STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

April 8, 2021

Addendum No. 1

Contract No.:	C204611
WBS #:	17BP.11.R.196
Counties:	Alleghany & Wilkes
Project Description:	Three (3) Express Design-Build Bridge Replacements in Division 11, Year 10

RE: Addendum No. 1 to Final RFP

April 20, 2021 Letting

To Whom It May Concern:

Reference is made to the Final Request for Proposals dated March 30, 2021. We have since incorporated changes, and Addendum No. 1 to the Final RFP has been posted to the web address as follows:

https://connect.ncdot.gov/letting/Pages/Design-Build-Letting-Details.aspx?let_id=Express DB Yr10 Spring Div11

Please note that all revisions have been highlighted in gray and are as follows:

The *Cover Sheet* has been revised. Please void the *Cover Sheet* and replace it with the revised *Cover Sheet*.

The *Table of Contents* has been revised. Please void the *Table of Contents* and replace it with the revised *Table of Contents*.

Page No.12 of the *Project Special Provisions* has been revised. Please void Page No. 12 and replace it with the revised Page No. 12.

The *Geotechnical Scope of Work* has been revised. Please void the *Geotechnical Scope of Work* and replace it with the revised *Geotechnical Scope of Work*.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS
AND DEVELOPMENT
1591 MAIL SERVICE CENTER
RALEIGH, NC 27699-1591

Telephone: (919) 707-6900
Fax: (919) 250-4119
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

The *Itemized Proposal Sheet* has been revised. Please void the *Itemized Proposal Sheet* and replace it with the revised *Itemized Proposal Sheet*.

If you have any questions or need additional information, I can be reached by telephone at (919) 707-6930.

Sincerely,

DocuSigned by:
Ronald E. Davenport, Jr.
F81B6038A47A442...

R. E. Davenport, Jr., PE
State Contract Officer

RED:jse

Cc: Mr. Michael Pettyjohn, PE
Mr. Christopher Werner, PE
Ms. Teresa Bruton, PE
Ms. Virginia Mabry
File

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

FINAL REQUEST FOR PROPOSALS

DESIGN-BUILD PROJECT

17BP.11.R.196

March 30, 2021

Including Addendum No. 1 Dated April 8, 2021

VOID FOR BIDDING

DATE AND TIME OF PRICE PROPOSAL OPENING: **APRIL 20, 2021 AT 2:00 PM**

CONTRACT ID: C204611

WBS ELEMENT NO.: 17BP.11.R.196

COUNTIES: Alleghany and Wilkes

ROUTE NO. Various

MILES: 0.288 miles

LOCATION: Replacement of Two Bridges in Alleghany County and One Bridge in Wilkes County

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

_____

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PROPOSAL FORMS

Itemized Proposal Sheet

Letter of Intent - Form signed by the Contractor and the DBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed DBE for the amount listed at the time of bid.

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

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where DBEs 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

DBE Goal

The following DBE goal for participation by Disadvantaged Business Enterprises is established for this contract:

Disadvantaged Business Enterprises 4.0%

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

(B) *If the DBE goal is zero*, the Design-Build Team shall make an effort to recruit and use DBEs during the performance of the contract. Any DBE participation obtained shall be reported to the Department.

This goal is to be met through utilization of highway construction contractors and / or right of way acquisition firms. Utilization of DBE firms performing design, other preconstruction services, or Construction Engineering and Inspection are not included in this goal.

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 DBE certified shall be used to meet the DBE goal. The Directory can be found at the following link.

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

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

Listing of DBE Subcontractors

At the time of bid, Proposers shall submit all DBE participation that they anticipate to use during the life of the contract. Only those identified to meet the DBE goal will be considered

GEOTECHNICAL ENGINEERING SCOPE OF WORK

I. GENERAL:

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

https://www.ebs.nc.gov/VendorDirectory/search.html?s=pc&a=new

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

If the NCDOT's standard bridge plans are used, then the Design-Build Team shall design the foundations and seal the plans.

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 determine if additional subsurface information, other than that provided, is required. 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 NCDOT Geotechnical Engineering Unit for review and acceptance in the following format:

- 8 ½ x 11-inch Paper Format
- "Structure Subsurface Investigation Title Sheet." Includes Caution Notice and an area to list Contents.
- NC Division of Highways Geotechnical Engineering Unit Soil and Rock Classification Legend and Abbreviations
- Plan View of boring locations and any other significant topographic features
- gINT boring logs
- gINT core logs (if applicable)
- Cross sections if drilled pier foundations will be used
- AASHTO soil test results for both disturbed and undisturbed samples
- Rock test results summary chart

The Design-Build Team shall provide the final Subsurface Investigation Report in electronic and hardcopy format to the NCDOT for its records.

