36 - 38, delete the fourth sentence and replace with the following:

Use MTV for all ramps, loops and -Y- Lines, that have four or more lanes and are median divided; and all full width acceleration lanes, full width deceleration lanes, and full width turn lanes that are greater than 1000 feet in length.

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

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

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

Page 6-24, Article 610-13, FINAL SURFACE TESTING, Lines 35 - 36, delete the second sentence and replace with the following:

Final surface testing is not required on ramps, loops and turn lanes.

Page 6-26, Subarticle 610-13(A)(1), Acceptance for New Construction, Lines 29 - 30, delete the second sentence and replace with the following:

Areas excluded from testing by the profiler may be tested using a ten-foot straightedge in accordance with Article 610-12.

Page 6-27, Subarticle 610-13(B), Option 2 - North Carolina Hearne Straightedge, Lines 41 - 46, delete the eighth and ninth sentence of this paragraph and replace with the following:

Take profiles over the entire length of the final surface travel lane pavement, exclusive of structures, approach slabs, paved shoulders, tapers, and other irregular shaped areas of pavement, unless otherwise approved by the Engineer. In accordance with this provision, test all mainline travel lanes, full width acceleration lanes, full width deceleration lanes and collector lanes.

Page 6-28, Subarticle 610-13(B), Option 2 - North Carolina Hearne Straightedge, Lines 1 - 2, delete these two lines.

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

TABLE 1012-1
AGGREGATE CONSENSUS PROPERTIES[A]

Mix Type	Coarse Aggregate Angularity[B]	Fine Aggregate Angularity % Minimum	Sand Equivalent % Minimum	Flat and Elongated 5 : 1 Ratio % Maximum
Test Method	*ASTM D5821*	*AASHTO T 304*	*AASHTO T 176*	*ASTM D4791*
S4.75A; S9.5B	75 / -	40	40	-
S9.5C; I19.0C; B25.0C	95 / 90	45	45	10
S9.5D	100 / 100	45	50	10
OGFC	100 / 100	45	45	10
UBWC	100 / 85	45	45	10

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

SUBSURFACE DRAINAGE

(9-1-11) (Rev. 9-14-17) DB8 R05

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 8-11, Article 815-1, delete the first sentence and replace with the following:

The Design-Build Team shall construct subsurface drains, underdrains, blind drains and other types of drains where groundwater is within six feet of subgrade.

GUARDRAIL END UNITS, TYPE TL-3

(4-20-04) (Rev. 9-14-17) 862 DB8 R65

Description

Furnish and install guardrail end units in accordance with the details in the plans developed by the Design-Build Team, the applicable requirements of Section 862 of the 2018 *Standard Specifications for Roads and Structures*, and at locations shown in the plans developed by the Design-Build Team.

Materials

The Design-Build Team shall furnish guardrail end units listed on the NCDOT Approved Products List at **https://apps.dot.state.nc.us/vendor/approvedproducts/** or approved equal.

Prior to installation, the Design-Build Team shall submit to the Engineer:

1. FHWA acceptance letter for each guardrail end unit certifying it meets the requirements of the AASHTO Manual for Assessing Safety Hardware, Test Level 3, in accordance with Article 106-2 of the 2018 *Standard Specifications for Roads and Structures*.

2. Certified working drawings and assembling instructions from the manufacturer for each guardrail end unit in accordance with Article 105-2 of the 2018 *Standard Specifications for Roads and Structures*.

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

Construction Methods

Guardrail end delineation shall be required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation shall consist of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the 2018 *Standard Specifications for Roads and Structures*.

IMPACT ATTENUATOR UNIT, TYPE TL-3

(4-20-04) (Rev. 12-12-18) DB8 R75

Description

The Design-Build Team shall furnish and install impact attenuator units and any components necessary to connect the impact attenuator units in accordance with the manufacturer's requirement, the details in the plans developed by the Design-Build Team, and at locations shown in the plans developed by the Design-Build Team.

Materials

The Design-Build Team shall furnish impact attenuator units listed on the NCDOT Approved Products List at **https://apps.dot.state.nc.us/vendor/approvedproducts/** or approved equal.

Prior to installation, the Design-Build Team shall submit to the Engineer:

1. FHWA acceptance letter for each impact attenuator unit certifying it meets the requirements of the Manual for Assessing Safety Hardware (MASH-16), Test Level 3, in accordance with Article 106-2 of the 2018 *Standard Specifications for Roads and Structures.*

2. Certified working drawings and assembling instructions from the manufacturer for each impact attenuator unit in accordance with Article 105-2 of the 2018 *Standard Specifications for Roads and Structures*.

No modifications shall be made to the impact attenuator unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans developed by the Design-Build Team, and details and assembling instructions furnished by the manufacturer.

Construction Methods

If the median width is 40 feet or less, the Design-Build Team shall supply NON-GATING Impact Attenuator Units.

If the median width is greater than 40 feet, the Design-Build Team may use GATING or NON-GATING Impact Attenuator Units.

POLYUREA PAVEMENT MARKING MATERIAL - TYPE 2 TYPICAL CERTIFIED MILL TEST REPORT

(1-16-19) SP

Amend the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 10-184, Article 1087-8 Material Certification, in accordance with Article 106-3 provide a Type 2 Typical Certified Mill Test Report and a Type 3 Manufacturer's Certification for Polyurea pavement marking material.

When tested, the material shall meet the physical and chemical characteristics provided by the manufacturer. NCDOT reserves the right to compare these test results to baseline test results gathered by the NCDOT Materials and Test Unit.

SNOWPLOWABLE PAVEMENT MARKERS

(1-16-19) SP

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Pages 10-177 and 10-178, Article 1086-3 SNOWPLOWABLE PAVEMENT MARKERS, delete items (A), (B) and (C)(1) and replace with the following:

(A) General

Use snowplowable pavement markers evaluated by NTPEP. The snowplowable pavement marker shall consist of a housing with one or more glass or plastic face lens type reflective lenses to provide the required color designation. Shape the housing to deflect a snowplow blade upward in both directions without being damaged. Plastic lens faces shall use an abrasion resistant coating.

Use recycled snowplowable pavement markers that meet all the requirements of new snowplowable pavement markers except Subarticle 1086-3(B)(1). Recycled snowplowable pavement markers with minimal variation in dimensions are acceptable only when the reflector fits in the housing of the recycled snowplowable pavement marker as originally designed.

(B) Housings

1. Dimensions

   The dimension, slope and minimum area of reflecting surface shall conform to dimensions as shown in the plans developed by the Design-Build Team. The minimum area of each reflecting surface shall be 1.44 sq.in.

2. Materials

   Use snowplowable pavement markers that are on the NCDOT Approved Products List.

3. Surface

   The surface of the housing shall be free of scale, dirt, rust, oil, grease or any other contaminant which might reduce its bond to the epoxy adhesive.

4. Identification

   Mark the housing with the manufacturer's name and model number of marker.

(C) Reflectors

1. General

   Laminate the reflector to an elastomeric pad and attach with adhesive to the housing. The thickness of the elastomeric pad shall be 0.04".

Pages 12-14, Subarticle 1250-3(C) Removal of Existing Pavement Markers, Lines 19 - 29, delete and replace with the following:

Remove the existing raised pavement markers and / or the snowplowable pavement markers

including the housings, before overlaying an existing roadway with pavement. Repair the pavement by filling holes as directed by the Engineer.

When traffic patterns are changed in work zones due to construction or reconstruction, remove all raised pavement markers and / or snowplowable markers including housings that conflict with the new traffic pattern before switching traffic to the new traffic pattern. Lens removal in lieu of total housing removal is not an acceptable practice for snowplowable markers.

Properly dispose of the removed pavement markers.

Pages 12-16 and 12-17, Subarticle 1253-3 CONSTRUCTION METHODS, delete items (A), (B) and (C) and replace with the following:

(A) General

Bond marker housings to the pavement with epoxy adhesive. Mechanically mix and dispense epoxy adhesives as required by the manufacturer's specifications. Place the markers immediately after the adhesive has been mixed and dispensed.

Install snowplowable pavement marker housings into slots sawcut into the pavement. Make slots in the pavement to exactly duplicate the shape of the housing of the snowplowable pavement markers.

Promptly remove all debris resulting from the saw cutting operation from the pavement surface. Install the marker housings within seven calendar days after saw cutting slots in the pavement. Remove and dispose of loose material from the slots by brushing, blow cleaning or vacuuming. Dry the slots before applying the epoxy adhesive. Fill the cleaned slots totally with epoxy adhesive flush with the surface of the existing pavement. Install snowplowable pavement markers according to the manufacturer’s recommendations.

Protect the snowplowable pavement markers until the epoxy has initially cured and is track free.

(B) Reflector Replacement

In the event that a reflector is damaged, replace the damaged reflector by using adhesives and methods recommended by the manufacturer of the markers and approved by the Engineer.

Missing housings shall be replaced. Broken housings shall be removed and replaced. In both cases the slot for the housings shall be properly prepared prior to installing the new housing.

