

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

PROPOSAL

DATE AND TIME OF BID OPENING: **JULY 21, 2015 AT 2:00 PM**

CONTRACT ID C203717

WBS 2016CPT.08.03.10621.1, 2016CPT.08.03.20621.1, 2016CPT.08.03.20761.1

FEDERAL-AID NO. STATE FUNDED

COUNTY MONTGOMERY, RANDOLPH

T.I.P. NO.

MILES 27.005

ROUTE NO.

LOCATION US-220 ALT FROM THE RICHMOND CO LINE TO SR-1642 AND 22  
SECTIONS OF SECONDARY ROADS.

TYPE OF WORK MILLING, RESURFACING & SHOULDER RECONSTRUCTION.

**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.

**BIDS WILL BE RECEIVED AS SHOWN BELOW:**

**THIS IS A ROADWAY PROPOSAL**

**5% BID BOND OR BID DEPOSIT REQUIRED**

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**PROPOSAL FOR THE CONSTRUCTION OF  
CONTRACT No. C203717 IN MONTGOMERY AND RANDOLPH COUNTIES, NORTH CAROLINA**

Date \_\_\_\_\_ 20 \_\_\_\_\_

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

The Bidder has carefully examined the location of the proposed work to be known as Contract No. C203717; 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 bind upon his execution of the bid and subsequent award to him by the Board 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 2012 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. C203717 in Montgomery and Randolph 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 2012* 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.


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.



State Contract Officer

DocuSigned by:  
  
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6/19/2015

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**PROJECT SPECIAL PROVISIONS****GENERAL****CONTRACT TIME AND LIQUIDATED DAMAGES:**

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

108

SP1 G10 A

The date of availability for this contract is **August 31, 2015**.

The completion date for this contract is **June 30, 2016**.

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:**

(2-20-07)

108

SP1 G14 B

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

**HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS**

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.
2. For **New Year's Day**, between the hours of **6:30 a.m.** December 31st and **8:00 p.m.** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **8:00 p.m.** the following Tuesday.
3. For **Easter**, between the hours of **6:30 a.m.** Thursday and **8:00 p.m.** Monday.
4. For **Memorial Day**, between the hours of **6:30 a.m.** Friday and **8:00 p.m.** Tuesday.
5. For **Independence Day**, between the hours of **6:30 a.m.** the day before Independence Day and **8:00 p.m.** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **6:30 a.m.** the Thursday before Independence Day and **8:00 p.m.** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **6:30 a.m.** Friday and **8:00 p.m.** Tuesday.
7. For **Thanksgiving Day**, between the hours of **6:30 a.m.** Tuesday and **8:00 p.m.** Monday.
8. For **Christmas**, between the hours of **6:30 a.m.** the Friday before the week of Christmas Day and **8:00 p.m.** the following Tuesday after the week of Christmas Day.

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

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

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated herein and restore traffic to a **2-lane, 2-way** traffic pattern.

The liquidated damages are **Eight Hundred Dollars (\$ 800.00)** per hour.

#### **PROSECUTION OF WORK:**

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

108

SP1 G15R

The Contractor will be required to prosecute the work in a continuous and uninterrupted manner from the time he begins the work until completion and final acceptance of the project. The Contractor will not be permitted to suspend his operations except for reasons beyond his control or except where the Engineer has authorized a suspension of the Contractor's operations in writing.

In the event that the Contractor's operations are suspended in violation of the above provisions, the sum of **\$ 1,000.00** will be charged the Contractor for each and every calendar day that such suspension takes place. The said amount is hereby agreed upon as liquidated damages due to extra engineering and maintenance costs and due to increased public hazard resulting from a suspension of the work. Liquidated damages chargeable due to suspension of the work will be additional to any liquidated damages that may become chargeable due to failure to complete the work on time.

#### **RAILROAD GRADE CROSSING:**

(7-1-95) (Rev. 1-15-13)

107-9

SP1 G17R

Provide at least 2 weeks advance notice to the railroad's local Roadmaster or Track Supervisor when the use of slow-moving or stopped equipment is required over at-grade railroad crossings.

**MAJOR CONTRACT ITEMS:**

(2-19-02)

104

SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the *2012 Standard Specifications*):

<b>Line #</b>	<b>Description</b>
10 —	Asphalt Concrete Surface Course, Type SF9.5 A
19 —	Latex Modified Microsurfacing, Type III

**SPECIALTY ITEMS:**

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

108-6

SP1 G37

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

<b>Line #</b>	<b>Description</b>
25-29	Long-Life Pavement Markings
32	Permanent Pavement Markers
33-35	Erosion Control

**FUEL PRICE ADJUSTMENT:**

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

109-8

SP1 G43

Revise the *2012 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 \$ **2.0345** 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:

<b>Description</b>	<b>Units</b>	<b>Fuel Usage Factor Diesel</b>
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. 5-19-15)

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:

2016	(7/01/15 - 6/30/16)	<b>100</b> % of Total Amount Bid
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The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 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:**

(10-16-07)(Rev. 12-17-13)

102-15(J)

SP1 G66

**Description**

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

**Definitions**

*Additional MBE/WBE Subcontractors* - Any MBE/WBE submitted at the time of bid that will not be used to meet either the MBE or WBE goal. No submittal of a Letter of Intent is required, unless the additional participation is used for banking purposes.

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

*Contract Goals Requirement* - The approved MBE and WBE participation at time of award, but not greater than the advertised contract goals for each.

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

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

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

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

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

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

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

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

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

### **Forms and Websites Referenced in this Provision**

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

*DBE-IS Subcontractor Payment Information* - Form for reporting the payments made to all MBE/WBE firms working on the project. This form is for paper bid projects only.  
<http://www.ncdot.org/doh/forms/files/DBE-IS.xls>

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

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



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

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

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

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

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

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

## **MBE and WBE Goal**

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

(A) Minority Business Enterprises **3.0%**

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

(B) Women Business Enterprises **3.0%**

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

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

### **Directory of Transportation Firms (Directory)**

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as MBE and WBE certified shall be used to meet the MBE and WBE goals respectively. The Directory can be found at the following link. <https://partner.ncdot.gov/VendorDirectory/default.html>

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

### **Listing of MBE/WBE Subcontractors**

At the time of bid, bidders shall submit all MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the MBE goal and the WBE goal will be considered committed, even though the listing shall include both committed MBE/WBE subcontractors and additional MBE/WBE subcontractors. Any additional MBE/WBE subcontractor participation above the goal for which letters of intent are received 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 either the MBE or WBE goal.

(B) Paper Bids

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

**MBE or WBE Prime Contractor**

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

For example, on a proposed contract, the WBE goal is 10%, and the MBE goal is 8%. A WBE bidder puts in a bid where they will perform 40% of the contract work and have

a WBE subcontractor which will perform another 5% of the work. Together the two WBE firms submit on the *Listing of MBE and WBE Subcontractors* a value of 45% of the contract which fulfills the WBE goal. The 8% MBE goal shall be obtained through MBE participation with MBE certified subcontractors or documented through a good faith effort. It should be noted that you cannot combine the two goals to meet an overall value. The two goals shall remain separate.

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

### **Written Documentation – Letter of Intent**

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

The documentation shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the MBE and WBE goals, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the MBE/WBE goal. If the lack of this participation drops the commitment below either the MBE or WBE goal, the Contractor shall submit evidence of good faith efforts for the goal not met, completed in its entirety, to the State Contractor Utilization Engineer or DBE@ncdot.gov no later than 12:00 noon on the eighth calendar day following opening of bids, unless the eighth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

### **Submission of Good Faith Effort**

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

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of bids unless the sixth day falls on an official state holiday. In that situation, it would be due in the office of the State Contractor Utilization Engineer the next official state business day. If the contractor cannot send the information electronically, then one complete set and 9 copies of this information shall be received under the same time constraints above.

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

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

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

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

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

responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.

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

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

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

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

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

The State Contractor Utilization 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 State Contractual Services Engineer or at DBE@ncdot.gov. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

### **Counting MBE/WBE Participation Toward Meeting MBE/WBE Goals**

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

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

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

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

## (C) Subcontracts (Non-Trucking)

A MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the MBE contract goal requirement. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE subcontracts to a non-MBE firm does not count toward the MBE contract goal requirement. Again, the same holds true for the work that a WBE subcontracts to a non-WBE firm. If a MBE or WBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function. The MBE/WBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption may be subject to review by the Office of Inspector General, NCDOT.

## (D) Joint Venture

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

## (E) Suppliers

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

## (F) Manufacturers and Regular Dealers

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

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



provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

### **Commercially Useful Function**

#### **(A) MBE/WBE Utilization**

The Contractor may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE/WBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the MBE/WBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a MBE/WBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the MBE/WBE credit claimed for its performance of the work, and any other relevant factors.

#### **(B) MBE/WBE Utilization in Trucking**

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

- (1) The MBE/WBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting the MBE or WBE goal.
- (2) The MBE/WBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The MBE/WBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill

the goal requirement. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime liable for meeting the goal.

- (5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.
- (6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

### **Banking MBE/WBE Credit**

If the bid of the lowest responsive bidder exceeds \$500,000 and if the committed MBE/WBE participation submitted by Letter of Intent exceeds the algebraic sum of the MBE or 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 firms to meet the contract goal, as part of the good faith effort, the Department will consider allowing the bidder to withdraw funds to meet the MBE goal as long as there are adequate funds available from the bidder's MBE bank account.

When the apparent lowest responsive bidder fails to submit sufficient participation by WBE firms to meet the contract goal, as part of the good faith effort, the Department will

consider allowing the bidder to withdraw funds to meet the WBE goal as long as there are adequate funds available from the bidder's WBE bank account.

### **MBE/WBE Replacement**

When a Contractor has relied on a commitment to a MBE or WBE firm (or an approved substitute MBE or WBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the MBE/WBE for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another MBE/WBE subcontractor, a non-MBE/WBE subcontractor, or with the Contractor's own forces or those of an affiliate. A MBE/WBE may only be terminated after receiving the Engineer's written approval based upon a finding of good cause for the termination.

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

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

#### **(A) Performance Related Replacement**

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

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

- (1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with MBEs/WBEs for specific subbids including, at a minimum:
  - (a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.
  - (b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.

- (3) A list of reasons why MBE/WBE quotes were not accepted.
- (4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

- (1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.
- (2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the MBE/WBE goal requirement. If a MBE/WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

### Changes in the Work

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

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

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

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

**Reports and Documentation**

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

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

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

**Reporting Minority and Women Business Enterprise Participation**

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

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

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

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

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

## (A) Electronic Bids Reporting

The Contractor shall report the accounting of payments through the Department's Payment Tracking System.

## (B) Paper Bids Reporting

The Contractor shall report the accounting of payments on the Department's DBE-IS (*Subcontractor Payment Information*) with each invoice. Invoices will not be processed for payment until the DBE-IS is received.

**Failure to Meet Contract Requirements**

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

**LOCATING EXISTING UNDERGROUND UTILITIES:**

(3-20-12)

105

SPI G115

Revise the *2012 Standard Specifications* as follows:

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

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

**RESOURCE CONSERVATION AND ENV. SUSTAINABLE PRACTICES:**

(5-21-13) (Rev. 5-19-15)

104-13

SPI G118

In accordance with North Carolina Executive Order 156, NCGS 130A-309.14(3), and NCGS 136-28.8, it is the objective of the Department to aid in the reduction of materials that become a part of our solid waste stream, to divert materials from landfills, to find ways to recycle and reuse materials, to consider and minimize, where economically feasible, the environmental impacts associated with agency land use and acquisition, construction, maintenance and facility management for the benefit of the Citizens of North Carolina.

To achieve the mission of reducing environmental impacts across the state, the Department is committed to supporting the efforts to initiate, develop and use products and construction methods that incorporate the use of recycled, solid waste products and environmentally sustainable practices in accordance with Article 104-13 of the *Standard Specifications*.

Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills and any practice that minimizes the environmental impact on the project annually on the Project Construction Reuse and Recycling Reporting Form. The Project Construction Reuse and Recycling Reporting Form and a location tool for local recycling facilities are available at:

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

Submit the Project Construction Reuse and Recycling Reporting Form by August 1 annually to [valuemanagementunit@ncdot.gov](mailto:valuemanagementunit@ncdot.gov). For questions regarding the form or reporting, please contact the State Value Management Engineer at 919-707-4810.

**DOMESTIC STEEL:**

(4-16-13)

106

SP1 G120

Revise the *2012 Standard Specifications* as follows:

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

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

**OUTSOURCING OUTSIDE THE USA:**

(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.

**GIFTS FROM VENDORS AND CONTRACTORS:**

(12-15-09)

107-1

SP1 G152

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

- (A) Have a contract with a governmental agency; or
- (B) Have performed under such a contract within the past year; or
- (C) Anticipate bidding on such a contract in the future.

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

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

**LIABILITY INSURANCE:**

(5-20-14)

SP1 G160

Revise the *2012 Standard Specifications* as follows:

**Page 1-60, Article 107-15 LIABILITY INSURANCE, line 16**, add the following as the second sentence of the third paragraph:

Prior to beginning services, all contractors shall provide proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors, irrespective of whether having regularly in service fewer than three employees.

**EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:**

(1-16-07) (Rev 9-18-12)

105-16, 225-2, 16

SP1 G180

**General**

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



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

- (A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.
- (B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.
- (C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.
- (D) *Certified Designer* - Provide a certified designer for the design of the erosion and sediment control/stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control/stormwater plan.

### **Roles and Responsibilities**

- (A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:
  - (1) **Manage Operations** - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.
    - (a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.
    - (b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
    - (c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
    - (d) Implement the erosion and sediment control/stormwater site plans requested.
    - (e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.

- (f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.
  - (g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.
  - (h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
  - (i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
  - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
  - (k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.
- (2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:
- (a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
  - (b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, twice weekly for construction related *Federal Clean Water Act, Section 303(d)* impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24 hour period.
  - (c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
  - (d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
  - (e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.

- (f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
  - (g) Provide secondary containment for bulk storage of liquid materials.
  - (h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
  - (i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.
- (3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:
- (a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
  - (b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
  - (c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
  - (d) Conduct the inspections required by the NPDES permit.
  - (e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
  - (f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.
  - (g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
  - (h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
  - (i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
  - (j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.
- (B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:
- (1) Foreman in charge of grading activities
  - (2) Foreman in charge of bridge or culvert construction over jurisdictional areas
  - (3) Foreman in charge of utility activities

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

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

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

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

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

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

### **Preconstruction Meeting**

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

**Ethical Responsibility**

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

**Revocation or Suspension of Certification**

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

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

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

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

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

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

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

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

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

### Measurement and Payment

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

### **PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:**

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

105-16, 230, 801

SP1 G181

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

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

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

During the Environmental Assessment required by Article 230-4 of the *2012 Standard Specifications*, the Contractor shall define the point at which the discharge enters into the State's surface waters and the appropriate sampling locations. Sampling locations shall include points upstream and downstream from the point at which the discharge enters these waters. Upstream sampling location shall be located so that it is not influenced by backwater conditions and represents natural background conditions. Downstream sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

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

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

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

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

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

**EMPLOYMENT:**

(11-15-11) (Rev. 1-17-12)

108, 102

SP1 G184

Revise the *2012 Standard Specifications* as follows:

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

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

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

**STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:**

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to “State Highway Administrator” with “Chief Engineer”.