A minimum of two standard penetration test (SPT) / rock core borings shall be required per bent for all bridges. All borings must be located within 25 feet of the center of each bent to satisfy this requirement. No boring may be used for the foundation design of more than one bent. Extend all borings to a depth below the foundation element to show a complete subsurface profile. The Department will provide at least two borings per bridge site to the Design-Build Team. 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 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 construction.

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 height of the wall.

The Design-Build Team is permitted to design bridges on this project using software that accounts for the structural effects of soil / pier interaction.

II. DESCRIPTION OF WORK:

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*, NCDOT *Sub Regional Tier Design Guidelines for Bridge Projects* dated February 2008 as applicable, all applicable NCDOT Geotechnical Engineering Unit Standard Provisions, NCDOT *Structures Management 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. Structure Foundations

Permanent steel casings shall be required for drilled piers that are constructed in six inches or more of water. Permanent steel casings shall be required for drilled piers constructed on sloped stream banks subject to degradation from flooding.

When the weathered rock or rock elevation is below the 100-year hydraulic scour elevation, the 100-year and 500-year design scour elevations are equal to the 100-year and 500-year hydraulic scour elevations from the structure survey report 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.

Key in spread footings for interior bents of structures crossing streams a minimum of full depth below the 100-year design scour elevation and provide scour protection in accordance with scour protection detail in the NCDOT *Structures Management Unit Manual.* Key in concrete abutments with or without spread footings a minimum depth of 1 foot into rock for abutment heights less than or equal to five feet. For taller concrete abutment heights, the minimum key-in depth shall be 3 feet into rock. Rock shall be defined as natural material exhibiting a Standard Penetration Test blow count of 50 blows with 1 inch or less penetration (or equivalent). Abutment height shall be defined as the distance from the bottom of the concrete abutment to finished roadway grade.

End bent slopes shall be 1.5:1 (H:V) or flatter with rip rap slope protection. Place end bent slope protection from the toe of slope to berm to protect the approach embankment from scour.

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

Add steel pile points to all driven piles with an estimated embedded length of 20' or less.

B. Roadway Foundation

All proposed unreinforced fill and cut slopes shall be 2:1 (H:V) or flatter except bridge end bent slopes (see Section A – Structure Foundations). In areas where a sliver fill is required to tie the proposed grade into the existing ground, fill slopes may be steeper than 2:1 (H:V) provided the existing slopes are stable and erosion control measures are utilized on the sliver fill slopes. However, in no case shall a slope be steeper than 1.5:1. The Design-Build Team shall submit slope stability analysis verifying stability of any modified slopes, including details to control erosion of the slope. For all other proposed slopes steeper than 2:1 (H:V), the slopes shall be reinforced and detailed design calculations shall be submitted to the NCDOT Geotechnical Engineering Unit, via the Design-Build Unit, for review and acceptance, prior to construction.

Bridge approach fills shall be required for end bents on all bridges in accordance with NCDOT Standard Drawings and NCDOT design criteria. Standard Drawing 422.02 of the *NCDOT January 2018 Roadway Standard Drawings* shall be used on all bridges.

C. Permanent Retaining Wall Structures

Design and construct permanent retaining walls, with the exception of gravity 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

For each retaining wall, with the exception of gravity walls, submit a wall layout and design. The wall layout submittal shall include 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.
- Calculations for bearing capacity, global stability and settlement.
- Details of conflicts with utilities and drainage structures.
- Roadway plan sheets showing the wall (half size).
- Roadway cross sections showing the wall (half size).
- Traffic control plans showing the wall (half size).

Walls adjacent to streams shall be designed for scour. Cantilevered or anchored soldier pile or sheet pile walls shall be used adjacent to streams or rivers. Scour protection shall extend 5 feet below the geotechnically- adjusted scour elevation or to "non-scourable rock" whichever is higher in elevation. Walls that serve as bridge abutments shall be designed as a retaining wall and to resist all loading on the wall. The bridge shall not be used to resist wall loading or limit wall deflection.

III. CONSTRUCTION REQUIREMENTS:

All construction and materials shall be in accordance with the NCDOT 2018 *Standard Specifications for Roads and Structures* and current NCDOT *Project Special Provisions* unless noted otherwise elsewhere in this RFP. The Design-Build Team shall be responsible for investigating, proposing and incorporating remedial measures for any construction problems related to foundations, retaining walls, subgrades, settlement, slopes, and construction vibrations. Submit the proposed remedial measures to the Geotechnical Engineering Unit for review and acceptance prior to incorporation.