(C) Recycled Snowplowable Pavement Marker Housings

Use properly refurbished snowplowable pavement marker housings as approved by the Engineer such that approved new reflectors can be installed inside the housings.

THERMOPLASTIC PAVEMENT MARKING MATERIAL – COLOR TESTING

(1-16-19) SP

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Pages 10-183 and 10-184, Subarticle 1087-7(D)(1)(b) Yellow, Lines 9 - 11, delete and replace with the following:

Obtain Color Values Y,x,y per ASTM E1349 using C/2° illuminant/observer.

Results shall be Y ≥ 45%, and x,y shall fall within PR#1 chart chromaticity limits.

EXTRUDED THERMOPLASTIC PAVEMENT MARKING THICKNESS

(1-16-19) SP

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Page 12-6, Subarticle 1205-4(A)(1) General, Lines 5 - 8, delete the second sentence and replace with the following:

Use application equipment that provides multiple width settings ranging from 4 inches to 12 inches and multiple thickness settings to achieve a minimum pavement marking thickness of 0.090 inch above the surface of the pavement.

Page 12-7, Table 1205-3, THICKNESS REQUIREMENTS FOR THERMOPLASTIC, replace with the following:

TABLE 1205-3
MINIMUM THICKNESS REQUIREMENTS FOR THERMOPLASTIC

Thickness	Location
240 mils	In-lane and shoulder-transverse pavement markings (rumble strips). May be placed in two passes.
90 mils	Center lines, skip lines, transverse bands, mini-skip lines, characters, bike lane symbols, crosswalk lines, edge lines, gore lines, diagonals, and arrow symbols

TEMPORARY SHORING

(2-20-07) (Rev. 11-22-17) DB11 R02

Description

Temporary shoring includes cantilever, braced and anchored shoring and temporary mechanically stabilized earth (MSE) walls. Temporary shoring does not include trench boxes. At the Design-Build Team's option, use any type of temporary shoring, unless noted otherwise in the plans developed by the Design-Build Team or as directed.

Design and construct temporary shoring based on actual elevations and shoring dimensions in

accordance with the plans developed by the Design-Build Team and accepted submittals. Construct temporary shoring at locations shown in the plans developed by the Design-Build Team and as directed. Temporary shoring shall be required to maintain traffic when a 2:1 (H:V) slope from the top of an embankment or bottom of an excavation will intersect the existing ground line less than five feet from the edge of pavement of an open travelway. This standard special provision does not apply to pipe, inlet or utility installation unless noted otherwise in the plans developed by the Design-Build Team.

Positive protection includes concrete barrier and temporary guardrail. Provide positive protection for temporary shoring at locations shown in the plans developed by the Design-Build Team and as directed. Positive protection shall be required if temporary shoring is located in the clear zone in accordance with the AASHTO *Roadside Design Guide.*

(A) Cantilever and Braced Shoring

Cantilever shoring consists of steel sheet piles or H-piles with timber lagging. Braced shoring consists of sheet piles or H-piles with timber lagging and bracing such as beams, plates, walers, struts, rakers, etc. Define "piles" as sheet piles or H-piles.

(B) Anchored Shoring

Anchored shoring consists of sheet piles with walers or H-piles with timber lagging anchored with ground or helical anchors. Driven anchors may be accepted at the discretion of the Engineer. A ground anchor consists of a grouted steel bar or multi-strand tendon with an anchorage. A helical anchor consists of a lead section with a central steel shaft and at least one helix steel plate followed by extensions with only central shafts (no helixes) and an anchorage. Anchorages consist of steel bearing plates with washers and hex nuts for bars or steel wedge plates and wedges for strands. Use a prequalified Anchored Wall Contractor to install ground anchors. Define "anchors" as ground, helical or driven anchors.

(C) Temporary MSE Walls

Temporary MSE walls include temporary geosynthetic and wire walls. Define "temporary wall" as a temporary MSE wall and "Temporary Wall Vendor" as the vendor supplying the temporary MSE wall. Define "reinforcement" as geotextile, geogrid, welded wire grid or metallic strip reinforcement.

Temporary geosynthetic walls consist of geotextile or geogrid reinforcement wrapped behind welded wire facing. Define "temporary geotextile wall" as a temporary geosynthetic wall with geotextile reinforcement and "temporary geogrid wall" as a temporary geosynthetic wall with geogrid reinforcement.

Temporary wire walls consist of welded wire grid or metallic strip reinforcement connected to welded wire facing. Define "Wire Wall Vendor" as the vendor supplying the temporary wire wall.

(D) Embedment

Define "embedment" for cantilever, braced and anchored shoring as the pile depth below the grade in front of shoring. Define "embedment" for temporary walls as the wall height below the grade in front of walls.

(E) Positive Protection

Define "unanchored or anchored portable concrete barrier" as portable concrete barrier (PCB) that meets 2018 Roadway Standard Drawing No. 1170.01. Define "concrete barrier" as unanchored or anchored PCB or an approved equal. Define "temporary guardrail" as temporary steel beam guardrail that meets 2018 Roadway Standard Drawing No. 862.02.

Materials

Refer to the 2018 *Standard Specifications for Roads and Structures*.

Item	Section
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geosynthetics	1056
Neat Cement Grout	1003
Portland Cement Concrete	1000
Select Materials	1016
Steel Beam Guardrail Materials	862-2
Steel Plates	1072-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3

Provide Type 6 material certifications for shoring materials in accordance with Article 106-3 of the 2018 *Standard Specifications for Roads and Structures*. Use Class IV select material for temporary guardrail. Use neat cement grout for Type 2 grout for ground anchors. Use Class A concrete that meets Article 450-2 of the 2018 *Standard Specifications for Roads and Structures* or Type 1 grout for drilled-in piles. Provide untreated timber with a thickness of at least three inches and a bending stress of at least 1,000 pounds per square inch for timber lagging. Provide steel bracing that meets ASTM A36.

(A) Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use A-2-4 soil for backfill around culverts.

(B) Anchors

Store anchor materials on blocking a minimum of 12 inches above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store anchor materials so materials are kept clean and free of damage. Bent, damaged or defective materials shall be rejected.

(1) Ground Anchors

Use high-strength deformed steel bars that meet AASHTO M 275 or seven-wire strands that meet ASTM A886 or Article 1070-5 of the 2018 *Standard Specifications for Roads and Structures*. Splice bars in accordance with Article 1070-9 of the 2018 *Standard Specifications for Roads and Structures*. Do not splice strands. Use bondbreakers, spacers and centralizers that meet Article 6.3.5 of the AASHTO *LRFD Bridge Construction Specifications*.

(2) Helical Anchors

Use helical anchors with an ICC Evaluation Service, Inc. (ICC-ES) report. Provide couplers, thread bar adapters and bolts recommended by the Anchor Manufacturer to connect helical anchors together and to piles.

(3) Anchorages

Provide steel plates for bearing plates and steel washers, hex nuts, wedge plates and wedges recommended by the Anchor Manufacturer.

(C) Temporary Walls

(1) Welded Wire Facing

Use welded wire reinforcement for welded wire facing, struts and wires. For temporary wire walls, provide welded wire facing supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. For temporary wire walls with separate reinforcement and facing components, provide connectors (e.g., bars, clamps, plates, etc.) and fasteners (e.g., bolts, nuts, washers, etc.) required by the Wire Wall Vendor.

(2) Geotextiles

Provide Type 2 geotextile for separation and retention geotextiles. Provide Type 5 geotextile for geotextile reinforcement with ultimate tensile strengths in accordance with the accepted submittals.

(3) Geogrid Reinforcement

Use geogrids with a roll width of at least four feet and an "approved" or "approved for provisional use" status code. The list of approved geogrids is available from:

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

Provide geogrids for geogrid reinforcement with design strengths in accordance with the accepted submittals. Geogrids are typically approved for ultimate tensile strengths in the machine direction (MD) and cross-machine direction (CD) or short-term design strengths for a three-year design life in the MD based on material type. Define material type from the website above for shoring backfill as follows:

Material Type	Shoring Backfill
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

(4) Welded Wire Grid and Metallic Strip Reinforcement

Provide welded wire grid and metallic strip reinforcement supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. Use welded wire grid reinforcement ("mesh", "mats" and "ladders") that meet Article 1070-3 of the 2018 *Standard Specifications for Roads and Structures* and metallic strip reinforcement ("straps") that meet ASTM A572 or A1011.

Preconstruction Requirements

(A) Concrete Barrier

Define "clear distance" behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans developed by the Design-Build Team. At the Design-Build Team's option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of temporary shoring except for barrier above temporary walls. Concrete barrier with the minimum required clear distance shall be required above temporary walls.

(B) Temporary Guardrail

Define "clear distance" behind temporary guardrail as the horizontal distance between guardrail posts and temporary shoring. At the Design-Build Team's option or if clear distance for cantilever, braced and anchored shoring is less than four feet, attach guardrail to traffic side of shoring as shown in the plans developed by the Design-Build Team. Place

ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above temporary walls.