**SUBLETTING OF CONTRACT:**

(11-18-2014)

108-6

SP1 G186

Revise the *2012 Standard Specifications* as follows:

**Page 1-66, Article 108-6 Subletting of Contract, line 37**, add the following as the second sentence of the first paragraph:

All requests to sublet work shall be submitted within 30 days of the date of availability or prior to expiration of 20% of the contract time, whichever date is later, unless otherwise approved by the Engineer.

**Page 1-67, Article 108-6 Subletting of Contract, line 7**, add the following as the second sentence of the fourth paragraph:

Purchasing materials for subcontractors is not included in the percentage of work required to be performed by the Contractor. If the Contractor sublets items of work but elects to purchase material for the subcontractor, the value of the material purchased will be included in the total dollar amount considered to have been sublet.



**PROJECT SPECIAL PROVISIONS****ROADWAY****SHOULDER RECONSTRUCTION PER SHOULDER MILE:**

(1-18-00) (Rev. 5-17-11)

560

R1 R07 A (REV.)

**Description**

This work consists of reconstructing each shoulder (including median shoulders as applicable) in accordance with Standard Drawing No. 560.01 and 560.02 of the *2012 Roadway Standard Drawings* except that the rate of slope and width will be as shown on typical section, or to the existing shoulder point, whichever is nearer, as long as the desired typical is achieved, and when completed, seeding and mulching. This work shall be performed immediately after the resurfacing operations are complete as directed by the Engineer.

**Materials**

The Contractor shall furnish all earth material necessary for the construction of the shoulders in accordance with Section 1019 of the *2012 Standard Specifications*. All soil is subject to test and acceptance or rejection by the Engineer.

The Contractor **is required to use Aggregate Shoulder Borrow (ASB) on Maps 9, 12, 16-18 & 21 and as directed by the Engineer.** ASB shall meet the following gradation:

<u>Sieve</u>	<u>Percent Passing</u>
1 1/2"	100
1/2"	55 - 95
#4	35 - 74

**Construction Methods**

Obtain material from within the project limits or approved borrow source. Prior to adding borrow material, the existing shoulder shall be scarified to provide the proper bond and shall be compacted to the satisfaction of the Engineer.

Any excess material generated by the shoulder reconstruction shall be disposed of by the Contractor in an approved disposal site.

**Measurement and Payment**

*Shoulder Reconstruction* will be measured and paid as the actual number of miles of shoulders that have been reconstructed. Measurement will be made along the surface of each shoulder to the nearest 0.01 of a mile. Such price will include disposing of any excess material in an approved disposal site, and for all labor, tools, equipment, and incidentals necessary to complete the work.

*Borrow Excavation* will be paid in accordance with Section 230 of the *2012 Standard Specifications* for earth material furnished by the Contractor. The requirements of Article 104-5 of the *2012 Standard Specifications* pertaining to revised contract prices for overrunning minor items will not apply to the item of *Borrow Excavation*.

Incidental Stone Base will be measured and paid as provided in Article 545-6 of the *2012 Standard Specifications*. Where ASB is used, Incidental Stone will not be required

**Aggregate Shoulder Borrow will be measured and paid at the contract unit price per ton.**

Seeding and Mulching will be measured and paid as shown elsewhere in the contract documents. Where ASB is used, seeding and mulching will not be required.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Shoulder Reconstruction	Shoulder Mile
Borrow Excavation	Cubic Yard
<b>Aggregate Shoulder Borrow</b>	<b>Ton</b>

**INCIDENTAL STONE BASE:**

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

545

SP5 R28R

**Description**

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

**Materials and Construction**

Provide and place incidental stone base in accordance with Section 545 of the *2012 Standard Specifications*.

**Measurement and Payment**

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

**ASPHALT PAVEMENTS - SUPERPAVE:**

(6-19-12) (Rev. 4-21-15)

605, 609, 610, 650

SP6 R01

Revise the *2012 Standard Specifications* as follows:

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

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

Existing Surface	Target Rate (gal/sy)
	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

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

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

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

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

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

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

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

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

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

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

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

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

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

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

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

**A.** For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50°F.

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

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

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

**SHOULDER WEDGE:**

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

610

SP6 R03R

Revise the *2012 Standard Specifications* as follows:

**Page 6-26, Article 610-8**, add the following after line 43:

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

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

**ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:**

(11-21-00) (Rev. 7-17-12)

609

SP6 R15

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

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

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

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

(11-21-00)

620

SP6 R25

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

The base price index for asphalt binder for plant mix is **\$ 470.00** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **June 1, 2015**.

**FINAL SURFACE TESTING NOT REQUIRED:**

(5-18-04) (Rev. 5-15-12)

610

SP6 R45

Final surface testing is not required on this project.

**MILLED RUMBLE STRIPS****Description**

The work covered by this provision consists of the construction of rumble strips on asphaltic concrete in accordance with the details in the plans and as directed by the Engineer. Work includes but is not limited to furnishing all labor and equipment; disposing of milled material; and all incidentals necessary to complete the work satisfactorily.

**Equipment**

Provide equipment consisting of a rotary cutting head with a maximum outside diameter of 24 inches and that is a minimum of 12 inches wide. Provide a cutting head that shall have the cutting tips arranged in such a pattern as to provide a relatively smooth cut as well as a cutting head(s) that is on its own independent suspension from that of the power unit to allow the tool to self-align with the slope of the pavement and/or any irregularities in the paved surface.

Provide a cutting tool equipped with guides to provide consistent alignment of each cut in relation to the roadway and to provide uniformity and consistency throughout the project.

**Construction Method**

Demonstrate the ability to achieve desired surface inside each depression without tearing or snagging the asphalt prior to beginning the work.

Provide rumble strips that shall have finished dimensions of seven inches ( $\pm \frac{1}{2}$  inch) long in the direction of travel and are a minimum of 12 inches wide measured perpendicular to the direction of travel. Provide rumble strips having depressions with concave circular shape with a minimum  $\frac{1}{2}$ -inch depth at center (maximum allowable depth of  $\frac{5}{8}$ -inch). Place rumble strips in relation to the roadway according to the patterns shown in Standard Drawing 665.01 and the Rumble Stripes Detail included herein.

Material resulting from the operation shall become the property of the Contractor. Remove and dispose of this material in accordance with Section 802 of the current edition of the Standard Specifications.

At the end of each working day, remove all equipment to a location where it does not present a hazard to traffic, clean the pavement by sweeping or flushing, and reopen the work area to traffic.

### **Measurement and Payment**

*Milled Rumble Strips* will be measured and paid for as the actual number of linear feet, measured longitudinally along the surface of each centerline or shoulder, where rumble strips have been acceptably constructed.

Payment will be made under:

#### **Pay Item**

Milled Rumble Strips (Asphalt Concrete), 7" Width

#### **Pay Unit**

Linear Foot

#### **ASPHALT SURFACE TREATMENT:**

(04-21-15)

660

SP06 R054

Revise the *2012 Standard Specifications* as follows:

**Page 6-48, Section 660 ASPHALT SURFACE TREATMENT**, replace section with the following:

### **SECTION 660 ASPHALT SURFACE TREATMENT**

#### **660-1 DESCRIPTION**

Perform the work covered by this section including, but not limited to, furnishing, hauling, spreading and rolling the emulsion and aggregate consisting of one or more applications of liquid asphalt material and one or more applications of aggregate cover coat material on a prepared surface; and maintaining and repairing the asphalt surface treatment (AST).

Schedule a pre-application meeting prior to installing the asphalt surface treatment including representatives from the Subcontractor, Project Engineer, Area Roadway Construction Engineer, and may include the State Pavement Construction Engineer and a representative from the Materials and Tests Unit.

#### **660-2 MATERIALS**

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

#### **Item**

Aggregates for Asphalt Surface Treatment  
Emulsified Asphalt, Grade CRS-2L

#### **Section**

1012-2  
1020-3

<b>Item</b>	<b>Section</b>
Emulsified Asphalt, Grade CRS-2P	1020-3
Emulsified Asphalt, Grade CRS-1H	1020-3
Emulsified Asphalt, Grade CSS-1H	1020-3
Emulsified Asphalt, Grade CQS-1H	1020-3
Fine Aggregate	1014
Mineral Filler	1012-1(D)
Water	1024-4

Before any asphalt surface treatment is placed, obtain from the asphalt supplier and furnish to the Engineer a Certification of Compatibility of the emulsion with the aggregate proposed for use.

### **660-3 WEATHER AND SEASONAL LIMITATIONS**

Do not place any asphalt surface treatment between October 15 and April 1, except for asphalt surface treatment that is to be overlaid immediately with asphalt plant mix.

Apply AST only when the surface to be treated is dry and when the air or surface temperatures, measured at the location of the AST operation away from artificial heat, is 50°F and rising.

When placing asphalt surface treatment that is to be immediately overlaid with asphalt plant mix, the seasonal and temperature limitations of Article 610-4 of the *2012 Standard Specifications* shall apply.

Do not apply asphalt material when the weather is foggy or rainy.

### **660-4 SURFACE PREPARATION**

Clean the surface to be treated of all dust, dirt, clay, grass, sod and any other deleterious matter before application of the asphalt surface treatment.

### **660-5 ACCEPTANCE OF ASPHALT MATERIALS**

The acceptance of asphalt materials will be in accordance with Article 1020-1 of the *2012 Standard Specifications*.

### **660-6 APPLICATION EQUIPMENT**

Use asphalt application equipment that meets Article 600-5 of the *2012 Standard Specifications*.

Apply aggregate by the use of a self-propelled, pneumatic-tire aggregate spreader capable of maintaining a specified rate with a uniform application for the width of asphalt material being covered. Tailgate spreaders will not be permitted. Areas that are inaccessible to the aggregate spreader shall be covered by hand spreading or other acceptable methods.



**660-7 APPLICATION OF EMULSION**

The grades of emulsion shall be CRS-2L or CRS-2P.

The target rates of application and the temperature that the emulsion is to be applied shall be as shown in Table 660-1 or as directed by the Engineer

Base the required rates of application on the volume of material at the application temperature.

<b>TABLE 660-1</b>				
<b>MATERIAL APPLICATION RATES AND TEMPERATURES</b>				
<b>Type of Coat</b>	<b>Layer</b>	<b>Aggregate Type</b>	<b>Aggregate Target Rate<sup>A</sup> (Lbs/Sy)</b>	<b>Emulsion Target Rate<sup>B,C,D</sup> (Gal/Sy)</b>
Single Seal	Top	78M	18	0.35
		5/16" LW	10	0.32
		#9	10	0.32
		CA-9 LW	10	0.35
Double Seal	Top	78M	12	0.25
		5/16" LW	9	0.25
		#9	9	0.25
		CA-9 LW	9	0.25
		#14	7	0.20
	Bottom	78M	18	0.30
Triple Seal	Top	78M	12	0.22
		5/16" LW	9	0.25
		#9	9	0.25
		CA-9 LW	9	0.25
		#14	7	0.20
	Middle	78M	15	0.24
		5/16" LW	9	0.25
	Bottom	78M	18	0.30
		#67	30	0.32
		5/16" LW	10	0.30
Mat and Single Seal	Top	78M	14	0.22
		5/16" LW	9	0.25
	Mat	#67	38	0.32
		#57	40	0.35
Mat and Double Seal	Top	78M	12	0.25
		5/16" LW	9	0.25
	Middle	78M	16	0.25
	Mat	#67	38	0.40
Mat Coat		78M	18	0.35
		#67	38	0.40

A. Aggregate Target Rates have +/- 1.0 lbs/sy tolerance limit.

B. Grade of Asphalt (emulsion) shall be CRS-2L or CRS-2P.

C. Emulsion Target Rates have +/- 0.03 gal/sy tolerance limit.

D. Application temperatures shall be 160-170°F.

### **660-8 APPLICATION OF AGGREGATES**

The type and size of the aggregate shall be as shown in Table 660-1 for the mat coat or the type of seal coat to be constructed. The rate of application for mat and seal aggregates shall be within

the limits shown in Table 660-1. When directed, weigh a sufficient number of truckloads of aggregate before spreading to verify that the rate of application is within the required limits and use ASTM D5624 to determine rate of application.

### **660-9 CONSTRUCTION METHODS**

For any type of AST work, demonstrate that all equipment has been calibrated in the presence of the Engineer with a minimum 100-foot test section. If the test section is not feasible, submit a calibration plan to the Engineer with detailed information on equipment and a designated area for calibration.

#### **(A) Asphalt Seal Coat**

Use the type of seal coat as required by the contract. Seal coat aggregates shall be drained of free moisture and dust free before use. Place the seal coat in full-lane widths.

Adjust the aggregate rates to provide a sufficient quantity of cover material to be spread over the surface of the seal coat preventing traffic damage, where it is necessary to permit traffic on sections of a completed seal coat.

Perform rolling of each layer immediately after the aggregate has been uniformly spread. Rolling will consist of at least 3 complete coverages with one pneumatic-tire roller followed by at least one complete coverage with a 5 to 8 ton steel-wheel roller. All roller coverages shall be completed within 5 minutes of the asphalt emulsion being placed. Do not allow crushing of the aggregate or picking up of the material by the rollers.

The use of a combination steel-wheel and pneumatic-tire roller will be permitted instead of the 5 to 8 ton steel-wheel roller.

After the aggregate is thoroughly seated, broom all excess aggregate off of the surface of the seal coat after 3 days but no more than 7 calendar days. Traffic may be permitted on the seal coat immediately after the rolling is complete.

Blotting sand may be required as directed by the Engineer and shall be applied in accordance with Section 818 of the *2012 Standard Specifications*.

The construction of the various types of seal coats will be in accordance with the following additional requirements:

#### **(1) Single Seal**

Apply emulsion to the existing surface followed immediately by an application of aggregate using Table 660-1 and requirements in the contract. Uniformly spread the full required amount of aggregate in one application and correct all non-uniform areas before rolling.

Immediately after the aggregate has been uniformly spread, perform rolling as previously described.

(2) Double Seal

Apply emulsion to the existing surface followed immediately by an application of aggregate using Table 660-1 and requirements in the contract ensuring each is uniformly placed over the existing surface and rolled as previously described.