The Design-Build Team shall be responsible for any damage or claim caused by construction, including damage caused by vibration (see 2018 *Standard Specifications for Roads and Structures* Article 107-14). The Design-Build Team shall be responsible for deciding what additional, if any, pre and post-construction monitoring and inventories need to be conducted to satisfy their liability concerns. Any monitoring and inventory work shall be performed by a qualified private engineering firm experienced in the effects of construction on existing structures.

The prequalified geotechnical firm that prepared the original foundation designs shall perform any changes to the foundation designs. 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 sealed by a professional engineer registered in the State of North Carolina, to the NCDOT for review and acceptance.

The geotechnical firm that prepared the foundation designs shall review and approve all pile driving hammers and drilled pier construction sequences. After the geotechnical firm has approved these submittals, the Design-Build Team shall submit to the NCDOT for review prior to beginning construction.

Perform hammer approvals with GRLWEAP Version 2002 or later and in accordance with the NCDOT LRFD Driven Pile Foundation Design Policy. Provide pile driving inspection charts or tables for all approved pile hammers.

Limit driving stresses in accordance with the AASHTO LRFD *Bridge Design Specifications*. If a tip elevation is noted on the plans, drive piles to the minimum required driving resistance and tip elevation.

Drive piles to the minimum required driving resistance and a penetration into natural ground or below design scour of at least 10 ft. If a pile is socketed into rock (as defined in Section 411-1 of the 2018 *Standard Specifications for Roads and Structures*) at least 5 feet and all other design requirements are met then the total penetration amount may be relaxed at the discretion of the Geotechnical Engineering Unit. Unless otherwise approved, stop driving piles when refusal is reached. Refusal is defined as 240 blows per foot or any equivalent set.

PDA testing is required when the proposed Required Driving Resistance of HP12x53 piles exceeds 175 tons, the proposed Required Driving Resistance of HP14x73 piles exceed 250 tons, or if a pile type other than HP 12x53 or HP 14x73 is used. If required, perform Pile Driving Analyzer (PDA) testing on at least one pile per bridge using a NCDOT prequalified company to develop pile driving inspection charts or tables. Additional PDA tests may be required based upon the AASHTO LFRD Bridge Design Specifications. Provide additional PDA testing for any revisions to pile type, size or hammer previously approved. The locations of specific piles to be tested must be accepted by the NCDOT prior to any PDA test.

Perform PDA tests and CAPWAP analyses and provide the PDA report and pile driving criteria in accordance with Section 450 of the 2018 *Standard Specifications for Roads and Structures*. The foundation design firm or the PDA consultant shall develop pile driving inspection charts or tables for acceptance by the NCDOT prior to pile installation.

For drilled piers, the following additional requirements shall apply:

1. 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.*

2. 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.

3. The Design-Build Team shall notify Matt Hilderbran, PE by e-mail (mrhilderbran@ncdot.gov) a minimum of five (5) 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.

4. 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 as needed. The Department will determine which piers will be CSL tested. Submit CSL test information and results to the Geotechnical Engineering Unit, via the Design-Build Unit, for review and acceptance.

5. Drilled pier tip elevations shall not be changed during construction unless the prequalified geotechnical firm that prepared 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.

Send copies of any inspection forms related to foundations, embankment, and subgrade to the NCDOT for review.

County : Wilkes, Alleghany

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 BRIDGES	Lump Sum	L.S.	
0003	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM END BENTS STRUCTURE #020035	2 EA		
0004	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM END BENTS STRUCTURE #960733	2 EA		
0005	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM RIGHT OF WAY ACQUISITION	6 EA		
0006	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #1 STRUCTURE #020035	21 LF		
0007	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #1 STRUCTURE #960733	22.5 LF		
0008	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #2 STRUCTURE #020035	12 LF		
0009	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #2 STRUCTURE #960733	20.5 LF		
0010	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM BRIDGE LENGTH STRUCTURE #020035	100 LF		
0011	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM BRIDGE LENGTH STRUCTURE #960733	70 LF		
			******* BEGIN SCHEDULE AA ******* ******* (2 ALTERNATES) *******			
0012 **AA1**	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM END BENTS STRUCTURE #020133	2 EA		
0013 **AA1**	0000915000-N	SP	GENERIC MISCELLANEOUS ITEM INTERIOR BENT CAPS STRUCTURE #020133	2 EA		

County : Wilkes, Alleghany

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0014 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #1 STRUCTURE #020133	13 LF		
0015 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT END BENT #2 STRUCTURE #020133	11 LF		
0016 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM AVE FOUNDATION LENGTH AT INT BENT STRUCTURE #020133	29 LF		
0017 **AA1**	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM BRIDGE LENGTH STRUCTURE #020133	150 LF		
			***** OR *****			
0018 **AA2**	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM ALTERNATE LUMP SUM FOR STRUC-TURE #020133	Lump Sum	L.S.	

******* END SCHEDULE AA *******