(C) Temporary Shoring Designs

Before beginning temporary shoring design, survey existing ground elevations in the vicinity of shoring locations to determine actual design heights (H). Submit .pdf files of working drawings and design calculations for temporary shoring designs in accordance with Article 105-2 of the 2018 *Standard Specifications for Roads and Structures*. Submit working drawings showing plan views, shoring profiles, typical sections and details of temporary shoring design and construction sequence. Do not begin shoring construction until a design submittal is accepted.

Have cantilever and braced shoring designed, detailed and sealed by an engineer licensed in the state of North Carolina. Use a prequalified Anchored Wall Design Consultant to design anchored shoring. Provide anchored shoring designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for an Anchored Wall Design Consultant. Include details in anchored shoring working drawings of anchor locations and lock-off loads, unit grout / ground bond strengths for ground anchors or minimum installation torque and torsional strength rating for helical anchors and if necessary, obstructions extending through shoring or interfering with anchors. Include details in the anchored shoring construction sequence of pile and anchor installation, excavation and anchor testing.

Provide temporary wall designs sealed by an Engineer licensed in the state of North Carolina and employed or contracted by the Temporary Wall Vendor. Include details in temporary wall working drawings of geotextile and reinforcement types, locations and directions and obstructions extending through walls or interfering with reinforcement.

(1) Soil Parameters

Design temporary shoring for the assumed soil parameters and groundwater elevations shown in the plans developed by the Design-Build Team. Assume the following soil parameters for shoring backfill:

(a) Unit weight (γ) = 120 pcf;

(b)

Friction Angle (ϕ)	**Shoring Backfill**
30°	A-2-4 Soil
34°	Class II, Type 1 or Class III Select Material
38°	Class V or VI Select Material

(c) Cohesion (c) = 0 psf.

(2) Traffic Surcharge

Design temporary shoring for a traffic surcharge of 250 pounds per square foot if traffic will be above and within H of shoring. This traffic surcharge shall not apply to construction traffic. Design temporary shoring for any construction surcharge if construction traffic will be above and within H of shoring. For LRFD shoring designs, apply traffic (live load) surcharge in accordance with Figure C11.5.5-3 of the AASHTO *LRFD Bridge Design Specifications*.

(3) Cantilever, Braced and Anchored Shoring Designs

Use shoring backfill for fill sections and voids between cantilever, braced and anchored shoring and the critical failure surface. Use concrete or grout for embedded portions of drilled-in H-piles. Do not use drilled-in sheet piles.

Define "top of shoring" for cantilever, braced and anchored shoring as where the grade intersects the back of sheet piles or H-piles and timber lagging. Design cantilever, braced and anchored shoring for a traffic impact load of 2,000 pounds per foot applied 18 inches above top of shoring if concrete barrier is above and next to shoring or temporary guardrail is above and attached to shoring. For anchored shoring designs, apply traffic impact load as horizontal load (P_{H1}) in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications.

Extend cantilever, braced and anchored shoring at least 32 inches above top of shoring if shoring is designed for traffic impact. Otherwise, extend shoring at least six inches above top of shoring.

Design cantilever, braced and anchored shoring for a maximum deflection of three inches if the horizontal distance to the closest edge of pavement or structure is less than H. Otherwise, design shoring for a maximum deflection of six inches. Design cantilever and braced shoring in accordance with the plans developed by the Design-Build Team and AASHTO *Guide Design Specifications for Bridge Temporary Works*.

Design anchored shoring in accordance with the plans developed by the Design-Build Team and Article 11.9 of the AASHTO *LRFD Bridge Design Specifications*. Use a resistance factor of 0.80 for tensile resistance of anchors with bars, strands or shafts. Extend the unbonded length for ground anchors and the shallowest helix for helical anchors at least five feet behind the critical failure surface. Do not extend anchors beyond right of way or easement limits. If existing or future obstructions such as foundations, guardrail posts, pavements, pipes, inlets or utilities will interfere with anchors, maintain a clearance of at least six inches between obstructions and anchors.

(4) Temporary Wall Designs

Use shoring backfill in the reinforced zone of temporary walls. Separation geotextiles are required between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, separation geotextiles are also required between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Design temporary walls in accordance with the plans developed by the Design-Build Team and Article 11.10 of the AASHTO *LRFD Bridge Design Specifications*. Embed temporary walls at least 18 inches except for walls on structures or rock as determined by the Engineer. Use a uniform reinforcement length throughout the wall height of at least 0.7H or six feet, whichever is longer. Extend the reinforced zone at least six inches beyond end of reinforcement. Do not locate the reinforced zone outside right of way or easement limits.

Use the simplified method for determining maximum reinforcement loads in accordance with the AASHTO LRFD specifications. For geotextile reinforcement, use geotextile properties approved by the Department or default values in accordance with the AASHTO LRFD specifications. For geogrid reinforcement, use approved geogrid properties available from the website shown elsewhere in this provision. If the website does not list a short-term design strength for an approved geogrid, use a short-term design strength equal to the ultimate tensile strength divided by 3.5 for the geogrid reinforcement. Use geosynthetic properties for the direction reinforcement will be installed, a three-year design life and shoring backfill to be used in the reinforced zone.

Do not use more than four different reinforcement strengths for each temporary geosynthetic wall. Design temporary geotextile walls for a reinforcement coverage ratio (R_c) of 1.0. For temporary geogrid walls with an R_c of less than 1.0, use a maximum horizontal clearance between geogrids of three feet and stagger reinforcement so geogrids are centered over gaps in the reinforcement layer below.

For temporary geosynthetic walls, use “L” shaped welded wire facing with 18-inch to 24-inch long legs. Locate geotextile or geogrid reinforcement so reinforcement layers are at the same level as the horizontal legs of welded wire facing. Use vertical reinforcement spacing equal to facing height. Wrap geotextile or geogrid reinforcement behind welded wire facing and extend reinforcement at least three feet back behind facing into shoring backfill.

For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing with a connection approved by the Department. For temporary geogrid and wire walls, retain shoring backfill at welded wire facing with retention geotextiles and extend geotextiles at least three feet back behind facing into backfill.

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction, inspection and testing of the temporary shoring. If required and if this meeting occurs before all shoring submittals have been accepted, additional preconstruction meetings may be required before beginning construction of temporary shoring without accepted submittals. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Design-Build Team and Shoring Contractor Superintendent will attend preconstruction meetings.

Construction Methods

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

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the 2018 *Standard Specifications for Roads and Structures* and 2018 Roadway Standard Drawing No. 1170.01. Use temporary guardrail in accordance with Section 862 of the 2018 *Standard Specifications for Roads and Structures* and 2018 Roadway Standard Drawing Nos. 862.01, 862.02 and 862.03.

(A) Tolerances

Construct shoring with the following tolerances:

(1) Horizontal wires of welded wire facing are level in all directions,

(2) Shoring location is within six inches of horizontal and vertical alignment shown in the accepted submittals, and

(3) Shoring plumbness (batter) is not negative and within two degrees of vertical.

(B) Cantilever, Braced and Anchored Shoring Installation

If overexcavation behind cantilever, braced or anchored shoring is shown in the accepted submittals, excavate before installing piles. Otherwise, install piles before excavating for shoring. Install cantilever, braced or anchored shoring in accordance with the construction sequence shown in the accepted submittals. Remove piles and if applicable, timber lagging when shoring is no longer needed.

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance with Subarticles 450-3(D) and 450-3(E) of the 2018 *Standard Specifications for*

Roads and Structures except that a pile driving equipment data form is not required. Piles may be installed with a vibratory hammer as approved by the Engineer.

Do not splice sheet piles. Use pile excavation to install drilled-in H-piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least seven days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised design submittal may be required.

(2) Excavation

Excavate in front of piles from the top down in accordance with the accepted submittals. For H-piles with timber lagging and braced and anchored shoring, excavate in staged horizontal lifts with a maximum height of five feet Remove flowable fill and material in between H-piles, as needed, to install timber lagging. Position lagging with at least three inches of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until timber lagging for the current lift is installed and, if applicable, bracing and anchors for the current lift are accepted. Backfill behind cantilever, braced or anchored shoring with shoring backfill.

(3) Anchor Installation

If applicable, install foundations located behind anchored shoring before installing anchors. Fabricate and install ground anchors in accordance with the accepted submittals, Articles 6.4 and 6.5 of the AASHTO *LRFD Bridge Construction Specifications* and the following unless otherwise approved:

(a) Materials in accordance with this provision shall be required instead of materials conforming to Articles 6.4 and 6.5.3 of the AASHTO LRFD Specifications,

(b) Encapsulation-protected ground anchors in accordance with Article 6.4.1.2 of the AASHTO LRFD specifications are not required, and

(c) Corrosion protection for unbonded lengths of ground anchors and anchorage covers are not required.

(d) Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute / American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

Install helical anchors in accordance with the accepted submittals and Anchor Manufacturer's instructions. Measure torque during installation and do not exceed the torsional strength rating of the helical anchor. Attain the minimum required installation torque and penetration before terminating anchor installation. When replacing a helical anchor, embed last helix of the replacement anchor at least three helix plate diameters past the location of the first helix of the previous anchor.

