

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

C203127

CONTRACT AND
CONTRACT BONDS
FOR CONTRACT NO. C203127

WBS 53500.3.STR01T4 STATE FUNDED

T.I.P NO. U-3459

COUNTY OF ROWAN
THIS IS THE RAIL CONTRACT

ROUTE NUMBER SR 2541 LENGTH 0.571 MILES
LOCATION SR-2541 (KLUMAC RD) AT NORTH CAROLINA RAILROAD IN SALISBURY.

CONTRACTOR BLYTHE CONSTRUCTION, INC.
ADDRESS P.O. BOX 31635
CHARLOTTE, NC 28231

BIDS OPENED DECEMBER 18, 2012
CONTRACT EXECUTION JAN 23 2013

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

PROPOSAL

DATE AND TIME OF BID OPENING: **DECEMBER 18, 2012 AT 2:00 PM**

CONTRACT ID C203127
WBS 53500.3.STR01T4

FEDERAL-AID NO. STATE FUNDED

COUNTY ROWAN

T.I.P. NO. U-3459

MILES 0.571

ROUTE NO. SR 2541

LOCATION SR-2541 (KLUMAC RD) AT NORTH CAROLINA RAILROAD IN SALISBURY.

TYPE OF WORK GRADING, DRAINAGE, PAVING, SIGNALS, TRACKBED, AND STRUCTURE

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

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A RAIL PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

**PROPOSAL FOR THE CONSTRUCTION OF
CONTRACT No. C203127 IN ROWAN COUNTY, 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. **C203127**; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the 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. **C203127** in **Rowan County**, 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.

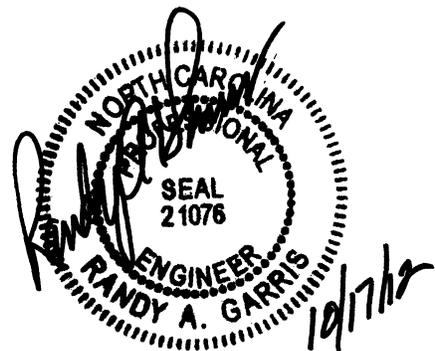
The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the 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

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

(8-15-00) (Rev. 12-18-07)

108

SP1 G07 A

The date of availability for this contract is **January 28, 2013**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **October 28, 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 **Two Hundred Dollars (\$200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:

(7-1-95) (Rev. 2-21-12)

108

SP1 G13 A

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

The date of availability for this intermediate contract time is **January 28, 2013**.

The completion date for this intermediate contract time is **May 1, 2016**.

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

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

INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SPI G14 B

The Contractor shall not narrow or close a lane of traffic on **US 29/70 or S. Martin Luther King Jr. Avenue**, detain and /or alter the traffic flow on or during 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 **4:00 p.m.** December 31st and **9:00 a.m.** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **9:00 a.m.** the following Tuesday.
3. For **Easter**, between the hours of **4:00 p.m.** Thursday and **9:00 a.m.** Monday.
4. For **Memorial Day**, between the hours of **4:00 p.m.** Friday and **9:00 a.m.** Tuesday.
5. For **Independence Day**, between the hours of **4:00 p.m.** the day before Independence Day and **9:00 a.m.** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **9:00 a.m.** the Thursday before Independence Day and **9:00 a.m.** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **4:00 p.m.** Friday and **9:00 a.m.** Tuesday.
7. For **Thanksgiving Day**, between the hours of **4:00 p.m.** Tuesday and **9:00 a.m.** Monday.
8. For **Christmas**, between the hours of **4:00 p.m.** the Friday before the week of Christmas Day and **9:00 a.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 place traffic in existing pattern.

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

RAILROAD COORDINATION:

The Contractor's attention is directed to the "Sequence of Construction" for the railroad detour (shoo-fly) contained in the plans. Norfolk Southern Railroad Company will require twelve (12) week's advance notice of the Contractor's anticipated completion of detour railroad roadbed grading and sub-ballast placement. Notice shall be given to the Resident Engineer. It is anticipated that Norfolk Southern will require one hundred (100) total calendar days to move train operations from the existing main tracks to the proposed detour tracks. Norfolk Southern will require four (4) week's advance notice of the Contractor's anticipated completion of the proposed structure and railroad roadbed grading. Notice shall be given to the Resident Engineer. It is anticipated that Norfolk Southern will require seventy (70) total calendar days to move train operations to the newly constructed track across the new structure. Norfolk Southern will require eight (8) weeks to remove the detour rail, ties and ballast.

PERMANENT VEGETATION ESTABLISHMENT:

(2-16-12)

104

SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish 80% coverage of permanent vegetation within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2012 Standard Specifications*.

Once the Engineer has determined that 80% coverage of permanent vegetation has been established, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

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

PROGRESS SCHEDULE**(SPECIAL)**

The Contractor shall prepare and submit for review and approval a Progress Schedule as set forth in Section 108 of the Standard Specification, the Railroad Coordination Special Provision, and as amended herein.

The schedule shall include activity descriptions with beginning and ending dates, partial completion (in percentage or time format. Railroad roadbed activities should include beginning

and ending stations of roadbed section. The schedule shall include activities or milestones indicating when NSR flagmen and construction forces should be mobilized to the site.

In addition to those requirements listed above and in Section 108 of the Standard Specifications, the Contractor shall include the following activities or milestones in the schedules, where applicable:

- Beginning and ending dates for each phase or section of railroad roadbed work
Expected beginning and ending dates for each phase of track work required to be performed by NSR, based on the durations indicated in the Railroad Coordination Special Provision or as coordinated with the Engineer and Railroad Engineer
- Dates when flagging for railroad protection is required and expected type of flagging required, as coordinated with the Engineer and Railroad Engineer
- Dates (and durations, if temporary) for closures of at-grade crossings
- Completion dates for highway projects and railroad roadbed projects if separate completion dates are anticipated/required
- Anticipated dates for removal of erosion control devices

The Contractor shall continue to submit to the Engineer a schedule on a monthly basis until the work is substantially complete. If no changes are required to the schedule dates, the Contractor should resubmit the previous month's schedule with a revised submittal date and updated percent partial completion.

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*):

Line #	Description
5	Unclassified Excavation
208	Class AA Concrete (Bridge)

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*).

Line #	Description
69 thru 75	Guardrail
76 thru 78	Fencing
83 thru 91	Signing
102 thru 106	Long-Life Pavement Markings
112	Permanent Pavement Markers
115 thru 137	Utility Construction
138 thru 163	Erosion Control
164 thru 203	Signals/ITS System

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 1-17-12)

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 **\$3.2145** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

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

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
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
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. 6-19-12)

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:

Fiscal Year	Progress (% of Dollar Value)
2013 (7/01/12 - 6/30/13)	19% of Total Amount Bid
2014 (7/01/13 - 6/30/14)	39% of Total Amount Bid
2015 (7/01/14 - 6/30/15)	28% of Total Amount Bid
2016 (7/01/15 - 6/30/16)	14% of Total Amount Bid

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.

**DISADVANTAGED BUSINESS ENTERPRISE FOR RAILROAD PIEDMONT
IMPROVEMENT PLAN (PIP):**

(12-18-12)

102-15(J)

SP1 G64

Description

The purpose of this Special Provision is to promote the solicitation and use of disadvantaged minority and woman-owned businesses in the rail PIP projects let by the Department of Transportation.

Definitions

Aspirational Goal - The portion of the total contract, expressed as a percentage, that is foreseeable to be performed by DBE subcontractors.

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

Pledged DBE Subcontractor - Any DBE submitted at the time of bid that is being used to meet the DBE aspirational goal.

Pledged DBE Goal - The DBE participation at time of award, as determined by the amount of pledged DBE participation submitted.

Confirmation Letter - Written documentation from the Department to the bidder confirming the Contractor's approved, pledged DBE participation along with the listing of the DBE 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.

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 brought, 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 DBE certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients of USDOT funds in the state.

Forms and Websites Referenced in this Provision

Affidavit A - Listing of Good Faith Efforts - Form signed by bidder listing good faith efforts performed. This form is required if the lowest responsive and responsible bidder fails to meet or exceed the aspirational goal.

http://files.www.piedmontrail.biz/primary-navigation/prequalification-requirements/PIP_DBEP_provision.pdf

DBE Payment Tracking System - On-line system in which the Contractor enters the payments made to DBE 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 DBE 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 DBE Replacement Request Form - Form for replacing a committed DBE.
<https://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.
<https://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontractor%20Approval%20Form.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.
<https://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf>

Letter of Intent - Form signed by the Contractor and the DBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed DBE for the amount listed at the time of bid.
<https://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

Listing of DBE Subcontractors Form - Form for entering DBE subcontractors on a project that will meet this DBE goal. This form is for paper bids only.
<http://www.ncdot.gov/doh/preconstruct/ps/word/MISC2.doc>

Aspirational DBE Goal

In line with the federal aspirational goal, the following DBE aspirational goal for participation by Disadvantaged Business Enterprises is established for this contract:

Disadvantaged Business Enterprises **10.0 %**

Even though the goal is aspirational, the expectation is that the Contractor shall exercise all reasonable steps to achieve the goal. Such steps include, but are not limited to:

- (A) Clearly defining and disseminating information to DBEs on portions of the work that is available on the project so DBEs are provided an equitable opportunity to participate on the PIP contracts let by the Department.
- (B) Solicit through reasonable and available means to try and achieve the aspirational goal.
- (C) Providing adequate information and arranging a location for the review of plans, specifications and requirements of the contract.