Immediately after the first application of seal aggregate has been made uniform and rolled, apply the second application of the required amount of emulsion and seal coat aggregate and roll as previously described.

(3) Triple Seal

Follow the procedure outlined in Subarticle 660-9(A)(2) and apply emulsion and aggregate as a third layer and roll as previously described.

(4) Sand Seal

Place the fully required amount of asphalt material in one application and immediately cover with the seal coat aggregate. Uniformly spread the fully required amount of aggregate in one application and correct all non-uniform areas before rolling.

Immediately after the aggregate has been uniformly spread, perform rolling.

Broom excess aggregate material from the surface of the seal coat.

When the sand seal is to be constructed for temporary sealing purposes only and will not be used by traffic, use other grades of asphalt material meeting the requirements of Articles 1020-5 and 1020-6 of the *2012 Standard Specifications*.

(B) Asphalt Mat and Seal

Construct the seal coat in accordance with Subarticle 660-9(A) using the size aggregate required by the contract.

Construct the mat coat in accordance with Subarticle 660-9(C) using the type seal required by the contract.

(C) Asphalt Mat Coat for Soil Subgrade

The surface on which the mat coat is to be applied shall be approved by the Engineer before the mat coat emulsion is applied.

Place a string line guide for application equipment. Place the mat coat in full-lane widths.

Existing surface shall be damp prior to placement of the mat coat.

Immediately follow the application of emulsion with the spreading of the aggregate. No more than 5 minutes can elapse from the time the emulsion is applied and the rolling is completed when using CRS-2L or CRS-2P.

Mat coat aggregate shall be drained of free moisture and dust free before use. Spread the aggregate uniformly at the required rate and correct all non-uniform areas before rolling.

Roll immediately after the aggregate is uniformly spread. Rolling consists of at least 3 complete coverages with two 5 to 10 ton steel-wheel rollers. Continue rolling until the aggregate is thoroughly keyed into the emulsion. Do not allow crushing of the aggregate or picking up of the material by the rollers. A combination steel-wheel and pneumatic-tire roller will not be permitted. Use 2 individual steel-wheel rollers. The 3 coverages shall be completed within 5 minutes of the spraying of the emulsion.

At the discretion of the Engineer, at the beginning of each emulsion application, spread a paper over the end of the previously completed mat coat and begin the asphalt application on the paper. After application, remove and dispose of the paper.

After the aggregate is thoroughly seated, traffic may be permitted on the mat coat after the rolling is complete. No brooming shall be performed on the mat coat.

Correct defects or damage to the mat coat before the application of seal coat or plant mix overlay. The seal coat or plant mix may be applied the same day the mat coat is placed provided the mat coat has been satisfactorily applied and rolled.

(D) Asphalt Mat Coat for Pavement Surfaces

For mat coats with an asphalt overlay, construct the mat coat in accordance with Subarticle 660-9(C). The emulsion for the mat coat may be the same as the tack coat of the asphalt overlay with the application rate as specified in Table 605-1 *Application Rates for Tack Coat*.

For mat coats constructed on existing pavement surfaces, construct the mat coat in accordance with Subarticle 660-9(C) using the sized aggregate required by the contract and the application rates specified in Table 660-1.

(E) Fog Seal

Apply an emulsified asphalt and water mixture as an aggregate loss preventative or surface seal.

Use a base material from a CRS-1H, CSS-1H or CQS-1H emulsion in accordance with the requirements of Article 1020-3 of the *2012 Standard Specifications*. Emulsion will be diluted with water at a 1:1 ratio unless otherwise directed by the Engineer.

For emulsions containing modifiers other than those allowed in Article 1020-3, submit to the Engineer for approval. These emulsions with modifiers shall meet the requirements of Article 1020-3 and manufacturer specifications.

Provide a distributor for heating and uniformly applying the emulsion in accordance with the requirements of Article 600-5 of the *2012 Standard Specifications*. Provide a hand spray hose and nozzle to cover areas inaccessible to the spray bars.

The pavement surface must be clean and dry before applying the fog seal. Apply the mixture when the air temperature is 60°F and above. Do not apply asphalt material when the weather is foggy or rainy. The application temperature will be between 160°F and 170°F or per manufacturer's recommendations. Care is to be taken not to overlap the existing thermoplastic edgeline while spraying. The typical target application rate for diluted emulsions shall be 0.12 gal/sy +/- 0.03 gal/sy. The Engineer may request a test strip prior to construction to determine the application rate.

#### **660-10 TEMPORARY TRAFFIC CONTROL (TTC)**

All AST operations shall be conducted in daylight hours.

Provide temporary traffic control for the asphalt surface treatment operations in accordance with the contract and in accordance with the provision RWZ-1 TEMPORARY TRAFFIC CONTROL (TTC) found elsewhere in the proposal except the following sections do not apply:

TRAFFIC OPERATIONS, Drop-Off Requirements and Time Limitations.

TRAFFIC OPERATIONS, Project Requirements.

Install advance/general warning work zone signs according to the Detail Drawing titled Signing for Asphalt Surface Treatment provided in these plans.

#### **660-11 WARRANTY**

The Asphalt Surface Treatment (AST) shall be warranted by the project payment and performance bonds for a period of 12 months.

##### **(A) Warranty Period**

The Department will conduct an inspection of the work and provide written acceptance in accordance with Article 105-17 of the *2012 Standard Specifications*. Written acceptance of the work will constitute the start date for the 12 month AST warranty period.

**(B) Situations Affecting the Warranty**

During the warranty period, the Contractor will not be held responsible for distresses that are caused by factors not related to materials and workmanship. These include, but are not limited to, chemical and fuel spills, vehicle fires, base failures, and snow plows. Other factors considered to be beyond the control of the Contractor, which may contribute to pavement distress, will be considered by the Engineer on a case by case basis upon receipt of a written request from the Contractor. Maintaining traffic on the pavement surface prior to the Engineer's acceptance will not be a condition for voiding the warranty.

**(C) Emergency Repairs**

If, in the opinion of the Department, a pavement condition covered by the warranty requires immediate attention for the safety of the traveling public, the Contractor will be notified immediately. If the Contractor cannot perform the work in a timely manner, the Department may directly perform or have the corrective work performed by another entity at the Contractor's expense. Any emergency work performed will not alter the requirements, responsibilities, or obligations of the warranty.

**(D) Warranty Performance Criteria**

<b>Surface Defects</b>	<b>Severity</b>	<b>Extent (Per Lot)</b>
Surface Patterns	Alternate lean and heavy lines streaking over the entire pavement surface.	Greater than 20% of a lot affected; distress spotted evenly over the lot or over localized areas within the lot.
Bleeding/Flushing	Distinctive appearance (with excess asphalt binder already free).	Greater than 20% of the wheel tracks within a lot affected.
Loss of Cover Aggregate	Large patches of cover aggregate lost from the pavement surface.	Greater than 20% of a lot affected; distress spotted evenly over the lot or over localized areas within the lot.

*Lot* - A 1,000-foot section of pavement or portion thereof, a lane width wide, on which AST is constructed on a single map.

The beginning point of the first lot will be the beginning point of each day's operation or the beginning of a map, whichever is applicable.

The Department will review the AST and advise the Contractor of any required corrective work in writing prior to expiration of the warranty period.

The Department will approve all materials and methods used in warranty work.

The Department will determine if warranty work performed by the Contractor meets the contract and provide written acceptance of the warranty work when complete.

The Chief Engineer will review any disputes for corrective work covered under the warranty.

### **660-12 MAINTENANCE AND PROTECTION**

Maintain and protect the asphalt surface treatment until it is accepted by the Department. Make all necessary repairs in such a manner as to preserve the uniformity of the surface.

### **660-13 MEASUREMENT AND PAYMENT**

*Asphalt Surface Treatment: Single Seal, Double Seal, Triple Seal, Mat and Single Seal, Mat and Double Seal, Fog Seal, Sand Seal, and Mat Coat, No. \_\_\_\_\_ Stone.* All AST will be measured and paid at the contract unit price per square yard. Payment at the above prices will be made for replacing any satisfactorily completed asphalt surface treatment when such replacement has been made necessary by defects in subgrade or base constructed by others.

*Emulsion for Asphalt Surface Treatment* will be measured and paid at the contract unit price per gallon, which price will be full compensation for all materials including modifiers and additives, tack coat, labor, tools, equipment, and all other incidentals necessary to complete the work.

Price adjustments herein shall apply concurrently; however, price adjustment will not apply in the event the material is rejected.

Furnishing and applying prime will be paid as provided in Article 600-9 of the *2012 Standard Specifications for Prime Coat*.

If included in the contract, furnishing and applying blotting sand will be paid as provided in Article 818-4 of the *2012 Standard Specifications for Blotting Sand*.

**Adjustment for *Emulsion for AST* will be paid per the following formula:**

$$A = B + ((D - C)/235)*0.65$$

Where:

A = Adjusted Contract Unit Price of *Emulsion for AST* per gallon

B = Contract Unit Price of *Emulsion for AST* per gallon

C = Base Price Index of PG 64-22 per ton

D = Monthly Average Terminal F.O.B. Selling Price for PG 64-22 per ton

See Price Adjustment - Asphalt Binder Special Provision found elsewhere in this proposal for the base price index of PG 64-22 per ton.



Payment will be made under:

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

Asphalt Surface Treatment, Single Seal	Square Yard
Asphalt Surface Treatment, Double Seal	Square Yard
Asphalt Surface Treatment, Triple Seal	Square Yard
Asphalt Surface Treatment, Mat and Single Seal	Square Yard
Asphalt Surface Treatment, Mat and Double Seal	Square Yard
Asphalt Surface Treatment, Fog Seal	Square Yard
Asphalt Surface Treatment, Sand Seal	Square Yard
Asphalt Surface Treatment, Mat Coat, No. ___ Stone	Square Yard
Emulsion for Asphalt Surface Treatment	Gallon

**ASPHALT SURFACE TREATMENT (AST) SELECTION**

Revise **Table 660-1, MATERIAL APPLICATION RATES AND TEMPERATURES** as shown below:

<b>Type of Coat</b>	<b>Layer</b>	<b>Aggregate Type</b>	<b>Aggregate Target Rate<sup>A</sup> (Lbs/Sy)</b>	<b>Emulsion Target Rate<sup>B,C,D</sup> (Gal/Sy)</b>
Mat Coat		#6M	<b>38</b>	<b>0.40</b>

- A. Aggregate Target Rates have +/- 1.0 lbs/sy tolerance limit.
- B. Grade of Asphalt (emulsion) shall be CRS-2L or CRS-2P.
- C. Emulsion Target Rates have +/- 0.03 gal/sy tolerance limit.
- D. Application temperatures shall be 160-170°F.

**AST SELECTIONS FOR THIS CONTRACT ARE LISTED AS FOLLOWS:**

<b>Map #</b>	<b>Type of Seal</b>	<b>Aggregate Type</b>	<b>Layer</b>	<b>Rate (Lbs/Sy)</b>
1, 6, 12, 18 & 21	Matcoat	#6M	Top	38 Lbs/Sy
15	Single	#78	Bottom	18 Lbs/Sy

Use CRS-2L for the emulsion at the target application rate of 0.25 gal/SY for screenings.

**EMULSIFIED ASPHALT SLURRY SEAL**

This work shall consist of furnishing and applying an emulsified asphalt slurry seal in accordance with the *2012 Standard Specifications for Roads and Structures*, hereinafter referred to as the Specifications, and these Special Provisions. Slurry Seal shall be Type C.

**APPLICABLE SPECIFICATIONS**

The following specifications and test methods form a part of this specification:

## Aggregate and Mineral Filler:

AASHTO T2	Sampling Mineral Aggregates
AASHTO T27	Sieve Analysis of Aggregates
AASHTO T11	Materials Finer than No. 200 Sieve
AASHTO T176	Sand Equivalent Value of Fine Aggregates
AASHTO T84	Specific Gravity and Absorption of Fine Aggregates
AASHTO T127	Sampling of Hydraulic Cement
AASHTO T37	Sieve Analysis of Mineral Filler
ASTM D242	Mineral Filler for Bituminous Paving Mixtures

## Emulsified Asphalt

AASHTO T40	Sampling Bituminous Materials
AASHTO T59	Testing Emulsified Asphalt
AASHTO M140	Specification for Emulsified Asphalt
AASHTO M208	Specification for Cationic Emulsion
AASHTO T102	Mixing, Setting & Water Resistance Test Identify "Quick-Set" Emulsified Asphalt's

## Slurry Seal

ISSA T100	Wet Track Abrasion of Slurry Seal
ISSA T101	Guide for Sampling Slurry Mix for Extraction Test
ISSA T106	Measurement of Slurry Seal Consistency
ISSA T109	Test Method for Measurement of Excess Asphalt in Bituminous Mixtures by use of a Loaded Wheel Tester
ISSA T111	Outline Guide Design Procedure for Slurry Seal
ISSA T112	Method to Estimate Slurry Seal Spread Rates and to Measure Pavement Texture
ISSA T113	Trial Mix Procedure for Slurry Seal Design
ISSA T114	Wet Stripping Test for Cured Slurry Seal Mixes
ISSA T115	Determination of Slurry Seal Compatibility
ISSA T139	Test Method to Classify Emulsified Asphalt/Aggregate Mixture Systems by Modified Cohesion Tester: Measurement of Set and Cure Characteristics
ASTM D3910	Design, Testing and Construction of Slurry Seal
ASTM D2172	Quantitative Extraction of Bitumen for Bituminous Paving Mixtures

**Composition**

Emulsified asphalt slurry seal shall be a uniform mixture of aggregate, emulsified asphalt, mineral filler and water. The aggregate shall be proportioned to produce a uniform gradation meeting the requirements of Table 1 below. The quality of the aggregate shall conform to the requirements of Section 1014 of the Standard Specifications.

JOB MIX RANGE		
TYPE	B	C
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING
#3/8	100	100
#4	90-100	90-100
#8	65-90	70-90
#16	45-70	32-54
#30	30-50	23-38
#50	18-33	16-29
#100	10-21	9-20
#200	5-15	5-15
*Design Asphalt Content, % #	8.5-13	8.5-11.5

\*Residual Asphalt Content by Weight of Dry Aggregate

The Contractor shall submit a mix design for each type of slurry. The gradation of the mix produced shall conform to the job mix range. The asphalt content (residual asphalt) shall not vary by more than 1.5 percent from the approved mix design.

**Materials**

The aggregates shall be crushed stone meeting the requirements of ASTM D692 and Section 1014 of the Standard Specifications, except the gradation shall be as specified in Table I of this special provision. The aggregate shall have a minimum sand equivalent of 45 as specified by AASHTO T176.

Mineral Filler shall be Portland Cement or hydrated lime which respectively meet the requirements of Section 1012-1 of the Standard Specifications.

