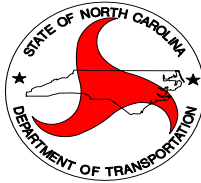


STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**



Division 14

Division-Wide

## **Contract & Bonds**

**CONTRACT:** DN00619  
**TIP Number:** N/A  
**FEDERAL:** STATE FUNDED  
**WBS Element:** 14BPR.3.1  
**LOCATION:** VARIOUS BRIDGES THROUGHOUT ALL 10 COUNTIES  
IN DIVISION 14  
**COUNTY:** CHEROKEE, CLAY, GRAHAM, HAYWOOD,  
HENDERSON, JACKSON, MACON, POLK, SWAIN  
AND TRANSYLVANIA  
**DESCRIPTION:** BRIDGE DECK OVERLAYS AND JOINT  
REPLACEMENTS

**Contractor:** NHM CONSTRUCTORS LLC  
**Address:** PO BOX 6385  
ASHEVILLE, NC 28816

**Division Engineer:** B. C. Burch, P.E.  
**District Engineer:** C. D. Lee, P.E.  
**Resident Engineer:** N. R. Tanner, E.I.

**Letting Date:** 5/8/2018

**Contract Execution:** 5/17/2018

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION 14

## PROPOSAL

**DATE AND TIME OF BID OPENING: MAY 8, 2018 AT 2:00 PM**

**CONTRACT ID: DN00619**

**WBS ELEMENT NO.: 14BPR.3.1**

**FEDERAL AID NO.: STATE FUNDED**

**COUNTY: CHEROKEE, CLAY, GRAHAM, HAYWOOD, HENDERSON,  
JACKSON, MACON, POLK, SWAIN AND TRANSYLVANIA**

**TIP NO.: N/A**

**MILES: 2.044 MILES**

**ROUTE NO.: VARIES**

**LOCATION: VARIOUS BRIDGES THROUGHOUT ALL 10 COUNTIES IN  
DIVISION 14**

**TYPE OF WORK: BRIDGE DECK OVERLAYS AND JOINT REPLACEMENTS**

**NOTICE:**

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

**THIS IS A STRUCTURE PROJECT.**

**BID BOND IS REQUIRED.**

NHM Constructors LLC

NAME OF BIDDER

PO Box 6385, Asheville, NC 28816

ADDRESS OF BIDDER

**PROPOSAL FOR THE CONSTRUCTION OF**  
**CONTRACT No. DN00619 IN CHEROKEE, CLAY, GRAHAM, HAYWOOD, HENDERSON, JACKSON,**  
**MACON, POLK, SWAIN AND TRANSYLVANIA COUNTIES, NORTH CAROLINA**

Date 4/17/2018 20    

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

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **DN00619**; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Department of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with *the 2018 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. **DN00619** in **Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and Transylvania Counties**, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

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

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

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

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

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



*Division 14 Project Manager*

DocuSigned by:

*Wesley Jamison*

02EE828795674A5...

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**INSTRUCTIONS TO BIDDERS**

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

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

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

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

**ELECTRONIC ON-LINE BID THRU BID EXPRESS:**

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

**PROJECT SPECIAL PROVISIONS****GENERAL****BOND REQUIREMENTS:**

(06-01-16)

102-8, 102-10

SPD 01-420A

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

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

**CONTRACT TIME AND LIQUIDATED DAMAGES:**

(7-1-95) (Rev. 12-18-07)

108

SP1 G10 A

The date of availability for this contract is **June 11, 2018**.

The completion date for this contract is **November 1, 2019**.

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

The liquidated damages for this contract are **One Thousand Dollars (\$ 1,000.00)** per calendar day.

**INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES (No Permits):**

(6-18-13) (05-08-18)

108

SP1 G14 L

The Contractor shall not perform overlay work activities or have lane closures in place for overlay work activities on any bridge, from November 15<sup>th</sup> to March 1<sup>st</sup>.

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

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

**INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required for Swain Bridge No. 186 as shown on Sheet(s) TMP-4 and TMP-5 and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor begins work but not before **June 11, 2018** or later than **August 10, 2018**.

Or

The date of availability for this intermediate contract time is the date the Contractor begins work but not before **June 11, 2019** or later than **August 10, 2019**.

The completion date for this intermediate contract is the date that is **thirty-six (36)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES (No Permits):**

(6-18-13) (05-08-18)

108

SP1 G14 L

The Contractor shall complete the work required for **Haywood Bridge No. 144** as shown on Sheet(s) **TMP-4 and TMP-5** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **June 11, 2018**.

The completion date for this intermediate contract time is **August 10, 2018**.

Or

The date of availability for this intermediate contract time is **June 11, 2019**.

The completion date for this intermediate contract time is **August 10, 2019**.

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day.

**INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES (No Permits):**

(6-18-13) (05-08-18)

108

SP1 G14 L

The Contractor shall complete the work required for **Swain Bridge No. 9** as shown on Sheet(s) **TMP-4 and TMP-5** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **June 11, 2018**.

The completion date for this intermediate contract time is **August 10, 2018**.

Or

The date of availability for this intermediate contract time is **June 11, 2019**.



The completion date for this intermediate contract time is **August 10, 2019**.

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day.

**INTERMEDIATE CONTRACT TIME NUMBER 5 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Jackson Bridge No. 85** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The completion date for this intermediate contract is the date that is **thirty-three (33)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 6 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Jackson Bridge No. 96** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The completion date for this intermediate contract is the date that is **thirty-three (33)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 7 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Jackson Bridge No. 100** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The completion date for this intermediate contract is the date that is **thirty-three (33)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 8 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Jackson Bridge No. 104** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The completion date for this intermediate contract is the date that is **thirty-three (33)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 9 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Jackson Bridge No. 109** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The completion date for this intermediate contract is the date that is **thirty-nine (39)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 10 AND LIQUIDATED DAMAGES (No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Jackson Bridge No. 110** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The completion date for this intermediate contract is the date that is **thirty-nine (39)** consecutive calendar days after and including the date of availability.

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 11 AND LIQUIDATED DAMAGES****(No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 8 for Jackson Bridge No. 5** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work, however work may not begin until the end of the **Jackson County School Year** and must be completed by the beginning of the next **Jackson County School Year**.

The completion date for this intermediate contract time is the date which is **thirty-four (34)** consecutive calendar days after and including the date the Contractor begins this work

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 12 AND LIQUIDATED DAMAGES****(No Permits):**

(2-20-07) (05-08-18)

108

SP1 G14 H

The Contractor shall complete the work required of **all work in steps 2 – 6 for Haywood Bridge No. 98** as shown on Sheet **TMP- 5** and shall place and maintain traffic on same.

This work shall not be subject to the lane closure time restrictions stated in notes **A** and **B** on sheet **TMP- 2**.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work, however work may not begin until the end of the **Riverbend Elementary School Year** and must be completed by the beginning of the next **Riverbend Elementary School Year**.

The completion date for this intermediate contract time is the date which is **forty-nine (49)** consecutive calendar days after and including the date the Contractor begins this work

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

The liquidated damages are **Five Hundred Dollars (\$ 500.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire

to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

**INTERMEDIATE CONTRACT TIME NUMBER 13 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 05-08-18)

108

SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on **ANY ROAD** during the following time restrictions:

DAY AND TIME RESTRICTIONS

**6:00 AM TO 9:00 AM AND 4:00 PM TO 7:00 PM MONDAY THRU FRIDAY**

| COUNTY       | ROAD NAME                      | BRIDGE NUMBER |
|--------------|--------------------------------|---------------|
| Cherokee     | NC 294                         | 050           |
|              |                                |               |
| Haywood      | SR 1503 - Upper Crabtree Rd.   | 036           |
|              | US 19                          | 094           |
|              | US 276                         | 111           |
|              | SR 1147                        | 112           |
|              | US 23/74                       | 141           |
|              | SR 1334 – Max Patch Rd.        | 204           |
|              | SR 1519 – Richlands Creek Rd   | 211           |
|              | SR 251 - Newfound Rd.          | 251           |
|              |                                |               |
| Henderson    | SR 1338 - S. Mills River Rd.   | 006           |
|              | SR 1528 - Brookside Camp Rd    | 021           |
|              | US 25                          | 127, 379      |
|              | US 74A                         | 145           |
|              | SR 1534 - Naples Rd.           | 373           |
|              |                                |               |
| Jackson      | SR 1456 - Jimmy Morris Rd.     | 029           |
|              | SR 1157 - Pine Creek Rd.       | 193           |
|              |                                |               |
| Macon        | SR 1674 – Nickajack Rd         | 054           |
|              |                                |               |
| Polk         | SR 1151 – Green River Cove Rd. | 047, 105      |
|              |                                |               |
| Swain        | US 19                          | 024           |
|              | SR 1309 – Lower Alarka Rd.     | 106           |
|              |                                |               |
| Transylvania | US 64                          | 053, 069      |

**6:00 AM TO 9:00 PM MONDAY THRU SUNDAY**

| COUNTY   | ROAD NAME   | BRIDGE NUMBER |
|----------|-------------|---------------|
| Cherokee | US 64       | 269, 271      |
|          |             |               |
| Haywood  | NC 110      | 023           |
|          | NC 209      | 099           |
|          | US 19/23/74 | 107           |
|          | US 23/74    | 109, 138      |

|           |                      |                        |
|-----------|----------------------|------------------------|
|           | US 19/23             | 110                    |
|           | US 74                | 114                    |
|           | SR 1643 - Bridge St. | 272                    |
|           |                      |                        |
|           |                      |                        |
| Henderson | NC 191               | 146                    |
|           | US 25                | 169, 181               |
|           |                      |                        |
| Jackson   | US 441               | 005                    |
|           | US 23B               | 106                    |
|           |                      |                        |
| Swain     | SR 1180              | 074 (04/01-11/30 only) |

In addition, the Contractor shall not close or narrow a lane of traffic on **ANY ROAD**, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

### **ALL ROADS**

#### HOLIDAY AND HOLIDAY WEEKENDS

1. For any unexpected occurrence that creates unusually high traffic volumes, as directed by the engineer.
2. For Christmas / New Year's, between December 18th through January 4th.
3. For Easter, between Thursday before Easter through Tuesday after Easter.
4. For Memorial Day, between Thursday before Memorial Day through Tuesday after Memorial Day.
5. If Independence Day is on a Friday, Saturday, Sunday or Monday, between the Thursday before Independence Day through the Tuesday after Independence Day.

If Independence Day is on a Tuesday, Wednesday or Thursday, between the hours of 12:00 noon the Friday before Independence Day through 8:00 a.m. the Monday after Independence Day.

6. For Labor Day, between Thursday before Labor Day through Tuesday after Labor Day.
7. For Thanksgiving Day, between Tuesday before Thanksgiving through Monday after Thanksgiving.

### **SPECIAL EVENTS**

| COUNTY  | ROAD NAME | BRIDGE NUMBER                |
|---------|-----------|------------------------------|
| Haywood | US 74     | 107, 109, 114, 138, 141      |
|         |           |                              |
| Jackson | US 74     | 085, 096, 100, 104, 109, 110 |

**Leaf Season Restrictions**

From the Thursday closest to October 7th to the Monday closest to November 4th:

1. 6:00 AM to 7:00 PM Monday through Thursday
2. 6:00 AM to 9:00 PM Friday
3. 9:00 AM to 9:00 PM Saturday
4. 12:00 noon to 8:00 PM Sunday

**Summer Restrictions**

From the Thursday prior to Memorial Day weekend to the Tuesday following Labor Day weekend:

1. 6:00 AM to 7:00 PM Monday through Thursday
2. 6:00 AM to 9:00 PM Friday
3. 9:00 AM to 9:00 PM Saturday
4. 12:00 noon to 8:00 PM Sunday

**Christmas Retail Season Restrictions**

Between 6:00 AM on the Friday prior to Thanksgiving through 6:00 AM on the third weekday following New's Year day, except lane closures will be allowed from 9:00 PM to 6:00 PM on Monday, Tuesday, and Wednesday night.

The liquidated damages are **Two Hundred Fifty Dollars (\$ 250.00)** per hour.

**NO MAJOR CONTRACT ITEMS:**

(2-19-02) (Rev. 8-21-07)

104

SP1 G31

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

**NO SPECIALTY ITEMS:**

(7-1-95)

108-6

SP1 G34

None of the items included in this contract will be specialty items (see Article 108-6 of the *2018 Standard Specifications*).

**FUEL PRICE ADJUSTMENT:**

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

109-8

SP1 G43

Revise the *2018 Standard Specifications* as follows:

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

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

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

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

### **SCHEDULE OF ESTIMATED COMPLETION PROGRESS:**

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

108-2

SP1 G58

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

|      | <b><u>Fiscal Year</u></b> | <b><u>Progress (% of Dollar Value)</u></b> |
|------|---------------------------|--------------------------------------------|
| 2018 | (7/01/17 - 6/30/18)       | 5% of Total Amount Bid                     |
| 2019 | (7/01/18 - 6/30/19)       | <b>70%</b> of Total Amount Bid             |
| 2020 | (7/01/19 - 6/30/20)       | <b>25%</b> of Total Amount Bid             |

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

### **MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS):**

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

102-15(J)

SP1 G67

#### **Description**

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



**Definitions**

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

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

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

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

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

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

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

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

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

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

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

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

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

**Forms and Websites Referenced in this Provision**

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

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

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

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

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

*Letter of Intent* - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the estimated amount (based on quantities and unit prices) listed at the time of bid.  
<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

*Listing of MBE and WBE Subcontractors Form* - Form for entering MBE/WBE subcontractors on a project that will meet the Combined MBE/WBE goal. This form is for paper bids only.  
[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20\(State\).docx](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).docx)

*Subcontractor Quote Comparison Sheet* - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages.  
<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>

**Combined MBE/WBE Goal**

The Combined MBE/WBE Goal for this project is **3.0 %**

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

(A) Minority Business Enterprises **1.0 %**

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

(B) Women Business Enterprises **2.0 %**

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

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

**Directory of Transportation Firms (Directory)**

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

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

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

**Listing of MBE/WBE Subcontractors**

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

opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

(A) Electronic Bids

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

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

(B) Paper Bids

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

**MBE or WBE Prime Contractor**

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

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

**Written Documentation – Letter of Intent**

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

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

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

**Banking MBE/WBE Credit**

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

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

**Submission of Good Faith Effort**

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

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

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

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

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

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

- (A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs that are also prequalified subcontractors. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.
- (B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the Combined MBE/WBE goal will be achieved.
  - (1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - (2) Negotiate with subcontractors to assume part of the responsibility to meet the advertised goal when the work to be sublet includes potential for MBE/WBE participation (2<sup>nd</sup> and 3<sup>rd</sup> tier subcontractors).
- (C) Providing interested certified MBEs/WBEs that are also prequalified subcontractors with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D)
  - (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE

participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.

- (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as the advertised goal into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the advertised goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening the Business Opportunity and Work Force Development Unit at [BOWD@ncdot.gov](mailto:BOWD@ncdot.gov) to give notification of the bidder's inability to get MBE or WBE quotes.
- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the advertised goal.

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

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

by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

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

### **Non-Good Faith Appeal**

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

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

#### **(A) Participation**

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

#### **(B) Joint Checks**

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

#### **(C) Subcontracts (Non-Trucking)**

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

#### **(D) Joint Venture**

When a MBE or WBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the MBE or WBE in



the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(E) Suppliers

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

(F) Manufacturers and Regular Dealers

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

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

**Commercially Useful Function**

(A) MBE/WBE Utilization

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

(B) MBE/WBE Utilization in Trucking

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

- (1) The MBE/WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting the Combined MBE/WBE goal.
- (2) The MBE/WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The MBE/WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the participation breakdown. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime responsible for meeting the individual MBE or WBE participation breakdown.
- (5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.
- (6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

**MBE/WBE Replacement**

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

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

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

**(A) Performance Related Replacement**

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

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

- (1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with MBEs/WBEs for specific subbids including, at a minimum:
  - (a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.
  - (b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.
- (3) A list of reasons why MBE/WBE quotes were not accepted.
- (4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

**(B) Decertification Replacement**

- (1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department

will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.

- (2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the Combined MBE/WBE goal requirement. If a MBE/WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

### **Changes in the Work**

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

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

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

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

### **Reports and Documentation**

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

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

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

**Reporting Minority and Women Business Enterprise Participation**

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

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

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

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

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

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

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

**Failure to Meet Contract Requirements**

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

**SUBSURFACE INFORMATION:**

(7-1-95)

450

SP1 G112 A

There is **no** subsurface information available on this project. The Contractor shall make his own investigation of subsurface conditions.

**PORTABLE CONCRETE BARRIER - (Partial Payments for Materials):**

(7-1-95) (Rev. 8-16-11)

1170-4

SP1 G121

When so authorized by the Engineer, partial materials payments will be made up to 95 percent of the delivered cost of portable concrete barrier, provided that these materials have been delivered on the project and stored in an acceptable manner, and further provided the documents listed in Subarticle 109-5(C) of the *2018 Standard Specifications* have been furnished to the Engineer.

The provisions of Subarticle 109-5(B) of the *2018 Standard Specifications* will apply to the portable concrete barrier.

**TWELVE MONTH GUARANTEE:**

(7-15-03)

108

SP1 G145

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

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

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

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

**OUTSOURCING OUTSIDE THE USA:**

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

SP1 G150

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

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

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

**DIVISION LET CONTRACT PREQUALIFICATION:**

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

SPD 01-410

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

Prior to performing the work, the prime contractor and/or subcontractor(s) shall be prequalified in the work code(s) which are identified as work items in the prime contractor's construction progress

schedule that they will complete themselves. Any contractor identified as working outside their expertise may be considered in default of contract.

**PROJECT SPECIAL PROVISIONS****ROADWAY****REMOVE AND REPLACE 5" MONOLITHIC CONCRETE ISLAND:****Description**

This work shall consist of removal and replacement of the existing concrete island as shown in the plans and in accordance with the contract documents.

**Materials & Placement**

Breakup and remove the existing concrete island. Provide a neat edge along the island by sawcutting the concrete island before breaking and removing the island.

Construct island in accordance with Section 852 of the Standard Specifications.