- (D) Providing assistance to DBEs in overcoming barriers such as the inability to obtain bonding, lines of credit, insurance, materials, equipment or related assistance or services.

Directory of Transportation Firms (Directory)

Real-time information is available about firms doing business with the Department and firms that are DBE certified through the NC UCP in the NCDOT Directory of Transportation Firms. Only firms identified in the Directory as DBE certified shall be used to meet the aspirational DBE goal of the project. 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 the work.

Listing of DBE Subcontractors

At the time of bid, bidders shall submit all the DBE participation that they anticipate to use during the life of the contract. Since the Rail DBE program is race and gender-neutral, all participation up to and over the 10% aspirational goal will be used toward the Department's race and gender-neutral goal for rail projects. Only those firms with current DBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of DBE participation. The bidder shall indicate the following required information:

(A) **Electronic Bids**

Bidders shall submit a listing of DBE participation in the appropriate section of Expedite, the bidding software of Bid Express®.

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

(B) Paper Bids

- (1) Bidders, at the time the bid proposal is submitted, shall submit a listing of DBE participation, including the names and addresses on the Listing of DBE Subcontractors form.
- (2) The bidder shall be responsible for ensuring that the DBE 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 DBE's participation will not count towards achieving the aspirational DBE goal.

DBE Prime Contractor

When a certified DBE firm bids on a rail PIP contract that contains an aspirational DBE goal, the DBE firm by virtue of the work it performs on the contract with its own forces, will meet the DBE aspirational goal. The DBE bidder shall list itself along with any other DBE subcontractors on the Listing of DBE Subcontractor form and the amount of work by each.

Written Documentation – Letter of Intent

The bidder shall submit written documentation for each DBE that will be used on the project to meet the aspirational goal of the contract, indicating the bidder's intent to use the DBE in the contract. This documentation shall be submitted on the Department's form titled *Letter of Intent*. The purpose of this documentation is to make the DBE aware that their quote is being used on the project. The documentation is not intended to take the place of a formal contract between the Contractor and the DBE subcontractor.

A hard or electronic copy of the Letter(s) of Intent 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.

Submission of Good Faith Effort

While the lowest responsible and responsive bidder will not be denied award of the contracted based on failing to meet the advertised aspirational goal, the Department expects that the bidder will put forth a good faith effort to meet it. If the bidder fails to meet or exceed the aspirational DBE goal, the apparent lowest responsive bidder shall submit Affidavit A - Listing of Good Faith Efforts. A hard or electronic copy of the Affidavit 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.

Counting DBE Participation Toward Meeting the DBE Aspirational Goal**(A) Participation**

The total dollar value of the participation by a submitted DBE will be counted toward the aspirational goal of the contract. The total dollar value of the participation by a DBE will be based upon the value of work actually performed by the DBE and the actual payments to the DBE firms by the Contractor.

(B) Joint Checks

Prior notification of joint check use shall be required when counting DBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of the 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 DBE may enter into subcontracts. Work that a DBE subcontracts to another DBE firm may be counted toward the aspirational goal. Work that a DBE subcontracts to a non-DBE firm does not count toward the aspirational goal of the contract.

(D) Joint Venture

When a DBE performs as a participant in a joint venture, the Contractor may count toward its aspirational goal a portion of the total value of participation with the DBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the DBE performs with its own forces.

(E) Suppliers

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

(F) Other

A contractor may count toward its aspirational DBE goal the following expenditures to DBE firms that are not manufacturers or regular dealers:

- (1) The fees or commissions charged by a DBE 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 DBE, 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

Even though the goal on the rail PIP project is aspirational, there is still a requirement that the DBEs performing on the project will perform a commercially useful function in the work of a contract. The Contractor may only count/report towards the aspirational goal only expenditures to DBEs that perform a commercially useful function.

- (A) A DBE 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 DBE 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 DBE 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 DBE credit claimed for its performance of the work, and any other relevant factors.

(B) DBE Utilization in Trucking

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

- (1) The DBE 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 aspirational DBE goal.
- (2) The DBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The DBE 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 DBE may subcontract the work to another DBE firm, including an owner-operator who is certified as a DBE. The DBE who subcontracts work to another DBE receives credit for the total value of the transportation services the subcontracted DBE provides on the contract.

- (5) The DBE may also subcontract the work to a non-DBE firm, including from an owner-operator. The DBE who subcontracts the work to a non-DBE is entitled to credit for the total value of transportation services provided by the non-DBE subcontractor not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE 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 DBE and the Contractor will not count towards the DBE credit for the project.
- (6) A DBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the DBE 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 DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. This type of lease may count toward the DBE's credit as long as the driver is under the DBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the DBE 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.

Changes in the Work and Replacement of Pledged DBEs

Throughout the contract there may be changes made by the Engineer or Contractor that result in the reduction or elimination of work that was proposed to be performed by a DBE. Since the goals are aspirational, the Contractor will not be required to seek additional participation elsewhere on the project, but there is an expectation that there will be a continued effort to get DBEs on the job.

If the Engineer or Contractor makes changes that result in additional work to be performed by a DBE based on the Contractor's pledged DBE submittal, the Department has an expectation that the DBE shall participated in the additional work to the same extent as the DBE participated in the original work unless there is a viable reason.

If a DBE cannot perform the work for any reason, there is not a requirement to replace the DBE with another, but there is an expectation by the Department that the Contractor will continue to seek additional DBE participation opportunities on the project. The Department also requires the use of the *DBE Replacement Request Form (RF-1)* for tracking purposes.

Reporting Disadvantaged Business Enterprise Participation

The Contractor shall provide the Engineer with an accounting of payments made to all DBE 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 DBEs, 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-DBE 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 DBE 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.

**ARRA AND OERI CONTRACT PROVISIONS AND REPORTING REQUIREMENT
CERTIFICATION:**

(11-20-12)

SP1 G70

By submission of a proposal or bid, the Contractor agrees to comply with the following provisions. Failure to comply with any or all of the provisions herein may be cause for the contracting agency to issue a cancellation notice to a Contractor.

The Contractor is hereby notified that this project will be financed with American Recovery and Reinvestment Act of 2009 (ARRA) Funds. The Contractor shall assure that all subcontractors and other contracts for services for ARRA funded projects shall have the mandated provisions of this directive in their contracts. Pursuant to Title XV, Section 1512 of the ARRA, the

Department will require that the Contractor provide reports and other employment information as evidence to document the number of jobs created and retained by this contract from the Contractor's own workforce and any subcontractors. Additionally, the North Carolina Office of Economic Recovery & Investment (hereinafter, "OERI") has mandated certain procedural and reporting directives that will be followed. Additional provisions have been added to address OERI directives. No direct payment will be made for providing said reports as the cost for same is included in the various items in the contract.

The Contractor agrees that all data submitted to NCDOT and FRA in compliance with the Recovery Act requirements shall be accurate, objective, and of the highest integrity.

Posting with the Local Employment Security Commission

In addition to any other job postings the Contractor normally uses, OERI requires that the Contractor post with the local Employment Security Commission Office, all positions for which he intends to hire workers as a result of being awarded this contract. Labor and semi-skilled positions must be posted for at least 48 hours before the hiring decision. All other positions must be posted a minimum of five days before the hiring decision. The selected Contractor and any subcontractors shall report the new hires in the manner prescribed by the Employment Security Commission and the OERI. The NC ESC website can be found at www.ncesc.com.

Required Contract Provision to Implement ARRA Section 902

Section 902 of the American Recovery and Reinvestment Act (ARRA) of 2009 requires that each contract awarded using ARRA funds must include a provision that provides the U.S. Comptroller General and his representatives with the authority to:

- (1) Examine any records of the Contractor or any of its subcontractors, or any State or local agency administering such contract, that directly pertain to, and involve transactions relating to, the contract or subcontract; and
- (2) Interview any officer or employee of the Contractor or any of its subcontractors, or of any State or local government agency administering the contract, regarding such transactions.

Accordingly, the Comptroller General and his representatives will have the authority and rights as provided under Section 902 of the ARRA with respect to this contract, which is funded with recovery funds made available under the ARRA. Section 902 further states that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of the Comptroller General.

Authority of the Inspector General

Section 1515(a) of the ARRA provides authority for any representatives of the Inspector General to examine any records or interview any employee or officers working on this contract. The Contractor is advised that representatives of the Inspector General have the authority to examine any record and interview any employee or officer of the Contractor, its subcontractors or other

firms working on this contract. Section 1515(b) further provides that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of the Inspector General.

Office of State Budget and Management Access to Records

OERI requires that the Contractor and subcontractor agree to allow the Office of State Budget and Management internal auditors and state agency internal auditors access to records and employees pertaining to the performance of any contract awarded by a public agency.

Buy American Provision

Section 1605 of the ARRA requires that iron, steel and manufactured goods used in public buildings or public works projects must be manufactured in the United States. The Contractor agrees to abide by this provision and shall maintain records of such purchases for inspection by authorized agents of the State of North Carolina and federal agencies.

Wage Rate Provision (applies to all construction, alteration or repair projects)

Section 1606 of the ARRA requires that all laborers and mechanics employed by Contractors and subcontractors with funds from the ARRA shall be paid wages at rates not less than the prevailing wage rate under the Davis-Bacon Act. The Contractor agrees that by the submission of a proposal/bid in response to a solicitation funded in whole or in part with recovery funds, continuous compliance will be maintained with the Davis-Bacon Act. This applies to all construction contracts that exceed \$2,000.