(4) Anchor Testing

Proof test and lock-off anchors in accordance with the accepted submittals and Article 6.5.5 of the AASHTO *LRFD Bridge Construction Specifications* except for the acceptance criteria in Article 6.5.5.5. For the AASHTO LRFD specifications, "ground anchor" refers to a ground or helical anchor and "tendon" refers to a bar, strand or shaft.

(a) Anchor Acceptance

Anchor acceptance is based in part on the following criteria.

(i) For ground and helical anchors, total movement is less than 0.04 inch between the one and ten minute readings or less than 0.08 inch between the six and 60 minute readings.

(ii) For ground anchors, total movement at maximum test load exceeds 80% of the theoretical elastic elongation of the unbonded length.

(b) Anchor Test Results

Submit .pdf files of anchor test records including movement versus load plots for each load increment within 24 hours of completing each row of anchors. The Engineer will review the test records to determine if the anchors are acceptable.

If the Engineer determines an anchor is unacceptable, revise the anchor design or installation methods. Submit a revised anchored shoring design for acceptance and provide an acceptable anchor with the revised design or installation methods. If required, replace the anchor or provide additional anchors with the revised design or installation methods.

(C) Temporary Wall Installation

Excavate as necessary for temporary walls in accordance with the plans developed by the Design-Build Team and accepted submittals. If applicable, install foundations located in the reinforced zone before placing shoring backfill or reinforcement unless otherwise approved. Notify the Engineer when foundation excavation is complete. Do not place shoring backfill or reinforcement until excavation dimensions and foundation material are approved.

Erect welded wire facing so the wall position is as shown in the plans developed by the Design-Build Team and accepted submittals. Set welded wire facing adjacent to each other in the horizontal and vertical direction to completely cover the wall face with facing. Stagger welded wire facing to create a running bond by centering facing over joints in the row below.

Wrap geotextile reinforcement and retention geotextiles behind welded wire facing as shown in the plans developed by the Design-Build Team and accepted submittals, and cover geotextiles with at least three inches of shoring backfill. Overlap adjacent geotextile reinforcement and retention and separation geotextiles at least 18 inches with seams oriented perpendicular to the wall face. Hold geotextiles in place with wire staples or anchor pins as needed.

Place reinforcement within three inches of locations shown in the plans developed by the Design-Build Team and accepted submittals. Before placing shoring backfill, pull reinforcement taut so it is in tension and free of kinks, folds, wrinkles or creases. Install reinforcement with the direction shown in the plans developed by the Design-Build Team and accepted submittals. For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing as shown in the accepted submittals. Do not splice or overlap reinforcement so seams are parallel to the wall face. Contact the Engineer when unanticipated existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with reinforcement.

Place shoring backfill in the reinforced zone in eight-inch to ten-inch thick lifts. Compact A-2-4 soil and Class II, Type 1 and Class III select material in accordance with Subarticle 235-3(C) of the 2018 *Standard Specifications for Roads and Structures*. Use only hand operated compaction equipment to compact backfill within three feet of welded wire facing. At a distance greater than three feet, compact shoring backfill with at least four passes of an eight-ton to ten-ton vibratory roller in a direction parallel to the wall face. Smooth wheeled or rubber tired rollers are also acceptable for compacting backfill. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting shoring backfill. End dumping directly on geotextile or geogrid reinforcement shall not be permitted. Do not operate heavy equipment on reinforcement until it is covered with at least eight inches of shoring backfill. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for temporary walls outside the reinforced zone in accordance with Article 410-8 of the 2018 *Standard Specifications for Roads and Structures*. Bench temporary walls into the sides of excavations where applicable. For temporary geosynthetic walls with top of wall within five feet of finished grade, remove top facing and incorporate top reinforcement layer into fill when placing fill in front of wall. Temporary walls remain in place permanently unless otherwise required.

ON-THE-JOB TRAINING

(2-24-15) (Rev. 7-20-17) Z-10

Description

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

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

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

Minorities and Women

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

Assigning Training Goals

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

Training Classifications

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

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

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

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

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

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

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

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

Records and Reports

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

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

Trainee Interviews

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

Trainee Wages

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

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

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

Achieving or Failing to Meet Training Goals

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

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

Measurement and Payment

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

STANDARD SPECIAL PROVISION

AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(9-1-11) Z-2

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

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

Payment will be made on any contract terminated pursuant to the special provision in accordance with Article 108-13(E), of the *North Carolina Department of Transportation Standard Specifications for Roads and Structures*, dated January 2018 and as amended by the Standard Special Provision, Division One found elsewhere in this RFP.

***** STANDARD SPECIAL PROVISIONS *****

NCDOT GENERAL SEED SPECIFICATIONS FOR SEED QUALITY

(5-7-11) Z-3

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

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

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

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

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

Restricted Noxious Weed	Limitations per Lb. of Seed	Restricted Noxious Weed	Limitations per Lb. of Seed
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)
Kobe Lespedeza
Korean Lespedeza
Weeping Lovegrass
Carpetgrass
Bermudagrass
Browntop Millet
German Millet - Strain R
Clover - Red / White / Crimson

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

Common or Sweet Sundangrass

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

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

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

Centipedegrass
Crownvetch
Pensacola Bahiagrass
Creeping Red Fescue
Japanese Millet
Reed Canary Grass
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
Birdsfoot Trefoil
Indiangrass
Orchardgrass
Switchgrass
Yellow Blossom Sweet Clover

STANDARD SPECIAL PROVISION

ERRATA

(10-16-18) (Rev. 12-12-18) Z-4

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Division 6

Page 6-7, Article 609-1 DESCRIPTION, Line 29, replace article number "609-10" with "609-9".

Division 10

Page 10-78, Article 1056-4 GEOTEXTILES, TABLE 1056-1, Permittivity, Type 2, replace "Table 6[D]" with "Table 7[D]" and **Permittivity, Type 3[B],** replace "Table 7[D]" with "Table 8[D]".

Page 10-162, Article 1080-50 PAINT FOR VERTICAL MARKERS, Line 1, replace article number "1080-50" with "1080-10".

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

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

Page 10-163, Article 1080-83 FIELD PERFORMANCE AND SERVICES, Line 25, replace article number "1080-83" with "1080-13".

***** STANDARD SPECIAL PROVISIONS *****

TITLE VI AND NONDISCRIMINATION

(6-28-77) (Rev 5-2-18) Z-6

Revise the 2018 *Standard Specifications for Roads and Structures* as follows:

Replace Article 103-4(B) with the following:

The North Carolina Department of Transportation is committed to carrying out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts.

The provisions of this section related to United States Department of Transportation (US DOT) Order 1050.2A, Title 49 Code of Federal Regulations (CFR) part 21, 23 United States Code (U.S.C.) 140 and 23 CFR part 200 (or 49 CFR 303, 49 U.S.C. 5332 or 49 U.S.C. 47123) are applicable to all North Carolina Department of Transportation (NCDOT) contracts and to all related subcontracts, material supply, engineering, architectural and other service contracts, regardless of dollar amount. Any Federal provision that is specifically required not specifically set forth is hereby incorporated by reference.

(1) **Title VI Assurances (USDOT Order 1050.2A, Appendix A)**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(a) Compliance with Regulations

The contractor (hereinafter includes consultants) shall comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(b) Nondiscrimination

The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(c) Solicitations for Subcontractors, Including Procurements of Materials and Equipment

In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(d) Information and Reports

The contractor shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor shall so certify to the Recipient or the FHWA, as appropriate, and shall set forth what efforts it has made to obtain the information.

(e) Sanctions for Noncompliance:

In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it and / or the FHWA may determine to be appropriate, including, but not limited to:

(i) Withholding payments to the contractor under the contract until the contractor complies; and / or

(ii) Cancelling, terminating, or suspending a contract, in whole or in part.

(f) Incorporation of Provisions

The contractor shall include the provisions of paragraphs (a) through (f) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor shall take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

(2) **Title VI Nondiscrimination Program (23 CFR 200.5(p))**

The North Carolina Department of Transportation (NCDOT) has assured the USDOT that, as a condition to receiving federal financial assistance, NCDOT will comply with Title VI of the Civil Rights Act of 1964 and all requirements imposed by Title 49 CFR Part 21 and related nondiscrimination authorities to ensure that no person shall, on the ground of race, color, national origin, limited English proficiency, sex, age, or disability (including religion / creed or income-level, where applicable), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs, activities, or services conducted or funded by NCDOT. Contractors and other organizations under contract or agreement with NCDOT must also comply with Title VI and related authorities, therefore:

(a) During the performance of this contract or agreement, contractors (e.g. subcontractors, consultants, vendors, prime contractors) shall be responsible for

complying with NCDOT's Title VI Program. Contractors are not required to prepare or submit Title VI Programs. To comply with this section, the prime contractor shall:

1. Post NCDOT's Notice of Nondiscrimination and the Contractor's own Equal Employment Opportunity (EEO) Policy in conspicuous locations accessible to all employees, applicants and subcontractors on the jobsite.

2. Physically incorporate the required Title VI clauses into all subcontracts on federally-assisted and state-funded NCDOT projects, and ensure inclusion by subcontractors into all lower-tier subcontracts.