**Measurement and Payment**

Remove & Replace 5" Monolithic Island will be measured and paid for at the contract unit price bid per square yard and will be full compensation for removal, containment and disposal of existing material and concrete and shall include the cost of furnishing and placing materials, including Class AA concrete, constructing and sealing joints, labor, tools, equipment and incidentals necessary to complete the work including incidental asphalt for pavement repair.

**Pay Item**

Remove & Replace 5" Monolithic Island

**Unit**

Square Yard

**PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:**

(11-21-00)

620

SP6 R25

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

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

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

**FINAL SURFACE TESTING NOT REQUIRED:**

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

610

SP6 R45

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



**ASPHALT CONCRETE PLANT MIX PAVEMENTS:**

(2-20-18)

610, 1012

SP6 R65

Revise the 2018 Standard Specifications as follows:

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

| <b>TABLE 610-1<br/>MIXING TEMPERATURE AT THE ASPHALT PLANT</b> |                        |
|----------------------------------------------------------------|------------------------|
| <b>Binder Grade</b>                                            | <b>JMF Temperature</b> |
| 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<br>MIX DESIGN CRITERIA |                                                                         |                                    |                      |                  |                              |                        |           |         |                                        |
|------------------------------------|-------------------------------------------------------------------------|------------------------------------|----------------------|------------------|------------------------------|------------------------|-----------|---------|----------------------------------------|
| Mix<br>Type                        | Design<br>ESALs<br>millions <sup>A</sup>                                | Binder<br>PG<br>Grade <sup>B</sup> | Compaction<br>Levels |                  | Max.<br>Rut<br>Depth<br>(mm) | Volumetric Properties  |           |         |                                        |
|                                    |                                                                         |                                    | G <sub>mm</sub> @    |                  |                              | VMA                    | VTM       | VFA     | %G <sub>mm</sub><br>@ N <sub>ini</sub> |
|                                    |                                                                         |                                    | N <sub>ini</sub>     | N <sub>des</sub> |                              |                        |           |         |                                        |
| 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<br>Types                   | Dust to Binder Ratio (P <sub>0.075</sub> / P <sub>b<sub>e</sub></sub> ) |                                    |                      |                  |                              | 0.6 - 1.4 <sup>C</sup> |           |         |                                        |
|                                    | Tensile Strength Ratio (TSR) <sup>D</sup>                               |                                    |                      |                  |                              | 85% Min. <sup>E</sup>  |           |         |                                        |

**A.** Based on 20 year design traffic.

**B.** Volumetric Properties based on specimens compacted to N<sub>des</sub> as modified by the Department.

**C.** Dust to Binder Ratio (P<sub>0.075</sub> / P<sub>be</sub>) 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:

| <b>Mix Type</b>                            | <b>%RBR ≤ 20%</b>     | <b>21% ≤ %RBR ≤ 30%</b> | <b>%RBR &gt; 30%</b> |
|--------------------------------------------|-----------------------|-------------------------|----------------------|
| S4.75A,<br>S9.5B, S9.5C,<br>I19.0C, B25.0C | PG 64-22              | PG 64-22 <sup>A</sup>   | PG 58-28             |
| S9.5D, OGFC                                | PG 76-22 <sup>B</sup> | n/a                     | n/a                  |

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

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

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

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

| <b>TABLE 610-7<br/>DENSITY REQUIREMENTS</b> |                                                                     |
|---------------------------------------------|---------------------------------------------------------------------|
| <b>Mix Type</b>                             | <b>Minimum % <math>G_{mm}</math><br/>(Maximum Specific Gravity)</b> |
| S4.75A                                      | 85.0 <sup>A</sup>                                                   |
| S9.5B                                       | 90.0                                                                |
| S9.5C, S9.5D, I19.0C, B25.0C                | 92.0                                                                |

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

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

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

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

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

|      |          |    |    |    |
|------|----------|----|----|----|
| UBWC | 100 / 85 | 45 | 45 | 10 |
|------|----------|----|----|----|

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

#### **PAVEMENT DESIGN MIX TYPE MODIFICATIONS:**

(2-20-18)

610

SP6 R66

#### **Description**

In an effort to reduce the number of asphalt concrete pavement mix types, the department has made the following changes:

Where the “Pavement Schedule” in the plans calls for Asphalt Concrete Surface Course Type SF9.5A, Asphalt Concrete Surface Course Type S9.5B shall be used.

Where the “Pavement Schedule” in the plans calls for either Asphalt Concrete Intermediate Course Type B, C or D, Asphalt Concrete Intermediate Course Type I19.0C shall be used.

Where the “Pavement Schedule” in the plans call for Asphalt Concrete Base Course Type B25.0B, Asphalt Concrete Base Course Type B25.0C shall be used.

In addition, see the project special provision entitled “Asphalt Concrete Plant Mix Pavements” contained elsewhere in the proposal.

#### **Measurement and Payment**

The pay items in this proposal reflects these changes. The pavement schedule in the plans will not be revised to reflect these changes.

**STANDARD SPECIAL PROVISION****AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS**

(5-20-08)

Z-2

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

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

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

**STANDARD SPECIAL PROVISION****ERRATA**

(2-12-18)

Z-4

Revise the *2018 Standard Specifications* as follows:

**Division 7**

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

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

**Division 10**

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

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

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

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

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

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

Z-04a

**Within Quarantined Area**

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

**Originating in a Quarantined County**

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

**Contact**

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

**Regulated Articles Include**

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

**STANDARD SPECIAL PROVISION****MINIMUM WAGES**

(7-21-09)

Z-5

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

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

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

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

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

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

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

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

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

Z-10

**Description**

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

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

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

**Minorities and Women**

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

**Assigning Training Goals**

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



**Training Classifications**

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

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

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

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

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

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

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

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

**Records and Reports**

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

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

**Trainee Interviews**

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

**Trainee Wages**

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

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

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

**Achieving or Failing to Meet Training Goals**

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

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

**Measurement and Payment**

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

**ROADWAY PROJECT SPECIAL PROVISIONS**

4/5/2018

SEAL  
012975  
ENGINEER  
THOMAS K. GOODWIN**ACTUATED TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM: (SPECIAL)****Description**

Furnish, install, place in operation, repair, maintain, relocate, and remove temporary portable traffic signal system for traffic maintenance during construction along NC 209 (Crabtree Road) at Bridge #098 in Haywood County. The temporary portable traffic signals will require a system that is coordinated to maintain safe and efficient traffic operations along NC 209 (Crabtree Road) and Golf Course Road during construction operations. The Temporary Portable Traffic Signal System shall be designed such that all devices operate and communicate as a system. The system will contain two (2) trailer mounted Portable Traffic Signals units along NC 209 (Crabtree Road) and one (1) trailer mounted Portable Traffic Signals unit along Golf Course Road.

**Materials**

Provide:

Three (3) Portable Traffic Signals (PTS). Each shall be self-contained trailer mounted units with two 12" signal heads per trailer. One signal head shall be mounted on an overhead mast arm capable of extending over the travel lane. The other signal head shall be mounted on a vertical upright. Units must be on the NCDOT Approved Products List.

**Communication Requirements**

All PTS within the signal set up systems shall maintain communication at all times. Acceptable communication shall be either hardwire cable or wireless radio link communication. If the hardwire cable communication is utilized the communication cable shall be deployed in a manner that will not intrude in the direct work area of the project or obstruct vehicular and pedestrian traffic. If the wireless radio link communication option is utilized clear line of sight between signals within the signal setup shall be maintained. Radio communication shall utilize the 900MHz frequency band and have frequency hopping capability. The radio link communication system shall have a minimum range of (1 mile).

**Fault Mode Requirements**

The PTS system shall revert to a solid red mode upon system default. The default setting shall be solid red unless otherwise specified by the project engineer. The temporary portable traffic signal system repairs shall be the responsibility of the contractor and shall be rendered in a manner

that will return to system to full operation condition in the most expeditious manner. The PTS shall be equipped with a remote monitoring system. Where cell communication availability exists, the remote monitoring system shall have capabilities as described in the Remote Monitoring System section of this specification.

### **Remote Monitoring System**

The remote monitoring system (RMS) shall be capable of reporting signal location, battery voltage / battery history and system default. The RMS shall include a password protected web site viewable from any computer with internet capability. In the event of a system default, the RMS shall provide specific information concerning the cause of the system default (i.e....red lamp on signal number 1). The RMS shall be equipped with a mechanism capable of immediately contacting a minimum of three previously designated individuals via text messaging and/or email upon a default.

The running program operating the PTS system shall be available and viewable through the RMS website at all times. The RMS shall maintain a history of the operating system in each signal including operating hours and events and the location of the PTS trailer. The remote monitoring system is not required as part of this bid proposal.

### **Implementation**

Deployment and installation of the PTS System shall only be facilitated by personnel that have been factory trained and fully authorized by the manufacturers.

### **Measurement and Payment**

The Temporary Portable Traffic Signal System will be measured as the three (3) trailer mounted units (PTS) furnished, installed, field verified, accepted, operated and removed.

No measurement will be made for operation, relocation, maintenance, removal, or use of flaggers during repair periods as these will be considered incidental to furnishing, installing, and operating the temporary portable traffic signal system.

No measurement will be made for signal controller, communication, vehicle detection system, and traffic signal software as these will be considered incidental to furnishing, installing, and operating the temporary portable traffic signal system.

No payment will be made until signal timing and operation has been field verified and accepted by the Engineer.

### **Pay Item**

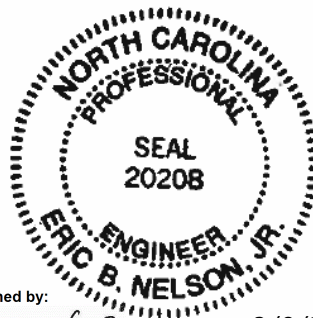
Temporary Portable Traffic Signal System (Actuated)

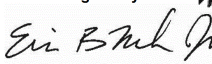
### **Pay Unit**

Each

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3/8/2018

**STRUCTURE PROJECT SPECIAL PROVISIONS****SCOPE OF WORK**

This work shall consist of furnishing all labor, equipment, and materials to overlay bridge decks and replace existing bridge deck joints as directed in the plans. Work includes: existing bridge deck surface preparation, overlaying the prepared bridge deck with latex modified concrete removal of existing joints, deck repair, installation of elastomeric concrete, installation of foam joint seals, installation of silicone joint seals, installation of synthetic rubber joint seal, installation of expansion joint seal gland, seeding and mulching all grassed areas disturbed; and all incidental items necessary to complete the project as specified and shown on the plans. No separate payment will be made for portable lighting as the cost of such is incidental to the work being performed.

Work will be performed on the existing bridges at the following locations in Division 14:

| COUNTY   | STR #  | ROUTE           | ACROSS                          |
|----------|--------|-----------------|---------------------------------|
| CHEROKEE | 190050 | NC294           | LAKE CHEROKEE                   |
| CHEROKEE | 190055 | NC60            | NOTTELY RIVER                   |
| CHEROKEE | 190071 | US19 BUS        | VALLEY RIVER                    |
| CHEROKEE | 190078 | SR1598          | NOTTELY RIVER                   |
| CHEROKEE | 190087 | US19/74/129 EBL | VALLEY RIVER, PRIV. RD.         |
| CHEROKEE | 190088 | US19/74/129 WBL | VALLEY RIVER, PRIV. RD.         |
| CHEROKEE | 190089 | US19/74/129 EBL | SOUTHERN RAILROAD               |
| CHEROKEE | 190090 | US19/74/129 WBL | SOUTHERN RAILROAD               |
| CHEROKEE | 190091 | US19/74/129 EBL | JUNALUSKA CREEK                 |
| CHEROKEE | 190093 | US19/74/129 WBL | JUNALUSKA CREEK                 |
| CHEROKEE | 190112 | SR1347          | HANGING DOG CREEK               |
| CHEROKEE | 190269 | US64            | SR1558                          |
| CHEROKEE | 190271 | US64            | SR1558, TRIB. TO HIWASSEE RIVER |
| CLAY     | 210006 | US64            | HIWASSEE RIVER                  |
| GRAHAM   | 370130 | SR1119          | SNOWBIRD CREEK                  |
| GRAHAM   | 370142 | NC143           | NATIONAL FOREST RD.             |
| HAYWOOD  | 430023 | NC110           | EAST FORK PIGEON RIVER          |
| HAYWOOD  | 430036 | SR1503          | CRABTREE CREEK                  |
| HAYWOOD  | 430069 | NC209           | RICHLAND CREEK                  |
| HAYWOOD  | 430094 | US19            | RICHLAND CREEK                  |
| HAYWOOD  | 430098 | NC209           | PIGEON RIVER                    |
| HAYWOOD  | 430107 | US19/23/74 NBL  | N.S. RR                         |
| HAYWOOD  | 430109 | US23/74         | SR1173, PLOTT CREEK             |
| HAYWOOD  | 430110 | US19/23 SBL     | N.S. RR                         |
| HAYWOOD  | 430111 | US276           | EAST FORK PIGEON RIVER          |
| HAYWOOD  | 430112 | SR1147          | ALLENS CREEK                    |
| HAYWOOD  | 430114 | US74            | PIGEON RIVER, SR1513, SR152     |
| HAYWOOD  | 430138 | US23/74         | US276                           |
| HAYWOOD  | 430141 | US23/74         | US276                           |
| HAYWOOD  | 430204 | SR1334          | FINES CREEK                     |
| HAYWOOD  | 430211 | SR1519          | RICHLAND CREEK                  |
| HAYWOOD  | 430251 | SR1004          | I-40                            |
| HAYWOOD  | 430272 | SR1643          | N.S. RR                         |
| HAYWOOD  | 430374 | SR1349          | JONATHANS CREEK                 |
| HAYWOOD  | 430445 | NC215           | PIGEON RIVER                    |

| COUNTY       | STR #  | ROUTE            | ACROSS                     |
|--------------|--------|------------------|----------------------------|
| HENDERSON    | 440006 | SR1338           | SOUTH FORK MILLS RIVER     |
| HENDERSON    | 440021 | SR1528           | MUD CREEK                  |
| HENDERSON    | 440034 | SR1587           | CLEAR CREEK                |
| HENDERSON    | 440061 | SR1836           | GREEN RIVER                |
| HENDERSON    | 440127 | US25 (I-26 CONN) | US176                      |
| HENDERSON    | 440145 | US74A            | BROAD RIVER                |
| HENDERSON    | 440146 | NC191            | MILLS RIVER                |
| HENDERSON    | 440169 | US25             | MUD CREEK                  |
| HENDERSON    | 440181 | US25             | I-26/US74                  |
| HENDERSON    | 440338 | E. 7TH AVE       | MUD CREEK                  |
| HENDERSON    | 440373 | SR1534           | N.S. RR                    |
| HENDERSON    | 440379 | US25 (I-26 CONN) | US176                      |
| JACKSON      | 490005 | US441            | US74                       |
| JACKSON      | 490029 | SR1456           | SCOTTS CREEK               |
| JACKSON      | 490052 | NC107            | CANEY FORK CREEK           |
| JACKSON      | 490076 | SR1756           | CHARLEY CREEK              |
| JACKSON      | 490085 | US23/74 NBL      | SR1383                     |
| JACKSON      | 490096 | US23/74 SBL      | SR1383                     |
| JACKSON      | 490100 | US23/74 NBL      | SR1380                     |
| JACKSON      | 490104 | US23/74 SBL      | SR1380                     |
| JACKSON      | 490106 | US23 BUS         | US23/74                    |
| JACKSON      | 490109 | US23/74 NBL      | SR1513                     |
| JACKSON      | 490110 | US23/74 SBL      | SR1513                     |
| JACKSON      | 490193 | SR1157           | THORPE DAM SPILLWAY        |
| JACKSON      | 490211 | SR1132           | WEST FORK TUCKASEGEE RIVER |
| MACON        | 550016 | SR1470           | CARTOOGECCHAYE CREEK       |
| MACON        | 550054 | SR1674           | CULLASAJA RIVER            |
| MACON        | 550093 | US64 EBL         | CARTOOGECCHAYE CREEK       |
| MACON        | 550094 | US64 WBL         | CARTOOGECCHAYE CREEK       |
| POLK         | 740002 | SR1102           | NORTH PACOLET RIVER        |
| POLK         | 740047 | SR1151           | GREEN RIVER                |
| POLK         | 740074 | SR1302           | GREEN RIVER                |
| POLK         | 740105 | SR1151           | GREEN RIVER                |
| SWAIN        | 860009 | NC28 SBL         | NANTAHALA RIVER, N.S. RR   |
| SWAIN        | 860024 | IRR US19         | OCONALUFTEE RIVER          |
| SWAIN        | 860074 | SR1180           | NANTAHALA RIVER            |
| SWAIN        | 860106 | SR1309           | ALARKA CREEK               |
| SWAIN        | 860186 | NC28 NBL         | NANTAHALA RIVER, N.S. RR   |
| TRANSYLVANIA | 870053 | US64             | TOXAWAY RIVER              |
| TRANSYLVANIA | 870069 | US64             | N. FORK FRENCH BROAD RVR   |

Contractor shall provide all necessary access; understructure platforms, scaffolding, ladders, etc.; provide all staging areas, material storage, waste disposal, provide environmental controls to limit loss of materials from sawing equipment, and chipping equipment; and all else necessary to complete the work.

The contractor shall be responsible for fulfilling all requirements of the NCDOT Standard Specifications for Roads and Structures dated January 2018, except as otherwise specified herein.

**OVERLAY SURFACE PREPARATION****(12-18-12)****DESCRIPTION**

This provision addresses the surface preparation activities required prior to the placement of latex modified concrete. Unless specifically mentioned below, all requirements specified for the bridge deck are also required for the approach slabs.

**DEFINITIONS**

Scarification shall consist of the removal of any asphalt wearing surface and concrete surface to a uniform depth within ½” of the plan overlay thickness to the limits shown on the plans.

Hydro-demolition shall consist of the removal of the deck surface by means of high pressure water blasting which will remove concrete, oil, dirt, concrete laitance and rust from the exposed reinforcing bars by direct impact, pressurization of micro and macro cracks and cavitation produced by jet instability.

**MANAGING HYDRO-DEMOLITION WATER**

Prior to beginning work, submit for approval a Hydro-demolition Management Plan. This plan shall describe the collection, treatment, and disposal of run-off water generated by the scarification and hydro-demolition processes. Prepare the plan in accordance to the NCDOT Guidelines for Managing Hydro-demolition Water (a copy of which is included in the Appendix). The contractor shall comply with applicable regulation concerning such water disposal.