Labor Provisions

As provided by 49 U.S.C. 24405(b), persons conducting rail operations over rail infrastructure constructed or improved in whole or in part with funds provided through the ARRA agreement shall be considered a "rail carrier," as defined by 49 U.S.C. 10102(5), for the purposes of Title 49, United States Code, and any other statute that adopts that definition or in which that definition applies, including the Railroad Retirement Act of 1974 (45 U.S.C. 231 et seq.), the Railway Labor Act (43 45 U.S. C. 151 et seq.), and the Railroad Unemployment Insurance Act (45 U.S.C. 351 et seq.).

Availability and Use of Funds

Contractors understand and acknowledge that any and all payment of funds, or the continuation thereof, is contingent upon funds provided solely by ARRA or required state matching funds. Pursuant to Section 1604 of ARRA, Contractors agree not to undertake or make progress toward any activity using recovery funds that will lead to the development of such activity as casinos or other gambling establishments, aquariums, zoos, golf courses, swimming pools or any other activity specifically prohibited by the Recovery Act. Also, funds are not to be used for travel beyond the service area. Further, Contractor understands that ARRA funding is considered "one-time" funding.

Outsourcing outside the USA without Specific Prior Approval Provision

Contractor agrees not to use any recovery funds from a contract or any other performance agreement awarded by the State of North Carolina, its agencies, or political subdivisions for outsourcing outside of the United States, without specific prior written approval from the agency issuing the contract.

Federal, State and Local Tax Obligations

By submission of a proposal, Contractors and subcontractors assert and self-certify that all Federal, State and local tax obligations have been or will be satisfied prior to receiving recovery funds.

Anti-Discrimination and Equal Opportunity

Pursuant to Section 1.7 of the guidance memorandum issued by the United States Office of Management and Budget on April 3, 2009, recovery funds must be distributed in accordance with all anti-discrimination and equal opportunity statutes, regulations, and Executive Orders pertaining to the expenditure of funds.

Reports of Fraud or Waste

Contractors must report to the Inspector General any suspected incidence of waste, fraud and abuse related to ARRA funds, and should notify FRA regional offices of any problems encountered as they occur. Notification can be made by phone at (919) 733-1433, or electronically at <http://www.ncrecovery.gov/reportFraud/reportFraud.aspx>. Additional information can be found on the NC Recovery website (www.ncrecovery.gov) by clicking "Reporting of Waste and Fraud".

False Claims Act

Contractors and subcontractors awarded funds made available under the Recovery Act shall promptly report to the Inspector General any credible evidence that a principal, employee, agency, Contractor, subcontractor or other person has submitted a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity, or similar misconduct involving Recovery Act funds.

Whistleblower Provisions

Contractors understand and acknowledge that Article 14 of Chapter 124, NCGS 126-84 through 126-88 (applies to the State and state employees), Article 21 of Chapter 95, NCGS 95-240 through 95-245 (applies to anyone, including state employees), and Section 1553 of the Recovery Act (applies to anyone receiving federal funds), provide protection to State, Federal and contract employees.

Contractors or Agencies cannot discharge, demote, or otherwise discriminate against an employee as a reprisal for disclosing, including a disclosure made in the ordinary course of an employee's duties, to the Recovery Accountability and Transparency Board, an Inspector General, the Comptroller General, a member of Congress, a State or Federal regulatory or law enforcement agency, a person with supervisory authority over the employee (or such other person working for the employer who has the authority to investigate, discover or terminate misconduct), a court or grand jury, the head of a Federal agency or their representative, information that the employee reasonably believes is evidence of:

- (A) gross mismanagement of an agency contract or grant relating to covered funds;
- (B) a gross waste of covered funds;
- (C) a substantial and specific danger to public health or safety related to the implementation or use of covered funds;
- (D) an abuse of authority related to the implementation or use of covered funds; or
- (E) a violation of law, rule, or regulation related to an agency contract (including the competition for or negotiation of a contract) or grant, awarded or issued relating to covered funds.*

* covered funds: "any contract, grant, or other payment received by any non-federal employer if a) the Federal Government provides any portion of the money or property that is provided, requested or demanded; and b) at least some of the funds are appropriated or otherwise made available by this Act" 1553 (g)(2).

Contractor agrees to post notice of the rights and remedies as required by the ARRA.

Emblems

The Contractor agrees to use signs and materials at all fixed project locations at the most publicly accessible location announcing that the project or equipment was funded by the U.S. Department of Transportation, Federal Railroad Administration, with funds provided through the American Recovery and Reinvestment Act as directed by NCDOT. This provision is to be included in any subagreements, leases, third party contracts, or other similar documents used in connection with its Recovery Act Project.

Contractor Responsibilities and Reporting Requirements under ARRA

Contractors are required to complete projects or activities which are funded under the ARRA and to report on use of the funds provided through this award as directed. Information from these reports will be made available to the public. The reporting responsibility should be passed down from the Contractor to the subcontractor in order to ensure that the necessary information is provided within the specified deadline.

Contractors are not responsible for reporting ARRA requirements directly to FRA. The Contractor shall report the required data by way of NCDOT-supplied forms (either Microsoft Excel forms and in the approved version of Excel or editable pdf forms, as provided by NCDOT). The responsibilities for reporting are as follows:

(A) General

(1) Obtaining a Data Universal Numbering System (D-U-N-S) number or the Contractor may use their name and zip code of their Headquarters. For more information, visit <http://fedgov.dnb.com/webform> (for US and International locations) or call 866-705-5711. The toll free number is for US locations only. Registrants will be asked for their entity name, address, city, state, country, postal code, highest ranking individual's name and title, line of business, # of employees and legal structure (i.e.: corporation, non-profit, etc.) and socio economic data (veteran owned, women owned, etc.). If they use the web-form, there is a mailing address area, SIC code and annual revenue data lines but these are optional.

(2) Expenditure amount (amount of payment).

(3) Expenditure description (what was exchanged for the payment).

(4) A brief description of the types of jobs created and jobs retained. "Jobs or positions created" means those new positions created and filled, or previously existing unfilled positions that are filled, as a result of Recovery Act funding. "Jobs or positions retained" means those previously existing filled positions that are retained as a result of Recovery Act funding. A job cannot be reported as both created and retained. Note that contractors will describe jobs created and retained, but will not need to determine which were created versus which were retained.

(5) An estimate of the number of jobs created and jobs retained. At a minimum, this estimate shall include any new positions created and any existing filled positions that were retained to support or carry out Recovery Act projects. The number shall be expressed as "full-time equivalent" (FTE), reported monthly as all hours worked divided by the total number of hours in a full-time schedule.

(6) Percent complete and DBE payment data shall be submitted on a monthly basis, and is due to the NCDOT-Rail Division within 5 days of the end of each month.

(B) ARRA Section 1512

Contractor shall complete Form FHWA-1589 for each month and submit it to the NCDOT-Rail Division within 7 days after the end of the month. This data will be required until the contract is complete.

(1) Contractors will need to report the number of direct on-site job hours associated with the ARRA funds awarded as of the end of the reporting period.

(a) Contractors will not be expected to estimate indirect employment data (such as the employment needed to make "off the shelf" parts that the Contractor purchases).

- (b) The Contractor shall report direct labor (for example, construction workers building a maintenance facility, or transit agency workers doing preventive maintenance) for the prime as well as all subcontractors.
- (c) The Contractor shall report direct labor for suppliers when the quantity or value of purchases passes a threshold where there is likely an identifiable employment impact for the vendor. NCDOT will provide detailed guidance and assistance in this calculation.
- (d) USDOT economists will compute the number of indirect jobs and induced jobs (for example, jobs at suppliers or in unrelated industries as a result of the money flowing through the economy.)
- (2) Contractors and consultants shall provide the required information for their own workforce as well as the workforce of all subcontractors that were active on their ARRA funded project(s) for the reporting month.
- (3) The requirement for monthly reporting of employment data is included in all ARRA funded contracts to ensure transparency throughout the delivery of the project. As such, specific requirements have been developed for reporting this monthly data. All Contractors awarded projects shall attend a training session in Raleigh, North Carolina to discuss reporting requirements and procedures.

The Contractor hereby agrees to comply with the Contract Provisions and Reporting Requirements as indicated in the American Recovery and Reinvestment Act of 2009 and any amendments thereto. The Contractor also agrees to comply with any additional reporting requirements that may be requested by NCDOT, FRA, USDOT, the Inspector General (IG), the Government Accountability Office (GAO), or other entities, for example Congressional committees or individual members of Congress. The Contractor hereby agrees to inspections or audits that may occur at any time from the any of the above referenced federal or state agencies. Contractors are requested to provide a copy of any such reports to NCDOT on any responses to such requests for information or as a result of an inspection or audit.

CERTIFICATION FOR FEDERAL-AID CONTRACTS:

(3-21-90)

SP1 G85

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (A) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

- (B) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, *Disclosure Form to Report Lobbying*, in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by *Section 1352, Title 31, U.S. Code*. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

CONTRACTOR'S LICENSE REQUIREMENTS:

(7-1-95)

102-14

SP1 G88

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

U.S. DEPARTMENT OF TRANSPORTATION HOTLINE:

(11-22-94)

108-5

SP1 G100

To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free hotline Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the hotline to report such activities.

The hotline is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

SUBSURFACE INFORMATION:

(7-1-95)

450

SP1 G112 D

Subsurface information is available on the roadway and structure portions of this project.