The emulsified asphalt for a Quick-Set Emulsified Asphalt Slurry Seal shall be Type CQS-1h meeting the requirements for Type CSS-1h with the following exceptions:

Residue %	63 minimum
Cement Mixing Test %	(waived)

Unless otherwise specified, a quick-set emulsified asphalt slurry seal shall be utilized.

The water used in the mix shall conform to the requirements of Section 1024-4 of the Standard Specifications.

(A) Asphalt Emulsion

The emulsified asphalt shall conform to the requirements of Section 1020 of the Specifications.

(B) Quick Setting Emulsion

Quick setting emulsion shall be used and the following requirements shall apply:

The emulsion shall meet the requirements of Cationic Type CSS-1h of ASTM D 2397.

Each change in formulation requires a test as referenced in A and B above.

(C) Fine Aggregate

Fine aggregate shall be polish resistant natural or manufactured sand, slag, or a combination thereof. The quality of fine aggregate shall conform to the requirements of Section 1014 of the Specifications.

(D) Mineral Filler

Mineral filler shall conform to the requirements of Section 1012.1 of the Specifications.

(E) Water

Water used in the mix shall conform to the requirements of Section 1024.4 of the Specifications.

(F) Mix Requirements

The Contractor shall submit to the Engineer a mix design and results of the wear loss by the Wet Track Abrasion Test as prepared by an approved testing laboratory. The Wet Track Abrasion Test (WTAT) will be performed in accordance with ASTM D 3910. The wear loss by the Wet Track Abrasion Test shall not be greater than 100 grams per square foot. The wear loss shall apply to the asphalt content limits designated on the job mix formula.

(G) Sampling Requirement

Samples for gradation will be taken from aggregate stockpiles designated by the Contractor for use. Samples for asphalt content and total water content shall be taken from the completed mixture. Samples of aggregate, filler, and emulsion for wet track

abrasion check test will be taken at the job site. The frequency of sampling and testing will be established by the Engineer based upon the Department's current acceptance program and local conditions encountered.

The Contractor shall place a test strip for approval by the Engineer prior to beginning the work. Once the consistency of the mix has been approved by the Engineer, the total water content shall be maintained within 3 percent of the approved blend during the course of operation.

### **Slurry Seal Job Mix Formula**

The Contractor shall submit a signed original of a mix design covering the specific materials to be used on the project to the Materials and Tests Unit for acceptance together with representative samples of each component of the slurry seal mix. The samples shall contain information relative to the sources, type of materials, and project number.

The design must be performed by a qualified laboratory. Once the materials are approved, no substitution will be permitted unless first tested and approved by the laboratory preparing the mix design. No slurry seal work shall begin nor will any mixture be accepted until the Materials and Tests Unit has evaluated the slurry seal mix design and approved the design as the Job Mix Formula for the project or as approved by Engineer.

The Laboratory report will show the results of tests performed on individual materials, comparing their values to those required by this specification. Job aggregates will be used in ISSA T102. Mixing tests must pass at the maximum expected air temperature in T115, compatibility. The report will provide the following information on the slurry seal mixture:

### **Table II**

#### Quick-Set Emulsified Asphalt Slurry Seal

Mixing Time Test, seconds @ 77° E(T102)	120 minimum
Set time tests	
30 minute Blotter Test (T102)	no brown stain
Displacement Test	no displacement
Water Resistance Test @ 30 minutes (T102)	no discoloration
Wet Stripping Test % coating (T114)	90% minimum
System Compatibility (T115)	Pass
Set Time Tests: 30 minutes (T139)	12 kg-cm minimum
Early Rolling Traffic Time: 2 hours	20 kg-cm minimum
Wet Track Abrasion Test, Loss in grams per square foot (T100)	75 maximum

**Equipment****(A) General**

All equipment and tools used in the performance of this work shall be furnished and maintained in satisfactory working condition. The mixing and spreading equipment shall be combined in a single mobile operating unit. A burlap drag approximately 19 inches wide shall be attached to the back of the unit for the purpose of smoothing the slurry seal.

The mobile unit shall be equipped with an approved feeder which will accurately meter or otherwise introduce a predetermined amount of material into the mixer simultaneously with the aggregate. The feeder shall be used whenever mineral filler is added to the mix.

The mobile unit shall be equipped with a water pressure system and fog type spray bar capable of completely fogging the surface to which slurry seal is to be applied.

The mobile unit shall be capable of an operative speed of at least 60 feet per minute. The mobile unit shall have sufficient storage capacity to mix and apply a minimum of five tons of slurry.

**(B) Mixer**

The mixer shall be a continuous flow type mixer and shall be capable of delivering water and a predetermined proportion of aggregate and asphalt emulsion to a revolving multi-blade mixer tank. The mixer shall discharge the thoroughly mixed product on a continuous basis. The blades of the mixing unit shall be capable of thoroughly blending all ingredients.

**(C) Spreader**

The spreader shall be equipped with a flexible type squeegee positioned in contact with the pavement surface. The spreader shall be designed to apply a uniform spread with a minimum loss of slurry.

**(D) Auxiliary Equipment**

Hand squeegees, shovels, and other hand equipment shall be provided as necessary to perform work in areas which are inaccessible to the unit.

**Mixing Equipment**

The paving mixture shall be produced in a self-propelled, front feed, continuous loading, mixing machine equipped with a positive, non-slipping aggregate delivery system and an interconnected, positive displacement water-jacketed gear pump to accurately proportion ingredients.

The mixing machine shall be equipped with an approved fines feeder that has an accurate metering device or method to introduce a predetermined amount of mineral filler into the mixer at the same time and location as the mineral aggregate. A spray bar shall be provided to completely wet the aggregate dropping down to the pugmill with additive and water. The emulsion shall be introduced above the third point of the additive and water when the modified emulsified asphalt is added. Blade size and side clearances shall meet the equipment manufacturer's recommendations.

Mixing shall be done in a manner that does not cause premature breaking of the emulsified asphalt. The mixing unit of the mixing chamber shall be capable of thoroughly blending all ingredients.

The mixer shall be equipped with a remote forward speed control at the back of the mixing platform so the rear operator can control forward speed and level of mixture in the paving or ruffill spreader box. The Contractor shall provide material control devices that are readily accessible and positioned so the amount of each material used can be determined at any time. Each material control device shall be calibrated prior to each mix application and as required by the Engineer.

The mixing machine shall be equipped with a water pressure system and fog type spray bar, adequate for complete fogging of the surface preceding spreading equipment of the slurry mixture.

The mixing machine shall include controls for proportioning and calibrating the aggregate feed. The aggregate feed device shall be equipped with a revolution counter so that the amount of aggregate used may be determined at any time and shall have a positive locking feed gate.

The emulsion pump shall be of the positive displacement type and shall be equipped with meter so that the amount of emulsion used may be determined at any time. The emulsion pump, meter and piping shall be arranged to afford a means to calibrate the meter by weighing a metered volume. The pump shall deliver the asphalt to the mixer box at a uniform rate, which shall not vary more than the two percent from the required quantity.

The water pump shall be equipped with a minimum of two valves. One valve shall establish the required water flow. The other valve shall be a quick acting valve to start and stop the water flow.

The mixing machine shall have sight gauges located at the material storage tanks for the asphalt emulsion and water.

The mixing machine shall be equipped with approved metering devices so that it can be accurately calibrated and the quantities of materials used during any one period can be closely estimated. In the event that the metering devices stop working properly, the mixing machine shall no longer be used until necessary repairs have been made.

Satisfactory means shall be provided to afford positive interlocking control between the flow of aggregate from the bins and the flow of emulsion from the pump. Each slurry mixing unit to be used in the performance of the work shall be calibrated in the presence of the Engineer prior to construction. The documentation shall include an individual calibration of each material at various settings, which can be related to the machine's metering devices. No machine will be allowed to work on the project until the calibration has been completed and accepted.

### **Construction Methods**

The Contractor shall notify the Division Bituminous Supervisor at least three (3) working days prior to beginning work.

(A) Preparation of Surface

The surface upon which slurry seal is to be applied shall be thoroughly cleaned of all loose material, vegetation, silt spots, and other objectionable materials immediately preceding application by either brooming or the use of compressed air.

(B) Application

Aggregate shall be wetted immediately prior to mixing with the emulsion. The Engineer may direct that the surface of the pavement be fogged with water (approximately 0.05 gallons per square yard) immediately preceding the pass of the spreader. The slurry mixture shall be of a consistency such that it "rolls" in the spreader box in a continuous mass. Slurry that segregates in the spreader box, so that flowing of liquids (water and emulsion) is evident, is not acceptable and shall not be applied. The liquid portion of slurry mixture shall not flow from either the spreader box or the applied slurry. Evidence of such flow shall be sufficient cause for rejection of the applied material. The slurry shall be placed on the road in full lane widths up to and including 12 feet. A mechanical device such as an auger shall be used to distribute the slurry mix in the spreader box.

Excess buildup of slurry on longitudinal and transverse joints shall be corrected.

Treated areas shall not be opened to traffic, until such time as the slurry seal has cured to the extent that it will no longer be damaged by traffic. The applied slurry mixture shall be uniform in texture and shall not flush under traffic. Any areas not considered satisfactory by the Engineer shall be corrected by the Contractor at no additional expense to the State. Nothing contained herein is intended to relieve the Contractor from sharing in the responsibility and performance of the treatments, should a failure occur prior to acceptance of the contract. Section 105.17 of the Specifications is amended accordingly.

Slurry Seal surface course shall not be applied on surfaces containing ponding water and the minimum surface temperature shall be 50 degrees F.

The Engineer may require the surface area to which the slurry has been applied by hand to be rolled using a pneumatic-tire type roller. The roller shall be operated at an



approximate tire pressure of 50 pounds per square inch and the paved area shall be subjected to a minimum of two coverages.

Should oversized aggregate be encountered in the stockpile, the Contractor shall immediately cease operation and remove the oversized aggregate by screening.

(C) **Thickness of Application**

The average minimum thickness of application shall not be less than 3/16" for Type B and not less than 5/16" for Type C unless otherwise specified.

- (D) In the event of a test failure on compatibility and/or WTAT (loss greater than 100 grams per square foot) for a sample of material being applied to the road, corrective action shall be taken by the Contractor prior to start-up of another day's run. Should the sample taken following adjustment also fail the compatibility and/or WTAT, the Contractor shall cease application on the road. The Contractor shall be responsible for furnishing additional compatibility and/or WTAT results and field application site(s) and will not be permitted to return to the road until he clearly demonstrates the acceptability of seal.

### **Preparation of Existing Surface**

Immediately prior to applying the tack coat and slurry seal, all dust, dirt, vegetation and other deleterious material shall be removed from the existing surface by brooming, washing with water under high pressure, blowing with compressed air or other approved methods. The cleaned surface shall be approved prior to application of the tack coat and slurry seal.

The Contractor shall place a test strip for approval by the Engineer.

#### **Minimum Application Rates**

1. 22-24#/sy Type "B" or "C" over BST
2. 16#/sy Type "B" applied to Asphalt
3. 20#/sy Type "C" applied to Asphalt

### **Joints**

No excessive build-up, uncovered areas or unsightly appearance will be permitted on longitudinal or transverse joints. An excessive overlay will be permitted on longitudinal joints. The Contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. When possible, longitudinal joints shall be placed on lane lines. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they shall not be the last pass of any paved area.

### **Lines**

Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a good appearance.

**Protection**

Traffic shall not be allowed on the slurry seal until it has cured sufficiently to prevent pickup by vehicle tires. The Contractor shall maintain traffic control as necessary to prevent damage to the slurry seal. Any damage done by traffic to the slurry shall be repaired by the Contractor at no expense to the Department.

**Responsibility**

The production process of the slurry seal operation requires the contractor to have full responsibility for the placement of acceptable slurry seal.

**Limitations**

Slurry seal shall not be applied if either the pavement or air temperature is less than 55° Fahrenheit for quick-set or quick-traffic slurry seal or less than 70° Fahrenheit for slow-set slurry seal.

The Engineer may waive specific provisions of this section if in his determination such action is in the best interest of NCDOT.

**Stockpile and Staging Areas**

It shall be the responsibility of the Contractor to secure all stockpiles and staging areas needed. The Contractor shall be responsible for compliance with all state, federal, and local regulations, fees, licenses, and permits that may apply to such sites. The North Carolina Department of Transportation assumes no liability or responsibility for stockpile or staging areas. The Contractor shall furnish the Department of Transportation with a waiver signed by the property owner of each stockpile or staging site releasing the Department from such liability.

**Method of Measurement**

Emulsified Asphalt Slurry Seal will be measured by the Square Yard on a field quantity basis. In the event the actual area covered differs significantly from the field quantity shown in this contract, either the Contractor or NCDOT may request a re-measurement of the specific map location in question to verify the area in question. Measurements will be made by NCDOT personnel and the decision of the Engineer shall be final. No adjustment in unit price will be allowed.

**Compensation**

All work or items, other than those listed on the Bid Form contained in the Contract Proposal, necessary to complete this work will be considered incidental in nature, and no further compensation will be made. Payment for work on this project will be made by project, upon acceptance of the completion of the project.

**Basis of Payment**

The accepted quantities of emulsified asphalt slurry seal will be paid for at the contract unit price bid per square yard for Asphalt Surface Treatment, Slurry Seal. Such price and payment shall be full compensation for all material, labor, tools, equipment, maintenance of traffic, and all other incidentals necessary to complete the work.

Materials placed in stockpiles or on the road not meeting the required tolerances may be accepted at a reduced price if it is not considered detrimental to the life of the treatment by the Engineer. The following price adjustment schedule will be used when appropriate:

1. One percent (1%) reduction in the bid price per square yard for each one-tenth percent (0.1%) the asphalt content is out of tolerance.
2. One-quarter percent (0.25%) price adjustment in the bid price per square yard for each one percent (1.0%) that the aggregate gradation is out of the job mix range.
3. One-half percent (0.5%) reduction in the bid price per square yard for each gram per square foot of WTAT loss between 101 and 200 grams. Material having a loss greater than 200 grams will not be accepted for payment.
4. One percent (1%) reduction in the bid price per square yard for each one percent (1%) water in excess of the approved water content plus three percent (3%).

Price adjustments under 1, 2, 3, and 4 above shall apply concurrently; however, price adjustment will not apply in the event the material is rejected. The disposition of rejected material will be subject to the approval of the Engineer.

Payment will be made under:

**Pay Item**

Asphalt Surface Treatment, Slurry Seal

**Pay Unit**

Square Yard

**MICROSURFACING:****Description**

This provision covers the materials, equipment, construction and application procedures for rut filling and/or surfacing of existing paved surfaces in accordance with the contract. The microsurfacing system shall be a mixture of cationic latex modified asphalt emulsion, mineral aggregate, mineral filler, water and other additives, properly proportioned, mixed and spread on the paved surface in accordance with this provision and as directed by the Engineer.