**EQUIPMENT**

Use the following surface preparation equipment:

- Scarifying equipment that is a power-operated, mechanical grinder capable of removing a minimum depth of ¼” for each pass.
- Hydro-demolition machine, self-propelled with a minimum orifice pressure of 17,000 psi.
- All water used for hydro-demolition shall be potable.
- Equipment capable of sawing concrete to the specified plan depth.
- Hand-held high velocity (7,500 psi minimum) water-jet equipment capable of removing rust scale from reinforcing steel, removing small chips of concrete partially loosened by the scarifying or chipping operation, and for removing rehydrated dust left from scarification.
- Power driven hand tools for removal of unsound concrete are required that meet the following requirements:
  - Pneumatic hammers weighing a nominal 35 lb or less.
  - Pneumatic hammer chisel-type bits that do not exceed the diameter of the shaft in width.



- Hand tools such as hammers and chisels for removal of final particles of unsound concrete.
- Vibratory screed for overlays, except as noted herein.

The hydro-demolition machine shall be self-propelled and capable of producing a water-jet through an orifice at a pressure of at least 17,000 psi. The machine shall move the jet transversely across the area and forward and backward so that the entire deck is covered with the water-jet and operated at a pressure sufficient to remove the unsound concrete.

The machine shall have sufficient means to control and vary the following functions:

- (1) Water pressure.
- (2) Angle and distance of the orifice in relation to the surface to be blasted.
- (3) Limits of transverse and longitudinal movement of the orifice.
- (4) Speed of the orifice in the transverse and longitudinal direction.

High pressure pump(s) shall be equipped with over-pressurization relief valves and rupture disc systems. All high pressure components shall be rated at full working pressure of the hydro-demolition system. The complete hydro-demolition system must be capable of depressurization from a single point.

The equipment must operate at a noise level less than 90 decibels at a distance of 50 feet.

#### **SURFACE PREPARATION**

Remove all existing asphalt overlays and all loose, disintegrated, unsound or contaminated concrete to the limits shown on the plans with the following requirements:

- A. Sealing of Bridge Deck: Seal all expansion joints subject to run-off water from the hydro-demolition process with material approved by the Engineer, prior to beginning any demolition. The expansion joints shall remain sealed until water from the hydro-demolition process no longer passes over them. Take all steps necessary to eliminate the flow of water through the expansion joints, and any other locations water could leak from the deck.

All deck drains in the immediate work area and other sections of the bridge affected by the work being performed shall be sealed prior to beginning scarification. Drains shall remain sealed until it has been determined that materials from the hydro-demolition and concrete overlay operations cannot be discharged through them any longer.

- B. Scarifying Bridge Deck: Removal of any asphalt wearing surface from the bridge deck and scarification of the concrete deck to remove the entire concrete surface of the deck to a uniform depth within  $\frac{1}{4}$ " of the plan overlay thickness, but not less than  $\frac{1}{2}$ " inch above the top mat of reinforcing steel.

It will be the Contractor's responsibility to determine amount of cover for the reinforcing steel. Use a pachometer or other approved device, as directed by Engineer, prior to beginning hydro-demolition. Readings shall be taken in the presence of the Engineer. Readings should be taken for each span at 1/5 points longitudinally and 1/3 points

transversely. This cost for this work will be considered incidental to the cost of hydro-demolition of the bridge deck.

**Estimated average cover to top mat:**

**Bridge # 430098: 1 1/2" +/- 1/4"**

**Bridge # 490005: 1" +/- 1/4"**

**Bridge # 490085: 1" +/- 1/4"**

**Bridge # 490096: 1" +/- 1/4"**

**Bridge # 490100: 1 1/2" +/- 1/4"**

**Bridge # 490104: 1 1/2" +/- 1/4"**

**Bridge # 490109: 1 1/2" +/- 1/4"**

**Bridge # 490110: 1 1/2" +/- 1/4"**

The above top mat cover dimensions are an estimate based on the best available information. Calibrate scarifying equipment in order to avoid damaging the reinforcing steel in the bridge floor or the approach slab. If reinforcing bars or bridge drainage devices are pulled up or snagged during scarification operations, the cease work and consult with the Engineer to determine any necessary adjustments to the roto-milling operation.

Remove and dispose of all concrete and asphalt, and thoroughly clean the scarified surface. In areas where reinforcing steel is located in the depth to be scarified, use another method with the Engineer's approval.

- C. Calibration of Hydro-Demolition Equipment: Two trial areas shall be designated by the Engineer to demonstrate that the equipment, personnel, and methods of operation are capable of producing results to the satisfaction of the Engineer. The first trial area shall consist of approximately 50 square feet of sound concrete as determined by the Engineer. The equipment shall be calibrated to remove the sound concrete from the scarified surface to the depth required to achieve the plan overlay thickness. After completion of this test area, the equipment shall be moved to the second area consisting of deteriorated or defective concrete, to determine whether this unsound concrete will be completely removed with the previous calibration and to establish a baseline for requiring the contractor to place under-deck containment in areas subject to full depth removal, before beginning the hydro-demolition process in a span. Should it be determined that not all defective concrete has been removed, the hydro-demolition system shall be recalibrated to remove an additional 1/4 inch of sound concrete, then re-test on deteriorated concrete.

If additional defective concrete is found, the depth of cut will increase in 1/4 inch increments until only sound concrete is found remaining.

When satisfactory results are obtained, the machine parameters shall be used for production removal. The contractor shall make adjustments to the operating parameters, as required, to perform concrete removal as indicated on the plans and to adjust to the variance in the compressive strength of the concrete.

Hand held water blasting equipment, pneumatic hammers, and hand tools may be substituted for the hydro-demolition unit in inaccessible or inconvenient areas.

The Engineer will re-inspect after each removal and require additional removals until compliance with plans and specifications are met.

Regardless of the method of removal, the removal operation shall be stopped if it is determined that sound concrete is being removed to a depth greater than required by the plans including any 1/4 inch increments added per the above calibration process. Appropriate recalibration, or change in equipment and methods shall be performed prior to resuming the removal operation.

- D. Hydro-demolition (Overlay Depth): Remove by hydro-demolition or chipping with hand tools all loose, unsound and contaminated deck concrete and, if necessary, sound concrete in order to allow for the placement of an overlay with the minimum depth shown on the plans. In areas where reinforcing steel is exposed and debonded for a length greater than 2 feet, remove deck to an average depth of 1/2" below the exposed and debonded reinforcing steel. Dispose of the unsound concrete, clean, repair or replace damaged reinforcing steel and thoroughly clean the newly exposed surface.

Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

Any areas of the prepared surface contaminated by oil or other materials detrimental to good bond as a result of the contractor's operations shall be cleaned at the contractor's expense.

- E. Class II Surface Preparation (Partial Depth): At locations specified on the plans for Class II Surface Preparation, verify the depth of removal achieved by the hydro-demolition. The average depth of removal shall be approximately one-half the deck thickness but no less than 3/4" below the top mat of steel. When hydro-demolition did not achieve the Class II Surface Preparation depth requirements, remove by hydro-demolition or chipping with hand tools all existing patches and contaminated concrete to the required depth. No additional payment will be made for Class II Surface Preparation depths achieved by the initial hydro-demolition.

All patches shall be removed under Class II surface preparation. If any patch cannot be removed by means of hydro-demolition, the Contractor shall use hand tools to remove the patch. Areas indicated on the plans that require Class II surface preparation, including the locations of existing patches, are from the best information available. The Contractor shall verify prior to surface preparation the location of all existing patches.

Dispose of the removed concrete, clean, repair or replace rusted or loose reinforcing steel and thoroughly clean the newly exposed surface. Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

In overhangs, removing concrete areas of less than 0.60 ft<sup>2</sup>/ft. length of bridge without overhang support is permitted unless the Engineer directs otherwise. Overhang support is required for areas removed greater than 0.60 ft<sup>2</sup>/ft. length of bridge. Submit details of overhang support to the Engineer for approval prior to beginning the work.

- F. Class III Surface Preparation (Full Depth): Remove by hydro-demolition or chipping with hand tools the full depth of slab. Dispose of the removed concrete, clean, repair or replace damaged reinforcing steel and thoroughly clean the newly exposed surface. Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

For areas of less than 3 ft<sup>2</sup> suspending forms from existing reinforcing steel using wire ties is permitted. For larger areas, support forms by blocking from the beam flanges, or other approved method.

Overhang support is required for full depth removal adjacent to bridge rails. Submit details of overhang support to the Engineer for approval prior to beginning the work.

Under Deck Containment: Under deck containment shall be installed where Class III surface preparation occurs. The containment shall be installed prior to hydro-demolition in the areas where full depth removal is required or blow thru may occur during the hydro-demolition process.

Submit for approval detailed plans for the under deck containment system. Detail how waste, debris, and wastewater are contained.

- F. Concrete for Full Depth Repair: Fill the Class III surface preparation areas with Class AA, high early strength structural concrete or latex modified concrete in accordance with the methods described below:

Refill areas with Class AA concrete to the bottom of the proposed concrete overlay in accordance with Section 420 of the *Standard Specifications*. Any of the methods for curing Class AA concrete as stated in the *Standard Specifications* are permitted except the membrane curing compound method.

Provide a raked finish to the surface of the Class AA concrete which provides a minimum relief of 1/16" and a maximum relief of 1/4". Place the overlay course after the Class AA concrete has attained a minimum compressive strength of 2500 psi. The strength shall be verified by an approved, non-destructive test method.

Refill the areas where concrete was removed with high early strength concrete as described in the Concrete for Deck Repair and Volumetric Mixer special provisions.

Refilling the areas from which concrete has been removed with latex modified concrete during the Class III repair is permitted if any of the following conditions are met:

- The reinforcing steel cover is 1½ inches or less for the top mat of steel.
- The area being repaired is less than 1 yd<sup>2</sup>.
- The Engineer directs the fill.

- G. Preparation of Reinforcing Steel: Remove concrete without cutting or damaging existing steel unless otherwise noted in the plans. Damaged reinforcing steel, such as bars with nicks deeper than 20% of the bar diameter, shall be repaired or replaced. Reinforcing

steel which has a cross section reduced to 75% or less shall be replaced with new reinforcing steel of similar cross section area. Replacement bars shall be Grade 60 and meet the material requirements of Section 1070 of the Standard Specifications. Replacement bars shall be spliced to existing bars using either minimum 30 bar diameter lap splices to existing steel with 100% cross sectional area or approved mechanical connectors.

Support and protect the exposed reinforcing steel left unsupported by the hydro-demolition process against displacement and damage from loads such as those caused by removal equipment and delivery buggies. All reinforcing steel damaged or dislodged by these operations shall be replaced with bars of the same size at the contractor's expense.

Reinforcing steel exposed and cleaned by hydro-demolition will not require additional cleaning if encased in concrete within seven (7) days. Rebar exposed for more than seven (7) days shall be cleaned by high velocity water jets, with a minimum pressure 4,000 psi, prior to placement of the new concrete.

When large areas of the deck on composite bridges are removed resulting in the debonding of the primary reinforcing bars, the removal shall be performed in stages to comply with the construction sequence shown on the plans or as directed by the Engineer.

H. Safety: Provide a containment system for handling expected and unexpected blow thru of the deck. The containment system shall retain runoff water and debris and protect the area under the bridge deck. The Contractor shall be responsible for any injury or damage caused by his operations. The containment system shall remain in place until the concrete has been cast and reach minimum strength.

Provide adequate lighting when performing hydro-demolition activities at night. Submit a lighting plan to the Engineer for approval prior to beginning work.

Removal of Debris: Removal of concrete debris shall be accomplished either by hand or mechanical means capable of removing wet debris and water in the same pass and after the hydro-demolition process to prevent debris from setting or adhering to the surface of the sound concrete. All concrete debris shall become the property of the Contractor and shall be legally disposed of at the contractor's expense. The contractor shall be responsible for disposing of all debris generated by the scarification operations.

Any debris which is allowed to set or adhere to the surface of the sound concrete shall be carefully removed at no additional cost. Exercise care to avoid any damage to the remaining sound concrete or exposed reinforcement. Prior to the placement of the overlay, the entire surface shall be cleaned with high pressure water to remove any bond-breaking residue, loose material from the concrete surface, and/or rust from the reinforcing steel. This residue shall be collected and disposed of by the contractor.

**MEASUREMENT AND PAYMENT**

*Scarifying Bridge Deck* will be measured and paid for at the contract unit price per square yard and will be full compensation for the milling of existing asphalt wearing surface from the bridge deck or approaches, milling of the entire concrete bridge deck, repairing or replacing any damaged reinforcing steel, and the cleaning and disposal of all waste material generated.

*Hydro-Demolition of Bridge Deck* will be measured and paid for at the contract unit price per square yard and will be full compensation for hydro-demolition, removal and disposal of unsound and contaminated concrete, cleaning, repairing or replacing of reinforcing steel, and furnishing all materials, labor, tools, equipment and incidentals necessary to complete the work.

*Class II Surface Preparation* will be measured and paid for at the contract unit price per square yard and will be full compensation for Class II deck preparation where required by the plans and not attained by the initial hydro-demolition of the deck. The cost will also include removal and disposal of unsound and contaminated concrete, removal of all existing patches, cleaning, repairing or replacing of reinforcing steel, and all materials, labor, tools, equipment and incidentals necessary to complete the work.

*Class III Surface Preparation* will be measured and paid for at the contract unit price per square yard and will be full compensation for Class III deck preparation where required by the plans. The cost will also include removal and disposal of unsound and contaminated concrete, cleaning, repairing or replacing of reinforcing steel, under deck containment, placing and finishing concrete for full depth repair, and for furnishing all materials, labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

**Pay Item**

Scarifying Bridge Deck  
Hydro-Demolition of Bridge Deck  
Class II Surface Preparation  
Class III Surface Preparation

**Pay Unit**

Square Yard  
Square Yard  
Square Yard  
Square Yard

**LATEX MODIFIED CONCRETE****(8-9-13)****DESCRIPTION**

This provision addresses the requirements for furnishing and placing an overlay of latex modified concrete (LMC) over existing concrete or repair concrete on bridge decks and approach pavement. Perform this work in accordance with this Special Provision and the applicable parts of the Standard Specifications.

**MATERIALS**

For materials, equipment, and proportioning and mixing of modified compositions, see Section 1000-7 of the Standard Specifications.

Provide aggregates for use in the LMC that are free from ice, frost, frozen particles or other contaminants when introduced into the mixer.

The 2012 Standard Specifications shall be revised as follows:

**1000-7(A)** – Add the following paragraph to the end of the section:

Submit the LMC mix design, including laboratory compressive strength data for a minimum of six 4-inch by 8-inch cylinders at the appropriate age (7 days for normal setting concrete; 3 hours for very early strength concrete) to the Engineer for review. Include test results for the slump and air content of the laboratory mix. Perform tests in accordance with AASHTO T 22, T 119 and T 152.

#### **PREPARATION OF SURFACE**

Completely clean all surfaces within 48 hours prior to placing the overlay unless otherwise approved by the Engineer.

Thoroughly soak the clean surface and maintain a wet surface for at least 12 hours immediately prior to placing the LMC. After soaking the surface for at least 12 hours, cover it with a layer of white opaque polyethylene film that is at least 4 mils thick. Immediately prior to placing the LMC, remove standing water from the surface using an approved vacuum system.

#### **PLACING AND FINISHING**

Prior to placing LMC, install a bulkhead of easily compressible material at expansion joints to the required grade and profile. Placing material across expansion joints and sawing it later is not permitted.

Construction joints other than those shown on the plans will not be permitted unless approved by the Engineer. At construction joints, remove 4" of previously placed LMC prior to placing the adjacent latex concrete. Also, for staged construction, 4" of previously poured LMC shall be scarified, hydro-demolitioned and recast with the next stage.

Place and fasten screed rails in position to ensure finishing the new surface to the required profile. Do not treat screed rails with parting compound to facilitate their removal. Prior to placing the overlay attach a filler block to the bottom of the screed and pass it over the area to be repaired to check the thickness. The filler block thickness shall be equal to the design overlay thickness as shown in the plans. Remove all concrete that the block does not clear. Individual aggregates left after hydro-demolition may be allowed to project above the base of the filler block. Remove aggregate that does not provide a 1" clear cover to the top of the overlay.

Brush a latex cement mixture onto all vertical surfaces and do not let the brushed material dry before it is covered with the additional material required for the final grade. Remove all loose aggregate from the latex cement brushed surface prior to latex concrete placement (NOTE: For

surfaces not prepared with hydro-demolition brush the lean latex mixture over horizontal and vertical surfaces).

Do not place the LMC until the burlap is saturated and approved by the Engineer. Drain excess water from the wet burlap before placement.

Place the LMC in one operation. Provide a minimum overlay thickness as shown in the plans.

Once LMC placement begins a single layer of wet burlap shall be placed 5 feet behind the screed's burlap drag. In the event of a delay of 10 minutes or more, temporarily cover all exposed latex concrete with wet burlap and white opaque polyethylene.

When a tight, uniform surface is achieved and before the concrete becomes non-plastic, further finish the surface of the floor by burlap dragging or another acceptable method that produces an acceptable uniform surface texture.

Within 1 hour of covering with wet burlap, place a layer of 4 mil white opaque polyethylene film on the wet burlap and cure the surface for 48 hours. Then remove the curing material for an additional 48 hours air cure.

Screed rails or construction dams shall be separated from the newly placed concrete by passing a pointing trowel along the face of the formwork and the newly placed concrete. Carefully make this trowel cut for the entire depth and length of rails or dams after the LMC has sufficiently stiffened and cannot flow back.

As soon as practical, after the concrete has hardened sufficiently, test the finished surface with an approved rolling straightedge that is designed, constructed, and adjusted so that it will accurately indicate or mark all deck areas which deviate from a plane surface by more than 1/8" in 10'. Remove all high areas in the hardened surface in excess of 1/8" in 10' with an approved grinding or cutting machine. Additionally, the final LMC deck surface shall not deviate from the line and elevation indicated on the plans by more than 0.3" over any 50' length. Where variations are such that the corrections extend below the limits of the top layer of grout, seal the corrected surface with an approved sealing agent as required by the Engineer. If approved by the Engineer, correct low areas in an acceptable manner.