LOCATING EXISTING UNDERGROUND UTILITIES:

(3-20-12)

105

SP1 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.

MAINTENANCE OF THE PROJECT:

(11-20-07) (Rev. 1-17-12)

104-10

SP1 G125

Revise the *2012 Standard Specifications* as follows:

Page 1-35, Article 104-10 Maintenance of the Project, line 25, add the following after the first sentence of the first paragraph:

All guardrail/guiderail within the project limits shall be included in this maintenance.

Page 1-35, Article 104-10 Maintenance of the Project, line 30, add the following as the last sentence of the first paragraph:

The Contractor shall perform weekly inspections of guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. *Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in accordance with this article, such repair or replacement shall be performed within 7 consecutive calendar days of such inspection report.*

Page 1-35, Article 104-10 Maintenance of the Project, lines 42-44, replace the last sentence of the last paragraph with the following:

The Contractor will not be directly compensated for any maintenance operations necessary, except for maintenance of guardrail/guiderail, as this work will be considered incidental to the work covered by the various contract items. The provisions of Article 104-7, Extra Work, and Article 104-8, Compensation and Record Keeping will apply to authorized maintenance of guardrail/guiderail. Performance of weekly inspections of guardrail/guiderail, and the damage reports required as described above, will be considered to be an incidental part of the work being paid for by the various contract items.

TWELVE MONTH GUARANTEE:

(7-15-03)

108

SP1 G145

- (A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of the Department, and/or for use in excess of the design.

- (B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The Department's first remedy shall be through the manufacturer although the Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. NCDOT would be afforded the same warranty as provided by the Manufacturer.

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

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

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

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.

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-B Certified Designer on the erosion and sediment control/stormwater component of all reclamation plans and if applicable, the certification number of the Level III-A Certified Designer on the design of the project erosion and sediment control/stormwater plan.

Preconstruction Meeting

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

Ethical Responsibility

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

Revocation or Suspension of Certification

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

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

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

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

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

Chief Engineer
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)

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.org/doh/preconstruct/ps/contracts/letting.html> 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”.

PROJECT SPECIAL PROVISIONS**ROADWAY****CLEARING AND GRUBBING - METHOD III:**

(4-6-06) (Rev. 1-17-12)

200

SP2 R02B

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

BUILDING AND UNDERGROUND STORAGE TANK REMOVAL:

(1-1-02) (Rev. 1-17-12)

215

SP2 R15 A

Remove the buildings, underground storage tanks and appurtenances listed below in accordance with Section 215 of the *2012 Standard Specifications*:

**Building and Underground Storage Tank Removal
Parcel 015 – Survey Station 12+50, Left of Survey Line -Y3B-
One-Story Single Dwelling**

TEMPORARY DETOURS:

(7-1-95) (Rev. 4-15-08)

1101

SP2 R30 A

Construct temporary detours required on this project in accordance with the typical sections in the plans or as directed.

After the detours have served their purpose, remove the portions deemed unsuitable for use as a permanent part of the project as directed by the Engineer. Salvage and stockpile the aggregate base course removed from the detours at locations within the right of way, as directed by the Engineer, for removal by State Forces. Place pavement and earth material removed from the detour in embankments or dispose of in waste areas furnished by the Contractor.

Aggregate base course and earth material that is removed will be measured and will be paid at the contract unit price per cubic yard for *Unclassified Excavation*. Pavement that is removed will be measured and will be paid at the contract unit price per square yard for *Removal of Existing Pavement*. Pipe culverts removed from the detours remain the property of the Contractor. Pipe culverts that are removed will be measured and will be paid at the contract unit price per linear foot for *Pipe Removal*. Payment for the construction of the detours will be made at the contract unit prices for the various items involved.

Such prices and payments will be full compensation for constructing the detours and for the work of removing, salvaging, and stockpiling aggregate base course; removing pipe culverts; and for placing earth material and pavement in embankments or disposing of earth material and pavement in waste areas.

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02)

235, 560

SP2 R45 B

Description

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2012 Standard Specifications*.

Measurement and Payment

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered incidental to the item of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Borrow* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

Material generated from undercut excavation, unclassified excavation or clearing and grubbing operations that is placed directly on shoulders or slope areas, will not be measured separately for payment, as payment for the work requiring the excavation will be considered adequate compensation for depositing and grading the material on the shoulders or slopes.

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

When shoulder material is obtained from borrow sources or from stockpiled material, payment for the work of shoulder construction will be made at the contract unit price per cubic yard for *Borrow Excavation* or *Shoulder Borrow* in accordance with the applicable provisions of Section 230 or Section 560 of the *2012 Standard Specifications*.

**18" BIT COATED CS PIPE UNDER THE TRACKS
OF NS RAILWAY:**

(7-12-07)

SPI

The 18" CS pipe required under the tracks of NS Railway shall conform with Section 310 of the *Standard Specifications* and shall be bituminous coated. The thickness of the wall shall be 0.079 inches.

The pipe shall be installed in accordance with Section 300 of the *Standard Specifications*.

The Contractor shall notify James D. Bryant, Division Engineer, NS Railway Co. at (864) 255-4251 fifteen (15) days before any work is begun on the railroad's right of way. This will enable them to have a representative present, if they so desire, while the work is being performed to determine if the work is being performed in accordance with the approved plans and Special Provisions. The railroad will advise the Contractor when the work is to be done between trains and provide a flagman, if required.

The quantity of pipe to be paid for will be the actual number of linear feet of pipe which has been incorporated in the completed and accepted work. Measurement will be made by counting the number of joints used and multiplying by the length of the joint. Where partial joints are used, measurement will be made along the longest length of the partial joint to the nearest 0.1 of a foot. Select bedding and backfill material will be included in the cost of the installed pipe.

The quantity of pipe measured as provided for above will be paid for at the contract unit price per linear foot for *18" Bituminous Coated CS Pipe, 0.079" Thick, (Under RR)*. Such price and payment will be full compensation for all work described herein including installation, tools, materials, labor, workmanship and all other incidentals necessary to complete the work.

**24" WELDED STEEL PIPE UNDER THE TRACKS
OF NS RAILWAY:**

(7-12-07)

SPI

The 24" welded steel pipe required under the tracks of NS Railway shall conform with Section 330 of the *Standard Specifications*. The thickness of the wall shall be 0.50 inches.

The pipe shall be installed in accordance with Section 300 of the *Standard Specifications*.

The Contractor shall notify James D. Bryant, Division Engineer, NS Railway Co. at (864) 255-4251 fifteen (15) days before any work is begun on the railroad's right of way. This will enable them to have a representative present, if they so desire, while the work is being performed to determine if the work is being performed in accordance with the approved plans and Special Provisions. The railroad will advise the Contractor when the work is to be done between trains and provide a flagman, if required.

The quantity of pipe to be paid for will be the actual number of linear feet of pipe which has been incorporated in the completed and accepted work. Measurement will be made by counting the number of joints used and multiplying by the length of the joint. Where partial joints are used, measurement will be made along the longest length of the partial joint to the nearest 0.1 of a foot. Select bedding and backfill material will be included in the cost of the installed pipe.

The quantity of pipe measured as provided for above will be paid for at the contract unit price per linear foot for *24" Welded Steel Pipe, 0.50" Thick, Grade B, (Under RR)*. Such price and payment will be full compensation for all work described herein including installation, tools, materials, labor, workmanship and all other incidentals necessary to complete the work.

PIPE INSTALLATION:

(11-20-12)

300

SP3 R01

Revise the *2012 Standard Specifications* as follows:

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

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

FLOWABLE FILL:

(9-17-02) (Rev 1-17-12)

300, 340, 450, 1000, 1530, 1540, 1550

SP3 R30

Description

This work consists of all work necessary to place flowable fill in accordance with these provisions, the plans, and as directed.

Materials

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

Item

Flowable Fill

Section

1000-6

Construction Methods

Discharge flowable fill material directly from the truck into the space to be filled, or by other approved methods. The mix may be placed full depth or in lifts as site conditions dictate. The Contractor shall provide a method to plug the ends of the existing pipe in order to contain the flowable fill.

Measurement and Payment

At locations where flowable fill is called for on the plans and a pay item for flowable fill is included in the contract, *Flowable Fill* will be measured in cubic yards and paid as the actual number of cubic yards that have been satisfactorily placed and accepted. Such price and payment will be full compensation for all work covered by this provision including, but not limited to, the mix design, furnishing, hauling, placing and containing the flowable fill.

Payment will be made under:

Pay Item

Flowable Fill

Pay Unit

Cubic Yard

ASPHALT PAVEMENTS - SUPERPAVE:

(6-19-12)

605

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.

**TABLE 605-1
APPLICATION RATES FOR TACK COAT**

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

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

**TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT**

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

Page 6-18, 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:

<http://www.ncdot.org/doh/operations/materials/pdf/wma.pdf>.

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*.

ASPHALT PLANT MIXTURES:

(7-1-95)

609

SP6 R20

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

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 **\$559.33** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **November 1, 2012**.

FINAL SURFACE TESTING NOT REQUIRED:

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

610

SP6 R45

Final surface testing is not required on this project.

RETAINING WALL SAFETY RAIL:**Description**

Furnish and install steel pipe safety rail on retaining wall at the location shown in the plans, in accordance with the detail in the plans and as directed by the Engineer.