**Materials**

## (A) Latex Modified Emulsified Asphalt

The emulsified asphalt shall be a cationic type CSS-1h or CQS-1h and shall conform to AASHTO M 208 or ASTM D2397. In general a 3% polymer solids, based on asphalt weight, is considered minimum. The ring and ball softening point of the residue shall be a minimum of 140°F. It shall show no separation after mixing. The cement mixing test is waived for the latex modified CSS-1h and CQS-1h.

## (B) Mineral Aggregate

The mineral aggregate used shall be compatible with the latex modified emulsified asphalt and can produce a good skid resistant surface. The aggregate shall meet requirements in Article 1012-1 of the *2012 Standard Specifications*.

## (C) Mineral Filler

Mineral filler shall be any recognized brand of non-air entrained Portland cement that is free of lumps or hydrated lime meeting the requirements of ASTM D242. It may be accepted upon visual inspection.

## (D) Water

The water shall be potable and shall be free of harmful soluble salts in accordance with Article 1024-4 of the *2012 Standard Specifications*.

## (E) Latex Modifier

A latex based modifier, certified from an approved source, along with special emulsifiers shall be milled into the asphalt emulsion by an approved emulsion manufacturer. The latex modified emulsified asphalt shall be so formulated that when the paving mixture is applied at a thickness of one inch it will cure sufficiently so that rolling traffic can be allowed back on the pavement in one hour with no damage to the surface.

## (F) Other Additives

The additives are any other materials that are added to the emulsion mix or to any of the component materials to provide the specified properties. The additives shall be supplied by the emulsion manufacturer to provide control of the set time in the field.

**Mix Design**

The Contractor shall submit a mix design certified by the latex modified emulsion manufacturer and present certified test results for the Engineer's approval. Compatibility of the aggregate and latex modified CSS-1h or CQS-1h shall be certified. The job mix formula shall provide

a minimum Marshall stability of 1,800 pounds and a flow of 6 to 16 units when tested according to modified ASTM procedures. Aggregate used in the job mix formula shall be of the material proposed by the Contractor for use on the project.

Submit mix design to the Materials and Tests Unit for approval. The mix design shall conform to the International Slurry Surfacing Association's ISSA A143, Section 5.2.

The gradation of the aggregate shall be in accordance with the following:

Screen Size	Type II (% passing)	Type III (% passing)	Stockpile Tolerance
3/8"	100	100	
#4	90 - 100	70 - 90	± 5
#8	65 - 90	45 - 70	± 5
#16	45 - 70	28 - 50	± 5
#30	30 - 50	19 - 34	± 5
#50	18 - 30	12 - 25	± 4
#100	10 - 21	7 - 18	± 3
#200	5 - 15	5 - 15	± 2

The gradation of the aggregate stockpile shall not vary by more than the stockpile tolerance from the mix design gradation (indicated in the table above) while also remaining within the specification gradation band. The percentage of aggregate passing any 2 successive sieves shall not change from one end of the specified range to the other end.

The aggregate will be accepted at the job location or stockpile based on 5 gradation tests sampled according to AASHTO T 2. If the average of the 5 tests is within the stockpile tolerance from the mix design gradation, the material will be accepted. If the average of those test results is out of specification or tolerance, the Contractor will be given the choice to either remove the material or blend additional aggregate with the stockpile material to bring it into compliance. Materials used in blending shall meet the required aggregate quality test specifications in Section 1012 of the *2012 Standard Specifications* before blending and shall be blended in a manner to produce a consistent gradation.

Aggregate blending may require a new mix design. Screening shall be required at the stockpile if there are any problems created by oversized materials in the mix.

Type II aggregate gradation is used to fill surface voids, address surface distresses, seal and provide a durable wearing surface.

Type III aggregate gradation provides maximum skid resistance and an improved wearing surface. This type of microsurfacing is appropriate for heavily traveled pavements or for placement on highly textured surfaces requiring larger size aggregate to fill voids. Type III microsurfacing shall be used for rut filling.

The mineral aggregate shall be weighed by means of scale approved by the Engineer before delivery to the job site. Emulsified asphalt shall be weighed by means of approved scales or be measured by volume.

Precautions shall be taken to insure that stockpiles do not become contaminated.

Samples for gradation will be taken from aggregate stockpiles designated by the Contractor for use. Samples for asphalt content shall be taken from the completed mix. Samples of aggregate and filler will be taken at the job site. The frequency of sampling and testing will be established by the Engineer based upon the Department's current acceptance program. The asphalt content will be determined by AASHTO T 308 modified.

### **Equipment**

Use equipment that meets ISSA A143 Section 6.

Each mixing unit to be used in performance of the work shall be calibrated in the presence of the Engineer before beginning the work. Submit calibration documentation to the Engineer. Any equipment replacement affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been accepted.

### **Construction Methods**

#### (A) Weather Limitations

The material shall be placed only when the surface is dry and the atmospheric and surface temperature is at least 45°F and rising and there is no chance of temperatures below 32°F within 24 hours from the time the material is applied.

#### (B) Surface Preparation

Immediately prior to applying the paving mixture the surface shall be thoroughly cleaned of all vegetation, loose materials, dirt, mud, and other deleterious materials. If water is used, cracks shall be allowed to dry thoroughly before applying microsurfacing. Manholes, valve boxes, drop inlets and other service entrances shall be protected from the microsurfacing by a suitable method.

#### (C) Tack Coat for Microsurfacing

The emulsified asphalt used for tack coat shall be CSS, CQS, CRS or the microsurfacing emulsion diluted to one part emulsified asphalt to two (2) or three (3) parts water, as approved by the Engineer. Consult with the microsurfacing emulsion supplier to determine dilution stability. The distributor shall be capable of applying the diluted tack coat evenly at a rate of 0.08 to 0.15 gallons per square yard as required by the Engineer.

The tack coat shall be allowed to cure sufficiently before the application of microsurfacing.

(D) Application

When rutting or deformation is less than 0.5 inch, a full width scratch course may be applied with the spreader box using a metal or stiff rubber strike-off. Apply at a sufficient rate to level the pavement surface. The mixture shall be spread to fill minor cracks, minor surface irregularities, and shallow potholes and leave a uniform high-skid resistant application of aggregate and asphalt on the surface. Approved squeegees shall be used to spread the mixture in areas inaccessible to the spreader box and other areas hand spreading may be required. Ruts that are greater than 0.5 inch depth shall be filled independently by means of a box specifically designed for that purpose. The box shall be 5 to 6 feet in width and have a dual chamber with an inner "V" configuration of augers to channel the large aggregate to the center of the rut and the fines to the edges of the rut fill pass. The box shall be equipped with dual steel strike-off to control both the width and depth of the rut fill. All rut-filling and leveling material should cure under traffic for at least 24 hours before additional material is placed.

A sufficient amount of surface sealer shall be carried to all parts of the spreader box at all times so that complete coverage is obtained. Water in very limited quantity may be sprayed into the spreader box to prevent build-up on the blades to facilitate spreading without harming the mix. No lumping, balling, or unmixed aggregate shall be permitted in the finished surface. Any oversized aggregate or foreign materials shall be screened from the aggregate prior to delivery to the mixing machine. Microsurfacing for the final surface course shall be placed at an application rate of 18 to 22 pounds per square yard for Type II and 22 to 26 pounds per square yard for Type III.

In restricted areas where hand spreading is necessary, slight adjustments to the mix formula may be required to slow setting time. The paving mixture shall be poured into a small windrow along one edge of the surface to be covered. The mixture then shall be spread uniformly by a hand squeegee or lute.

The seam where two passes join shall be neat in appearance and uniform.

All excess material shall be removed from ends of each run immediately on surface course.

(E) Curing

Adequate means shall be provided to protect the microsurfacing from damage by traffic until the mixture has cured sufficiently so that it will not adhere to or be picked up by the tire of vehicles. Normally, microsurfacing accepts straight rolling traffic on a 0.5 inch thick surface within one hour after placement. Stopping and starting traffic may require additional curing time. All rut-filling and level-up material should cure under traffic for at least 24 hours before additional material is placed.

Any damage done by traffic to the microsurfacing shall be repaired by the Contractor.

(F) Test Strip

A test strip shall be placed with job site materials and approved by the Engineer. The weather and time of day, day or night, during the test strip shall be similar to expected conditions during construction. Upon completion of the test strip the Engineer will approve the mixture for proper curing and placement.

**Measurement and Payment**

*Latex Modified Microsurfacing Type \_\_\_\_* will be measured along the top surface of the completed work, placed and accepted as specified herein. Payment will be made at the contract unit price per square yard for the type specified, which price will be full compensation for all materials including modifiers and additives, emulsion, aggregate, tack coat, labor, tools, equipment, and all other incidentals necessary to complete the work.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Latex Modified Microsurfacing Type ____	Square Yard

**WARRANTY FOR SLURRY SEAL AND MICROSURFACING**

The Emulsified Asphalt Slurry Seal and the Microsurfacing shall be warranted by the project payment and performance bonds for a period of 12 months.

(A) Warranty Period

The Department will conduct an inspection of the work and provide written acceptance in accordance with Article 105-17 of the 2012 Standard Specifications. Written acceptance of the work will constitute the start date for the 12 month warranty period.

(B) Situations Affecting the Warranty

During the warranty period, the Contractor will not be held responsible for distresses that are caused by factors not related to materials and workmanship. These include, but are not limited to, chemical and fuel spills, vehicle fires, base failures, and snow plows. Other factors considered to be beyond the control of the Contractor, which may contribute to pavement distress, will be considered by the Engineer on a case by case basis upon receipt of a written request from the Contractor. Maintaining traffic on the pavement surface prior to the Engineer's acceptance will not be a condition for voiding the warranty.



## (C) Emergency Repairs

If, in the opinion of the Department, a pavement condition covered by the warranty requires immediate attention for the safety of the traveling public, the Contractor will be notified immediately. If the Contractor cannot perform the work in a timely manner, the Department may directly perform or have the corrective work performed by another entity at the Contractor's expense. Any emergency work performed will not alter the requirements, responsibilities, or obligations of the warranty.

## (D) Warranty Performance Criteria

<b>Surface Defects</b>	<b>Severity</b>	<b>Extent (Per Lot)</b>
Surface Patterns	Alternate lean and heavy lines streaking over the entire pavement surface.	Greater than 20% of a lot affected; distress spotted evenly over the lot or over localized areas within the lot.
Bleeding/Flushing	Distinctive appearance (with excess asphalt binder already free).	Greater than 20% of the wheel tracks within a lot affected.
Loss of Cover Aggregate	Large patches of cover aggregate lost from the pavement surface.	Greater than 20% of a lot affected; distress spotted evenly over the lot or over localized areas within the lot.

*Lot* - A 1,000-foot section of pavement or portion thereof, a lane width wide, on which the Slurry Seal or Microsurfacing is constructed on a single map.

The beginning point of the first lot will be the beginning point of each day's operation or the beginning of a map, whichever is applicable.

The Department will review the Slurry Seal or Microsurfacing and advise the Contractor of any required corrective work in writing prior to expiration of the warranty period.

The Department will approve all materials and methods used in warranty work.

The Department will determine if warranty work performed by the Contractor meets the contract and provide written acceptance of the warranty work when complete.

The Chief Engineer will review any disputes for corrective work covered under the warranty.

**RESURFACING EXISTING BRIDGES:**

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

SP6 R61AR

The Contractor's attention is directed to the fact that he will be required to resurface the bridges on this project if directed by the Engineer.

Place the surface so as to follow a grade line set by the Engineer with the minimum thickness as shown on the sketch herein or as directed by the Engineer. State Forces will make all necessary

repairs to the bridge floors prior to the time that the Contractor places the proposed surfacing. Give the Engineer at least 15 days notice prior to the expected time to begin operations so that State Forces will have sufficient time to complete their work.

At all bridges that are not to be resurfaced, taper out the proposed resurfacing layer adjacent to the bridges to insure a proper tie-in with the bridge surface.

**PAVING INTERSECTIONS:**

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

610

SP6 R67BR

Condition, prime, and surface all unpaved intersections back from the edge of the pavement on the main line of the project a minimum distance of 50 feet. The pavement placed in the intersections shall be of the same material and thickness placed on the mainline of the project.

Resurface all paved intersections back to the ends of the radii, or as directed by the Engineer.

Widen the pavement on curves as directed by the Engineer.

**PAVING DRIVEWAYS AND MAILBOX TURNOUTS:**

(8-21-12)

610

SP6 R70BR

Condition, prime, and surface all driveway and mailbox turnouts as directed by the Engineer. Place pavement on driveway and mailbox turnouts of the same material as used on the main line and in depths directed by the Engineer. Widen the pavement on curves as directed by the Engineer.

**ASPHALT CONCRETE SURFACE COURSE, TYPE xxx (Leveling Course):**

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

610

SP6 R85R

Place a leveling course of *Asphalt Concrete Surface Course, Type \_\_\_* at locations shown on the sketch maps and as directed by the Engineer. The rate of this leveling course is not established but will be determined by allowing the screed to *drag* the high points of the section. It is anticipated that some map numbers will be leveled from beginning to end while others may only require a leveling course for short sections.

The Asphalt Concrete Surface Course, Type \_\_\_ (Leveling Course) shall meet the requirements of Section 610 of the *2012 Standard Specifications* except payment will be made at the contract unit price per ton for *Asphalt Concrete Surface Course, Type \_\_\_ (Leveling Course)*.

**PATCHING EXISTING PAVEMENT:**

(1-15-02) (Rev. 12-18-12)

610

SP6 R88R

**Description**

The Contractor's attention is directed to the fact that there are areas of existing pavement on this project that will require repair prior to resurfacing. Patch the areas that, in the opinion of the Engineer, need repairing. The areas to be patched will be delineated by the Engineer prior to the Contractor performing repairs.

**Materials**

The patching consists of Asphalt Concrete Base Course, Asphalt Concrete Intermediate Course, Asphalt Concrete Surface Course, or a combination of base, binder and surface course.

**Construction Methods**

Remove existing pavement at locations directed by the Engineer in accordance with Section 250 of the *2012 Standard Specifications*.

Place Asphalt Concrete Base Course, in lifts not exceeding 5.5 inches. Utilize compaction equipment suitable for compacting patches as small as 3.5 feet by 6 feet on each lift. Use an approved compaction pattern to achieve proper compaction. If patched pavement is to be open to traffic for more than 48 hours prior to overlay, use Asphalt Surface Course in the top 1.5 inches of the patch.

Schedule operations so that all areas where pavement has been removed will be repaired on the same day of the pavement removal and all lanes of traffic restored.