Unless otherwise indicated on the plans, groove the bridge floor in accordance with Article 420-14(B) of the Standard Specifications.

#### **LIMITATIONS OF OPERATIONS**

The mixer is not permitted on the bridge deck unless otherwise approved.

No traffic is permitted on the finished LMC surface until the total specified curing time is completed and until the concrete reaches the minimum specified compressive strength.



Do not place LMC if the temperature of the concrete surface on which the overlay is to be placed is below 50°F or above 85°F. Measure the surface temperature by placing a thermometer under the insulation against the surface.

Prior to placing LMC, the Engineer determines the air temperature and wind speed. Do not place LMC if the ambient air temperature is below 50°F or above 85°F, or if the wind velocity is greater than 10 mph.

Do not place LMC when the temperature of the LMC is below 45°F or above 85°F.

Do not place LMC if the rate of evaporation of surface moisture from the LMC exceeds 0.05 pounds per square foot per hour during placement. The evaporation rate is calculated using the following formula:

$$E = (T_c^{2.5} - r \cdot T_a^{2.5}) \cdot (1 + 0.4V) \cdot (10^{-6})$$

where,

E = Evaporation Rate,

T<sub>c</sub> = Concrete Temp (°F),

r = Relative Humidity (%/100)

T<sub>a</sub> = Air Temp (°F),

V = Wind Velocity (mph)

Do not place LMC if the National Weather Service predicts the air temperature at the site to be below 35°F during the next 72 hours. If the predicted air temperature is above 35°F but below 50°F, then use insulation to protect the LMC for a period of at least 48 hours. Use insulation that meets the requirements of Subarticle 420-7(C) and, if required, place it on the LMC as soon as initial set permits. When using insulation to protect LMC during the wet curing period, do not remove the insulation until the ambient air temperature is at least 50°F and rising. Leave the LMC uncovered for the 48 hour air curing period.

Stop all placement operations during periods of precipitation. Take adequate precautions to protect freshly placed LMC from sudden or unexpected precipitation. Keep an adequate quantity of protective coverings at the worksite to protect the freshly placed pavement from precipitation.

If working at night, provide approved lighting.

#### **MEASUREMENT AND PAYMENT**

*Latex Modified Concrete Overlay* will be measured and paid for in cubic yards of LMC satisfactorily placed on the completed deck.

*Placing and Finishing of Latex Modified Concrete Overlay* will be paid for at the contract unit price bid per square yard which includes compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work in accordance with the contract documents.

*Grooving Bridge Floors* will be measured and paid in accordance with Section 420-21 of the Standard Specifications.

Payment will be made under:

| <b>Pay Item</b>                                          | <b>Pay Unit</b> |
|----------------------------------------------------------|-----------------|
| Latex Modified Concrete Overlay                          | Cubic Yard      |
| Placing and Finishing of Latex Modified Concrete Overlay | Square Yard     |

### **LATEX MODIFIED CONCRETE – VERY EARLY STRENGTH**

**(8-9-13)**

#### **DESCRIPTION**

This provision addresses the requirements for furnishing and placing an overlay of latex modified concrete - very early strength (LMC-VES) over existing concrete or repair concrete on bridge decks. Perform this work in accordance with this Special Provision and the applicable parts of the Standard Specifications.

#### **QUALITY CONTROL**

The Contractor is responsible for setting up a pre-construction meeting with the Resident Engineer and the Area Bridge Construction Engineer.

Submit a Quality Control Plan to the Engineer for approval which, at a minimum, describes the methods of: storing materials, calibrating mixers, controlling moisture content in the aggregate, maintaining proper mix temperature, retarder usage, curing and curing time, controlling evaporation rate, cleaning and removing excess water.

Prior to beginning work, provide proof of experience of the person in direct responsible charge by submitting a description of jobs similar in size and character that have been completed within the last 5 years. The name, address and telephone number of references for the submitted projects shall also be furnished. Failure to provide appropriate documentation will result in the rejection of the proposed LMC-VES overlay Contractor.

Before beginning any work, obtain approval for all equipment to be used for deck preparation, mixing, placing, finishing and curing the LMC-VES.

#### **MATERIALS**

For materials, equipment, and proportioning and mixing of modified compositions, see Section 1000-7 of the Standard Specifications.

Provide aggregates for use in the LMC-VES that are free from ice, frost, frozen particles or other contaminants when introduced into the mixer.

The 2018 Standard Specifications shall be revised as follows:

**Table 1000-5** – Revise the following:

Cement Content, 658 lb/cy (min.) change to 658 lb/cy (*max.*)

7 day Compressive Strength, 3000 psi (min.) change to 3 hr. Compressive Strength, 2500 psi (min.)

**1000-7(A), Line 23** – Replace with the following:

Measure the slump after discharge from the mixer.

**1000-7(A)** – Add the following paragraph to the end of the section:

Submit the LMC-VES mix design, including laboratory compressive strength data for a minimum of six 4-inch by 8-inch cylinders at the appropriate age (7 days for normal setting concrete; 3 hours for very early strength concrete) to the Engineer for review. Include test results for the slump and air content of the laboratory mix. Perform tests in accordance with AASHTO T 22, T 119 and T 152.

For projects with multiple bridges using the same mix design, or bridge decks with time constraints that require more than one night for placement, a relationship between the compressive strength and rebound hammer readings may be developed and used to estimate the three hour strength for opening to traffic in lieu of compressive strength testing. For the correct procedure, reference Document: PL11-LMC Rapid Set Overlays. Contact your local M&T representative for a copy of this document or see the following link: <http://www.ncdot.org/doh/operations/materials/eforms.html> under Physical Lab. Seven day concrete compressive strength sampling and testing is required in addition to the use of this method.

**PREPARATION OF SURFACE**

Completely clean all surfaces within 48 hours prior to placing the overlay unless otherwise approved by the Engineer.

Thoroughly soak the clean surface and maintain a wet surface for at least 2 hours immediately prior to placing the LMC-VES. After soaking the surface for at least 2 hours, cover it with a layer of white opaque polyethylene film that is at least 4 mils thick. Immediately prior to placing the LMC-VES, remove standing water from the surface using an approved vacuum system.

**PLACING AND FINISHING**

Prior to placing LMC-VES, install a bulkhead of easily compressible material at expansion joints to the required grade and profile. Placing material across expansion joints and sawing it later is not permitted.

Construction joints other than those shown on the plans will not be permitted unless approved by the Engineer. At construction joints, remove 4" of previously placed LMC-VES prior to placing the adjacent latex concrete. Also, for staged construction, 4" of previously poured LMC-VES shall be scarified, hydro-demolitioned and recast with the next stage.

Place and fasten screed rails in position to ensure finishing the new surface to the required profile. Do not treat screed rails with parting compound to facilitate their removal. Prior to placing the overlay attach a filler block to the bottom of the screed and pass it over the area to be repaired to check the thickness. The filler block thickness shall be equal to the design overlay thickness as shown in the plans. Remove all concrete that the block does not clear. Individual aggregates left after hydro-demolition may be allowed to project above the base of the filler block. Remove aggregate that does not provide a 1" clear cover to the top of the overlay.

Brush a latex cement mixture onto all vertical surfaces and do not let the brushed material dry before it is covered with the additional material required for the final grade. Remove all loose aggregate from the latex cement brushed surface prior to latex concrete placement (NOTE: For surfaces not prepared with hydro-demolition brush the lean latex mixture over horizontal and vertical surfaces).

Do not place the LMC-VES until the burlap is saturated and approved by the Engineer. Drain excess water from the wet burlap before placement.

Place the LMC-VES in one operation. Provide a minimum overlay thickness as shown in the plans.

Once LMC-VES placement begins a single layer of wet burlap shall be placed 5 feet behind the screed's burlap drag. In the event of a delay of 10 minutes or more, temporarily cover all exposed latex concrete with wet burlap and white opaque polyethylene.

When a tight, uniform surface is achieved and before the concrete becomes non-plastic, further finish the surface of the floor by burlap dragging or another acceptable method that produces an acceptable uniform surface texture.

Promptly cover the surface with a second layer of clean, wet burlap as soon as the surface will support it without deformation. Wet cure only the surface for a minimum of 3 hours and until a compressive strength of 2500 psi is reached. Curing material shall be continually saturated during the wet cure period using a fogging system approved by the Engineer. The Engineer may require an increase in the minimum cure time when the overlay thickness is greater than 1.5 inches or the ambient temperature remains below 60°F.

Screed rails or construction dams shall be separated from the newly placed concrete by passing a pointing trowel along the face of the formwork and the newly placed concrete. Carefully make this trowel cut for the entire depth and length of rails or dams after the LMC-VES has sufficiently stiffened and cannot flow back.

As soon as practical, after the concrete has hardened sufficiently, test the finished surface with an approved rolling straightedge that is designed, constructed, and adjusted so that it will accurately indicate or mark all deck areas which deviate from a plane surface by more than 1/8" in 10'.

Remove all high areas in the hardened surface in excess of 1/8" in 10' with an approved grinding or cutting machine. Additionally, the final LMC-VES deck surface shall not deviate from the line and elevation indicated on the plans by more than 0.3" over any 50' length. Where variations are such that the corrections extend below the limits of the top layer of grout, seal the corrected surface with an approved sealing agent as required by the Engineer. If approved by the Engineer, correct low areas in an acceptable manner.

Unless otherwise indicated on the plans, groove the bridge floor in accordance with Article 420-14(B) of the Standard Specifications. Vehicular traffic may travel across a deck surface that has

not been grooved; however, the entire deck area shall be grooved after the LMC-VES achieves design strength and no later than seven days after completion of the overlay unless otherwise approved by the Engineer.

#### **LIMITATIONS OF OPERATIONS**

The mixer is not permitted on the bridge deck unless otherwise approved.

No traffic is permitted on the finished LMC-VES surface until the total specified curing time is completed and until the concrete reaches the minimum specified compressive strength.

Do not place LMC-VES if the temperature of the concrete surface on which the overlay is to be placed is below 50°F or above 85°F. Measure the surface temperature by placing a thermometer under the insulation against the surface.

Prior to placing LMC-VES, the Engineer and the Contractor shall independently determine the air temperature and wind speed. Do not place LMC-VES if the ambient air temperature is below 50°F or above 85°F, or if the wind velocity is greater than 10 mph.

Do not place LMC-VES when the temperature of the LMC-VES is below 45°F or above 85°F.

Prior to placing LMC-VES, the Engineer and the Contractor shall independently determine the evaporation rate and record in the diary. Do not place LMC-VES if the rate of evaporation of surface moisture from the LMC-VES determined by the Engineer or Contractor exceeds 0.05 pounds per square foot per hour during placement. The evaporation rate is calculated using the following formula:

$$E = (T_c^{2.5} - r \cdot T_a^{2.5}) \cdot (1 + 0.4V) \cdot (10^{-6})$$

where,

E = Evaporation Rate,

$T_c$  = Concrete Temp ( $^{\circ}$ F),

r = Relative Humidity (%/100)

$T_a$  = Air Temp ( $^{\circ}$ F),

V = Wind Velocity (mph)

If the calculated evaporation rate exceeds 0.05 pounds per square foot per hour, the Contractor may propose engineered controls of the parameters (temperature, relative humidity, wind velocity) to reduce the evaporation rate. The evaporation rate shall be recalculated, with the appropriate parameters, after the proposed control measures are in place. The recalculated evaporation rate shall be 0.05 pounds per square foot per hour or less, prior to placement.

Do not place LMC-VES if the National Weather Service predicts the air temperature at the site to be below 35°F during the next 24 hours. If the predicted air temperature is above 35°F but below 50°F, then use insulation to protect the LMC-VES for a period of at least 48 hours. Use insulation that meets the requirements of Subarticle 420-7(C) and, if required, place it on the LMC-VES as soon as initial set permits. When using insulation to protect LMC-VES during the wet curing period, do not remove the insulation until the ambient air temperature is at least 50°F and rising.

Stop all placement operations during periods of precipitation. Take adequate precautions to protect freshly placed LMC-VES from sudden or unexpected precipitation. Keep an adequate quantity of protective coverings at the worksite to protect the freshly placed pavement from precipitation.

If working at night, provide approved lighting.

#### **MEASUREMENT AND PAYMENT**

*Latex Modified Concrete – Very Early Strength* will be measured and paid for in cubic yards of LMC-VES satisfactorily placed on the completed deck.

*Placing and Finishing Latex Modified Concrete Overlay – Very Early Strength* will be paid for at the contract unit price bid per square yard which includes compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work in accordance with the contract documents.

*Grooving Bridge Floors* will be measured and paid in accordance with Section 420-21 of the Standard Specifications.

Payment will be made under:

| <b>Pay Item</b>                                                             | <b>Pay Unit</b> |
|-----------------------------------------------------------------------------|-----------------|
| Latex Modified Concrete – Very Early Strength                               | Cubic Yard      |
| Placing and Finishing Latex Modified Concrete Overlay – Very Early Strength | Square Yard     |

#### **BRIDGE JOINT DEMOLITION**

**(SPECIAL)**

##### **DESCRIPTION**

This provision addresses the removal of existing joint material and adjacent concrete to facilitate the installation of new bridge joints at the locations noted in the contract plans.

##### **EQUIPMENT**

Use the following surface preparation equipment:

- Sawing equipment capable of sawing concrete to a specified depth.
- Power driven hand tools for removal of concrete are required that meet the following requirements:
  1. Pneumatic hammers weighing a nominal 15 lbs (7 kg) or less.
  2. Pneumatic hammer chisel-type bits that do not exceed the diameter of the shaft in width.
- Hand tools such as hammers and chisels for removal of final particles of concrete.

##### **REMOVAL AND PREPARATION**

Prior to any construction, take the necessary precautions to ensure debris from joint construction is not allowed to fall below the bridge deck.

Remove existing joint material by methods approved by the Engineer. Provide a 1" deep saw cut around the perimeter of areas noted for bridge deck removal.

Remove by chipping with hand tools concrete adjacent to the joint to the limits shown on the contract plans. Use a small chipping hammer (15 lb. class) to prepare the edges of the repair area to limit micro fractures. In addition, all loose and unsound concrete shall be removed.

In overhangs, removing concrete areas greater than 0.60 ft<sup>2</sup>/ft length of bridge will require overhang support. Submit the overhang support method to the Engineer for approval.

Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel. Dispose of the removed concrete.

If the condition of the concrete is such that deep spalls or sheer faces result, notify the Engineer for the proper course of action.

Clean, repair or replace rusted or loose reinforcing steel. Thoroughly clean the newly exposed surface to be free of all grease, oil, curing compounds, acids, dirt, or loose debris.

#### **CLEANUP**

Clean bent caps of debris after joint work is complete. All debris generated by joint repair work shall become the property of the Contractor. The Contractor shall be responsible for disposing of all debris generated by sawing, chipping, shotblasting, sandblasting, and any other surface preparation operations, in compliance with applicable regulations concerning such disposal.

All costs associated with management and disposal of all debris shall be included in the payment of other items.

#### **MEASUREMENT AND PAYMENT**

*Bridge Joint Demolition* will be measured and paid for at the contract unit price bid per square foot and will be full compensation for removal, containment and disposal of existing joint material and concrete and shall include the cost of labor, tools, equipment and incidentals necessary to complete the work.

##### **Pay Item**

Bridge Joint Demolition

##### **Pay Unit**

Square Feet

**MODULAR JOINT DEMOLITION****(SPECIAL)****DESCRIPTION**

This provision addresses the removal and disposal of the existing modular joints and adjacent concrete to facilitate the installation of new bridge joints at the locations noted in the contract plans.

**EQUIPMENT**

Use the following surface preparation equipment:

- Sawing equipment capable of sawing concrete to a specified depth.
- Power driven hand tools for removal of concrete are required that meet the following requirements:
  3. Pneumatic hammers weighing a nominal 35 lbs or less.
  4. Pneumatic hammer chisel-type bits that do not exceed the diameter of the shaft in width.
- Hand tools such as hammers and chisels for removal of final particles of concrete.

**REMOVAL AND PREPARATION**

Prior to any construction, take the necessary precautions to ensure debris from joint construction is not allowed to fall below the bridge deck.

Remove all modular joint components from the deck and barrier rails as shown in the plans.. Provide a 1" deep saw cut around the perimeter of areas noted for bridge deck removal.

Remove by chipping with hand tools concrete adjacent to the joint to the limits shown on the contract plans. Use a medium size chipping hammer/breaker (35 lb. class) to prepare the edges of the repair area to limit micro fractures. In addition, all loose and unsound concrete shall be removed.

Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel. Dispose of the removed concrete.

Clean, repair or replace rusted or loose reinforcing steel. Thoroughly clean the newly exposed surface to be free of all grease, oil, curing compounds, acids, dirt, or loose debris.

**CLEANUP**

Clean bent caps of debris after joint work is complete. All debris generated by joint repair work shall become the property of the Contractor. The Contractor shall be responsible for disposing of all debris generated by sawing, chipping, shotblasting, sandblasting, and any other surface preparation operations, in compliance with applicable regulations concerning such disposal.

All costs associated with management and disposal of all debris shall be included in the payment of other items.



**MEASUREMENT AND PAYMENT**

*Modular Joint Demolition* will be measured and paid for at the contract unit price bid per square foot and will be full compensation for removal, containment and disposal of existing joint material and concrete and shall include the cost of labor, tools, equipment and incidentals necessary to complete the work.

**Pay Item**

Modular Joint Demolition

**Pay Unit**

Square Feet

**ELASTOMERIC CONCRETE****(SPECIAL)****1.0 DESCRIPTION**

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

**2.0 MATERIALS**

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

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

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

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

### **3.0 PREQUALIFICATION**

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

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

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

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

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

### **4.0 INSTALLATION**

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

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

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

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

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

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

## 5.0 FIELD SAMPLING

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

## 6.0 BASIS OF PAYMENT

*Elastomeric Concrete* will be measured and paid for at the contract unit price bid per cubic foot and will be full compensation for furnishing and placing the Elastomeric Concrete.

| Pay Item             | Pay Unit   |
|----------------------|------------|
| Elastomeric Concrete | Cubic Feet |

## FOAM JOINT SEALS

(SPECIAL)

### 1.0 SEALS

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

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

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

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

## 2.0 BONDING ADHESIVE

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

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

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

## 3.0 SAWING THE JOINT

The joint opening shall be initially formed to the width shown on the plans.