3. Required Solicitation Language. The Contractor shall include the following notification in all solicitations for bids and requests for work or material, regardless of funding source:

   "The North Carolina Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 US.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. In accordance with other related nondiscrimination authorities, bidders and contractors will also not be discriminated against on the grounds of sex, age, disability, low-income level, creed / religion, or limited English proficiency in consideration for an award."

4. Physically incorporate the FHWA-1273, in its entirety, into all subcontracts and subsequent lower tier subcontracts on Federal-aid highway construction contracts only.

5. Provide language assistance services (i.e., written translation and oral interpretation), free of charge, to LEP employees and applicants. Contact NCDOT OCR for further assistance, if needed.

6. For assistance with these Title VI requirements, contact the NCDOT Title VI Nondiscrimination Program at 1-800-522-0453.

(b) Subrecipients (e.g. cities, counties, LGAs, planning organizations) may be required to prepare and submit a Title VI Plan to NCDOT, including Title VI Assurances and / or agreements. Subrecipients must also ensure compliance by their contractors and subrecipients with Title VI. (23 CFR 200.9(b)(7))

(c) If reviewed or investigated by NCDOT, the contractor or subrecipient agrees to take affirmative action to correct any deficiencies found within a reasonable time period, not to exceed 90 calendar days, unless additional time is granted by NCDOT. (23 CFR 200.9(b)(15))

(d) The Contractor shall be responsible for notifying subcontractors of NCDOT's External Discrimination Complaints Process.

1. Applicability

   Title VI and related laws protect participants and beneficiaries (e.g., members of the public and contractors) from discrimination by NCDOT employees, subrecipients and contractors, regardless of funding source.

2. Eligibility

   Any person, or class of persons, who believes he / she has been subjected to discrimination based on race, color, national origin, Limited English Proficiency (LEP), sex, age, or disability (and religion in the context of employment, aviation, or transit) may file a written complaint. The law also prohibits intimidation or retaliation of any sort.

3. Time Limits and Filing Options

   Complaints may be filed by the affected individual(s) or a representative and must be filed no later than 180 calendar days after the following:

   (i) The date of the alleged act of discrimination; or

   (ii) The date when the person(s) became aware of the alleged discrimination; or

   (iii) Where there has been a continuing course of conduct, the date on which that conduct was discontinued or the latest instance of the conduct.

   Title VI and related discrimination complaints may be submitted to the following entities:

   - North Carolina Department of Transportation, Office of Civil Rights, Title VI Program, 1511 Mail Service Center, Raleigh, NC 27699-1511; toll free 1-800-522-0453
   - Federal Highway Administration, North Carolina Division Office, 310 New Bern Avenue, Suite 410, Raleigh, NC 27601; 919-747-7010
   - US Department of Transportation, Departmental Office of Civil Rights, External Civil Rights Programs Division, 1200 New Jersey Avenue, SE, Washington, DC 20590; 202-366-4070

4. Format for Complaints

   Complaints must be in writing and signed by the complainant(s) or a representative, and include the complainant's name, address, and telephone number. Complaints received by fax or e-mail will be acknowledged and processed. Allegations received by telephone will be reduced to writing and provided to the complainant for confirmation or revision before processing. Complaints will be accepted in other languages, including Braille.

5. Discrimination Complaint Form

   Contact NCDOT Civil Rights to receive a full copy of the Discrimination Complaint Form and procedures.

6. Complaint Basis

   Allegations must be based on issues involving race, color, national origin (LEP), sex, age, disability, or religion (in the context of employment, aviation or transit). "Basis" refers to the complainant's membership in a protected group category.

TABLE 103-1 COMPLAINT BASIS			
Protected Categories	**Definition**	**Examples**	**Applicable Nondiscrimination Authorities**
Race and Ethnicity	An individual belonging to one of the accepted racial groups; or the perception, based usually on physical characteristics that a person is a member of a racial group	Black / African American, Hispanic / Latino, Asian, American Indian / Alaska Native, Native Hawaiian / Pacific Islander, White	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; 23 CFR 200; 49 U.S.C. 5332(b); 49 U.S.C. 47123. *(Executive Order 13166)*
Color	Color of skin, including shade of skin within a racial group	Black, White, Brown, Yellow, etc.	
National Origin *(Limited English Proficiency)*	Place of birth. Citizenship is not a factor. (*Discrimination based on language or a person's accent is also covered)*	Mexican, Cuban, Japanese, Vietnamese, Chinese	
Sex	Gender. The sex of an individual. *Note:* Sex under this program does not include sexual orientation.	Women and Men	1973 Federal-Aid Highway Act; 49 U.S.C. 5332(b); 49 U.S.C. 47123.
Age	Persons of any age	21-year-old person	Age Discrimination Act of 1975 49 U.S.C. 5332(b); 49 U.S.C. 47123.
Disability	Physical or mental impairment, permanent or temporary, or perceived.	Blind, alcoholic, para-amputee, epileptic, diabetic, arthritic	Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990
Religion (in the context of employment) *(Religion / Creed in all aspects of any aviation or transit-related construction)*	An individual belonging to a religious group; or the perception, based on distinguishable characteristics that a person is a member of a religious group. In practice, actions taken as a result of the moral and ethical beliefs as to what is right and wrong, which are sincerely held with the strength of traditional religious views. ***Note:*** Does not have to be associated with a recognized religious group or church; if an individual sincerely holds to the belief, it is a protected religious practice.	Muslim, Christian, Sikh, Hindu, etc.	Title VII of the Civil Rights Act of 1964; 23 CFR 230; FHWA-1273 Required Contract Provisions. *(49 U.S.C. 5332(b);* *49 U.S.C. 47123)*

(3) **Pertinent Nondiscrimination Authorities**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects)

- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex)

- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability) and 49 CFR Part 27

- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age)

- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex)

(g) The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not)

(h) Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38

(i) The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex)

(j) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations

(k) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English Proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100)

(l) Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq)

(m) Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e et seq., Pub. L. 88-352), (prohibits employment discrimination on the basis of race, color, religion, sex, or national origin).

(4) **Additional Title VI Assurances**

***The following Title VI Assurances (Appendices B, C and D) shall apply, as applicable*

(a) Clauses for Deeds Transferring United States Property (1050.2A, Appendix B)

The following clauses shall be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4.

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the North Carolina Department of Transportation (NCDOT) will accept title to the lands and maintain the project constructed thereon in accordance with the North Carolina General Assembly, the Regulations for the Administration of the Federal-Aid Highway Program, and the policies and procedures prescribed by the Federal Highway Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the NCDOT all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto the North Carolina Department of Transportation (NCDOT) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the NCDOT, its successors and assigns.

The NCDOT, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the NCDOT will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended [, and (3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

(b) Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program (1050.2A, Appendix C)

The following clauses shall be included in deeds, licenses, leases, permits, or similar instruments entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(a):

1. The (grantee, lessee, permittee, etc. as appropriate) for himself / herself, his / her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

   (i.) In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

2. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued. *

3. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

(c) Clauses for Construction / Use / Access to Real Property Acquired Under the Activity, Facility or Program (1050.2A, Appendix D)

The following clauses shall be included in deeds, licenses, permits, or similar instruments / agreements entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(b):

1. The (grantee, licensee, permittee, etc., as appropriate) for himself / herself, his / her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.

2. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued. *

3. With respect to deeds, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

MINIMUM WAGES

(07-21-09) Z-5

FEDERAL: The Fair Labor Standards Act provides that with certain exceptions every employer must 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.

The determination of the intent of the application of these Acts to the project's contract shall be the Design-Build Team's responsibility.

The Design-Build Team shall have no claim against the Department of Transportation for any changes in the minimum wage laws, State or Federal. It is the responsibility of the Design-Build Team to be fully informed of all Federal and State Laws affecting the project's contract.

***** STANDARD SPECIAL PROVISIONS *****

(11-15-17) EDB

DIVISION ONE OF STANDARD SPECIFICATIONS

Division One of the 2018 NCDOT *Standard Specifications for Roads and Structures* (*Standard Specifications*) shall apply except as follows:

Definitions: Throughout Division One of the *Standard Specifications*, the term "Contractor" is replaced with "Design-Build Team", the term "Bidder" is replaced with "Proposer," and the term "Bid" is replaced by "Price Proposal." The replacement of "Contractor" with "Design-Build Team" does not apply to Article 102-2. The replacement of the above terms also does not apply when the terms are part of a phrase (e.g. bid bond, prime contractor, total amount bid, etc.)

Deletions: Articles 102-4 and 103-4(C) of the 2018 *Standard Specification for Roads and Structures* are deleted from Express Design-Build Contracts.

Modifications: The remainder of this Standard Special Provision includes modifications to Division One of the 2018 *Standard Specification for Roads and Structures*.

SECTION 101
DEFINITION OF TERMS

Page 1-3, Article 101-3, replace and add certain definitions as follows:

ADDITIONAL WORK

Additional work is that which results from a change or alteration to the contract and for which there are contract unit prices in the original contract or an executed supplemental agreement.