Measurement and Payment

Retaining Wall Safety Rail will be measured and paid for as the actual number of linear feet of steel pipe handrail measured along the top of the handrail to the nearest 0.1 of a foot. Such price and

payment shall be full compensation for fabricating, furnishing, installing, painting and all incidentals necessary to satisfactorily install the handrail.

Payment will be made under:

Pay Item	Pay Unit
Retaining Wall Safety Rail	Linear Foot

48" CHAIN LINK FENCE ON RETAINING WALL:

Install 48" Chain Link Fence on the retaining wall in accordance with the wall manufacturer's instructions, the applicable requirements of Section 866 of the *Standard Specifications* and as directed by the Engineer.

GUARDRAIL ANCHOR UNITS, TYPE 350:

(4-20-04) (Rev. 8-16-11)

862

SP8 R65

Description

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

Materials

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

Guardrail anchor unit (ET-Plus) as manufactured by:

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

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

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

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.

- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

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

Payment will be made under:

Pay Item	Pay Unit
Guardrail Anchor Units, Type 350	Each

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON:

(10-15-02) (Rev. 10-20-09)

410

SP8 R105

Description

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

Materials

Item	Section
Plain Rip Rap	1042
Filter Fabric	1056

The permanent soil reinforcement matting shall be permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene

thread to form a permanent three dimensional structure. The mat shall have the following minimum physical properties:

Property	Test Method	Value Unit
Light Penetration	ASTM D6567	9 %
Thickness	ASTM D6525	0.40 in
Mass Per Unit Area	ASTM D6566	0.55 lb/sy
Tensile Strength	ASTM D6818	385 lb/ft
Elongation (Maximum)	ASTM D6818	49 %
Resiliency	ASTM D1777	>70 %
UV Stability *	ASTM 4355	≥80 %
Porosity (Permanent Net)	ECTC Guidelines	≥85 %
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft ²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

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

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

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

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

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

DETECTABLE WARNINGS FOR PROPOSED CURB RAMPS:

(6-15-10) (Rev. 8-16-11)

848

SP8 R126

Description

Construct detectable warnings consisting of integrated raised truncated domes on proposed concrete curb ramps in accordance with the *2012 Standard Specifications*, plan details, the requirements of the *28 CFR Part 36 ADA Standards for Accessible Design* and this provision.

Materials

Detectable warning for proposed curb ramps shall consist of integrated raised truncated domes. The description, size and spacing shall conform to Section 848 of the *2012 Standard Specifications*.

Use material for detectable warning systems as shown herein. Material and coating specifications must be stated in the Manufacturers Type 3 Certification and all Detectable Warning systems must be on the NCDOT Approved Products List.

Install detectable warnings created from one of the following materials: precast concrete blocks or bricks, clay paving brick, gray or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile. Only one material type for detectable warning will be permitted per project, unless otherwise approved by the Engineer.

- (A) Detectable Warnings shall consist of a base with integrated raised truncated domes, and when constructed of precast concrete they shall conform to the material requirements of Article 848-2 of the *2012 Standard Specifications*.
- (B) Detectable Warnings shall consist of a base with integrated raised truncated domes, and may be comprised of other materials including, but not limited, to clay paving brick, gray iron or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile, which are cast into the concrete of the curb ramps. The material shall have an integral color throughout the thickness of the material. The detectable warning shall include fasteners or anchors for attachment in the concrete and shall be furnished as a system from the manufacturer.

Prior to installation, the Contractor shall submit to the Engineer assembling instructions from the manufacturer for each type of system used in accordance with Article 105-2 of the *2012 Standard Specifications*. The system shall be furnished as a kit containing all consumable materials and consumable tools, required for the application. They shall be capable of being affixed to or anchored in the concrete curb ramp, including green concrete (concrete that has set but not appreciably hardened). The system shall be solvent free and contain no volatile organic compounds (VOC). The static coefficient of friction shall be 0.8 or greater when measured on top of the truncated domes and when measured between the domes in accordance with ASTM C1028 (dry and wet). The system shall be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to degradation by motor fuels, lubricants and antifreeze.

- (C) When steel or gray iron or ductile iron casting products are provided, only products that meet the requirements of Subarticle 106-1(B) of the *2012 Standard Specifications* may be used. Submit to the Engineer a Type 6 Certification, catalog cuts and installation procedures at least 30 days prior to installation for all.

Construction Methods

- (A) Prior to placing detectable warnings in proposed concrete curb ramps, adjust the existing subgrade to the proper grade and in accordance with Article 848-3 of the *2012 Standard Specifications*.
- (B) Install all detectable warning in proposed concrete curb ramps in accordance with the manufacturer's recommendations.

Measurement and Payment

Detectable Warnings installed for construction of proposed curb ramps will not be paid for separately. Such payment will be included in the price bid for *Concrete Curb Ramps*.

RAILROAD TRACKBED:

The "Standard Specifications for Roads and Structures , January 2012" of the North Carolina Department of Transportation, hereinafter referred to as the Standard Specifications, shall apply to the articles of the Project Special Provisions.

I. Clearing and Grubbing

This work shall be performed in accordance with Section 200, "CLEARING AND GRUBBING", of the Standard Specifications, except that grubbing will be performed on all cleared excavation and embankment areas and will include all stumps, roots, and other embedded debris.

II. Excavation

This work shall be performed in accordance with Section 225, "ROADWAY EXCAVATION" of the Standard Specifications. The applicable typical roadbed template will be maintained throughout the railway portion of the project. Waste material will be disposed of in accordance with Section 802 of the Standard Specification or at locations designated by the Engineer.

III. Embankment

This work shall be performed in accordance with Section 235, "EMBANKMENTS", of the Standard Specifications.

IV. Seeding and Mulching - Erosion Control

This work shall be performed in accordance with Section 1660 of the Standard Specifications. In addition to Section 1660, the Contractor shall perform the following work:

After by-passed trackage has been removed, the Contractor shall remove sufficient by-passed embankment to provide adequate drainage away from the permanent roadbed. In the event ditching is required to move the water, this shall be provided at slopes not less than 0.5%. All areas shall be left to drain and provide an acceptable appearance as directed by the Engineer prior to performing the seeding and mulching operation. Should the Department elect to salvage the stone ballast and sub-ballast from the by-passed locations, the smoothing and shaping will not be performed until completion of the salvage operation. There will be no direct measurement of or payment for performing this operation. The cost for this work will be included in contract unit price for other items of work.

V. Sub-ballastMaterial:

Sub-ballast shall be composed of crusher-run granite, meeting the following gradations:

Sieve Size (inch)	2.0	1.0	0.375	0.1875	.0625	0.017	0.003
% Passing (Optimum)	100	95	67	50	38	21	7
Permissible Range % Passing	100	90-100	50-85	35-65	25-50	15-30	5-15

Construction Methods:

After the sub-grade has been finished to proper grade and cross-section, the sub-ballast shall be distributed in quantities to meet the requirements of Article 520-5 of the Standard Specifications and the roadbed section as shown on the Drawings. The sub-ballast shall be uniformly compacted to the density specified in Article 520-7 of the Standard Specifications. Following the distribution and compaction, the sub-ballast shall be smoothed to the proper surface, sprinkled and rolled.

VI. Maintenance of Track Roadbed

The Contractor shall be responsible for the maintenance of the track roadbed during the construction period. Ditches and temporary pipes shall be provided and maintained as may be necessary to satisfactorily drain the sub-grade. Where previously approved sub-grade is damaged by natural causes, by hauling equipment or other traffic the Contractor shall restore the sub-grade to the required lines, grades and typical sections and to the required density at no additional cost to the Department.

VII. Measurement and Payment

The quantity for *Aggregate Base Course (Sub-Ballast)* to be paid for will be the actual number of tons of sub-ballast which has been used to construct the track roadbed sections, measured as provided for in Article 520-11 of the Standard Specifications.

The quantity of sub-ballast, determined as provided above, will be paid for at the Contract Unit Price per Ton for *Aggregate Base Course (Sub-ballast)*. Such price and payment will be full compensation for all furnishing, weighing, hauling, and placing of sub-ballast and for any other work necessary for the construction of the track roadbed section.

The measurement and payment will be made in accordance with the articles of the Standard Specifications. All work, materials, and labor and other items necessary to complete the railroad roadbed shall be included in various pay items. No additional payment shall be made.

MATERIALS:

(2-21-12) (Rev. 12-18-12)

1000, 1005, 1080, 1081, 1092

SP10 R01

Revise the 2012 Standard Specifications as follows:

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

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

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

TABLE 1000-1 REQUIREMENTS FOR CONCRETE											
Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air- Entrained Concrete		Vibrated	Non- Vibrated	Vibrated		Non- Vibrated	
		Rounded Aggregate	Angular Aggre- gate	Rounded Aggregate	Angular Aggre- gate			Min.	Max.	Min.	Max.
Units	psi					inch	inch	lb/cy	lb/cy	lb/cy	lb/cy
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light- weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	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 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

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

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

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

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

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

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

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A.

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

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

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

PERMANENT SEEDING AND MULCHING:

(7-1-95)

1660

SP16 R02

The Department desires that permanent seeding and mulching be established on this project as soon as practical after slopes or portions of slopes have been graded. As an incentive to obtain an early stand of vegetation on this project, the Contractor's attention is called to the following:

For all permanent seeding and mulching that is satisfactorily completed in accordance with the requirements of Section 1660 in the *2012 Standard Specifications* and within the following percentages of elapsed contract times, an additional payment will be made to the Contractor as an incentive additive. The incentive additive will be determined by multiplying the number of acres of seeding and mulching satisfactorily completed times the contract unit bid price per acre for Seeding and Mulching times the appropriate percentage additive.