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

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

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

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

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

#### **4.0 PREPARATION OF SAWED JOINT FOR SEAL INSTALLATION**

The polyester polymer concrete cure a minimum of 24 hours prior to seal installation.

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

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

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

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

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

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

#### **5.0 SEAL INSTALLATION**

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

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

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

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

## **6.0 MEASUREMENT AND PAYMENT**

*Foam Joint Seals* will be measured and paid for at the contract unit price bid per linear foot and will be full compensation for furnishing and placing foam seals including all foam seal materials from 2" to 4" in width, surface preparation, sawing, binder, and all tools, labor and equipment necessary for installing these seals in place and accepted.

| <b>Pay Item</b>  | <b>Pay Unit</b> |
|------------------|-----------------|
| Foam Joint Seals | Linear Feet     |

## **SILICONE JOINT SEALANT**

**(SPECIAL)**

### **1.0 SEALS**

Provide and install a low modulus silicone sealant (non-sag or self-leveling) and backer rod which conforms to the Standard Specifications (Subsections 1023-3 and 1023-4, respectively) and this Special Provision. Use silicone approved for use on joint openings as indicated on project plans and provide a seal with a working range of minimum 50% compression and extension. Silicone joint seal product shall be designated as approved for

use on the NCDOT Approved Products List. If non-sag and self-leveling sealants are to be in contact with each other, they shall be from the same manufacturer and shall be compatible for such use.

Self leveling silicone joint sealant used for horizontal joint sealing shall be type Dow Corning 902 RCS or equal.

Non-sag silicone joint sealant used for vertical joint sealing shall be type Dow Corning 888 or equal.

## **2.0 PREPARATION OF FORMED OR SAWED JOINT FOR SEAL INSTALLATION**

The concrete or elastomeric concrete header of the joint opening shall cure a minimum of 24 hours prior to seal installation.

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

Clean the joints by sandblasting the joint opening to provide a firm, clean joint surface free of curing compound, loose material, and any foreign matter. Sandblast the joint opening without causing pitting or uneven surfaces. The aggregate in the polyester polymer concrete may be exposed after sandblasting.

After blasting, either brush the surface with clean brushes made of hair, bristle, or fiber, blow the surface with compressed air, or vacuum the surface until all traces of blast products and abrasives are removed from the surface, pockets, and corners. If nozzle blasting is used to clean the joint opening, use compressed air that does not contain detrimental amounts of water or oil.

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

Install the backer rod and silicone sealant in the blast cleaned opening on the same day the surface is blast cleaned.

## **3.0 SEAL INSTALLATION**

Install the silicone joint sealant(s) as indicated on the plans, in accordance with the manufacturer's procedures and recommendations, and as recommended below. Do not install the joint seal if the ambient air or surface temperature is below 45°F. Have a manufacturer's certified trained factory representative present during the installation of the first seal of the project, to provide guidance for the proper installation of the silicone joint sealant(s).

After a joint has been sealed, remove excess joint sealer on the pavement or bridge deck concrete as soon as possible.

The installed system shall be watertight and will be monitored until final inspection and approval.

Do not place pavement markings on top of joint seals.

#### 4.0 MEASUREMENT AND PAYMENT

*Silicone Joint Sealant* will be measured and paid for at the contract unit price bid per linear foot and will be full compensation for furnishing all self leveling and non-sag seal material, including backer rod, sawing, surface preparation, labor, tools, and equipment necessary for installing these seals in place and accepted.

##### Pay Item

Silicone Joint Sealant

##### Pay Unit

Linear Feet

#### SYNTHETIC RUBBER EXPANSION JOINT SEAL

(SPECIAL)

##### SEALS

Use an inverted “V” shaped, preformed extruded ethylene propylene diene monomer (M-class) rubber (EPDM), or silicone rubber seal compatible with concrete and resistant to abrasion, oxidation, oils, gasoline, salt and other materials that are spilled on or applied to the surface. Seal shall be secured to concrete surfaces with a single component silicone locking adhesive and a primer, or with a quick setting epoxy adhesive.

Use seals set in a sawed joint opening with a depth that meets the manufacturer’s recommendation, and is not less than ½” below the top of the deck slab at the opening’s minimum width specified in the plans. Seals edges shall be set on the bottom of the sawed joint opening that is at least 1/8” wide. Provide a seal that has a working temperature range of 0°F to 120°F and meets the requirements given below.

| TEST                                | TEST METHOD | REQUIREMENT      |
|-------------------------------------|-------------|------------------|
| Tensile Strength                    | ASTM D412   | 1,000 psi (min.) |
| Elongation at Break                 | ASTM D412   | 300% (min.)      |
| Tear Strength                       | ASTM D624   | 100 ppi (min.)   |
| Compression Set<br>212 °F @ 70 hrs. | ASTM D395   | 30% (max.)       |
| Water Resistance                    | ASTM D471   | 70 hrs. @ 212 °F |
| Durometer (Shore A)                 | ASTM D2240  | 55-65 +/-5       |

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



**BONDING ADHESIVE**

For silicone adhesive, use a single component, 100% solid, silicone locking adhesive supplied by the joint seal manufacturer that meets the following requirements:

| TEST                  | TEST METHOD | REQUIREMENT                                 |
|-----------------------|-------------|---------------------------------------------|
| Tensile strength      | ASTM D412   | 200 psi (min.)                              |
| Tack Free Time        | ASTM C679   | 20 minutes (max.)                           |
| Cure Time (1/4" Bead) | ASTM C679   | 24 hours (max.)                             |
| Resistance to UV      | ASTM C793   | No cracking, ozone chalking, or degradation |
| Elongation to Break   | ASTM D412   | 450% (min.)                                 |

For epoxy adhesive, use a quick setting two-component thixotropic paste that is mixed in strict conformance to the manufacturer's instructions. Epoxy adhesive shall be supplied by the joint seal manufacturer and shall meet the following requirements:

| TEST                      | TEST METHOD | REQUIREMENT     |
|---------------------------|-------------|-----------------|
| Tensile strength          | ASTM D638   | 7000 psi (min.) |
| Bond Strength to Concrete | ASTM C881   | 1000 psi (min.) |
| Peel Adhesion             | ASTM C794   | 50 pli          |
| Gel Time                  |             | 8 minutes       |
| Pot Life                  |             | 45 minutes      |
| Cure Time                 |             | 24 hours (max.) |

Use an adhesive that is workable to 45°F. When installing in ambient air or surface temperatures below 45°F or for application on moist, difficult to dry concrete surfaces, use an adhesive specified by the manufacturer of the joint seal.

**SAWING THE JOINT**

The joint opening shall be initially formed to the width shown on the plans.

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

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

The desired depth of the saw cut is the depth of the seal plus 1/2" minimum above the top of the seal at the minimum sawed joint width. An irregular bottom of sawed joint is permitted as indicated on the plans. Maximum surface amplitude at the bottom of the saw cut joint is 1/8". Grind exposed corners on saw cut edges to a 1/4" chamfer.

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

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

#### **PREPARATION OF SAWED JOINT FOR SEAL INSTALLATION**

After sawing the joint, the Engineer will thoroughly inspect the sawed joint opening for spalls, popouts, cracks, etc. All necessary repairs will be made by the Contractor prior to blast cleaning and installing the seal. Seals shall be secured to substrate that is clean and sound.

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

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

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

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

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

#### **SEAL INSTALLATION**

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

Before installing the joint seal, check the uninstalled seal length to insure the seal is the same length as the required seal length shown in the plans. Splices in joint seals will not be permitted.

Begin installation by protecting the top edges of the concrete deck adjacent to the vertical walls of the joint as a means to minimize clean up. The joint seal shall be installed to strict conformance with the manufacturer's requirements for atmospheric conditions, concrete surface preparation, mixing and application of adhesive, seal material installation procedure, minimum cure time prior to exposure to traffic, as well as worker health and safety. Once work on placing a seal begins, do not stop until it is completed. Clean any excess adhesive from the top of the joint seal immediately with a trowel. Do not use solvents or any cleaners to remove the excess adhesive from the top of the seal. Remove the protective cover at the joint edges and check for any adhesive on concrete surfaces. Remove excess adhesive with a trowel, the use of solvents or any cleaners will not be allowed.

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

#### **MEASUREMENT AND PAYMENT**

*Synthetic Rubber Expansion Joint Seal* will be measured and paid for at the contract unit price bid per linear foot and will be full compensation for furnishing joint material, backer rod, binder, sawing the joint, surface preparation, labor, tools, and equipment necessary for installing these seals in place and accepted.

#### **Pay Item**

Synthetic Rubber Expansion Joint Seal

#### **Pay Unit**

Linear Feet

### **EXPANSION JOINT SEAL REPAIR**

**(SPECIAL)**

#### **1.0 GENERAL**

The work covered by this Special Provision consists of replacing the EJS elastomeric gland component as shown on the contract drawings. All materials, labor, equipment and incidentals necessary for the removal of the existing gland and proper installation of the new gland are included.

#### **2.0 MATERIAL**

Provide an elastomeric component for each expansion joint seal that is a continuous unit for the entire length of the joint. Do not field splice the elastomeric component. Only vulcanized shop splicing of the elastomeric component is permitted. The minimum length of an elastomeric component before shop splicing is 20 feet. However, one piece shorter than 20 feet is permitted. Provide an elastomeric component that is clearly shop marked to indicate the top side and joint location of the elastomeric component. On skewed bridges, or under unsymmetrical conditions, clearly mark the left side of the elastomeric component. Left is defined as being on the left when facing in the direction of increasing station. Inspect the seals upon receipt to ensure that the marks are clearly visible upon installation.

Make sure the convolution of the gland does not project above the top of the hold-down plates when the joint opening is in the most compressed condition. Use either elastic polychloroprene (neoprene) or ethyl propylene diene monomer (EPDM) for the elastomer that meets the following minimum properties:

|                                     | ASTM<br>TEST METHOD | REQUIREMENTS                                                                                                                                                                                      |
|-------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hardness, Durometer - Shore A       | D2240               | 60 $\pm$ 5, Neoprene (upward corrugated shape - fabric reinforced)<br>75 $\pm$ 5, EPDM and Neoprene (upward non-corrugated shape)<br>80 $\pm$ 5, EPDM (upward corrugated shape-fabric reinforced) |
| Tensile Strength                    | D412                | 2000 psi (min.)                                                                                                                                                                                   |
| Elongation at Break                 | D412                | 250% (min.)                                                                                                                                                                                       |
| Width of Gland in Relaxed Condition | N/A                 | 10" $\pm$ 0.25"                                                                                                                                                                                   |

|                                        |     |                                                |
|----------------------------------------|-----|------------------------------------------------|
| Thickness of Upturned portion of gland | N/A | 0.25" non-corrugated shape, -0.032" to +0.032" |
| Thickness of Upturned portion of gland | N/A | 0.1875" corrugated shape, -0.032" to +0.032"   |
| Thickness of Flat portion of gland     | N/A | 0.1563", -0.032" to +0.032"                    |

For fabric reinforced glands, submit one unreinforced sample per lot number, up to 500 feet of Expansion Joint Seal, to the Engineer for testing.

Retain, clean and re-use all hold down components of the existing joint assembly.

Inspect the condition of the existing hold-down plates, bolts, and washers for cracks, deformations or other damage that the Engineer might determine necessitates replacement of hold-down components. Replacement plates shall conform to AASHTO M270 Grade 36 steel or approved equal and metallized. Hold-down bolts shall conform to ASTM F593 alloy 304 stainless steel. Washers shall conform to ASTM F844 except they shall be made from alloy 304 stainless steel.

If the Engineer determines that components of the hold down assembly require replacement the work required to furnish and install new hold down components will be paid for as extra work in accordance with section 104-7 of the *Standard Specifications*.

### **3.0 SHOP DRAWINGS**

Submit nine sets of working drawings to the Engineer for review, comments and acceptance. Show complete details drawn to scale and include:

- The proposed template details including the makeup of the template.
- The proposed chronology of installation including the sequence and direction of the removal and replacement of the existing gland.
- The proposed method for removing the hold-down plate.

Have someone other than the one who prepares the drawing check all detailed drawings and include the signatures of both the drafter and checker on each sheet of the drawings. The Engineer returns unchecked drawings to the Contractor. Provide all completed drawings well in advance of the scheduled installation time for the expansion joint seal repair.

### **4.0 INSTALLATION**

#### **Expansion Joint Seal Repairs Under Staged Closures**

For expansion joint seal repairs that are staged, perform steps 1 through 4 for the initial stage for gland replacement:

1. Loosen the existing bolts and hold down plates and remove the existing gland. Remove the existing neoprene sealant and clean the existing base angle and hold-down plates of oil, grease, and other latents.
2. Lay the new gland on the base angle and field mark the new gland for the bolt holes. Holes in the new gland shall be punched 7/8" in diameter with a circular hand punch.
3. In order to check for proper alignment, place the new gland and hold-down plates on the base angle. Do not apply new neoprene sealant. Bolt the hold-down plates to the base angle with new bolts and washers, but do not tighten. The engineer shall inspect the joint seal gland, plates, and bolts for proper alignment.
4. After inspection, remove the hold-down plates and new gland. Apply new neoprene sealant to the base angle in accordance with the "installation sketch." Place new gland and hold-down plates on the base angle. Bolt the hold-down plates to the base angle assembly and torque the bolts to 88 ft-lbs with a torque wrench. Check the torque after three (3) hours and, if necessary, retighten to 88 ft-lbs. A final check shall be made at seven (7) days. Torque shall not be less than 80 ft-lbs after seven (7) days.

After completion of steps 1 through 4, open to traffic the stage that has had the new gland installed and close to traffic the next adjacent stage requiring a new gland. Continue with steps 1 through 4 for removal of existing gland and placement of a new expansion joint gland.

Proceed similarly for each successive stage. After completion of installation of the joint gland for all stages, traffic may be returned, temporarily, to all stages.

After completion of installation of the new gland for all stages, perform step 5 for each closure stage:

5. After proper torqueing, clean the bolt hole recesses and the recess between the joint seal device and concrete, completely fill these recesses with new neoprene sealant.

Allow sealant applied during step 5 to cure for a minimum of 4 hours before allowing traffic on the bridge. Alternatively, and if the sealant has not cured sufficiently to prevent sealant from adhering to passing traffic, the Contractor may propose a method (broadcast sand or other) to prevent sealant from adhering to passing traffic.

Unless otherwise approved by the Engineer, step 5 shall be completed within 7 days of installation of new gland.

The Engineer shall be notified of any damaged areas, depressions, spalls, cracks, or irregularities of curbs or decks adjacent to the expansion joint. If directed by, the Engineer submit a proposed method of repair and repair material specifications for approval. This work to repair damaged deck or irregularities will be considered extra work.

If the Engineer deems any aspects of the expansion joint seals unacceptable, make necessary corrections.

## **5.0 INSPECTION**

### **Watertight Integrity Test**

- Upon completion of an expansion joint seal, perform a water test on the top surface to detect any leakage. Cover the roadway section of the joint from curb to curb, or barrier rail to barrier rail, with water, either ponded or flowing, not less than 1 inch above the roadway surface at all points. Block sidewalk sections and secure an unnozzled water hose delivering approximately 1 gallon of water per minute to the inside face of the bridge railing, trained in a downward position about 6 inches above the sidewalks, such that there is continuous flow of water across the sidewalk and down the curb face of the joint.
- Maintain the ponding or flowing of water on the roadway and continuous flow across sidewalks and curbs for a period of 2 hours. At the conclusion of the test, the underside of the joint is closely examined for leakage. The expansion joint seal is considered watertight if no obvious wetness is visible on the Engineer's finger after touching a number of underdeck areas. Damp concrete that does not impart wetness to the finger is not a sign of leakage.
- If the joint system leaks, locate the place(s) of leakage and take any repair measures necessary to stop the leakage at no additional cost to the Department. Use repair measures

recommended by the manufacturer and approved by the Engineer prior to beginning corrective work.

- If measures to eliminate leakage are taken, perform a subsequent water integrity test subject to the same conditions as the original test. Subsequent tests carry the same responsibility as the original test and are performed at no extra cost to the Department.

## **6.0 BASIS OF PAYMENT**

Basis of payment for all expansion joint seal repair will be at the contract unit price per linear foot for *Expansion Joint Seal Repair* which price and payment will be full compensation for furnishing and installing all material, labor, tools, and incidentals necessary for installing the expansion joint seal repair in place and including all materials, labor, tools and incidentals for performing the watertight integrity test.

## **VOLUMETRIC MIXER**

**(12-18-12)**

### **DESCRIPTION**

This provision addresses the requirements for batching deck repair concrete at the point of delivery using a Mobile High Performance Volume Mixer (MHPVM). Work shall be in accordance with the general requirements of Section 1000-12 of the *Standard Specifications* and as amended by these provisions.

### **MATERIALS**

Produce high early strength concrete with MHPVM equipment. Furnish project site storage facilities that will provide protection of materials in accordance with the *Standard Specifications* and all material suppliers' recommendations.

### **EQUIPMENT**

MHPVM devices shall have prominently displayed stamped metal plate(s) from the Volumetric Mixers Manufacturers Bureau stating that the equipment conforms to the requirements of ASTM C685.

Hydraulic cement concrete shall be mixed at the point of delivery by a combination of materials and mixer unit conforming to the following:

- 1.) The unit shall be equipped with calibrated proportioning devices for each ingredient added to the concrete mix. The unit shall be equipped with a working recording meter that is visible at all times and furnishes a ticket printout with the calibrated measurement of the mix being produced. If at any time the mixer fails to discharge a uniform mix, production of concrete shall be suspended until such time that problems are corrected.
- 2.) Each unit shall have prominently displayed stamped metal plate(s) attached by the manufacturer on which the following are plainly marked: the gross volume of the transportation unit in terms of mixed concrete, the discharge speed and the mass calibrated constant of the machine in terms of volume.