ADVERTISEMENT

The public advertisement inviting Statements of Qualifications for the design and construction of specific projects.

AWARD

The decision of the Department of Transportation to accept the proposal of the selected Design-Build Team for work which is subject to the furnishing of payment and performance bonds, and such other conditions as may be otherwise provided by law, the Request for Proposals, and the 2018 *Standard Specification for Roads and Structures*.

CONTRACT

The executed agreement between the Department and the successful proposer, covering the performance of, and compensation for, the work. The term contract is all inclusive with reference to all written and electronic agreements affecting a contractual relationship and all documents referred to therein. The contract shall include, but not be limited to, the Request for Proposals, the Price Proposal, the printed contract form and attachments, contract bonds, plans and associated special provisions prepared by the Design-Build Team, standard specifications and supplemental specifications, standard special provisions and project special provisions contained in the Request

for Proposals or as developed by the Design-Build Team and accepted by the Department, and all executed supplemental agreements.

All references to contracts shall include electronic agreements and printed paper agreements. These may include, but not be limited to, the electronic bid bond, Non-Collusion Affidavit, Debarment Certification, Gift Ban Certification and award limits.

The contract shall constitute one instrument.

DATE OF AVAILABILITY

That date, established as set forth in the Request for Proposals, by which it is anticipated that the Contract will be executed and sufficient design efforts or work sites within the project limits will be available for the Design-Build Team to begin his controlling operations or design.

DESIGN-BUILD

A form of contracting in which the successful proposer undertakes responsibility for both the design and construction of a project.

DESIGN-BUILD TEAM

An individual, partnership, joint venture, corporation or other legal entity that furnishes the necessary design and construction services, whether by itself or through subcontracts.

PLANS

The project plans, Standard Drawings, working drawings and supplemental drawings, or reproductions thereof, accepted by the Engineer, which show the location, character, dimensions and details of the work to be performed. Unless otherwise noted within the Request for Proposals, the term "plans" refers to plans as developed by the Design-Build Team and accepted by the Department.

(A) Standard Drawings:

Drawings approved for repetitive use, showing details to be used where appropriate. All Standard Drawings approved by the Department plus subsequent revisions and additions. Standard Drawings are available for purchase from:

State Contract Officer
1591 Mail Service Center
Raleigh, NC 27699-1591

(B) Preliminary Plans:

Department furnished drawings distributed in concert with a Request for Proposals, or as developed by the Design-Build Team.

(C) Project Plans:

Construction drawings prepared, sealed and completed by the Design-Build Team, or as provided by the Department, that contain specific details and dimensions peculiar to the work.

(D) Working Drawings and Supplemental Drawings:

Supplemental design sheets, shop drawings, or similar data which the Design-Build Team is required to submit to the Engineer.

(E) As-Constructed Drawings:

Red-lined mark-up of the latest Released for Construction (RFC) Plans containing the information listed under As-Constructed Plans in the Records and Reports Section of the NCDOT Construction Manual.

(F) As-Built Plans:

Coordinately correct plans documenting the details, dimensions and locations of the completed work.

PRICE PROPOSAL

The offer of a Proposer, submitted electronically, to perform the work and furnish the labor and materials at the price quoted.

PROPOSER

An individual, partnership, firm, corporation, LLC, or joint venture formally submitting a Price Proposal in response to a Request for Proposals.

RIGHT OF WAY

The land area shown on the plans as right of way within which the project is to be constructed.

SCHEDULE OF VALUES

A schedule of work items necessary to complete work, along with the progress of each work item, primarily for the purpose of partial payments.

TABLE OF QUANTITIES

A listing of work items (corresponding to the items in the Trns*port pay item list) that contributes to a project completion. The table shall include estimated quantities for each work item.

SECTION 102
PROPOSAL REQUIREMENTS AND CONDITIONS

Page 1-9, delete Article 102-1 and replace with the following:

102-1 INVITATION TO BID

After the advertisement has been made, an Invitation to Bid will be made available to known prequalified contractors and any other contracting firms, material suppliers and other interested parties who have requested they be placed on the Invitation to Bid mailing list, informing them that Statements of Qualifications and Price Proposals will be received for the construction of specific projects. Such invitation will indicate the contract identification number, length, locations and descriptions; a general summary of the scope of work to be performed; and information on how to receive a Request for Qualifications.

All projects will be advertised in daily newspapers throughout the state before the bid opening.

Page 1-12, delete Article 102-3 and replace with the following:

102-3 REQUEST FOR PROPOSALS

A Request for Proposals will be furnished by the Department to the selected proposers from among the respondents to the Request for Qualifications. This Request for Proposals will state the location of the project and will show a schedule of contract items for which Price Proposals are invited. It will set forth the date and time Price Proposals will be read. The Request for Proposals will also include special provisions or requirements that vary from or are not contained in any preliminary design information or standard specifications.

Standard specifications, sealed plans specifically identified as the Department's responsibility and other documents designated in the Request for Proposals shall be considered a part of the Request for Proposals whether or not they are attached thereto.

The names and identity of each prospective Proposer that receives a copy of the Request for Qualifications for the purposes of submitting a Statement of Qualifications shall be made public, except that a potential Proposer who obtains a Request for Qualifications may, at the time of ordering, request that his name remain confidential.

One copy of the Final Request for Proposals will be furnished to each prospective Proposer upon request. Additional copies may be purchased for the sum of $25 each.

The Proposer shall submit their Price Proposal electronically in accordance with Article 102-8(B).

Page 1-14, Article 102-7, 4th paragraph, delete the first two sentences and replace with the following:

Details shown in the subsurface investigation report are preliminary only. The subsurface investigation and subsurface report, if provided, is done so for information purposes only.

Pages 1-18, delete Article 102-12 and replace with the following:

102-12 WITHDRAWAL OR REVISION OF BIDS

A Design-Build Team may change its Price Proposal as many times as desired before the advertised priced proposal opening time specified in the Request for Proposal. The latest time stamped electronically submitted Price Proposal before the advertised price proposal opening time shall constitute the Price Proposal.

Withdrawal of a bid after the date and time set for the opening of the Price Proposals will be permitted only in accordance with Article 103-3 of the 2018 *Standard Specification for Roads and Structures* or otherwise approved by the Chief Engineer.

Page 1-19, Article 102-13, replace "Invitation to Bid" with "Request for Proposals" in all instances.

Page 1-19, Article 102-13, add the following after Bullet (B):

(C) Has been shortlisted by the Department to bid on for this contract.

102-13 RECEIPT AND OPENING OF BIDS

Price Proposals from short-listed Proposers will be opened and read publicly on the date and time indicated in the Request for Proposals. Proposers, their authorized agents, and other interested parties are invited to be present.

Page 1-19, Article 102-14, replace the 1st paragraph with the following:

102-14 REJECTION OF BIDS

Any Price Proposal submitted which fails to comply with any of the requirements of Articles 102-8, 102-9 or 102-10 of the 2018 *Standard Specification for Roads and Structures*, or with the requirements of the project scope and specifications shall be considered irregular and may be rejected. A Price Proposal that does not contain costs for all required proposal items shall be considered irregular and may be rejected.

SECTION 103
AWARD AND EXECUTION OF CONTRACT

Page 1-29, Article 103-6, delete the 1st and 2nd paragraphs and replace with the following:

Checks that have been furnished as a bid deposit will be retained until after the contract bonds have been furnished by the successful proposer, at which time the checks that were furnished as a bid deposit will be returned.

SECTION 104
SCOPE OF WORK

Page 1-30, delete Article 104-1 and replace with the following:

104-1 INTENT OF CONTRACT

The intent of the contract is to prescribe the work or improvements that the Design-Build Team shall undertake to perform, in full compliance with the contract documents. In case the method of construction or character of any part of the work is not covered by the contract, this section shall apply. The Design-Build Team shall perform all work in accordance with the contract or as may be modified by written orders, and shall do such special, additional, extra, and incidental work as may be considered necessary to complete the work to the full intent of the contract. Unless otherwise provided elsewhere in the contract, the Design-Build Team shall furnish all implements, machinery, equipment, tools, materials, supplies, transportation, and labor necessary for the design, prosecution and completion of the work.

Page 1-30, Article 104-3, replace "plans or details of construction" with "contract" in all instances within this Article.

Page 1-39, Article 104-10, replace the first paragraph with the following:

104-10 MAINTENANCE OF THE PROJECT

The Design-Build Team shall maintain the project from the date of beginning construction on the project until the project is finally accepted. For sections of facilities impacted by utility construction / relocation performed by the Design-Build Team prior to beginning construction on the roadway project, maintenance of the impacted sections of facilities shall be performed by the Design-Build Team beginning concurrently with the impact. This maintenance shall be continuous and effective and shall be prosecuted with adequate equipment and forces to the end that all work covered by the contract is kept in satisfactory and acceptable conditions at all times.

All existing and constructed guardrail / guiderail within the project limits shall be included in this maintenance. The Design-Build Team shall perform weekly inspections of all guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in accordance with this Article, such repair or replacement shall be performed within seven consecutive calendar days of such inspection report.