**Measurement and Payment**

*Patching Existing Pavement* will be measured and paid as the actual number of tons of asphalt plant mix complete in place that has been used to make completed and accepted repairs. The asphalt plant mixed material will be measured by being weighed in trucks on certified platform scales or other certified weighing devices. The above price and payment will be full compensation for all work covered by this provision, including but not limited to removal and disposal of all types of pavement; furnishing and applying tack coat; furnishing, placing, and compacting of asphalt plant mix; furnishing of asphalt binder for the asphalt plant mix; and furnishing scales.

Patching Existing Pavement will be considered a minor item. Any provisions included in the contract that provides for adjustments in compensation due to variations in the price of asphalt binder will not be applicable to payment for the work covered by this provision.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Patching Existing Pavement	Ton

**ADJUSTMENT OF VALVE BOXES, MANHOLES, AND METER BOXES:**

(11-07-06)

Valve boxes, manholes, and meter boxes shall be adjusted in accordance with Section 858 of the *Standard Specifications*. This item consists of raising or lowering existing manholes and valve boxes to match the finished surface grade.

Adjustment to manholes, meter boxes, and valve boxes on this project shall be made by the use of an approved **Rapid Set Grout, Mortar, or Concrete** that will take full set and become load bearing within sixty minutes of placement. A list of approved materials will be furnished to the Contractor by the Resident Engineer.

The Contractor shall replace worn manhole rings and covers, worn meter box frames and covers, and worn valve box frames and covers, as directed by the Engineer, with a new ring/frame and cover assembly. These assemblies will be furnished at no cost to the Contractor by the Department or utility owner.

The Contractor shall construct a temporary ramp of bituminous plant mix around all structures that have been adjusted, unless otherwise directed by the Engineer.

Basis of payment will be under Adjustment of Manholes or Adjustment of Meter Boxes or Valve Boxes, per each.

**MATERIALS:**

(2-21-12) (Rev. 5-19-15)

1000, 1002, 1005, 1018, 1024, 1050, 1056, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092

SP10 R01

Revise the *2012 Standard Specifications* as follows:

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

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

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

If any change is made to the mix design, submit a new mix design (with the exception of an approved pozzolan source change).

If any major change is made to the mix design, also submit new test results showing the mix design conforms to the criteria. Define a major change to the mix design as:

- (1) A source change in coarse aggregate, fine aggregate or cement.
- (2) A pozzolan class or type change (e.g. Class F fly ash to Class C fly ash).
- (3) A quantitative change in coarse aggregate (applies to an increase or decrease greater than 5%), fine aggregate (applies to an increase or decrease greater than 5%), water (applies to an increase only), cement (applies to a decrease only), or pozzolan (applies to an increase or decrease greater than 5%).

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

**Page 10-1, Article 1000-2, MATERIALS, line 16; Page 10-8, Subarticle 1000-7(A), Materials, line 8; and Page 10-18, Article 1002-2, MATERIALS, line 9,** add the following to the table of item references:

<b>Item</b>	<b>Section</b>
Type IL Blended Cement	1024-1

**Page 10-1, Subarticle 1000-3(A), Composition and Design, lines 25-27,** replace the second paragraph with the following:

Fly ash may be substituted for cement in the mix design up to 30% at a rate of 1.0 lb of fly ash to each pound of cement replaced.

**Page 10-2, Subarticle 1000-3(A), Composition and Design, lines 12-21,** delete the third paragraph through the sixth paragraph beginning with “If any change is made to the mix design, submit...” through “...(applies to a decrease only).”

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

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

**Page 10-6, Subarticle 1000-4(I), Use of Fly Ash, lines 36-2**, replace the first paragraph with the following:

Fly ash may be substituted for cement in the mix design up to 30% at a rate of 1.0 lb of fly ash to each pound of cement replaced. Use Table 1000-1 to determine the maximum allowable water-cementitious material (cement + fly ash) ratio for the classes of concrete listed.

**Page 10-7, Table 1000-3, MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO**, delete the table.

**Page 10-7, Article 1000-5, HIGH EARLY STRENGTH PORTLAND CEMENT CONCRETE, lines 30-31,** delete the second sentence of the third paragraph.

**Page 10-19, Article 1002-3, SHOTCRETE FOR TEMPORARY SUPPORT OF EXCAVATIONS, line 30,** add the following at the end of Section 1002:

**(H) Handling and Storing Test Panels**

Notify the Area Materials Engineer when preconstruction or production test panels are made within 24 hours of shooting the panels. Field cure and protect test panels from damage in accordance with ASTM C1140 until the Department transports panels to the Materials and Tests Regional Laboratory for coring.

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

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

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



**Page 10-40, Tables 1018-1 and 1018-2, PIEDMONT, WESTERN AND COASTAL AREA CRITERIA FOR ACCEPTANCE OF BORROW MATERIAL**, under second column in both tables, replace second row with the following:

Acceptable, but not to be used in the top 3 ft of embankment or backfill

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

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

**Page 10-46, Table 1024-1, POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE**, replace with the following:

<b>TABLE 1024-1 POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE</b>	
<b>Pozzolan</b>	<b>Rate</b>
Class F Fly Ash	20% - 30% by weight of required cement content with 1.0 lb Class F fly ash per lb of cement replaced
Ground Granulated Blast Furnace Slag	35%-50% by weight of required cement content with 1.0 lb slag per lb of cement replaced
Microsilica	4%-8% by weight of required cement content with 1.0 lb microsilica per lb of cement replaced

**Page 10-47, Subarticle 1024-3(B), Approved Sources, lines 16-18**, replace the second sentence of the second paragraph with the following:

Tests shall be performed by AASHTO's designated National Transportation Product Evaluation Program (NTPEP) laboratory for concrete admixture testing.

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

All fencing material and accessories shall meet Section 106.

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

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

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

**Page 10-73, Article 1056-4, GEOTEXTILES, line 33**, add the following after the first sentence in the second paragraph:

Geotextiles will be identified by the product name printed directly on the geotextile. When geotextiles are not marked with a product name or marked with only a manufacturing plant identification code, geotextiles will be identified by product labels attached to the geotextile wrapping. When identification is based on labels instead of markings, unwrap geotextiles just before use in the presence of the Engineer to confirm that the product labels on both ends of the outside of the geotextile outer wrapping match the labels affixed to both ends of the inside of the geotextile roll core. Partial geotextile roles without the product name printed on the geotextile or product labels affixed to the geotextile roll core may not be used.

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

TABLE 1056-1 GEOTEXTILE REQUIREMENTS						
Property	Requirement					Test Method
	Type 1	Type 2	Type 3 <sup>A</sup>	Type 4	Type 5 <sup>B</sup>	
<i>Typical Application</i>	<i>Shoulder Drains</i>	<i>Under Rip Rap</i>	<i>Temporary Silt Fence</i>	<i>Soil Stabilization</i>	<i>Temporary Walls</i>	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1 <sup>D</sup> , Class 3	Table 1 <sup>D</sup> , Class 1	100 lb <sup>C</sup>	Table 1 <sup>D</sup> , Class 3	-	ASTM D4632
Tear Strength (MD & CD)			-			ASTM D4533
Puncture Strength			-			ASTM D6241
Ultimate Tensile Strength (MD & CD)	-	-	-	-	2,400 lb/ft <sup>C</sup> (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2 <sup>D</sup> , 15% to 50% <i>in Situ</i> Soil Passing No. 200 <sup>E</sup>		Table 7 <sup>D</sup>	Table 5 <sup>D</sup>	0.20 sec <sup>-1,C</sup>	ASTM D4491
Apparent Opening Size					0.60 mm <sup>F</sup>	ASTM D4751
UV Stability (Retained Strength)					70% <sup>C, G</sup>	ASTM D4355

- A. Minimum roll width of 36" required.
- B. Minimum roll width of 13 ft required.
- C. MARV per Article 1056-3.
- D. AASHTO M 288.
- E. US Sieve No. per AASHTO M 92.
- F. Maximum average roll value.
- G. After 500 hours of exposure.

Page 10-74, Article 1056-5, GEOCOMPOSITES, lines 7-8, replace the first sentence with the following:

Provide geocomposite drain strips with a width of at least 12" and Type 1 geotextiles attached to drainage cores that meet Table 1056-2.

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

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

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

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

**Page 10-151, Article 1080-4, INSPECTION AND SAMPLING, lines 18-22,** replace (B), (C) and (D) with the following:

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

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

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

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

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

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

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

Page 10-163, Table 1081-1, PROPERTIES OF MIXED EPOXY RESIN SYSTEMS, replace with the following:

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

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

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

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

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

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

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

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

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

**Page 10-170, Article 1081-3, HOT BITUMEN, line 9**, add the following at the end of Section 1081:

#### **1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS**

##### **(A) General**

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

##### **(B) Classification**

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

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

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

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

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

##### **(C) Requirements**

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

##### **(D) Prequalification**

Refer to Subarticle 1081-1(E).

##### **(E) Acceptance**

Refer to Subarticle 1081-1(F).

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

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required

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

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

The epoxy shall meet Article 1081-4.

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

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

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

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

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

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

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

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

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



**Page 10-204, Table 1092-3 MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A**, replace with the following:

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

**SHOULDER AND SLOPE BORROW:**

(3-19-13)

1019

SP10 R10

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

Soil with a pH ranging from 4.0 to 5.5 will be accepted without further testing if additional limestone is provided in accordance with the application rates shown in Table 1019-1A. Soil type is identified during the soil analysis. Soils with a pH above 7.0 require acidic amendments to be added. Submit proposed acidic amendments to the Engineer for review and approval. Soils with a pH below 4.0 or that do not meet the PI requirements shall not be used.

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

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

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

**GROUT PRODUCTION AND DELIVERY:**

(3-17-15)

1003

SP10 R20

Revise the *2012 Standard Specifications* as follows:

Replace Section 1003 with the following:

**SECTION 1003  
GROUT PRODUCTION AND DELIVERY**

**1003-1 DESCRIPTION**

This section addresses cement grout to be used for structures, foundations, retaining walls, concrete barriers, embankments, pavements and other applications in accordance with the contract. Produce non-metallic grout composed of Portland cement and water and at the Contractor's option or as required, aggregate and pozzolans. Include chemical admixtures as required or needed. Provide sand cement or neat cement grout as required. Define "sand cement grout" as grout with only fine aggregate and "neat cement grout" as grout without aggregate.

The types of grout with their typical uses are as shown below:

**Type 1** – A cement grout with only a 3-day strength requirement and a fluid consistency that is typically used for filling subsurface voids.

**Type 2** – A nonshrink grout with strength, height change and flow conforming to ASTM C1107 that is typically used for foundations, ground anchors and soil nails.

**Type 3** – A nonshrink grout with high early strength and freeze-thaw durability requirements that is typically used in pile blockouts, grout pockets, shear keys, dowel holes and recesses for concrete barriers and structures.

**Type 4** – A neat cement grout with low strength, a fluid consistency and high fly ash content that is typically used for slab jacking.

**Type 5** – A low slump, low mobility sand cement grout with minimal strength that is typically used for compaction grouting.

**1003-2 MATERIALS**

Refer to Division 10.

<b>Item</b>	<b>Section</b>
Chemical Admixtures	1024-3
Fine Aggregate	1014-1
Fly Ash	1024-5
Ground Granulated Blast Furnace Slag	1024-6
Portland Cement	1024-1

Silica Fume  
Water

1024-7  
1024-4

Do not use grout that contains soluble chlorides or more than 1% soluble sulfate. At the Contractor's option, use an approved packaged grout instead of the materials above except for water. Use packaged grouts that are on the NCDOT Approved Products List.

Use admixtures for grout that are on the NCDOT Approved Products List or other admixtures in accordance with Subarticle 1024-3(E) except do not use concrete additives or unclassified or other admixtures in Type 4 or 5 grout. Use Class F fly ash for Type 4 grout and Type II Portland cement for Type 5 grout.

Use well graded rounded aggregate with a gradation, liquid limit (LL) and plasticity index (PI) that meet Table 1003-1 for Type 5 grout. Fly ash may be substituted for a portion of the fines in the aggregate. Do not use any other pozzolans in Type 5 grout.

<b>TABLE 1003-1 AGGREGATE REQUIREMENTS FOR TYPE 5 GROUT</b>			
<b>Gradation</b>		<b>Maximum Liquid Limit</b>	<b>Maximum Plasticity Index</b>
<b>Sieve Designation per AASHTO M 92</b>	<b>Percentage Passing (% by weight)</b>		
3/8"	100	N/A	N/A
No. 4	70 – 95		
No. 8	50 – 90		
No. 16	30 – 80		
No. 30	25 – 70		
No. 50	20 – 50		
No. 100	15 – 40		
No. 200	10 – 30	25	10

### **1003-3 COMPOSITION AND DESIGN**

When using an approved packaged grout, a grout mix design submittal is not required. Otherwise, submit proposed grout mix designs for each grout mix to be used in the work. Mixes for all grout shall be designed by a Certified Concrete Mix Design Technician or an Engineer licensed by the State of North Carolina. Mix proportions shall be determined by a testing laboratory approved by the Department. Base grout mix designs on laboratory trial batches that meet Table 1003-2 and this section. With permission, the Contractor may use a quantity of chemical admixture within the range shown on the current list of approved admixtures maintained by the Materials and Tests Unit.

Submit grout mix designs in terms of saturated surface dry weights on Materials and Tests Form 312U at least 35 days before proposed use. Adjust batch proportions to compensate for surface moisture contained in the aggregates at the time of batching.

Changes in the saturated surface dry mix proportions will not be permitted unless revised grout mix designs have been submitted to the Engineer and approved.

Accompany Materials and Tests Form 312U with a listing of laboratory test results of compressive strength, density and flow or slump and if applicable, aggregate gradation, durability and height change. List the compressive strength of at least three 2" cubes at the age of 3 and 28 days.

The Engineer will review the grout mix design for compliance with the contract and notify the Contractor as to its acceptability. Do not use a grout mix until written notice has been received. Acceptance of the grout mix design or use of approved packaged grouts does not relieve the Contractor of his responsibility to furnish a product that meets the contract. Upon written request from the Contractor, a grout mix design accepted and used satisfactorily on any Department project may be accepted for use on other projects.