- 3.) MHPVMs shall be calibrated by a Department approved testing agency in accordance with the manufacturer's recommendations at an interval of every 6 months or a maximum production of 2500 cubic yards, whichever comes first prior to use on the project. The yield shall be maintained within a tolerance of +/- 1% and verified using a minimum 2 cubic feet container every 500 cubic yards or a minimum of once per week.
- 4.) The three cubic feet initially discharged from the truck shall be discarded and not used for concrete placement. Acceptance of the concrete shall comply with the Standard Specifications except that the sample secured for acceptance testing will be taken after four cubic feet is discharged from the delivery vehicle. During discharge, the consistency as determined by ASTM C143 on representative samples taken from the mixer discharge at random intervals shall not vary by more than 1 inch. Acceptance tests shall be performed on each load. If test data demonstrates that acceptable consistency of concrete properties is being achieved, the Engineer may reduce testing requirements.
- 5.) MHPVM equipment shall be operated by a person who is a certified operator by the equipment manufacturer. Any equipment adjustments made during the on-site production of concrete shall be done under the direct on-site supervision of the producer's NCDOT Certified Concrete Batch Technician.

**UNIFORMITY AND ACCEPTANCE**

The contractor is responsible for providing a Certified Concrete Plant Technician during batching operations, and a Certified Concrete Field Technician during placing operations

**MEASUREMENT AND PAYMENT**

*Volumetric Mixer* will be paid for as lump sum and will be full compensation for furnishing the certified MHPVM devices and calibration of the equipment.

| <b>Pay Item</b>  | <b>Pay Unit</b> |
|------------------|-----------------|
| Volumetric Mixer | Lump Sum        |

**CONCRETE FOR DECK REPAIR****(12-18-12)****DESCRIPTION**

This provision addresses the material requirements of high early strength structural concrete to be used for reconstruction of deck slab and, if necessary, bent diaphragms as noted in the plans.

**MATERIALS**

Furnish Department approved pre-packaged concrete or bulk concrete materials in a mix proportioned to satisfy provisions for Class AA Concrete detailed in Section 1000-4 of the *Standard Specifications* or as otherwise noted in these provisions. Concrete mix shall meet the following requirements:



| Physical Property                                | Threshold Limitation                           | Test Method   |
|--------------------------------------------------|------------------------------------------------|---------------|
| Compressive Strength<br>(at 3 hrs.)              | 4500 psi (min.)                                | ASTM C39/C109 |
| Slump                                            | 4 in. (min.)<br>7 in. (max.)                   | AASHTO T119   |
| Water to Cement Ratio                            | 0.450 (max.)                                   | N/A           |
| Modulus of Elasticity<br>(at 28 days)            | 5200 ksi (max.)                                | ASTM C469     |
| Coefficient of Thermal Expansion<br>(at 28 days) | 4.5 in./in./°F (min.)<br>5.5 in./in./°F (max.) | AASHTO T336   |
| Concrete Setting Times                           |                                                | ASTM C191     |
| Initial                                          | 30 min. (max.)                                 |               |
| Final                                            | 40 min. (max)                                  |               |

Concrete shall be capable of placement on existing concrete substrate surfaces within the following temperature limitations:

40° F (min.)

100° F (max.)

Measurement for determination of concrete material compositions shall be in accordance with Section 1000-8 of the *Standard Specifications*.

Submit pre-packaged concrete mix contents or concrete mix design, including laboratory compressive strength data, for a minimum of six 4-inch by 8-inch cylinders at an age of 3 hours and 1 day to the Engineer for review. Include test results for the slump and air content of the laboratory mix. Perform tests in accordance with AASHTO T119 and T152.

Provide aggregates that are free from ice, frost and frozen particles when introduced into the mixer.

For equipment, proportioning and mixing of concrete compositions, see Section 1000-12 of the *Standard Specifications* and the Special Provision entitled "Volumetric Mixer". Prior to beginning any work, obtain approval for all equipment to be used for joint area preparation, mixing, placing, finishing, and curing the deck repair concrete.

### Measurement and Payment

*Concrete for Deck Repair* will be measured and paid for at the contract unit price bid for the actual cubic feet of concrete incorporated into the completed and accepted structure. This price

and payment will be full compensation for furnishing the required amount of material to complete the deck repair.

**Pay Item****Pay Unit**

Concrete for Deck Repair

Cubic Feet

**REMOVE & REPLACE BRIDGE DECK ISLAND****(SPECIAL)****DESCRIPTION**

This work shall consist of removal and replacement of the existing bridge deck concrete island as shown in the plans and in accordance with the contract documents.

**EQUIPMENT**

Use the following surface preparation equipment:

- Sawing equipment capable of sawing concrete to a specified depth.
- Power driven hand tools for removal of concrete are required that meet the following requirements:
  - 5. Pneumatic hammers weighing a nominal 35 lbs or less.
  - 6. Pneumatic hammer chisel-type bits that do not exceed the diameter of the shaft in width.
- Hand tools such as hammers and chisels for removal of final particles of concrete.

**REMOVAL**

Saw the island into sections that can be reasonably handled with hand chipping tools and small rubber tired equipment. Equipment mounted demolition methods such as hoe rams shall not be used for demolition of the island.

**MATERIALS & PLACEMENT**

Construct island in accordance with Section 852 of the *Standard Specifications*. Use Class AA Concrete for the new concrete island.

**MEASUREMENT AND PAYMENT**

*Remove & Replace Bridge Deck Island* will be measured and paid for at the contract unit price bid per square yard and will be full compensation for removal, containment and disposal of existing material and concrete and shall include the cost of materials, including Class AA concrete and reinforcing steel, labor, tools, equipment and incidentals necessary to complete the work.

**Pay Item****Pay Unit**

Remove &amp; Replace Bridge Deck Island

Square Yard

**FALSEWORK AND FORMWORK****(4-5-12)****1.0 DESCRIPTION**

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

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

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

**2.0 MATERIALS**

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

**3.0 DESIGN REQUIREMENTS****A. Working Drawings**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than  $\frac{3}{4}$ ".

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

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

#### 1. Wind Loads

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

**Table 2.2 - Wind Pressure Values**

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

#### 2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

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

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

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

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

|           |    |        |     |  |  |
|-----------|----|--------|-----|--|--|
| Edgecombe | 80 | Onslow | 100 |  |  |
| Forsyth   | 70 | Orange | 70  |  |  |

#### B. Review and Approval

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

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

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

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

### 4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

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

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

#### A. Maintenance and Inspection

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

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

**B. Foundations**

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

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

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

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

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

**5.0 REMOVAL**

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

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

**6.0 METHOD OF MEASUREMENT**

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

**7.0 BASIS OF PAYMENT**

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

**CRANE SAFETY****(8-15-05)**

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



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

#### **CRANE SAFETY SUBMITTAL LIST**

- A. **Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
- B. **Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.
- C. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.
- D. **Certifications:** By July 1, 2006, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

#### **GROUT FOR STRUCTURES**

(12-1-17)

##### **DESCRIPTION**

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

##### **MATERIAL REQUIREMENTS**

Unless otherwise noted on the plans, use a Type 3 Grout in accordance with Section 1003 of the Standard Specifications.

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

Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

#### **SAMPLING AND PLACEMENT**

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

#### **BASIS OF PAYMENT**

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

### **SUBMITTAL OF WORKING DRAWINGS**

**(6-28-17)**

#### **1.0 GENERAL**

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, “submittals” refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the Engineer. Either the Structures Management Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

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

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

#### **2.0 ADDRESSES AND CONTACTS**

For submittals to the Structures Management Unit, use the following addresses:

## Via US mail:

Mr. B. C. Hanks, P. E.  
State Structures Engineer  
North Carolina Department  
of Transportation  
Structures Management Unit  
1581 Mail Service Center  
Raleigh, NC 27699-1581

Attention: Mr. J. L. Bolden, P. E.

## Via other delivery service:

Mr. B. C. Hanks, P. E.  
State Structures Engineer  
North Carolina Department  
of Transportation  
Structures Management Unit  
1000 Birch Ridge Drive  
Raleigh, NC 27610

Attention: Mr. J. L. Bolden, P. E.

Submittals may also be made via email.

Send submittals to:

[jlbolden@ncdot.gov](mailto:jlbolden@ncdot.gov) (James Bolden)

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

[eomile@ncdot.gov](mailto:eomile@ncdot.gov) (Emmanuel Omile)

[mrorie@ncdot.gov](mailto:mrorie@ncdot.gov) (Madonna Rorie)

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

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

## Via US mail:

Mr. Chris Kreider, P. E.  
Eastern Regional Geotechnical  
Manager  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Eastern Regional Office  
1570 Mail Service Center  
Raleigh, NC 27699-1570

## Via other delivery service:

Mr. Chris Kreider, P. E.  
Eastern Regional Geotechnical  
Manager  
North Carolina Department  
of Transportation  
Geotechnical Engineering Unit  
Eastern Regional Office  
3301 Jones Sausage Road, Suite 100  
Garner, NC 27529

Via Email: [EastGeotechnicalSubmittal@ncdot.gov](mailto:EastGeotechnicalSubmittal@ncdot.gov)

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

Via US mail or other delivery service:

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

Harrisburg, NC 28075

Via Email: [WestGeotechnicalSubmittal@ncdot.gov](mailto:WestGeotechnicalSubmittal@ncdot.gov)

The status of the review of structure-related submittals sent to the Structures Management Unit can be viewed from the Unit's website, via the "Drawing Submittal Status" link.

The status of the review of geotechnical-related submittals sent to the Geotechnical Engineering Unit can be viewed from the Unit's website, via the "Geotechnical Construction Submittals" link.

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

Primary Structures Contact: James Bolden  
(919) 707 – 6408  
(919) 250 – 4082 facsimile  
[jlbolden@ncdot.gov](mailto:jlbolden@ncdot.gov)

Secondary Structures Contacts: Emmanuel Omile  
(919) 707 – 6451  
Madonna Rorie  
(919) 707 – 6508

Eastern Regional Geotechnical Contact (Divisions 1-7):  
Chris Kreider  
(919) 662 – 4710  
[ckreider@ncdot.gov](mailto:ckreider@ncdot.gov)

Western Regional Geotechnical Contact (Divisions 8-14):  
Eric Williams  
(704) 455 – 8902  
[ewilliams3@ncdot.gov](mailto:ewilliams3@ncdot.gov)

### 3.0 SUBMITTAL COPIES

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

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

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

### **STRUCTURE SUBMITTALS**

| <b>Submittal</b>                                                       | <b>Copies<br/>Required by<br/>Structures<br/>Management<br/>Unit</b> | <b>Copies<br/>Required by<br/>Geotechnical<br/>Engineering<br/>Unit</b> | <b>Contract Reference<br/>Requiring Submittal <sup>1</sup></b>                     |
|------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Arch Culvert Falsework                                                 | 5                                                                    | 0                                                                       | Plan Note, SN Sheet & "Falsework and Formwork"                                     |
| Box Culvert Falsework <sup>7</sup>                                     | 5                                                                    | 0                                                                       | Plan Note, SN Sheet & "Falsework and Formwork"                                     |
| Cofferdams                                                             | 6                                                                    | 2                                                                       | Article 410-4                                                                      |
| Foam Joint Seals <sup>6</sup>                                          | 9                                                                    | 0                                                                       | "Foam Joint Seals"                                                                 |
| Expansion Joint Seals<br>(hold down plate type with base angle)        | 9                                                                    | 0                                                                       | "Expansion Joint Seals"                                                            |
| Expansion Joint Seals<br>(modular)                                     | 2, then 9                                                            | 0                                                                       | "Modular Expansion Joint Seals"                                                    |
| Expansion Joint Seals<br>(strip seals)                                 | 9                                                                    | 0                                                                       | "Strip Seals"                                                                      |
| Falsework & Forms <sup>2</sup><br>(substructure)                       | 8                                                                    | 0                                                                       | Article 420-3 & "Falsework and Formwork"                                           |
| Falsework & Forms<br>(superstructure)                                  | 8                                                                    | 0                                                                       | Article 420-3 & "Falsework and Formwork"                                           |
| Girder Erection over Railroad                                          | 5                                                                    | 0                                                                       | Railroad Provisions                                                                |
| Maintenance and Protection of<br>Traffic Beneath Proposed<br>Structure | 8                                                                    | 0                                                                       | "Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____" |
| Metal Bridge Railing                                                   | 8                                                                    | 0                                                                       | Plan Note                                                                          |
| Metal Stay-in-Place Forms                                              | 8                                                                    | 0                                                                       | Article 420-3                                                                      |

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

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

**FOOTNOTES**

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

**GEOTECHNICAL SUBMITTALS**

| <b>Submittal</b>                                      | <b>Copies<br/>Required by<br/>Geotechnical<br/>Engineering<br/>Unit</b> | <b>Copies<br/>Required by<br/>Structures<br/>Management<br/>Unit</b> | <b>Contract Reference<br/>Requiring Submittal <sup>1</sup></b> |
|-------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|
| Drilled Pier Construction Plans <sup>2</sup>          | 1                                                                       | 0                                                                    | Subarticle 411-3(A)                                            |
| Crosshole Sonic Logging (CSL)<br>Reports <sup>2</sup> | 1                                                                       | 0                                                                    | Subarticle 411-5(A)(2)                                         |
| Pile Driving Equipment Data<br>Forms <sup>2,3</sup>   | 1                                                                       | 0                                                                    | Subarticle 450-3(D)(2)                                         |
| Pile Driving Analyzer (PDA)<br>Reports <sup>2</sup>   | 1                                                                       | 0                                                                    | Subarticle 450-3(F)(3)                                         |

|                                |                               |            |                                                         |
|--------------------------------|-------------------------------|------------|---------------------------------------------------------|
| Retaining Walls <sup>4</sup>   | 1 drawings,<br>1 calculations | 2 drawings | Applicable Provisions                                   |
| Temporary Shoring <sup>4</sup> | 1 drawings,<br>1 calculations | 2 drawings | “Temporary Shoring” &<br>“Temporary Soil Nail<br>Walls” |

**FOOTNOTES**

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
2. Submit one hard copy of submittal to the Engineer. Submit a second copy of submittal electronically (PDF via email), US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
3. The Pile Driving Equipment Data Form is available from:  
[https://connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)  
See second page of form for submittal instructions.
4. Electronic copy of submittal is required. See referenced provision.



PROPOSAL: DN00619  
LETTING: L180508N CALL: 001  
VENDOR: 11870 NHM Constructors, LLC

| LINE NO.                                                     | ITEM NO.      | ITEM DESC.                     | UNIT TYPE | SUBCONTRACTOR QUANTITY | SUBCONTRACTOR UNIT PRICE | EXTENDED AMOUNT |
|--------------------------------------------------------------|---------------|--------------------------------|-----------|------------------------|--------------------------|-----------------|
| -----                                                        |               |                                |           |                        |                          |                 |
| DBE SUBCONTRACTOR: 10129 CONCRETE SPECIALTY CONTRACTORS INC. |               |                                |           |                        |                          |                 |
| Will Use Quote: Yes                                          |               |                                |           |                        |                          |                 |
| 0052                                                         | 8893000000-E  | GENERIC STRU SY                |           | 114.700                | 110.00000                | 12617.00        |
| 0007                                                         | 2738000000-E  | GENERIC PAVI SY                |           | 242.000                | 110.00000                | 26620.00        |
|                                                              |               |                                |           |                        |                          | -----           |
| DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:                      |               |                                |           |                        |                          | 39,237.00       |
| DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )             |               |                                |           |                        |                          | 39,237.         |
| DBE SUBCONTRACTOR: 15178 ESPINOZA HAULING & TRUCKING CO INC  |               |                                |           |                        |                          |                 |
| Will Use Quote: Yes                                          |               |                                |           |                        |                          |                 |
| 0002                                                         | 13300000000-E | INCIDENTAL M SY                |           | 3759.000               | 10.00000                 | 37590.00        |
|                                                              |               | hauling only @ \$10.00 per ton |           |                        |                          |                 |
|                                                              |               |                                |           |                        |                          | -----           |
| DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:                      |               |                                |           |                        |                          | 37,590.00       |
| DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )             |               |                                |           |                        |                          | 37,590.         |
| DBE SUBCONTRACTOR: 3765 STAY ALERT SAFETY SERVICES INC       |               |                                |           |                        |                          |                 |
| Will Use Quote: Yes                                          |               |                                |           |                        |                          |                 |
| 0001                                                         | 0000100000-N  | MOBILIZATION LS                |           | 1.000                  | 23150.00000              | 23150.00        |
| 0008                                                         | 4400000000-E  | WORK ZONE SI SF                |           | 1182.000               | 13.75000                 | 16252.50        |
| 0009                                                         | 4405000000-E  | WORK ZONE SI SF                |           | 256.000                | 9.45000                  | 2419.20         |
| 0010                                                         | 4410000000-E  | WORK ZONE SI SF                |           | 30.000                 | 15.00000                 | 450.00          |
| 0016                                                         | 4445000000-E  | BARRICADES ( LF                |           | 40.000                 | 26.95000                 | 1078.00         |
| 0012                                                         | 4420000000-N  | PORTABLE CHA EA                |           | 3.000                  | 9450.00000               | 28350.00        |
|                                                              |               |                                |           |                        |                          | -----           |
| DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:                      |               |                                |           |                        |                          | 71,699.70       |
| DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )             |               |                                |           |                        |                          | 71,699.         |
| TOTAL DBE COMMITMENT FOR VENDOR:                             |               |                                |           |                        |                          |                 |
|                                                              |               |                                |           | Entered:               | 3.05% or                 | 148526.70       |
|                                                              |               |                                |           | Required:              | 3.00% or                 | 146193.24       |
|                                                              |               |                                |           |                        |                          | <GOAL MET>      |



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

CONTRACT:  
DN00619

NAME OF BIDDER:  
NHM Constructors, LLC

The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation as:

Name of MBE/WBE/DBE Subcontractor Concrete Specialty Contractors Inc  
Address Post Office Box 2303  
City Shelby State North Carolina Zip 28151

Please check all that apply:

Minority Business Enterprise (MBE) ☐

Women Business Enterprise (WBE) ☒

Disadvantaged Business Enterprise (DBE) ☒

The MBE /WBE /DBE status of the above named subcontractor is certified by the North Carolina Department of Transportation. The above named subcontractor is prepared to perform the described work listed on the attached MBE/WBE/DBE Commitment Items sheet, in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation. The above named subcontractor is prepared to perform the described work at the estimated Commitment Total for Subcontractor Price identified on the MBE/WBE/DBE Commitment Items sheet and amount indicated below.