Percentage of Elapsed Contract Time	Percentage Additive
0% - 30%	30%
30.01% - 50%	15%

Percentage of elapsed contract time is defined as the number of calendar days from the date of availability of the contract to the date the permanent seeding and mulching is acceptably completed divided by the total original contract time.

PROJECT SPECIAL PROVISIONS

GEOTECHNICAL

SOLDIER PILE RETAINING WALLS

(5-15-12)

1.0 GENERAL

Construct soldier pile retaining walls consisting of driven or drilled-in steel H-piles with either precast concrete panels in between piles or a cast-in-place reinforced concrete face attached to front of piles unless required otherwise in the plans. Timber lagging is typically used for temporary support of excavations during construction. Provide cast-in-place reinforced concrete coping as required. Design and construct soldier pile retaining walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified Cantilever Wall Contractor to construct soldier pile retaining walls. Define "soldier pile wall" as a soldier pile retaining wall. Define "panel" as a precast concrete panel and "concrete facing" as a cast-in-place reinforced concrete face. Define "pile" as a steel H-pile and "coping" as cast-in-place concrete coping.

2.0 MATERIALS

Refer to the *Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Curing Agents	1026
Flowable Fill, Excavatable	1000-6
Geosynthetics	1056
Joint Materials	1028
Masonry	1040
Neat Cement Grout, Nonshrink	1003
Portland Cement Concrete	1000
Reinforcing Steel	1070
Retaining Wall Panels	1077
Select Material, Class VI	1016
Shoulder Drain Materials	816-2
Steel H-Piles	1084-1
Untreated Timber	1082-2
Welded Stud Shear Connectors	1072-6
Wire Staples	1060-8(D)

Provide Type 2 geotextile for separation geotextiles and Class VI select material (standard size No. 57 stone) for leveling pads and backfilling. Use Class A concrete for concrete facing and coping and Class A concrete that meets Article 450-2 of the *Standard Specifications* for drilled-in piles. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

Unless required otherwise in the contract, produce panels with a smooth flat final finish that meets Article 1077-11 of the *Standard Specifications*. When noted in the plans, produce panels with an exposed aggregate finish that meets Article 1077-12 of the *Standard Specifications*. Produce panels within 1/4" of the panel dimensions shown in the accepted submittals. Damaged panels with excessive discoloration, chips or cracks as determined by the Engineer will be rejected.

For soldier pile walls with panels, galvanize piles in accordance with Section 1076 of the *Standard Specifications*. When noted in the plans, paint galvanized piles in accordance with Article 442-12 of the *Standard Specifications*. Apply the following system to paint galvanized piles gray with waterborne paints that meet Article 1080-11 of the *Standard Specifications*. For painting galvanized piles other colors, contact the Materials and Tests (M&T) Unit for an appropriate paint system.

GRAY PAINT SYSTEM FOR GALVANIZED PILES

Coat	Color	Dry/Wet Film Thickness (Mils)	
		Min.	Max.
Intermediate	Brown	3.0 DFT	5.0 DFT
Stripe	White	4.0 WFT	7.0 WFT
Topcoat	Gray	2.0 DFT	4.0 DFT
Total		5.0 DFT	9.0 DFT

Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store soldier pile wall materials so materials are kept clean and free of damage.

3.0 PRECONSTRUCTION REQUIREMENTS

A. Soldier Pile Wall Surveys

The Retaining Wall Plans show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each soldier pile wall. Before beginning soldier pile wall design, survey existing ground elevations shown in the plans and other elevations in the vicinity of soldier pile wall locations as needed. Based on these elevations, finished grades and actual soldier pile wall dimensions and details, submit revised wall envelopes for acceptance. Use accepted wall envelopes for design.

B. Soldier Pile Wall Designs

Submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each for soldier pile wall designs at least 30 days before the preconstruction meeting. Do not begin soldier pile wall construction until a design submittal is accepted.

Use a prequalified Cantilever Wall Design Consultant to design soldier pile walls.

Provide designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the Cantilever Wall Design Consultant.

Design soldier pile walls in accordance with the plans and Article 11.8 of the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Design soldier pile walls for seismic if walls are located in seismic zone 2 based on Figure 2-1 of the *Structure Design Manual*. Design soldier pile walls for a maximum deflection of 2" or 1.5% of H, whichever is less, with H as shown in the plans.

When noted in the plans, design soldier pile walls for a live load (traffic) surcharge of 250 lb/sf in accordance with Article 11.5.5 of the AASHTO LRFD specifications. For steel beam guardrail with 8 ft posts above soldier pile walls, analyze walls for a horizontal load (P_{H1}) of 300 lb/ft of wall in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications. For concrete barrier rail above soldier pile walls, analyze walls for a P_{H1} of 500 lb/ft of wall in accordance with Figure 3.11.6.3-2(a).

Use a maximum H-pile spacing of 10 ft. At the Contractor's option, use driven or drilled-in piles for soldier pile walls with concrete facing unless otherwise required. For soldier pile walls with panels, use drilled-in piles unless noted otherwise in the plans. Use concrete or grout for embedded portions of drilled-in piles. Install drilled-in piles by excavating holes with diameters that will result in at least 3" of clearance all around piles.

Provide temporary support of excavations for excavations more than 4 ft deep and timber lagging in accordance with the *AASHTO Guide Design Specifications for Bridge Temporary Works*. At the Contractor's option and when noted in the plans, provide temporary slopes instead of temporary support of excavations. Do not extend temporary slopes outside right-of-way or easement limits. Except for fill sections or when using temporary slopes, backfill voids behind panels, lagging and piles with No. 57 stone. Place separation geotextile between No. 57 stone and overlying fill or pavement sections except when concrete pavement, full depth asphalt or cement treated base is placed directly on stone.

At the Contractor's option, use panels or concrete facing unless required otherwise in the plans. Design panels and concrete facing in accordance with the plans and Section 5 of the *AASHTO LRFD Bridge Design Specifications*. Provide reinforcing steel of sufficient density to satisfy Article 5.7.3.4 of the AASHTO LRFD specifications. Attach concrete facing to front of H-piles with welded stud shear connectors. Use panels or concrete facing at least 6" thick and extend facing at least 6" above where the grade intersects back of concrete facing unless required otherwise in the plans.

Use No. 57 stone for aggregate leveling pads. Use 6" thick leveling pads beneath panels and concrete facing. Unless required otherwise in the plans, embed top of leveling pads at least 12" below bottom of walls shown in the plans.

Provide wall drainage systems consisting of geocomposite drain strips, drains and outlet components. Place drain strips with a horizontal spacing of no more than 10 ft

and center strips between adjacent piles. Attach drain strips to front of timber lagging or back of panels or concrete facing and connect strips to leveling pads. Locate a continuous aggregate shoulder drain along the base of panels or concrete facing in front of piles and leveling pads. Provide drains and outlet components in accordance with Standard Drawing No. 816.02 of the *Roadway Standard Drawings*.

Unless required otherwise in the plans, use cast-in-place reinforced concrete coping at top of soldier pile walls with panels. Extend coping at least 6" above where the grade intersects back of coping unless required otherwise in the plans. Use coping dimensions shown in the plans. At the Contractor's option, connect coping to panels with dowels or extend coping down back of panels. When concrete barrier rail is required above soldier pile walls, use concrete barrier rail with moment slab as shown in the plans.

Submit working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with pile locations, typical sections and details of piles, drainage, temporary support, leveling pads, panels and concrete facing. If necessary, include details on working drawings for coping, concrete barrier rail with moment slab and obstructions extending through walls or interfering with piles, barriers or moment slabs. Submit design calculations including deflection calculations for each wall section with different surcharge loads, geometry or material parameters. Include analysis of temporary conditions in design calculations. When designing soldier pile walls with computer software, a hand calculation is required for the tallest wall section.

C. Soldier Pile Wall Construction Plan

Submit 4 copies and a PDF copy of a soldier pile wall construction plan at least 30 days before the preconstruction meeting. Do not begin soldier pile wall construction until the construction plan submittal is accepted. Provide project specific information in the soldier pile wall construction plan including a detailed construction sequence. For driven piles, submit proposed pile driving methods and equipment in accordance with Subarticle 450-3(D)(2) of the *Standard Specifications*. For drilled-in piles, submit installation details including drilling equipment and methods for stabilizing and filling holes. Provide details in the construction plan of excavations including temporary support and any other information shown in the plans or requested by the Engineer.

If alternate construction procedures are proposed or necessary, a revised soldier pile wall construction plan submittal may be required. If the work deviates from the accepted submittal without prior approval, the Engineer may suspend soldier pile wall construction until a revised plan is accepted.

D. Preconstruction Meeting

Before starting soldier pile wall construction, hold a preconstruction meeting to discuss the construction and inspection of the soldier pile walls. Schedule this meeting after all soldier pile wall submittals have been accepted. The Resident or Bridge Maintenance

Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and Cantilever Wall Contractor Superintendent will attend this preconstruction meeting.

4.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of soldier pile walls. Direct run off away from soldier pile walls and areas above and behind walls. Contain and maintain No. 57 stone and backfill and protect material from erosion.

Notify the Engineer before blasting in the vicinity of soldier pile walls. Perform blasting in accordance with the contract. Unless required otherwise in the plans, install foundations located behind soldier pile walls before beginning wall construction if the horizontal distance to the closest foundation is less than the height of the tallest wall section.