The Design-Build Team shall maintain all existing drainage facilities, except where the work consists of resurfacing only, such that they are in the same condition upon acceptance of the project as they were when the project was made available to the Design-Build Team. In the event that the Design-Build Team's work is suspended for any reason, the Design-Build Team shall maintain the work covered by the contract, as provided herein. When a portion of the project is accepted as provided in Article 105-17 of the NCDOT *Standard Specifications for Roads and Structures* , immediately after such acceptance, the Design-Build Team will not be required to maintain the accepted portion. Should latent defects be discovered or become evident in an accepted portion of

the project, the Design-Build Team shall repair or replace the defective work at no cost to the Department.

Where an observation period(s) is required that extends beyond the final acceptance date, the Design-Build Team shall perform any work required by the observation period until satisfactory completion of the observation period.

With the exception of the maintenance of existing and constructed guardrail / guiderail, the Design-Build Team will not be directly compensated for any maintenance operations. The Design-Build Team will not be compensated for the performance of weekly inspections of guardrail / guiderail, and the damage reports required as described above. Authorized maintenance activities for existing and constructed guardrail / guiderail within the project limits will be paid for as extra work in accordance with Articles 104-7 and 104-8 of the NCDOT *Standard Specifications for Roads and Structures*.

SECTION 105
CONTROL OF WORK

Page 1-44, delete Article 105-2 and replace with the following:

105-2 PLANS AND WORKING DRAWINGS

All plans shall be supplemented by such approved working drawings as are necessary to adequately control the work. Working drawings furnished by the Design-Build Team and approved by the Engineer shall consist of such detailed drawings as may be required to adequately control the work. They may include stress sheets, shop drawings, erection drawings, falsework drawings, cofferdam drawings, bending diagrams for reinforcing steel, catalog cuts, or any other supplementary drawings or similar data required of the Design-Build Team. When working drawings are approved by the Engineer, such approval shall not operate to relieve the Design-Build Team of any of his responsibility under the contract for the successful completion of the work.

Changes on shop drawings after approval and / or distribution shall be subject to the approval of the Engineer and he shall be furnished a record of such changes.

Page 1-45, Article 105-3, add the following after the 3rd paragraph:

The Design-Build Team shall bear all the costs of providing the burden of proof that the nonconforming work is reasonable and adequately addresses the design purpose. The Design-Build Team shall bear all risk for continuing with nonconforming work in question until it is accepted.

The Engineer may impose conditions for acceptance of the nonconforming work. The Design-Build Team shall bear all costs for fulfilling the conditions.

The decisions whether the product satisfies the design purpose, whether the nonconforming work is reasonably acceptable and the conditions for acceptance are at the sole discretion of the Engineer.

Pages 1-45, delete Article 105-4 and replace with the following:

105-4 COORDINATION OF PLANS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS

The Request for Proposals, all construction Plans, the Standard Specifications, Supplemental Specifications and Special Provisions and all supplementary documents are essential parts of the contract and a requirement occurring in one is as binding as though occurring in all. They are complementary and describe and provide the complete contract.

In case of discrepancy or conflict, the order in which they govern shall be as follows:

(A) Request for Proposals, in which Project Special Provisions govern Standard Special Provisions

(B) Accepted Plans and Details from the Design-Build Team, or sealed plans provided by the Department, as applicable

(C) Standard Drawings

(D) Standard Specifications

Where dimensions on the plans are given or can be computed from other given dimensions they shall govern over scaled dimensions.

The Design-Build Team shall take no advantage of any error or omission in the plans, estimated quantities, or specifications. In the event the Design-Build Team discovers an error or omission, he shall immediately notify the Engineer.

Page 1-48, delete Article 105-9 and replace with the following:

105-9 CONTRUCTION STAKES, LINES, AND GRADES

The Design-Build Team shall be responsible for all surveying, construction staking and layout required in the performance of the work. The Design-Build Team shall be responsible for the accuracy of lines, slopes, grades and other engineering work which the Design-Build Team provides under this contract.

SECTION 106
CONTROL OF MATERIAL

Page 1-53, Article 106-2, add the following after the second paragraph:

Prior to beginning construction, the Design-Build Team shall provide a Table of Quantities as described in Article 101-3 of the NCDOT *Standard Specifications for Roads and Structures*.

The Table of Quantities Work Items shall correspond to Pay Items as defined in the Standard Specifications. These Work Items have associated Materials and Conversion Factors. For non-standard Work Items, a Generic Work Item with the correct Unit of Measure and in an appropriate category will be used. For example, “GENERIC TRAFFIC CONTROL ITEM – EA” or “GENERIC RETAINING WALL ITEM – LF”. For these Generic Work Items, Materials must be defined and appropriate conversion factors submitted.

An initial Table of Quantities shall be submitted no later than 30 calendar days after the date of award. The Table of Quantities shall be updated and resubmitted within 14 days of when a set of

Plans is sealed as Release for Construction (RFC) Plans, and whenever there are substantial changes to the Quantities on previously incorporated RFC Plans.

Page 1-55, Article 106-6, add the following after the last paragraph:

For items normally pretested by the Department, the Design-Build Team shall provide a minimum of 30 days notice prior to the beginning of production of the items for this project along with final approved shop drawings.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Page 1-65, delete Article 107-18 and replace with the following:

107-18 FURNISHING RIGHT OF WAY

The responsibility for coordinating the securing of all necessary rights of way shall be as outlined in the Request for Proposals.

SECTION 108
PROSECUTION AND PROGRESS

Page 1-68. Article 108-2, replace the 2nd paragraph with the following:

The Design-Build Team shall submit a Progress Schedule for review within thirty (30) calendar days of receiving Notice of Award. The Department will review the Progress Schedule within twenty-one (21) calendar days of receipt. The Design-Build Team shall make any necessary corrections and adjustments to the Progress Schedule as necessitated by the Department's review within seven (7) calendar days. The Department will review the revised Progress Schedule within seven (7) calendar days of receipt.

Page 1-68, Subarticle 108-2(A)(1), add the following:

(k) Utility relocation and construction

Page 1-69, Subarticle 108-2(A)(2), add the following:

(h) Critical design submittal dates

(i) Critical permitting dates

(j) Completion of right of way acquisition

(k) Completion of utility relocation and construction

Page 1-69, Article 108-2, add the following:

(D) The Design-Build Team shall provide a written narrative each month detailing the work and percentage of work completed, anticipated sequence of upcoming work (2-month forecast),

controlling operation(s), intermediate completion dates, and milestones. If any milestones are exceeded or will not be achieved, the Design-Build Team shall provide in the written narrative details of the delay; controlling operation affected, impacts to other operations, revisions to future intermediate completion dates and milestones, and remedial action necessary to get the project back to the original completion date.

Page 1-69, delete Article 108-3 and replace with the following:

108-3 PRECONSTRUCTION AND PRE-DESIGN CONFERENCES

The Design-Build Team shall meet with the Engineer for a pre-design conference concerning the design phase of the work. This conference shall be held prior to the commencement of work, as it is determined according to Article 108-1 of the NCDOT *Standard Specifications for Roads and Structures*, and will be scheduled by the Engineer. At the predesign conference, the Design-Build Team shall furnish authorized signature forms and a list of any proposed subcontractors associated with the design of the project.

A preconstruction conference shall be held at least ten working days before construction activity begins. This second conference, concerning the construction phase, shall also be scheduled by the Engineer. The Design-Build Team shall give the Engineer a minimum of 45 days notice before he plans to begin construction activities. This will allow the Engineer time for any environmental agency representatives involved in the permitting process, as well as any other pertinent entities, to be scheduled to attend the preconstruction conference. If the Design-Build Team is responsible for utilities in accordance with Article 105-8 of the NCDOT *Standard Specifications for Roads and Structures* and the Request for Proposals, he shall be responsible for coordinating with the Engineer in scheduling their attendance and for notifying them. The Design-Build Team shall also be responsible for coordinating with the Engineer in scheduling the attendance of subcontractors and others deemed appropriate, and for notifying them.

At the preconstruction conference, a list of any proposed subcontractors and major material suppliers associated with the construction of the project will be submitted.

If the contract has a DBE requirement, the Design-Build Team shall submit copies of completed and signed DBE subcontracts, purchase orders, or invoices to the Department.

The Design-Build Team shall submit a Traffic Control Plan in accordance with Article 1101-5 of the 2018 *Standard Specifications for Roads and Structures* and the Request for Proposals. The Design-Build Team shall designate an employee who is competent and experienced in traffic control to implement and monitor the Traffic Control Plan. The qualifications of the designated employee must be satisfactory to the Engineer.

The Design-Build Team shall submit a safety plan and designate an employee as Safety Supervisor.

Both plans shall be submitted at the preconstruction conference and must be satisfactory to the Engineer. Should the design plan include activities that would place personnel on the work site, traffic control and safety plans for those activities shall be submitted at the predesign conference.

During the preconstruction conference, the Engineer will designate a Department employee or employees who will be responsible to see that the Traffic Control Plans and any alterations thereto are implemented and monitored to the end that traffic is carried through the work in an effective

manner. If approved by the Engineer, the Design-Build Team may designate one employee to be responsible for both the traffic control and safety plans. The Design-Build Team shall not designate its superintendent as the responsible person for either the traffic control plan or the safety plan, unless approved by the Engineer.