Perform laboratory tests in accordance with the following test procedures:

<b>Property</b>	<b>Test Method</b>
Aggregate Gradation <sup>A</sup>	AASHTO T 27
Compressive Strength	AASHTO T 106
Density (Unit Weight)	AASHTO T 121, AASHTO T 133 <sup>B</sup> , ANSI/API RP <sup>C</sup> 13B-1 <sup>B</sup> (Section 4, Mud Balance)
Durability	AASHTO T 161 <sup>D</sup>
Flow	ASTM C939 (Flow Cone)
Height Change	ASTM C1090 <sup>E</sup>
Slump	AASHTO T 119

**A.** Applicable to grout with aggregate.

**B.** Applicable to Neat Cement Grout.

**C.** American National Standards Institute/American Petroleum Institute Recommended Practice.

**D.** Procedure A (Rapid Freezing and Thawing in Water) required.

**E.** Moist room storage required.

#### **1003-4 GROUT REQUIREMENTS**

Provide grout types in accordance with the contract. Use grouts with properties that meet Table 1003-2. The compressive strength of the grout will be considered the average compressive strength test results of three 2" cubes at each age. Make cubes that meet AASHTO T 106 from the grout delivered for the work or mixed on-site. Make cubes at such frequencies as the Engineer may determine and cure them in accordance with AASHTO T 106.

Type of Grout	Minimum Compressive Strength at		Height Change at 28 days	Flow <sup>A</sup> /Slump <sup>B</sup>	Minimum Durability Factor
	3 days	28 days			
1	3,000 psi	–	–	10 – 30 sec	–
2	Table 1 <sup>C</sup>			Fluid Consistency <sup>C</sup>	–
3	5,000 psi	–	0 – 0.2%	Per Accepted Grout Mix Design/ Approved Packaged Grout	80
4 <sup>D</sup>	600 psi	1,500 psi	–	10 – 26 sec	–
5	–	500 psi	–	1 – 3"	–

**A.** Applicable to Type 1 through 4 grouts.

**B.** Applicable to Type 5 grout.

**C.** ASTM C1107.

**D.** Use Type 4 grout with proportions by volume of 1 part cement and 3 parts fly ash.

### 1003-5 TEMPERATURE REQUIREMENTS

When using an approved packaged grout, follow the manufacturer's instructions for grout and air temperature at the time of placement. Otherwise, the grout temperature at the time of placement shall be not less than 50°F nor more than 90°F. Do not place grout when the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 40°F.

### 1003-6 ELAPSED TIME FOR PLACING GROUT

Agitate grout continuously before placement. Regulate the delivery so the maximum interval between the placing of batches at the work site does not exceed 20 minutes. Place grout before exceeding the times in Table 1003-3. Measure the elapsed time as the time between adding the mixing water to the grout mix and placing the grout.

Air or Grout Temperature, Whichever is Higher	Maximum Elapsed Time	
	No Retarding Admixture Used	Retarding Admixture Used
90°F or above	30 minutes	1 hr. 15 minutes
80°F through 89°F	45 minutes	1 hr. 30 minutes
79°F or below	60 minutes	1 hr. 45 minutes

**1003-7 MIXING AND DELIVERY**

Use grout free of any lumps and undispersed cement. When using an approved packaged grout, mix grout in accordance with the manufacturer's instructions. Otherwise, comply with Articles 1000-8 through 1000-12 to the extent applicable for grout instead of concrete.

**TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS:**

(8-21-12)

1101.02

SP11 R10

Revise the *2012 Roadway Standard Drawings* as follows:

**Drawing No. 1101.02, Sheet 12, TEMPORARY LANE CLOSURES**, replace General Note #11 with the following:

11- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

12- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

**Drawing No. 1101.02, Sheet 13, TEMPORARY LANE CLOSURES**, replace General Note #12 with the following:

12- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

13- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

**EROSION AND STORMWATER CONTROL FOR SHOULDER CONSTRUCTION AND RECONSTRUCTION:**

(11-16-10) (Rev. 8-21-12)

105-16, 225-2, Division 16

SP16 R03R

Land disturbing operations associated with shoulder construction/reconstruction may require erosion and sediment control/stormwater measure installation. National Pollutant Discharge Elimination System (NPDES) inspection and reporting may be required.

Erosion control measures shall be installed per the erosion control detail in any area where the vegetated buffer between the disturbed area and surface waters (streams, wetlands, or open waters) or drainage inlet is less than 10 feet. The Engineer may reduce the vegetated buffer threshold for this requirement to a value between 5 and 10 feet. Erosion control measures shall be spot checked every 14 days until permanent vegetative establishment.

In areas where shoulder construction/reconstruction includes disturbance or grading on the front slope or to the toe of fill, relocating ditch line or backslope, or removing vegetation from the ditch line or swale, NPDES inspection and monitoring are required every 14 days or within 24 hours of a rainfall event of 0.5" or greater. Maintain daily rainfall records. Install erosion control measures per detail.

In areas where the vegetated buffer is less than 10 feet between the disturbed area and waters of the State classified as High Quality Water (HQW), Outstanding Resource Water (ORW), Critical Areas, or Unique Wetlands, NPDES inspection and monitoring are required every 14 days or within 24 hours of a rainfall event of 0.5" or greater. The Engineer may reduce the vegetated buffer threshold for this requirement to a value between 5 and 10 feet. The plans or provisions will indicate the presence of these water classifications. Maintain daily rainfall records. Install erosion control measures per detail.

Land disturbances hardened with aggregate materials receiving sheet flow are considered non-erodible.

Sites that require lengthy sections of silt fence may substitute with rapid permanent seeding and mulching as directed by the Engineer.

NPDES documentation shall be performed by a Level II Erosion and Sediment Control/Stormwater certificate holder.

Materials used for erosion control will be measured and paid as stated in the contract.

**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(E) of the *2012 Standard Specifications*.



**STANDARD SPECIAL PROVISION**  
**NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY**

(5-17-11)

Z-3

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

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

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

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

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

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

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

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

**FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:**

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

Sericea Lespedeza  
Oats (seeds)

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

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

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

Common or Sweet Sundangrass

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

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

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

Centipedegrass  
Crownvetch  
Pensacola Bahiagrass  
Creeping Red Fescue

Japanese Millet  
Reed Canary Grass  
Zoysia

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

Barnyard Grass  
Big Bluestem  
Little Bluestem  
Bristly Locust  
Birdsfoot Trefoil  
Indiangrass  
Orchardgrass  
Switchgrass  
Yellow Blossom Sweet Clover

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

(1-17-12) (Rev. 04-21-15)

Z-4

Revise the *2012 Standard Specifications* as follows:

**Division 2**

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

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

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

**Division 3**

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

**Division 4**

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

**Division 6**

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

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

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

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

**Division 7**

**Page 7-1, Article 700-3, CONCRETE HAULING EQUIPMENT**, line 33, replace “competition” with “completion”.

**Division 8**

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

**Division 10**

**Page 10-166, Article 1081-3 Hot Bitumen**, replace “Table 1081-16” with “Table 1081-2”, replace “Table 1081-17” with “Table 1081-3”, and replace “Table 1081-18” with “Table 1081-4”.

**Division 12**

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

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

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

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

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

**Division 15**

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

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

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

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

**Division 17**

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

Revise the *2012 Roadway Standard Drawings* as follows:

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

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

(3-18-03) (Rev. 10-15-13)

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, 919-733-6932, or <http://www.ncagr.gov/plantind/> to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

**Regulated Articles Include**

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

**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.

# TC-1

## WORK ZONE TRAFFIC CONTROL GENERAL REQUIREMENTS

### TEMPORARY TRAFFIC CONTROL (TTC):

(7-16-13) (Rev. 7-15-14)

RWZ-1

DocuSigned by:  
*Steve Kite*  
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10/22/2014



Maintain traffic in accordance with Divisions 10, 11 and 12 of the *2012 Standard Specifications* and the following provisions:

Install Work Zone Advance Warning Signs in accordance with the detail drawing provided in these plans prior to beginning any other work. Use a lane closure or slow moving operation to complete the work, as necessary, unless otherwise indicated. Refer to Standard Drawing No. 1101.02, 1101.11, 1110.01, 1110.02, 1130.01, 1135.01 and 1180.01 of the *2012 Roadway Standard Drawings*. Use a moving operation only if the minimum speed maintained at all times is 3 mph with no stops that narrow or close a lane of travel. If the moving operation is progressing slower than 3 mph at any time, install a lane closure. Maintain the existing traffic pattern at all times, except in the immediate work zone where lane closures are allowed as determined by the Engineer.

Refer to attached details and Standard Drawing No. 1101.02, 1101.03, 1101.04, 1101.05, 1101.11, 1110.01, 1110.02, 1115.01, 1130.01, 1135.01, 1145.01, 1150.01, 1165.01, and 1180.01 of the *2012 Roadway Standard Drawings* when closing a lane of travel in a stationary work zone such as pavement patching resurfacing, or pavement marking removal. Properly ballasted cones and skinny drums may be used instead of drums. However, drums are required for the upstream taper portion of lane closures in all applications. The stationary work zone shall be a maximum of 1 mile in length at any given time on 2 Lane, 2 Way facilities unless otherwise approved by the Engineer. A pilot vehicle operation may be used in conjunction with flaggers and the appropriate pilot vehicle warning signing as directed by the Engineer. During periods of construction inactivity, return the traffic pattern to the existing alignment and remove or cover any work zone signs. When covering work zone signs, use an opaque material that prevents reading of the sign at night by a driver using high beam headlights. Use material, which does not damage the sign sheeting. Replace any obliterated markings as required by other sections of the *2012 Standard Specifications* and the Engineer.

When personnel and/or equipment are working on the shoulder adjacent to and within 5 feet of an open travel lane, close the nearest open travel lane using Standard Drawing No. 1101.02 of the *2012 Roadway Standard Drawings*. When personnel and/or equipment are working within a lane of travel of an undivided facility, close the lane according to the traffic control plans, *2012 Roadway Standard Drawings* or as directed by the Engineer. Conduct the work so that all

## TC-2

personnel and/or equipment remain within the closed travel lane. Do not work simultaneously, on both sides of an open travel way, within the same location, on a two-lane, two-way road. Perform work only when weather and visibility conditions allow safe operations as directed by the Engineer.

When utilizing a slow-moving operation for such items as pavement marking and marker placement, as a minimum the slow moving operation caravan shall consist of the vehicles and devices shown on the Moving Operation Caravan Details according to Roadway Standard Drawing No. 1101.02, sheet 11 of the *2012 Roadway Standard Drawings*. Traffic cones may be used when necessary to provide additional protection of wet pavement markings. Ballast all traffic cones so they will not be blown over by traffic.

### **TRAFFIC OPERATIONS:**

#### **1) Drop-Off Requirements and Time Limitations:**

Do not exceed a difference of 2 inches in elevation between open lanes of traffic for nominal lifts of 1.5 inches

During a resurfacing only operation, bring all newly resurfaced lanes to the same elevation within 72 hours for nominal lifts of 1.5 inches or less of asphalt course and by the end of each work day for nominal lifts of greater than 1.5 inches of asphalt course

Backfill at a 6:1 slope up to the edge and elevation of existing pavement in areas adjacent to an open travel lane that has an edge of pavement drop-off as follows:

- (A) Drop-off that exceeds 2 inches on roadways with posted speed limits of 45 mph or greater.
- (B) Drop-off that exceeds 3 inches on roadways with posted speed limits less than 45 mph.

For drop-offs that exceed the above requirements, backfill the unacceptable drop-off with suitable compacted material, as approved by the Engineer. The material, equipment and labor associated with this operation will be at no expense to the Department. This work is not considered part of shoulder reconstruction.

#### **2) Project Requirements:**

Failure to comply with the following requirements will result in a suspension of all other operations:

1. Before working on ANY MAP, the Contractor shall submit a written construction sequence for traffic control and construction lighting for ALL MAPS to the Engineer at the first pre-construction meeting and the sequence must be approved before closing a lane of traffic. The Contractor and Engineer will coordinate with the Traffic Management Unit at 919-773-2800 or Traffic Services for additional traffic control guidance, as necessary.

## TC-3

2. Obtain written approval of the Engineer before working in more than one location or setting up additional lane closures. The maximum length of any one lane closure is 1 mile unless otherwise directed by the Engineer.
3. Contractor shall mill and pave lanes in an order such that water shall not accumulate.
4. Traffic Control for the milling and/or paving of ramps is to be done according to Standard Drawing Number 1101.02, Sheets 9 & 10 unless otherwise approved to be closed by the Engineer. If approved, Contractor will provide plans and devices for the detour at no additional cost to the department.
5. If lane closure restrictions apply, see Special Provision, “Intermediate Contract Times and Liquidated Damages”.
6. If milled areas are not paved back within 72 hours, the Contractor is to furnish and install the following portable signs to warn drivers of the conditions. These are to include, but not limited to “Rough Road” (W8-8), “Uneven Lanes” (W8-11), and “Grooved Pavement” (W8-15) w/ Motorcycle Plaque mounted below. These are to be dual indicated on Multi-Lane Roadways with speed limits 45 mph and greater where lateral clearance can be obtained within the median areas. These portable signs are incidental to the other items of work included in the temporary traffic control (Lump Sum) pay item.

### **3) Work Zone Signing:**

#### **Description**

Install advance/general warning work zone signs according to the Detail Drawing provided in these plans prior to beginning of work. Install and maintain signing in accordance with the attached drawings and Divisions 11 and 12 of the *2012 Standard Specifications*.

#### **(A) Installation**

All stationary Advance/General warning work zone signs require notification to existing Utility owners per Article 105-8 of the *2012 Standard Specifications* and Special Provision SP1 G115 within 3 to 12 full working days prior to installation.

Install all Advance/General warning work zone signs before beginning work on a particular map. If signs are installed more than seven (7) calendar days prior to the beginning of work on a particular map, cover the signs until the work begins. Install each work zone Advance/General warning sign separately and not on the same post or stand with any other sign except where an advisory speed plate or directional arrow is used.

All stationary signing is to be installed as shown on the detail drawing(s) unless otherwise directed by the Engineer. All sign locations to be verified by the Engineer prior to installation. Once the signs have been installed and accepted, any sign relocations requested by the Department will be compensated in accordance with Article 104-7. Any additional signs other than the ones shown in the drawing will be compensated in accordance with Article 104-7.

## TC-4

No stationary -Y- Line advance warning signage is required unless there's more than 1,000 feet of resurfacing along the -Y- line. Whenever work proceeds through an intersection, portable signs shall be used for traffic control. There will be no direct compensation for any portable signing.

If there is a period of construction inactivity longer than 14 calendar days, remove or cover advance/general warning work zone signs. Uncover advance/general warning work zone signs no more than 7 calendar days before work resumes. All other operations may be suspended upon failure to comply with the above requirements. Such suspended operations would not be resumed until the above requirements are fulfilled.

### **(B) Sign Removal**

All stationary work zone signs shall be removed once the project is substantially complete. The project is substantially complete when the resurfacing operations are completed and the shoulders are brought up to the same elevation as the proposed pavement and when pavement markings are installed. The pavement marking doesn't have to be the final marking material to be considered substantially complete. Any remaining punch list items are to be completed with portable work zone signing. There will be no compensation for any portable signing. Sign removal is a condition of final project acceptance.