Install soldier pile walls in accordance with the accepted submittals and as directed. Do not excavate behind soldier pile walls unless a temporary slope is shown in the accepted submittals. If overexcavation occurs and is not approved, repair walls with an approved method and a revised soldier pile wall design or construction plan may be required.

A. Piles

If a temporary slope is shown in the accepted submittals, excavate the slope before installing piles. Otherwise, install piles before excavating for soldier pile walls. Weld stud shear connectors to piles in accordance with Article 1072-6 of the *Standard Specifications*.

Install piles within 1" of horizontal and vertical alignment shown in the accepted submittals and with no negative batter (piles leaning forward). Minimize alignment variations between piles for soldier pile walls with concrete facing since variations can result in thicker concrete facing in some locations in order to provide the minimum required facing thickness elsewhere. Locate piles so the minimum required concrete facing thickness, if applicable, and roadway clearances are maintained for variable pile alignments.

Install piles with the minimum required embedment in accordance with Subarticles 450-3(D) and 450-3(E) of the *Standard Specifications*. Piles may be installed with a vibratory hammer as approved by the Engineer. Do not splice piles. If necessary, cut off piles at elevations shown in the accepted submittals along a plane normal to the pile axis.

Use pile excavation to install drilled-in piles. If overexcavation occurs, fill to required elevations with No. 57 stone before setting piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the

minimum required embedment. When this occurs, a revised soldier pile wall design or construction plan submittal may be required.

B. Excavation

If a temporary slope is shown in the accepted submittals, excavate the slope as shown. Otherwise, excavate in front of piles from the top down in accordance with the accepted submittals. Excavate in staged horizontal lifts with a maximum height of 5 ft. Use timber lagging or an alternate approved method for temporary support of excavations in accordance with the accepted submittals.

Install temporary support within 24 hours of excavating each lift unless otherwise approved. The installation may be delayed if it can be demonstrated that delays will not adversely affect excavation stability. If excavation faces will be exposed for more than 24 hours, use polyethylene sheets anchored at top and bottom of lifts to protect excavation faces from changes in moisture content.

If an excavation becomes unstable at any time, suspend soldier pile wall construction and temporarily stabilize the excavation by immediately placing an earth berm up against the unstable excavation face. When this occurs, repair walls with an approved method and a revised soldier pile wall design or construction plan may be required.

Remove flowable fill and material in between piles as necessary to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until temporary support for the current lift is accepted.

C. Wall Drainage Systems

Install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *Standard Specifications*. Place geocomposite drain strips with the geotextile side facing away from wall faces. Secure drain strips so strips are in continuous contact with surfaces to which they are attached and allow for full flow the entire height of soldier pile walls. Discontinuous drain strips are not allowed. If splices are needed, overlap drain strips at least 12" so flow is not impeded. Connect drain strips to leveling pads by embedding strip ends at least 4" into No. 57 stone.

D. Leveling Pads, Panels, Coping and Concrete Facing

Construct aggregate leveling pads at elevations and with dimensions shown in the accepted submittals. Compact leveling pads with a vibratory compactor to the satisfaction of the Engineer.

Set panels against pile flanges as shown in the accepted submittals. Position panels with at least 2" of contact in the horizontal direction between the panels and pile flanges. If contact cannot be maintained, remove panels, fill gaps with joint filler and reset panels. Securely support panels until enough No. 57 stone or backfill is placed to hold panels in place.

Construct coping as shown in the accepted submittals and Subarticle 452-3(C) of the *Standard Specifications*. When single faced precast concrete barrier is required in front of and against soldier pile walls, stop coping just above barrier so coping does not interfere with placing barrier up against wall faces.

Construct concrete facing in accordance with the accepted submittals and Section 420 of the *Standard Specifications*. Do not remove forms until concrete attains a compressive strength of at least 2,400 psi. Unless required otherwise in the plans, provide a Class 2 surface finish for concrete facing that meets Subarticle 420-17(F) of the *Standard Specifications*. Construct concrete facing joints at a maximum spacing of 30 ft unless required otherwise in the plans. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction joints that meet Subarticle 825-11(B) for the remaining joints. Stop reinforcing steel for concrete facing 2" on either side of expansion joints.

If a brick veneer is required, construct brick masonry in accordance with Section 830 of the *Standard Specifications*. Anchor brick veneers to soldier pile walls with approved brick to concrete type anchors in accordance with the manufacturer's instructions. Space anchors no more than 16" apart in the vertical direction and no more than 32" apart in the horizontal direction with each row of anchors staggered 16" from the row above and below.

Seal joints above and behind soldier pile walls between coping or concrete facing and ditches or concrete slope protection with silicone sealant.

E. Backfill

For fill sections or if a temporary slope is shown in the accepted submittals, backfill behind piles, panels and concrete facing in accordance with Article 410-8 of the *Standard Specifications*. Otherwise, backfill voids behind panels, lagging and piles with No. 57 stone as shown in the accepted submittals. Ensure all voids between panels and lagging and between piles, lagging and excavation faces are filled with No. 57 stone. Compact stone to the satisfaction of the Engineer. When separation geotextiles are required, overlap adjacent geotextiles at least 18" and hold separation geotextiles in place with wire staples or anchor pins as needed.

F. Pile Coatings

For soldier pile walls with panels, clean exposed galvanized or painted surfaces of piles with a 2,500 psi pressure washer after wall construction is complete. Repair galvanized surfaces that are exposed and damaged in accordance with Article 1076-7 of the *Standard Specifications*. Repair painted surfaces that are exposed and damaged by applying 4.0 to 7.0 mils wet film thickness of a topcoat to damaged areas with brushes or rollers. Use the same paint for damaged areas that was used for the topcoat when painting piles initially. Feather or taper topcoats in damaged areas to be level with surrounding areas.

5.0 MEASUREMENT AND PAYMENT

Soldier Pile Retaining Walls will be measured and paid in square feet. Soldier pile walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define “top of wall” as top of coping or top of panels or concrete facing for soldier pile walls without coping. Define “bottom of wall” as shown in the plans and no measurement will be made for portions of soldier pile walls embedded below bottom of wall elevations.

The contract unit price for *Soldier Pile Retaining Walls* will be full compensation for providing designs, submittals, labor, tools, equipment and soldier pile wall materials, installing piles, excavating, backfilling, hauling and removing excavated materials and supplying temporary support of excavations, wall drainage systems, leveling pads, panels, concrete facing, No. 57 stone, geotextiles and any incidentals necessary to construct soldier pile walls. The contract unit price for *Soldier Pile Retaining Walls* will also be full compensation for coping, pile coatings and brick veneers, if required. No additional payment will be made and no extension of completion date or time will be allowed for repairing overexcavations or unstable excavations or thicker concrete facing.

The contract unit price for *Soldier Pile Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with soldier pile walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind soldier pile walls from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

Pay Item

Soldier Pile Retaining Walls

Pay Unit

Square Foot

CONTAMINATED SOIL (08-20-2012)

The Contractor's attention is directed to the fact that soil contaminated with the pesticide Dieldrin exists within the project area. Soil sample results collected from Parcel 08, Johnson Concrete Co. Property and Parcel #09 Enkay Properties, LLC Property, indicate the pesticide Dieldrin is present in the proposed right of way of these properties.

The known areas of contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas, sample locations, and laboratory reports are available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "Rowan U-3459", "GeoEnvironmental":

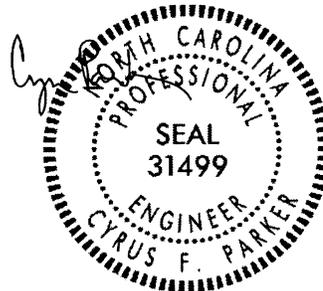
<http://dotw-xfer01.dot.state.nc.us/dsplan/>

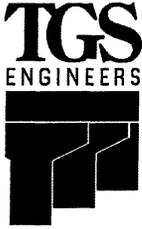
Disturbance to contaminated soil is possible during any earthwork activities on the project. The Contractor shall coordinate with the Department's specialty hazardous materials removal contractor to remove the estimated 3,000 cubic yards of contaminated soil from the proposed work area.

The Department's specialty hazardous materials removal contractor will excavate the contaminated soil, stage the excavated soil in onsite roll off boxes, sample the staged soil and arrange for the soil disposal. The Department's specialty hazardous materials removal contractor will also undercut areas 24 inches where the final grade is contaminated and place orange barrier fence at the bottom of the undercut before backfilling and compacting to final grade. The orange barrier fence will serve as a visual indicator that the Contractor may encounter contaminated soil below that depth.

The estimated 3,000 cubic yards of contaminated unclassified material will be disposed by the Department's specialty hazardous materials removal contractor and will not be available to the Contractor for borrow. The Earthwork Summary Sheet has been adjusted to reflect this reduction in unclassified material available to the Contractor.

The Contractor shall develop a Health and Safety Plan and a Hazard Communication Plan in accordance with OSHA 29 Code of Federal Regulations and any other applicable federal, state, or local regulation with regards to the known Dieldrin contamination. These plans shall be reviewed by the Engineer, Safety Engineer and the NCDOT Industrial Hygienist prior to any work being performed on the project. These plans will be incidental to the contract. During any earthwork or other dust creating activities in the area defined above, dust suppression shall be strictly enforced.





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PROJECT SPECIAL PROVISIONS
 Utility Construction

All proposed utility construction shall meet the applicable requirements of the NC Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2012.