Commitment Total based on estimated Unit Prices and Quantities on the "attached" MBE/WBE/DBE Commitment Items sheet. Amount \$ 39,237.00

The above named bidder and subcontractor mutually accepts the Commitment Total estimated for the Unit Prices and Quantities. This commitment total is based on estimated quantities only and most likely will vary up or down as the project is completed. Final compensation will be based on actual quantities of work performed and accepted during the pursuance of work. The above listed amount represents the entire dollar amount quoted based on these estimated quantities. No conversations, verbal agreements, and/or other forms of non-written representations shall serve to add, delete, or modify the terms as stated.

This document shall not serve in any manner as an actual subcontract between the two parties. A separate subcontractor agreement will describe in detail the contractual obligations of the bidder and the MBE/WBE/DBE subcontractor.

**Affirmation**

The above named MBE/ WBE/ DBE subcontractor affirms that it will perform the portion(s) of the contract for the estimated dollar value as stated above.

Concrete Specialty Contractors Inc

Name of MBE/ WBE/ DBE Subcontractor

Jay W. Antenberg, Pres.  
Signature / Title

May 8, 2018  
Date

NHM Constructors, LLC

Name of Bidder

Will M. He MEMBER/MANAGER  
Signature / Title

5/10/18

Date



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

CONTRACT:  
DN00619

NAME OF BIDDER:  
NHM Constructors, LLC

The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation as:

Name of MBE/WBE/DBE Subcontractor Espinoza Hauling & Trucking Co Inc  
Address 25 Holly Hill Road  
City Bryson City State North Carolina Zip 28713

Please check all that apply:

Minority Business Enterprise (MBE) ☒

Women Business Enterprise (WBE) ☐

Disadvantaged Business Enterprise (DBE) ☒

The MBE /WBE /DBE status of the above named subcontractor is certified by the North Carolina Department of Transportation. The above named subcontractor is prepared to perform the described work listed on the attached MBE/WBE/DBE Commitment Items sheet, in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation. The above named subcontractor is prepared to perform the described work at the estimated Commitment Total for Subcontractor Price identified on the MBE/WBE/DBE Commitment Items sheet and amount indicated below.

Commitment Total based on estimated Unit Prices and Quantities on the "attached" MBE/WBE/DBE Commitment Items sheet. Amount \$ 37,590.00

The above named bidder and subcontractor mutually accepts the Commitment Total estimated for the Unit Prices and Quantities. This commitment total is based on estimated quantities only and most likely will vary up or down as the project is completed. Final compensation will be based on actual quantities of work performed and accepted during the pursuance of work. The above listed amount represents the entire dollar amount quoted based on these estimated quantities. No conversations, verbal agreements, and/or other forms of non-written representations shall serve to add, delete, or modify the terms as stated.

This document shall not serve in any manner as an actual subcontract between the two parties. A separate subcontractor agreement will describe in detail the contractual obligations of the bidder and the MBE/WBE/DBE subcontractor.

**Affirmation**

The above named MBE/ WBE/ DBE subcontractor affirms that it will perform the portion(s) of the contract for the estimated dollar value as stated above.

Espinoza Hauling & Trucking Co Inc

Name of MBE/ WBE/ DBE Subcontractor

[Signature] owner  
Signature / Title

05/09/18  
Date

NHM Constructors, LLC

Name of Bidder

[Signature] Member/Manager  
Signature / Title

5/10/18  
Date



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

CONTRACT:  
DN00619

NAME OF BIDDER:  
NHM Constructors, LLC

The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation as:

Name of MBE/WBE/DBE Subcontractor Stay Alert Safety Services Inc

Address Post Office Box 467

City Kernersville State North Carolina Zip 27285

Please check all that apply:

Minority Business Enterprise (MBE) ☐

Women Business Enterprise (WBE) ☒

Disadvantaged Business Enterprise (DBE) ☒

The MBE /WBE /DBE status of the above named subcontractor is certified by the North Carolina Department of Transportation. The above named subcontractor is prepared to perform the described work listed on the attached MBE/WBE/DBE Commitment Items sheet, in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation. The above named subcontractor is prepared to perform the described work at the estimated Commitment Total for Subcontractor Price identified on the MBE/WBE/DBE Commitment Items sheet and amount indicated below.

Commitment Total based on estimated Unit Prices and Quantities on the "attached" MBE/WBE/DBE Commitment Items sheet. Amount \$ 71,699.70

The above named bidder and subcontractor mutually accepts the Commitment Total estimated for the Unit Prices and Quantities. This commitment total is based on estimated quantities only and most likely will vary up or down as the project is completed. Final compensation will be based on actual quantities of work performed and accepted during the pursuance of work. The above listed amount represents the entire dollar amount quoted based on these estimated quantities. No conversations, verbal agreements, and/or other forms of non-written representations shall serve to add, delete, or modify the terms as stated.

This document shall not serve in any manner as an actual subcontract between the two parties. A separate subcontractor agreement will describe in detail the contractual obligations of the bidder and the MBE/WBE/DBE subcontractor.

**Affirmation**

The above named MBE/ WBE/ DBE subcontractor affirms that it will perform the portion(s) of the contract for the estimated dollar value as stated above.

**Stay Alert Safety Services Inc**

**NHM Constructors, LLC**

Name of MBE/ WBE/ DBE Subcontractor

Name of Bidder

*[Signature]*

Signature / Title

*5-8-18*

Date

*[Signature]*

Signature / Title

*5/10/18*

Date

*MEMBER MANAGER*

DN00619

Contract No. \_\_\_\_\_  
County 10 Counties in Division 14

Rev. 1-16-18

**EXECUTION OF CONTRACT  
NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION**

**LIMITED LIABILITY COMPANY**

The Contractor declares (or certifies, verifies, or states) under penalty of perjury under the laws of the United States that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

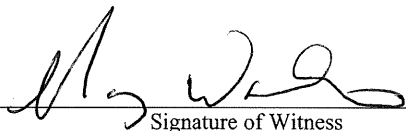
**SIGNATURE OF CONTRACTOR**

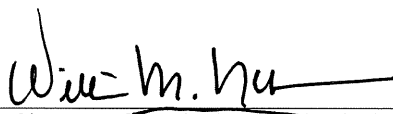
**NHM Constructors, LLC**

Full Name of Firm

**PO Box 6385 Asheville, NC 28816**

Address as Prequalified

  
Signature of Witness

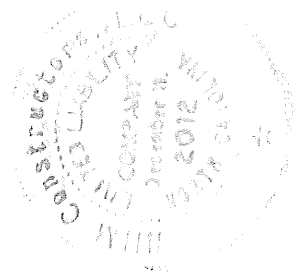
  
Signature of Member/Manager Authorized Agent  
Select appropriate title

**Nancy Workman**

Print or type Signer's name

**William M. Newman**

Print or type Signer's Name



**DEBARMENT CERTIFICATION OF PREQUALIFIED BIDDER**

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation that is file with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction*, *debarred*, *suspended*, *ineligible*, *lower tier covered transaction*, *participant*, *person*, *primary covered transaction*, *principal*, *proposal*, and *voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

**DEBARMENT CERTIFICATION**

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐

Check here if an explanation is attached to this certification.

## Contract Item Sheets For DN00619

| Line #               | ItemNumber   | Sec # | Description                                                                      | Quantity Unit  | Unit Bid Price | Amount Bid |
|----------------------|--------------|-------|----------------------------------------------------------------------------------|----------------|----------------|------------|
| <b>ROADWAY ITEMS</b> |              |       |                                                                                  |                |                |            |
| 0001                 | 0000100000-N | 800   | MOBILIZATION                                                                     | Lump Sum<br>LS | 244,900.00     | 244,900.00 |
| 0002                 | 1330000000-E | 607   | INCIDENTAL MILLING                                                               | 3,759<br>SY    | 20.00          | 75,180.00  |
| 0003                 | 1519000000-E | 610   | ASPHALT CONC SURFACE COURSE,<br>TYPE S9.5B                                       | 93<br>TON      | 253.00         | 23,529.00  |
| 0004                 | 1523000000-E | 610   | ASPHALT CONC SURFACE COURSE,<br>TYPE S9.5C                                       | 225<br>TON     | 253.00         | 56,925.00  |
| 0005                 | 1575000000-E | 620   | ASPHALT BINDER FOR PLANT MIX                                                     | 20.5<br>TON    | 600.00         | 12,300.00  |
| 0006                 | 1840000000-E | 665   | MILLED RUMBLE STRIPS (ASPHALT<br>CONCRETE)                                       | 1,200<br>LF    | 7.25           | 8,700.00   |
| 0007                 | 2738000000-E | SP    | GENERIC PAVING ITEM<br>(REMOVE AND REPLACE 5" MONOLIT<br>HIC<br>CONCRETE ISLAND) | 242<br>SY      | 110.00         | 26,620.00  |
| 0008                 | 4400000000-E | 1110  | WORK ZONE SIGNS (STATIONARY)                                                     | 1,182<br>SF    | 13.75          | 16,252.50  |
| 0009                 | 4405000000-E | 1110  | WORK ZONE SIGNS (PORTABLE)                                                       | 256<br>SF      | 9.45           | 2,419.20   |
| 0010                 | 4410000000-E | 1110  | WORK ZONE SIGNS (BARRICADE<br>MOUNTED)                                           | 30<br>SF       | 15.00          | 450.00     |
| 0011                 | 4415000000-N | 1115  | FLASHING ARROW BOARD                                                             | 3<br>EA        | 1,925.00       | 5,775.00   |
| 0012                 | 4420000000-N | 1120  | PORTABLE CHANGEABLE MESSAGE<br>SIGN                                              | 6<br>EA        | 9,450.00       | 56,700.00  |
| 0013                 | 4424500000-N | SP    | TEMPORARY PORTABLE TRAFFIC<br>SIGNAL SYSTEM<br>(ACTUATED)                        | 3<br>EA        | 7,500.00       | 22,500.00  |
| 0014                 | 4430000000-N | 1130  | DRUMS                                                                            | 541<br>EA      | 100.00         | 54,100.00  |
| 0015                 | 4435000000-N | 1135  | CONES                                                                            | 135<br>EA      | 100.00         | 13,500.00  |
| 0016                 | 4445000000-E | 1145  | BARRICADES (TYPE III)                                                            | 40<br>LF       | 26.95          | 1,078.00   |
| 0017                 | 4455000000-N | 1150  | FLAGGER                                                                          | 180<br>DAY     | 200.00         | 36,000.00  |
| 0018                 | 4465000000-N | 1160  | TEMPORARY CRASH CUSHIONS                                                         | 9<br>EA        | 8,950.00       | 80,550.00  |



## Contract Item Sheets For DN00619

| Line # | ItemNumber   | Sec # | Description                              | Quantity Unit  | Unit Bid Price | Amount Bid |
|--------|--------------|-------|------------------------------------------|----------------|----------------|------------|
| 0019   | 4470000000-N | 1160  | REMOVE & RESET TEMPORARY CRASH CUSHION   | 7<br>EA        | 3,550.00       | 24,850.00  |
| 0020   | 4480000000-N | 1165  | TMA                                      | 3<br>EA        | 40,050.00      | 120,150.00 |
| 0021   | 4485000000-E | 1170  | PORTABLE CONCRETE BARRIER                | 3,470<br>LF    | 45.00          | 156,150.00 |
| 0022   | 4500000000-E | 1170  | REMOVE & RESET PORTABLE CONCRETE BARRIER | 4,130<br>LF    | 25.00          | 103,250.00 |
| 0023   | 4510000000-N | 1190  | LAW ENFORCEMENT                          | 100<br>HR      | 35.00          | 3,500.00   |
| 0024   | 4810000000-E | 1205  | PAINT PAVEMENT MARKING LINES (4")        | 4,600<br>LF    | 1.00           | 4,600.00   |
| 0025   | 4815000000-E | 1205  | PAINT PAVEMENT MARKING LINES (6")        | 42,809<br>LF   | 0.80           | 34,247.20  |
| 0026   | 4835000000-E | 1205  | PAINT PAVEMENT MARKING LINES (24")       | 36<br>LF       | 8.00           | 288.00     |
| 0027   | 4850000000-E | 1205  | REMOVAL OF PAVEMENT MARKING LINES (4")   | 4,600<br>LF    | 1.00           | 4,600.00   |
| 0028   | 4855000000-E | 1205  | REMOVAL OF PAVEMENT MARKING LINES (6")   | 42,809<br>LF   | 1.00           | 42,809.00  |
| 0029   | 4870000000-E | 1205  | REMOVAL OF PAVEMENT MARKING LINES (24")  | 36<br>LF       | 5.00           | 180.00     |
| 0030   | 4905000000-N | 1253  | SNOWPLOWABLE PAVEMENT MARKERS            | 14<br>EA       | 200.00         | 2,800.00   |
| 0031   | 5255000000-N | 1413  | PORTABLE LIGHTING                        | Lump Sum<br>LS | 225,000.00     | 225,000.00 |

## Contract Item Sheets For DN00619

| Line # | ItemNumber   | Sec # | Description                                                                  | Quantity Unit | Unit Bid Price | Amount Bid |
|--------|--------------|-------|------------------------------------------------------------------------------|---------------|----------------|------------|
| 0032   | 8161000000-E | 420   | GROOVING BRIDGE FLOORS                                                       | 57,924 SF     | 1.65           | 95,574.60  |
| 0033   | 8175000000-E | 420   | CLASS AA CONCRETE (BRIDGE)                                                   | 30.8 CY       | 2,800.00       | 86,240.00  |
| 0034   | 8217000000-E | 425   | REINFORCING STEEL (BRIDGE)                                                   | 2,670 LB      | 12.00          | 32,040.00  |
| 0035   | 8224000000-E | 425   | EPOXY COATED REINFORCING STEEL (BRIDGE)                                      | 587 LB        | 10.00          | 5,870.00   |
| 0036   | 8559000000-E | SP    | CLASS II, SURFACE PREPARATION                                                | 219.6 SY      | 400.00         | 87,840.00  |
| 0037   | 8566000000-E | SP    | CLASS III, SURFACE PREPARATION                                               | 0.6 SY        | 29,000.00      | 17,400.00  |
| 0038   | 8573000000-E | SP    | LATEX MODIFIED CONC OVERLAY                                                  | 366.6 CY      | 925.00         | 339,105.00 |
| 0039   | 8580000000-E | SP    | PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY                           | 5,916 SY      | 55.00          | 325,380.00 |
| 0040   | 8860000000-N | SP    | GENERIC STRUCTURE ITEM (VOLUMETRIC MIXER)                                    | Lump Sum LS   | 1.00           | 1.00       |
| 0041   | 8867000000-E | SP    | GENERIC STRUCTURE ITEM (EXPANSION JOINT SEAL REPAIR)                         | 249.3 LF      | 150.00         | 37,395.00  |
| 0042   | 8867000000-E | SP    | GENERIC STRUCTURE ITEM (FOAM JOINT SEALS)                                    | 438.2 LF      | 85.00          | 37,247.00  |
| 0043   | 8867000000-E | SP    | GENERIC STRUCTURE ITEM (SILICONE JOINT SEALANT)                              | 8,389.9 LF    | 35.00          | 293,646.50 |
| 0044   | 8867000000-E | SP    | GENERIC STRUCTURE ITEM (SYNTHETIC RUBBER EXPANSION JOINT SEAL)               | 1,184.7 LF    | 67.00          | 79,374.90  |
| 0045   | 8881000000-E | SP    | GENERIC STRUCTURE ITEM (LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH) | 80.5 CY       | 1,200.00       | 96,600.00  |
| 0046   | 8882000000-E | SP    | GENERIC STRUCTURE ITEM (CONCRETE FOR DECK REPAIR)                            | 100 CF        | 925.00         | 92,500.00  |
| 0047   | 8882000000-E | SP    | GENERIC STRUCTURE ITEM (ELASTOMETRIC CONCRETE)                               | 1,648.2 CF    | 245.00         | 403,809.00 |
| 0048   | 8892000000-E | SP    | GENERIC STRUCTURE ITEM (BRIDGE JOINT DEMOLITION)                             | 6,240.3 SF    | 30.00          | 187,209.00 |

## Contract Item Sheets For DN00619

| Line #                                 | ItemNumber   | Sec # | Description                                                                   | Quantity Unit | Unit Bid Price | Amount Bid     |
|----------------------------------------|--------------|-------|-------------------------------------------------------------------------------|---------------|----------------|----------------|
| 0049                                   | 8892000000-E | SP    | GENERIC STRUCTURE ITEM<br>(MODULAR JOINT DEMOLITION)                          | 204<br>SF     | 150.00         | 30,600.00      |
| 0050                                   | 8893000000-E | SP    | GENERIC STRUCTURE ITEM<br>(HYDRO-DEMOLITION OF BRIDGE DECK)                   | 7,288<br>SY   | 70.00          | 510,160.00     |
| 0051                                   | 8893000000-E | SP    | GENERIC STRUCTURE ITEM<br>(PLACING AND FINISHING LATEX MOD. CONC OVERLAY-VES) | 1,372<br>SY   | 55.00          | 75,460.00      |
| 0052                                   | 8893000000-E | SP    | GENERIC STRUCTURE ITEM<br>(REMOVE AND REPLACE BRIDGE DECK ISLAND)             | 114.7<br>SY   | 240.00         | 27,528.00      |
| 0053                                   | 8893000000-E | SP    | GENERIC STRUCTURE ITEM<br>(SCARIFYING BRIDGE DECK)                            | 7,363<br>SY   | 75.00          | 552,225.00     |
| TOTAL AMOUNT OF BID FOR ENTIRE PROJECT |              |       |                                                                               |               |                | \$4,873,107.90 |

1520/May17/Q212928.9/D312253600000/E53

**Execution of Contract**

**Contract No: DN00619**

**County: Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and  
Transylvania**

ACCEPTED BY THE DEPARTMENT

DocuSigned by:

*Jeffrey E. Alsbaugh*

160F4BFF87884E1...

**Proposals Engineer**

5/17/2018

Date

EXECUTION OF CONTRACT AND BONDS  
APPROVED AS TO FORM:

DocuSigned by:

*Burch, Brian C*

E64230B81D7D44B...