### **(C) Lane Closure Work Zone Signs**

Install any required lane closure signing needed during the life of the project in accordance with the Standard Drawing No. 1101.02, 1101.11 and 1110.02 of the *2012 Roadway Standard Drawings*. Any required portable signs for lane closures are compensated in the contract pay item for *Temporary Traffic Control*.

### **4) Measurement and Payment:**

Temporary traffic control work, including, but not limited to installation and removal of portable signs, cones, drums, skinny drums, flaggers, AFAD's, changeable message boards, truck mounted attenuators, flashing arrow boards, and pilot vehicles will be paid at the contract lump sum price for *Temporary Traffic Control*. The *Temporary Traffic Control* pay item does not include work zone advance or general warning signs. Partial payments for *Temporary Traffic Control* will be made as follows: The cumulative total of the lump sum price for temporary traffic control will be equal to the percent complete (project) as calculated for each partial pay estimate. Additional flashing arrow boards and message boards beyond those shown in the contract, detail drawings or *Roadway Standard Drawings* required by the Engineer will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*.

The work of satisfactorily installing and removing work zone advance and/or general warning signs, including, but not limited to, furnishing, locating, installing, covering, uncovering and removing stationary signs will be measured for each required sign and paid at the contract price for *Work Zone Advance/General Warning Signing (SF)*. Payment for *Work Zone*

## TC-5

*Advance/General Warning Signing* will be limited to a maximum of 90% of the total installed quantity. The remaining 10% will be paid once all signs have been removed.

The Lump Sum price for *Temporary Traffic Control* will include the work of four (4) flaggers per operation per map being utilized at the same time on any day. If a pilot vehicle is used for an operation, the Lump Sum Price for *Temporary Traffic Control* will include the work of five (5) flaggers. The operator of a pilot vehicle will be considered one of the five flaggers.

Any additional flagging beyond the “included” amount covered in the *Temporary Traffic Control* pay item will be considered supplemental flagging and compensated at a rate of \$20.00 per hour for each additional flagger as approved by the Engineer.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Temporary Traffic Control	Lump Sum
Work Zone Advance/General Warning Signing	Square Foot

## TC-6

### **RESURFACING OPERATIONS:**

(7-15-14)

RWZ-2

Coordinate the installation of items required by the contract documents and resurfacing operations such that these operations are completed in the order as agreed upon with the Engineer at the first pre-construction meeting. Refer to the Provisions, Typicals and Details unless otherwise directed by the Engineer.

Notify the Engineer 15 consecutive calendar days before resurfacing a bridge or its approaches. Patch and make repairs to bridge surface and its approaches before resurfacing occurs. Coordinate all operations on the bridge and its approaches with the Engineer.

Notify the Engineer 48 hours before resurfacing the areas of existing pavement that require patching. Patch these areas before resurfacing occurs. Allow full depth asphalt patching to cool to the point of supporting traffic without displacement or rutting before reopening closed lane. Coordinate the resurfacing operations of the patched areas with the Engineer.

Notify the Engineer 48 hours before milling or resurfacing will interfere with the existing Signal Loops. Loops may need to be placed in milled surface before resurfacing occurs. Coordinate all signal loop operations with the Engineer.

For partial or wheel track milling operations on two-way, two-lane facilities, mill and pave back by the end of each work day. For Partial or wheel track milling operation on multi-lane facilities, the lane being milled may be left closed and paved back within 72 hours.

The following options are available during Resurfacing and milling operations on two-way, two-lane facilities when the entire roadway or entire lane is to be milled:

- (A) Mill a single lane and pave back by the end of each work day.
- (B) Mill the entire width of roadway and pave back within 72 hours.

The following options are available during Resurfacing and milling operations on multi-lane facilities when all lanes or a single lane in one direction are to be milled:

- (A) Mill a single lane and pave back by the end of each work day.
- (B) Mill the entire width of pavement for all lanes to be milled in any direction daily and pave back within 72 hours.

Slope the pavement at the beginning and ending of the daily milling operation as directed by the Engineer. Sweep and remove all milled material from the roadway as soon as the daily milling operation is completed. Continue milling operations until the particular section of roadway being milled is complete. Remove any existing pavement adjacent to the milled area that has been damaged and replace with patch material as directed by the Engineer.

Operate equipment and conduct operations in the same direction as the flow of traffic. Maintain vehicular access in accordance with Article 1101-05 of the *2012 Standard Specifications* using suitable backfill material approved by the Engineer.



## TC-7

Provide appropriate lighting in accordance with Section 1413 of the *2012 Standard Specifications*.

### **Milled Rumble Strips:**

When utilized, milled rumble strips shall be installed in accordance with the *2012 Standard Specifications* and the 2012 Roadway Standard Drawing 665.01.

# TC-8

## **PAVEMENT MARKINGS AND MARKERS:**

(7-15-14)

RWZ-3

### **Markings: All Facilities**

Pavement markings shall be installed in accordance with Standard Drawings 1205.01 through 1205.13 of the *2012 Roadway Standard Drawings* and Section 1205 of the *2012 Standard Specifications* with the exception of the 15 day edge line replacement requirement for two-lane, two-way roadways as described in Subarticle 1205-3(D) of the *2012 Standard Specifications*. For all two-lane, two-way facilities, edge lines can be replaced within 30 calendar days after they have been obliterated.

Type 3 Cold Applied Plastic may be used in lieu of Type 2 Cold Applied Plastic. If Type 3 Cold Applied Plastic is used, it shall be paid for using the Type 2 Cold Applied Plastic pay item.

Unless otherwise specified, Heated-in-Place Thermoplastic may be used in lieu of Extruded Thermoplastic for stop bars, symbols, characters and diagonals. If Heated-in-Place Thermoplastic is used, it shall be paid for using the Extruded Thermoplastic pay item.

Unless otherwise specified, Heated-in-Place Thermoplastic may be used in lieu of Cold Applied Plastic for stop bars, symbols, characters and diagonals on asphalt or concrete roadways. If Heated-in-Place Thermoplastic is used, it shall be paid for using the Cold Applied Plastic pay item.

### **Markers: All Facilities**

Remove existing pavement markers in preparation for paving. Repair any pavement damage due to existing pavement marker removal prior to the end of the work day. Dispose of existing pavement markers as directed by the Engineer. No direct payment will be made for this work as it will be incidental to the paving operation.

Install permanent pavement markers within 60 calendar days after completing the resurfacing on each map. Pavement markers shall be installed in accordance with Standard Drawing 1205.12 and Standard Drawings 1250.01 through 1253.01 of the *2012 Roadway Standard Drawings* and Sections 1250 through 1253 of the *2012 Standard Specifications*.

### **Markings and Markers: All Facilities**

Review and record the existing pavement markings and markers before resurfacing. Re-establish the new pavement markings and markers using the record of existing markings in conjunction with the *2012 Roadway Standard Drawings* unless otherwise directed by the engineer. Have existing or proposed "passing zones" reviewed by the engineer before installation. Submit the record of the existing pavement markings seven calendar days before the obliteration of any pavement markings.

Mainline pavement shall not be left milled, unmarked or uneven at the end of a paving season. If the Contractor begins any map and does not complete within the seasonal restrictions,

## **TC-9**

including placement of final pavement markings or permanent markers, the Contractor shall be responsible for, at his expense, Paint in accordance with Article 1205-08 and Temporary Markers in accordance with Section 1251 of the *2012 Standard Specifications*.

# TC-10

## WORK ZONE TRAFFIC CONTROL Project Special Provisions

### LAW ENFORCEMENT:

(02/06/13)

#### **Description**

Furnish Law Enforcement Officers and marked Law Enforcement vehicles direct traffic in accordance with the contract.

#### **Construction Methods**

Use uniformed Law Enforcement Officers and marked Law Enforcement vehicles equipped with blue lights mounted on top of the vehicle, and Law Enforcement vehicle emblems to direct or control traffic as required by the plans or by the Engineer.

#### **Measurement and Payment**

Law Enforcement will be measured and paid for in the actual number of hours that each Law Enforcement Officer is provided during the life of the project as approved by the Engineer. There will be no direct payment for marked Law Enforcement vehicles as they are considered incidental to the pay item.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Law Enforcement	Hour

DocuSigned by:  
*Steve Kite*  
E27CE30E1DFC442...

10/22/2014



# EC-1

## **STABILIZATION REQUIREMENTS:**

(5-1-15)

S-2

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

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

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

## **SEEDING AND MULCHING:**

**(East Crimp)**

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

### All Roadway Areas

<b>March 1 - August 31</b>		<b>September 1 - February 28</b>	
50#	Tall Fescue	50#	Tall Fescue
10#	Centipede	10#	Centipede
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

### Waste and Borrow Locations

<b>March 1 - August 31</b>		<b>September 1 - February 28</b>	
75#	Tall Fescue	75#	Tall Fescue
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

## EC-2

### Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Scorpion
2 <sup>nd</sup> Millennium	Essential	Kalahari	Serengeti
3 <sup>rd</sup> Millennium	Evergreen 2	Kentucky 31*	Shelby
Apache III	Falcon IV	Kitty Hawk 2000	Sheridan
Avenger	Falcon NG	Legitimate	Signia
Barlexas	Falcon V	Lexington	Silver Hawk
Barlexas II	Faith	LSD	Sliverstar
Bar Fa	Fat Cat	Magellan	Shenandoah Elite
Barrera	Festnova	Matador	Sidewinder
Barrington	Fidelity	Millennium SRP	Skyline
Barrobusto	Finelawn Elite	Monet	Solara
Barvado	Finelawn Xpress	Mustang 4	Southern Choice II
Biltmore	Finesse II	Ninja 2	Speedway
Bingo	Firebird	Ol' Glory	Spyder LS
Bizem	Firecracker LS	Olympic Gold	Sunset Gold
Blackwatch	Firenza	Padre	Taccoa
Blade Runner II	Five Point	Patagonia	Tanzania
Bonsai	Focus	Pedigree	Trio
Braveheart	Forte	Picasso	Tahoe II
Bravo	Garrison	Piedmont	Talladega
Bullseye	Gazelle II	Plantation	Tarheel
Cannavaro	Gold Medallion	Proseeds 5301	Terrano
Catalyst	Grande 3	Prospect	Titan ltd
Cayenne	Greenbrooks	Pure Gold	Titanium LS
Cessane Rz	Greenkeeper	Quest	Tracer
Chipper	Gremlin	Raptor II	Traverse SRP
Cochise IV	Greystone	Rebel Exeda	Tulsa Time
Constitution	Guardian 21	Rebel Sentry	Turbo
Corgi	Guardian 41	Rebel IV	Turbo RZ
Corona	Hemi	Regiment II	Tuxedo RZ
Coyote	Honky Tonk	Regenerate	Ultimate
Darlington	Hot Rod	Rendition	Venture
Davinci	Hunter	Rhambler 2 SRP	Umbrella
Desire	Inferno	Rembrandt	Van Gogh
Dominion	Innovator	Reunion	Watchdog
Dynamic	Integrity	Riverside	Wolfpack II
Dynasty	Jaguar 3	RNP	Xtremegreen
Endeavor	Jamboree	Rocket	

**\*Note: Kentucky 31 will no longer be an approved NCDOT Tall Fescue Cultivar after December 31, 2015.**

## EC-3

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

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

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

### **CRIMPING STRAW MULCH:**

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

# EC-4

## **WATTLE:**

(10-19-10) (Rev. 1-17-12)

1060,1630,1631

T1

### **Description**

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

### **Materials**

Wattle shall meet the following specifications:

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

Stakes shall be used as anchors.

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

Matting shall meet the requirements of Article 1060-8 of the *2012 Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

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

### **Construction Methods**

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



## EC-5

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

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *2012 Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

The Contractor shall maintain the wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *2012 Standard Specifications*.

### **Measurement and Payment**

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

Matting will be measured and paid for in accordance with Article 1631-4 of the *2012 Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Wattle	Linear Foot

County : Montgomery, Randolph

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
<b>ROADWAY ITEMS</b>						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0106000000-E	230	BORROW EXCAVATION	193 CY		
0003	0255000000-E	SP	GENERIC GRADING ITEM AGGREGATE SHOULDER BORROW	2,058 TON		
0004	1220000000-E	545	INCIDENTAL STONE BASE	33 TON		
0005	1245000000-E	SP	SHOULDER RECONSTRUCTION	17.26 SMI		
0006	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	11,320 SY		
0007	1308000000-E	607	MILLING ASPHALT PAVEMENT, **** TO ***** (0" TO 1-1/2")	235 SY		
0008	1330000000-E	607	INCIDENTAL MILLING	4,194 SY		
0009	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1,475 TON		
0010	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	16,580 TON		
0011	1525100000-E	SP	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A (LEVELING COURSE)	155 TON		
0012	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	1,209 TON		
0013	1704000000-E	SP	PATCHING EXISTING PAVEMENT	2,041 TON		
0014	1775500000-E	SP	ASPHALT SURFACE TREATMENT, MAT COAT, **** STONE (6M)	104,500 SY		
0015	1814500000-E	SP	ASPHALT SURFACE TREATMENT, SINGLE SEAL	2,400 SY		
0016	1838000000-E	SP	EMULSION FOR ASPHALT SURFACE TREATMENT	42,640 GAL		
0017	1881000000-E	SP	GENERIC PAVING ITEM MILLED RUMBLE STRIPS (ASPHALT CONCRETE) 7" WIDTH	15,700 LF		

County : Montgomery, Randolph

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0018	1891000000-E	SP	GENERIC PAVING ITEM ASPHALT SURFACE TREATMENT SLURRY SEAL	2,400 SY		
0019	1891000000-E	SP	GENERIC PAVING ITEM LATEX MODIFIED MICROSURFACING, TYPE III	134,301 SY		
0020	2830000000-N	858	ADJUSTMENT OF MANHOLES	2 EA		
0021	2845000000-N	858	ADJUSTMENT OF METER BOXES OR VALVE BOXES	2 EA		
0022	4413000000-E	SP	WORK ZONE ADVANCE/GENERAL WARNING SIGNING	3,018 SF		
0023	4457000000-N	SP	TEMPORARY TRAFFIC CONTROL	Lump Sum	L.S.	
0024	4510000000-N	SP	LAW ENFORCEMENT	200 HR		
0025	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	31,745 LF		
0026	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	31,745 LF		
0027	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	120 LF		
0028	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	12 EA		
0029	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	27 EA		
0030	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	970,441 LF		
0031	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	330 LF		
0032	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	429 EA		
0033	6000000000-E	1605	TEMPORARY SILT FENCE	13 LF		
0034	6071010000-E	SP	WATTLE	65 LF		

County : Montgomery, Randolph

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0035	6084000000-E	1660	SEEDING & MULCHING	1.28		
				ACR		

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Total Amount Of Bid For Entire Project :

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