If the project requires that Design-Build Team or State personnel work from falsework, within shoring, or in any other hazardous area the Design-Build Team shall submit, as part of the Design-Build Team's safety plan, specific measures it will use to ensure worker safety.

The Design-Build Team shall also submit a program for erosion control and pollution prevention on all projects involving clearing and grubbing, earthwork, structural work, or other construction, when such work is likely to create erosion or pollution problems.

If the Design-Build Team fails to provide the required submissions, the Engineer may order the preconstruction conference suspended until such time as they are furnished. Work shall not begin until the preconstruction conference has been concluded and the safety plan has been approved, unless authorized by the Engineer. The Design-Build Team shall not be entitled to additional compensation or an extension of contract time resulting from any delays due to such a suspension.

The Design-Build Team shall designate a qualified employee as Quality Control Manager. The Quality Control Manager shall be responsible for implementing and monitoring the quality control requirements of the project.

Page 1-69, Article 108-4, add the following sentence to the end of this article:

The Design-Build Team shall record the proceedings of these conferences and distribute the final minutes of the conferences to all attendees.

Page 1-70, Article 108-6, replace "40%" with "30%" in the 1st paragraph.

Page 1-71, Article 108-6, replace "35%" with "25%" in the 2nd paragraph.

Pages 1-72, delete Article 108-8 and replace with the following:

108-8 FAILURE TO MAINTAIN SATISFACTORY PROGRESS

The Engineer will check the Design-Build Team's progress at the time each partial pay request is received. The Design-Build Team's progress may be considered as unsatisfactory if, according to the Progress schedule, the projected finish date for all work exceeds the scheduled finish date by more than 10%.

When the Design-Build Team's progress is found to be unsatisfactory as described above, the Engineer may make written demand of the Design-Build Team to state in writing the reason for the unsatisfactory progress and produce such supporting data as the Engineer may require or the Design-Build Team may desire to submit. The Engineer will consider the justifications submitted by the Design-Build Team and extensions of the completion date that have or may be allowed in accordance with Article 108-10(B) of the NCDOT *Standard Specifications for Roads and Structures* and as modified herein.

When the Design-Build Team cannot satisfactorily justify the unsatisfactory progress the Engineer may invoke one or more of the following sanctions:

1. Withhold anticipated liquidated damages from amounts currently due or which become due.
2. Remove the Design-Build Team and individual managing firms of the Design-Build Team and / or prequalified design firms from the Department's Prequalified Bidders List.

When any of the above sanctions have been invoked, they shall remain in effect until rescinded by the Engineer.

Page 1-75, Article 108-10(B), add the following as the first paragraph:

Only delays to activities which affect the completion date or intermediate contract date will be considered for an extension of contract time. No extensions will be granted until a delay occurs which impacts the project's critical path and extends the work beyond the contract completion date or intermediate completion date. Any extension to the completion date or intermediate contract date will be based on the number of calendar days the completion date or intermediate completion date is impacted as determined by the Engineer's analysis.

Pages 1-75, delete Subarticle 108-10(B)(1) in its entirety.

Page 1-78, Article 108-13, delete bullet (D)(2) in its entirety.

SECTION 109
MEASUREMENT AND PAYMENT

Page 1-80, Article 109-2, delete the last sentence of the 1st paragraph and replace with the following:

Payment to the Design-Build Team will be made only for the work completed, certified and accepted in accordance with the terms of the contract.

Pages 1-85, delete Article 109-4(A) and replace with the following:

109-4 PARTIAL PAYMENTS

(A) **General:**

Partial payments will be based upon progress estimates prepared by the Engineer at least once each month on the date established by the Engineer. Partial payments may be made twice each month if in the judgment of the Engineer the amount of work performed is sufficient to warrant such payment. No partial payment will be made when the total value of work performed since the last partial payment amounts to less than $10,000.00. Partial payments will be approximate only and will be subject to correction in the final estimate and payment.

When the contract includes one lump sum price for the entire work required by the contract, partial payments for the lump sum design-build price shall be based on a certified Schedule of Values submitted by the successful Design-Build Team and approved by the Engineer. The certification shall indicate the Design-Build Team has reviewed the information submitted and the information accurately represents the work performed for which

payment is requested. The certified Schedule of Values shall be submitted no later than 30 calendar days after the date of award. Each item on the certified Schedule of Values shall be assigned a cost and quantity and shall be identified as an activity on the progress schedule. A revised certified Schedule of Values shall be submitted with each update of the Progress schedule as described in Article 108-2 of the NCDOT *Standard Specifications for Roads and Structures*, and as modified herein, or when requested by the Engineer. A certified copy of the Table of Quantities shall also be submitted with each payment request. The certification of the Table of Quantities shall indicate the Design-Build Team has reviewed the information submitted and the information accurately represents the materials for the work performed for which payment is requested.

When the contract includes lump sum items for portions of the work required by the contract, and the applicable section of the Specifications or Request for Proposals specify the means by which the total amount bid be included in the partial pay estimates, the Engineer will determine amounts due on the partial pay estimate in accordance with the applicable portion of the Specifications or Request for Proposals.

The Engineer will withhold an amount sufficient to cover anticipated liquidated damages as determined by the Engineer.

Page 1-86, Subarticle 109-5(D), delete the 4th and 5th paragraphs and replace with the following:

Partial payments will not be made on seed or any living or perishable plant materials.

Partial payment requests shall not be submitted by the Design-Build Team until those items requested have corresponding signed and sealed RFC plans accepted by the Department.

Pages 1-88, Article 109-10, add the following as bullets (E) and (F) under the 1st paragraph.

(E) As-Constructed Drawings, As-Built Plans and other documents required elsewhere in this RFP.

(F) Documents or guarantees to support any warranty provided by the Design Build Team.

County : Cumberland

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
			ROADWAY ITEMS			
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM DESIGN & CONSTRUCTION OF PROJECT	Lump Sum	L.S.	
0003	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM RIGHT OF WAY ACQUISITION	Lump Sum	L.S.	
			********* BEGIN SCHEDULE AA ********* ********* (2 ALTERNATES) *********			
0004 **AA1**	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM END BENTS STRUCTURE #250075	2 EA		
0005 **AA1**	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM INTERIOR BENT CAPS STRUCTURE #250075	2 EA		
0006 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #1 STRUCTURE #250075	90 LF		
0007 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #2 STRUCTURE #250075	90 LF		
0008 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT INTE-RIOR BENT #1 STRUCTURE #250075	110 LF		
0009 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT INTE-RIOR BENT #2 STRUCTURE #250075	110 LF		
0010 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM BRIDGE LENGTH STRUCTURE #250075	280 LF		
			***** OR *****			
0011 **AA2**	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM ALTERNATE LUMP SUM BID FOR BRIDGE #250075	Lump Sum	L.S.	
			******* END SCHEDULE AA *******			

FUEL USAGE FACTOR CHART AND ESTIMATE OF QUANTITIES

Description of Work	Units	Fuel Usage Factor Diesel #2	Estimate of Quantities
Unclassified Excavation	Gal / CY	0.29	_____ CY
Borrow Excavation	Gal / CY	0.29	_____ CY
Class IV Subgrade Stabilization Aggregate Base Course Sub-Ballast Aggregate for Cement Treated Base Course	Gal / Ton	0.55	_____ Tons
Portland Cement for Cement Treated Base Course	Gal / Ton	0.55	_____ Tons
Asphalt Concrete Base Course Asphalt Concrete Intermediate Course Asphalt Concrete Surface Course Open-Graded Asphalt Friction Course Permeable Asphalt Drainage Course Sand Asphalt Surface Course, Type SA-1	Gal / Ton	2.90	_____ Tons
Portland Cement Concrete Pavement	Gal / SY		
Thru Lanes and Shoulders (> 11")		0.327	_____ SY
Thru Lanes and Shoulders (9" to 11")		0.272	_____ SY
Thru Lanes and Shoulders (< 9")		0.245	_____ SY
* Structural Concrete (Cast-in-Place Only)	Gal / CY	0.98	_____ CY

* Structural Concrete shall be defined as cast-in-place Class A or Class AA concrete used in the construction of major structures for various work items identified in Division 4 of the 2018 *Standard Specifications for Roads and Structures*.

☐ The above quantities represent a reasonable estimate of the total quantities anticipated, for each item, as pertaining to fuel price adjustments, and is representative of the design proposed and developed by the Design-Build Team.

Or

☐ The Design-Build Team elects not to pursue reimbursement for Fuel Price Adjustments on this project.

The information submitted on this sheet is claimed as a "Trade Secret" in accordance with the requirements of G.S. 66-152(3) until such time as the Price Proposal is opened.

_____ _____

Signature, Title Dated

_____

Print Name, Title

(Submit a copy of this sheet in a separate sealed package with the outer wrapping clearly marked "Fuel Price Adjustment" and deliver to the place indicated, and prior to the time indicated, in this Request for Proposals.)