**Division Engineer**

5/17/2018

Date

Signature Sheet (Bid) - ACCEPTANCE SHEET



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
05/15/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

|                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCER</b><br>Marsh USA Inc.<br>550 South Main Street, Suite 525<br>Greenville, SC 29601<br>Attn: lauren.grant@marsh.com<br><br>764662-NHM-UMB-18-19 | <b>CONTACT NAME:</b><br><b>PHONE (A/C, No, Ext):</b><br><b>FAX (A/C, No):</b><br><b>E-MAIL ADDRESS:</b><br><br><b>INSURER(S) AFFORDING COVERAGE</b><br><b>INSURER A :</b> National Union Fire Insurance Co.<br><b>INSURER B :</b> Allied World National Assurance Company<br><b>INSURER C :</b> N/A<br><b>INSURER D :</b> N/A<br><b>INSURER E :</b><br><b>INSURER F :</b> |
| <b>INSURED</b><br>NHM Constructors, LLC<br>1121 Brevard Road<br>Asheville, NC 28806                                                                       | <b>NAIC #</b><br>19445<br>10690<br>N/A<br>N/A<br><br>                                                                                                                                                                                                                                                                                                                     |

## COVERAGES

CERTIFICATE NUMBER:

ATL-004822247-01

REVISION NUMBER: 3

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE                                                                                                                                                                                                                                                                                                         | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS                                                                                                                                                                                                                                          |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|---------------|-------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A        | <input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b><br><input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR<br><br>GEN'L AGGREGATE LIMIT APPLIES PER:<br><input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC<br>OTHER: | X         |          | GL4613976     | 03/01/2018              | 03/01/2019              | EACH OCCURRENCE \$ 1,000,000<br>DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000<br>MED EXP (Any one person) \$ 25,000<br>PERSONAL & ADV INJURY \$ 1,000,000<br>GENERAL AGGREGATE \$ 2,000,000<br>PRODUCTS - COMP/OP AGG \$ 2,000,000<br>\$ |
| A        | <b>AUTOMOBILE LIABILITY</b><br><input checked="" type="checkbox"/> ANY AUTO<br><input type="checkbox"/> OWNED AUTOS ONLY<br><input type="checkbox"/> HIRED AUTOS ONLY<br><input type="checkbox"/> SCHEDULED AUTOS<br><input type="checkbox"/> NON-OWNED AUTOS ONLY                                                        | X         |          | CA9775962     | 03/01/2018              | 03/01/2019              | COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000<br>BODILY INJURY (Per person) \$<br>BODILY INJURY (Per accident) \$<br>PROPERTY DAMAGE (Per accident) \$<br>\$                                                                                 |
| B        | <input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR<br><input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE<br>DED \$ RETENTION \$                                                                                                                    | X         |          | 03111067      | 01/01/2018              | 03/01/2019              | EACH OCCURRENCE \$ 10,000,000<br>AGGREGATE \$ 10,000,000<br>\$                                                                                                                                                                                  |
| A        | <b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b><br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)<br>If yes, describe under DESCRIPTION OF OPERATIONS below                                                                                                                             | Y/N<br>N  | N/A      | WC022298226   | 03/01/2018              | 03/01/2019              | <input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER<br>E.L. EACH ACCIDENT \$ 1,000,000<br>E.L. DISEASE - EA EMPLOYEE \$ 1,000,000<br>E.L. DISEASE - POLICY LIMIT \$ 1,000,000                                       |

## DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: Project Name: Bridge Deck Overlays and Joint Replacements Various Bridges Throughout All 10 Counties in Division 14; Contract No. DN00619; WBS Element: 14BPR.3.3; County: Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and Transylvania

Certificate holder is shown as an Additional Insured (except on Workers Compensation) where required by written contract, subject to policy terms and conditions.

## CERTIFICATE HOLDER

NCDOT  
253 Webster Road  
Sylva, NC 28779

## CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE  
of Marsh USA Inc.

Carolyn Stancel

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# ADDITIONAL REMARKS SCHEDULE

Page 2 of 4

|                          |           |                                                                                    |  |
|--------------------------|-----------|------------------------------------------------------------------------------------|--|
| AGENCY<br>Marsh USA Inc. |           | NAMED INSURED<br>NHM Constructors, LLC<br>1121 Brevard Road<br>Asheville, NC 28806 |  |
| POLICY NUMBER            |           | EFFECTIVE DATE:                                                                    |  |
| CARRIER                  | NAIC CODE |                                                                                    |  |

## ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

### GENERAL LIABILITY - EARLIER NOTICE OF CANCELLATION PROVIDED BY US:

Cancellation Number of Days Notice of Cancellation: 90

For any statutorily permitted reason other than nonpayment of premium, the number of days required for notice of cancellation, as provided in paragraph 2. of either the CANCELLATION Common Policy Condition or as amended by an applicable state cancellation endorsement, is increased to the number of days shown in the schedule above.

### AUTO LIABILITY - EARLY NOTICE OF CANCELLATION PROVIDED BY US:

The Insurer may cancel this policy by mailing or delivering to the first Named Insured written notice of cancellation at least:

- Ten (10) days before the effective date of cancellation if the insurer cancel for nonpayment of premium; or
- Ninety (90) days before the effective date of cancellation if the insurer cancels for any other reason.

### WORKERS COMPENSATION NOTICE OF CANCELLATION:

1. Named Insured may cancel this policy.

If the Named Insured cancels this policy, the Named Insured must mail or deliver advance written notice to THE INSURER. stating when the cancellation is to take effect.

2. The Insurer may cancel this policy.

(a) If this policy has been in effect for fewer than 60 days and is not a renewal policy, The Insurer may cancel this policy for any reason by giving Named Insured at least 30 days prior written notice of cancellation and the reasons for cancellation by registered or certified mail, return receipt requested.

(b) If this policy has been in effect for at least 60 days or is a renewal policy, The Insurer may not cancel this policy without the Named Insured's prior written consent, except for any one of the following reasons:

- (1) Nonpayment of premium in accordance with the policy terms.
- (2) An act or omission by the Named Insured or the Named Insured's representative that constitutes material misrepresentation or nondisclosure of a material fact in obtaining the policy, continuing the policy, or presenting a claim under the policy.
- (3) Increased hazard or material change in the risk assumed that could not have been reasonably contemplated by the Named Insured and the Insurer at the time of assumption of the risk.
- (4) Substantial breach of contractual duties, conditions, or warranties that materially affects the insurability of the risk.
- (5) A fraudulent act against the Named Insured or the Named Insured's representative that materially affects the insurability of the risk.
- (6) Willful failure by the Named Insured or the Named Insured's representative to institute reasonable loss control measures that materially affect the insurability of the risk after written notice by The Insurer.
- (7) Loss of facultative reinsurance or loss of or substantial changes in applicable reinsurance as provided in G.S. 58-41-30.



# **ADDITIONAL REMARKS SCHEDULE**

Page 3 of 4

|                                 |                  |                                                                                           |  |
|---------------------------------|------------------|-------------------------------------------------------------------------------------------|--|
| <b>AGENCY</b><br>Marsh USA Inc. |                  | <b>NAMED INSURED</b><br>NHM Constructors, LLC<br>1121 Brevard Road<br>Asheville, NC 28806 |  |
| <b>POLICY NUMBER</b>            |                  | <b>EFFECTIVE DATE:</b>                                                                    |  |
| <b>CARRIER</b>                  | <b>NAIC CODE</b> |                                                                                           |  |

## **ADDITIONAL REMARKS**

**THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,**  
**FORM NUMBER:** 25 **FORM TITLE:** Certificate of Liability Insurance

(8) Named Insured conviction of a crime arising out of acts that materially affect the insurability of the risk.

(9) A determination by the Commissioner that the continuation of this policy would place The Insurer in violation of the laws of North Carolina.

(10) The Insured fails to meet the requirements contained in The Insurer's corporate charter, articles of incorporation, or bylaws, when The Insurer are a company organized for the sole purpose of providing members of an organization with insurance coverage in North Carolina.

(c) If The Insurer cancels for any of the reasons listed in paragraph

(b), The Insurer must provide the Insured with at least 15 days

prior written notice of cancellation stating the precise reason for cancellation. The Insurer may provide this notice by registered or certified mail, return receipt requested, to The Insured and any other person designated in the policy to receive notice of cancellation at the addresses shown in the policy or, if not indicated in the policy, at the last known addresses. Whenever notice of cancellation is given by registered or certified mail, cancellation will not be effective unless and until that method is employed and completed. Notice of cancellation may also be given by any method permitted for service of process pursuant to Rule 4 of the North Carolina Rules of Civil Procedure. Failure to send notice as provided in this paragraph to any other person designated in the policy to receive notice of cancellation invalidates the cancellation only as to that other person's interest.

(d) Cancellation for nonpayment of premium is not effective if the amount due is paid before the effective date stated in the notice of cancellation.

3. The Insurer may refuse to renew this policy:

(a) If this policy is for a term of one year or less, The Insurer must provide you with notice of nonrenewal at least 45 days prior to the expiration date of the policy.

(b) If this policy is for a term of more than one year or for an indefinite term, then to nonrenew the policy at the policy anniversary date The Insurer must provide you with notice of nonrenewal at least 45 days prior to the anniversary date of the policy.

(c) The notice of nonrenewal must state the precise reason for nonrenewal. Failure to send this notice, as provided in paragraphs 3 and 5, to any other person designated in the policy to receive this notice invalidates the nonrenewal only as to that other person's interest.

(d) Any nonrenewal attempted or made that is not in compliance with paragraphs (a), (b) and (c) is not effective. Paragraphs (a), (b) and (c) do not apply if you have obtained insurance elsewhere, have accepted replacement coverage, or have requested or agreed to nonrenewal.

4. Whenever The Insurer lowers coverage limits, raise deductibles, or raise premium rates for reasons within our exclusive control and other than at your request, The Insurer will mail you written notice of the change at least 30 days in advance of the effective date of the change. As used in this paragraph, the phrase, "reasons within our exclusive control" does not mean experience modification changes, exposure changes, or loss cost rate changes.

5. The Insurer must provide the notice required by paragraphs 3 and 4 by mail to the Insured and any other person designated in the policy to receive this notice at the addresses shown in the policy or, if not indicated in the policy, at the last known addresses. Mailing copies of the notice by regular first-class mail satisfies the notice requirements of

AGENCY CUSTOMER ID: 764662

LOC #: Greenville

**ADDITIONAL REMARKS SCHEDULE**

Page 4 of 4

|                          |           |                                                                                    |
|--------------------------|-----------|------------------------------------------------------------------------------------|
| AGENCY<br>Marsh USA Inc. |           | NAMED INSURED<br>NHM Constructors, LLC<br>1121 Brevard Road<br>Asheville, NC 28806 |
| POLICY NUMBER            |           |                                                                                    |
| CARRIER                  | NAIC CODE | EFFECTIVE DATE:                                                                    |

**ADDITIONAL REMARKS**

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

paragraphs 3, 4 and 5.

6. The Insurer will also send copies of the notice required by this endorsement to the agent or broker of record, though failure to send copies of the notice to the agent or broker of record will not invalidate a cancellation or nonrenewal. Mailing copies of the notice by regular first-class mail to the agent or broker of record satisfies the requirements of this paragraph. Notice of nonrenewal may also be given by any method permitted for service of process pursuant to Rule 4 of the North Carolina Rules of Civil Procedure.



Contract No. DN00619  
 Cherokee, Clay, Graham, Haywood, Henderson,  
 County Jackson, Macon, Polk, Swain and Transylvania

Rev 5-17-11

# CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: May 15, 2018

Name of Principal Contractor: NHM Constructors, LLC

Name of Surety: Philadelphia Indemnity Insurance Company

Name of Contracting Body: North Carolina Department of Transportation  
Raleigh, North Carolina

Amount of Bond: Four Million Eight Hundred Seventy Three  
Thousand One Hundred Seven Dollars and 90/100 \$4,873,107.90

Contract ID No.: DN00619

County Name: Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No.  
County

DN00619  
Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

Rev 5-17-11

### CONTRACT PERFORMANCE BOND

*Affix Seal of Surety Company*

Philadelphia Indemnity Insurance Company  
Print or type Surety Company Name

By Debra S. Ritter  
Print, stamp or type name of Attorney-in-Fact

By: Debra S. Ritter  
Signature of Attorney-in-Fact



Angela M. Yount  
Signature of Witness

Angela M. Yount  
Print or type Signer's name

5605 Carnegie Blvd., Suite 300, Charlotte, NC 28209  
Address of Attorney-in-Fact

Contract No. DN00619  
County Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

Rev 5-17-11

**CONTRACT PERFORMANCE BOND**

**LIMITED LIABILITY COMPANY**

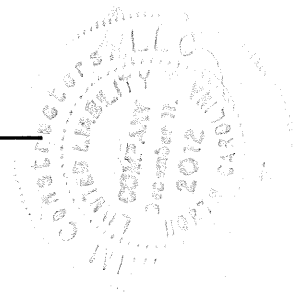
**SIGNATURE OF CONTRACTOR (Principal)**

Name of Contractor NHM Constructors, LLC  
Full name of Firm

P. O. Box 6385, Asheville, NC 28816  
Address as prequalified

By: William M. Newman  
Signature of Member, Manager Authorized Agent  
Select appropriate title

WILLIAM M. NEWMAN  
Print or type Signer's name



**Contract No.**  
**County**

DN00619  
Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

**Rev 5-17-11**

## **CONTRACT PERFORMANCE BOND**

**Attach certified copy of Power of Attorney to this sheet**

Contract No. DN00619  
County Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

Rev 5-17-11

**CONTRACT PAYMENT BOND**

Date of Payment Bond Execution May 15, 2018

Name of Principal Contractor NHM Constructors, LLC

Name of Surety: Philadelphia Indemnity Insurance Company

Name of Contracting Body: North Carolina Department of Transportation  
Raleigh, North Carolina

Amount of Bond: Four Million Eight Hundred Seventy Three  
Thousand One Hundred Seven Dollars and 90/100 \$4,873,107.90

Contract ID No.: DN00619

County Name: Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No.  
County

DN00619  
Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

Rev 5-17-11

### CONTRACT PAYMENT BOND

*Affix Seal of Surety Company*

Philadelphia Indemnity Insurance Company  
Print or type Surety Company Name

By Debra S. Ritter  
Print, stamp or type name of Attorney-in-Fact

By: Debra S. Ritter  
Signature of Attorney-in-Fact



Angela M. Yount  
Signature of Witness

Angela M. Yount  
Print or type Signer's name

5605 Carnegie Blvd., Suite 300, Charlotte, NC 28209  
Address of Attorney-in-Fact

Contract No.  
County

DN00619  
Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

Rev 5-17-11

**CONTRACT PAYMENT BOND**  
**LIMITED LIABILITY COMPANY**  
**SIGNATURE OF CONTRACTOR (Principal)**

Name of Contractor

NHM Constructors, LLC

Full name of Firm

P. O. Box 6385, Asheville, NC 28816

Address as prequalified

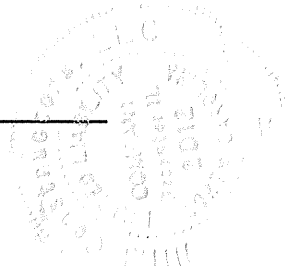
By:

Wm M. Newman

Signature of ~~Member, Manager~~ Authorized Agent  
Select appropriate title

William M. Newman

Print or type Signer's name



**Contract No.**

**DN00619**

**Rev 5-17-11**

**County**

Cherokee, Clay, Graham, Haywood, Henderson,  
Jackson, Macon, Polk, Swain and Transylvania

## **CONTRACT PAYMENT BOND**

**Attach certified copy of Power of Attorney to this sheet**



PHILADELPHIA INDEMNITY INSURANCE COMPANY

One Bala Plaza, Suite 100  
Bala Cynwyd, PA 19004-0950

Power of Attorney

Surety Bond Number: PB02341700823  
Principal: NHM Constructors, LLC  
Obligee: NC Department of Transportation

KNOW ALL PERSONS BY THESE PRESENTS: That PHILADELPHIA INDEMNITY INSURANCE COMPANY (the Company), a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, does hereby constitute and appoint **Debra S. Ritter** its true and lawful Attorney-in-fact with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business and to bind the Company thereby, in an amount not to exceed \$75,000,000.

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of PHILADELPHIA INDEMNITY INSURANCE COMPANY on the 14<sup>th</sup> of November, 2016.

**RESOLVED:** That the Board of Directors hereby authorizes the President or any Vice President of the Company: (1) Appoint Attorney(s) in Fact and authorize the Attorney(s) in Fact to execute on behalf of the Company bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof and to attach the seal of the Company thereto; and (2) to remove, at any time, any such Attorney-in-Fact and revoke the authority given. And, be it

**FURTHER RESOLVED:** That the signatures of such officers and the seal of the Company may be affixed to any such Power of Attorney or certificate relating thereto by facsimile, and any such Power of Attorney so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

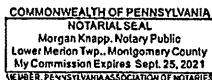
IN TESTIMONY WHEREOF, PHILADELPHIA INDEMNITY INSURANCE COMPANY HAS CAUSED THIS INSTRUMENT TO BE SIGNED AND ITS CORPORATE SEAL TO BE AFFIXED BY ITS AUTHORIZED OFFICE THIS 27<sup>TH</sup> DAY OF OCTOBER, 2017.



(Seal)

Robert D. O'Leary Jr., President & CEO  
Philadelphia Indemnity Insurance Company

On this 27<sup>th</sup> day of October, 2017, before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn said that he is the therein described and authorized officer of the PHILADELPHIA INDEMNITY INSURANCE COMPANY; that the seal affixed to said instrument is the Corporate seal of said Company; that the said Corporate Seal and his signature were duly affixed.



(Notary Seal)

Notary Public:

residing at:

Bala Cynwyd, PA

My commission expires:

September 25, 2021

I, Edward Sayago, Corporate Secretary of PHILADELPHIA INDEMNITY INSURANCE COMPANY, do hereby certify that the foregoing resolution of the Board of Directors and this Power of Attorney issued pursuant thereto on this 27<sup>th</sup> day of October, 2017 are true and correct and are still in full force and effect. I do further certify that Robert D. O'Leary Jr., who executed the Power of Attorney as President, was on the date of execution of the attached Power of Attorney the duly elected President of PHILADELPHIA INDEMNITY INSURANCE COMPANY,

In Testimony Whereof I have subscribed my name and affixed the facsimile seal of each Company this 15<sup>th</sup> day of May, 2018.



Edward Sayago, Corporate Secretary  
PHILADELPHIA INDEMNITY INSURANCE COMPANY