Division 15 of the Standard Specifications is revised as follows:

Page 15-1, Paragraph 2 of Section 1500-2

Provide access for Department personnel and the owner's representatives to all phases of construction. Notify Department personnel and the utility owner 2 weeks before commencement of any work and one week before service interruption. Keep utility owners' representatives informed of work progress and provide opportunity for inspection of construction and testing.

The water and sewer lines along this project belong to Salisbury-Rowan Utility Department. Below is listed the utility owner with contact information along this project. Any work on these lines must be coordinated through the Engineer and the utility owner before commencement of any work.

Salisbury-Rowan Utility Department – Mr. Jason H. Wilson, P.E. – (704) 216-7553

Page 15-2, Paragraph 3 of Section 1500-7

Provide As-Built plans of the installed utility. The plans shall include notations of the size and type material, installed coordinates of utility controls and horizontal and vertical locations of the piping. Provide 2 copies to the Utility Owner and 2 copies to the Engineer.

Provide the Utility Owner with 2 copies of surveyed As-Builts of both the water and sewer systems constructed.

Page 15-3, Insert New Paragraph After Paragraph 1 of Section 1500-9

Contractor shall notify the Salisbury-Rowan Utility Department 7 business days in advance of performing any tie-in work. Contractor shall notify all affected customers 24

hours in advance of service interruptions. Contractor shall notify all affected critical facilities (i.e. hospitals, schools, medical facilities, etc.) 72 hours or more in advance of service interruption.

Page 15-2, Paragraph 2 of Section 1500-9

Schedule and notify owners and customers in advance of any interruption of water service with ample time to make arrangements. Limit interruption of service to water customers to no more than 8 hours. Provide temporary connections as needed.

The maximum interruption time for the Salisbury-Rowan Utility Department water service is four (4) hours. Any additional time needed shall be approved by the Salisbury-Rowan Utility Department and the Engineer before beginning work.

Page 15-6, Insert New Paragraph After Paragraph 12 of Section 1510-3 Part (B)

Sampling taps shall be provided every 1,000 feet and at the end of each branch. Taps shall be located and constructed so samples may be easily collected without danger to personnel or likelihood of sample contamination.

Sampling taps may be used as blow-offs. The number and location of the taps/blow-offs must be approved by the Utilities Inspector. Hydrants may not be used for bacteriological sampling.

All parts of a potable water system (including service lines) shall be sterilized in accordance with AWWA C601 and these specifications. Preventive and corrective measures during construction (AWWA C601) should be adhered to during construction to ensure success of the sterilization process.

Lines shall be initially chlorinated to 100 mg/l.

Lines must have a minimum free chlorine residual of 24 mg/l after 24 hours.

When the Contractor has determined that the line has been chlorinated to the proper level, he shall request a laboratory confirmation of the free chlorine level. Advance notice shall be given to the Utilities Inspector prior to requesting sampling for chlorine level concentration (on site test) as required in Section 1.80 - Inspection. In lieu of using City resources, the Contractor may use an approved certified testing lab; however City inspection of the test is required.

After the required contact time (24 hours), the Contractor shall have the chlorine residual tested and if the chlorine levels are at least 24 mg/l then the contractor can flush the line and all appurtenances with Salisbury distribution water until completely purged.

No bacteriological samples will be collected at points where the free chlorine residual exceeds the ambient distribution system free residual by more than 0.5 mg/l.

Care must be taken to discharge the chlorinated water in a manner which will not endanger plant or animal life or be unsafe. Chlorinated water must be discharged in an environmentally safe manner and in accordance with all federal, state, and/or local laws and regulations. Chlorinated sterilization water shall not be discharged into the City's sewer or storm drain systems. Contractor must treat the chlorinated water to meet North Carolina Quality Discharge Standards.

Bacteriological testing/sampling shall be requested on the same day the line is flushed. Bacteriological testing will be performed by the City laboratory Monday through Thursday prior to 12:00 p.m. at least 24 hour notice shall be given the Utilities Inspector/lab prior to sampling. The Utilities Inspector will collect and deliver the samples to the lab (testing fee applies).

Each sample shall be marked legibly, identifying with letters or numbers each sampling point.

Page 15-8, Insert New Paragraph After Paragraph 2 of Section 1515-3

Valves shall be field tested as directed by AWWA Specification C500 and C504 as applicable.

(a) During the last stages of the test and without any reduction in pressure, first the hydrant valves will be closed, then progressing in an orderly manner from the end opposite from the test pump, each main line valve will be closed and pressure released to determine if it is holding pressure (minimum 30 minutes).

(b) All butterfly valves will be tested to 150 psi (or 1.25 times system pressure, if higher) for a minimum of 30 minutes (each) after the pipeline has been successfully tested.

Valves shall be tested on a schedule agreed upon by the Utilities Inspector and the Contractor. City inspection is required during the tests.

Page 15-10, Insert New Paragraph After Paragraph 2 of Section 1520-3 Part (A) Subsection (1)

At completion of work, lines shall be thoroughly cleaned by flushing with water to remove all dirt and debris. Pipeline shall be flushed at a rate of at least 2.5 feet per second for a duration suitable to the Utilities Inspector. City water may be used (when available and a bulk water permit is purchased) to flush sewer lines or an approved source of non-potable water (must be free of any chemicals, silt, or debris) may be used to flush sewer lines. All flush water must be collected in a plugged manhole and pumped out. Sewer flush water shall not be allowed to enter the City's sewer system.

Page 15-11, Paragraph 1 of Section 1520-3 Subsection (2) Item (c)

Instead of hydrostatic testing, sewer lines 24" in diameter or smaller may be air tested in accordance with ASTM C828, ASTM C924 and the following. Securely plug the sewer pipe at the manholes. Fill the pipe with air to 4.0 psi and hold this pressure for 5 minutes. Reduce the pressure to 3.5 psi. Measure the time for the pressure to drop 1.0 psi to the new pressure of 2.5 psi. Exceed the minimum test time in Table 1520-1 for the appropriate nominal pipe diameter.

Low pressure air testing shall be used to test for leakage in sewer lines and laterals. The test shall be in accordance with ASTM F 1417 as modified herein. The pipeline is considered acceptable if when tested at a pressure of 4.0 psi (or greater than the average back pressure of any groundwater that may submerge the pipe) the section under test does not lose more than 0.5 psig within the allotted test time (see appendix B). City inspection of the test is required.

Page 15-11, Insert New Paragraph After Paragraph 1 of Section 1520-3 Subsection (2) Item (d)

The pipe shall be visually inspected from manhole to manhole using lights, mirrors, or other devices (CCTV) for visual inspection. All obstructions shall be removed, and the lines from one manhole to the next shall exhibit a fully circular pattern. Lines which do not exhibit a true line and grade or have structural defects shall be corrected to meet specifications. The Utilities Inspector may require inspection by television camera (CCTV) of any sewer lines or laterals.

The CCTV equipment must provide adequate light for the camera and be of high video quality (including the video tapes or DVD) to properly show the inside of the pipe. Each line and lateral must be marked with an identifying number and shown on the video tape or DVD and a log of any problems found, along with the line number and footage and/or lateral number must be included with the video tapes or DVD. All testing shall be done at no cost to the City.

Page 15-15, Insert New Paragraph After Paragraph 1 of Section 1525-3 Subsection (D)

All testing shall be performed in the presence of the engineer or designated representative. Every manhole shall be checked for air tightness prior to setting of the manhole ring and cover. All manholes, whether with precast base sections or poured-in-place base, shall be vacuum tested. All lift holes shall be plugged with a non-shrink grout. All pipes entering or leaving the manhole shall be plugged, taking care to securely brace the plug from being drawn into the manhole during the test. City inspection of the test is required with a 48 hour minimum notice. All manholes regardless of sewer line size (public or private) shall be tested and inspected to City of Salisbury Uniform Construction Standards and Specifications requirements.

- 1. The vacuum equipment test head shall be placed at the inside of the top of the cone section, the seal inflated in accordance with the manufacture's recommendations.
- 2. A vacuum of 10-inches of mercury shall be drawn and the vacuum pump shut off.
- 3. With the valves closed, the time shall be measured for the vacuum to drop to 9-inches of mercury.

The test time shall be correlated to the manhole as follows:

Manhole Diameter Allowable Time:

48".....60 seconds

60".....75 seconds

- 4. If the manhole fails the initial test, necessary repairs shall be made at the contractor's expense with an approved non-shrink grout on the outside of the manhole while the vacuum is being drawn.
- 5. The re-testing and repairing schedule cycle shall continue until the manhole passes the test.

Division 10 of the Standard Specifications is revised as follows:

Page 10-57, Paragraph 1 of Subsection A of Section 1034-4

Use ductile iron pipe that conforms to ASTM A746 or ANSI/AWWA C151/A21.51.

All ductile iron pipe shall be Class 350 unless otherwise specified and shall be lined with cement mortar not less than 1/16 inch thick conforming to ANSI Specification A21.4.

Page 10-58, Paragraph 1 of Section 1036-5

Use ductile iron pipe that conforms to ANSI/AWWA C151/A21.51.

All ductile iron pipe shall be Class 350 unless otherwise specified and shall be lined with cement mortar not less than 1/16 inch thick conforming to ANSI Specification A21.4.

Compensation:

No direct payment will be made for utility construction work required by the preceding provisions, which are general requirements applying to utility construction, and all of the requirements stated will be considered incidental work, paid for at the contract unit prices of the various utility items included in the contract.

Prepared by:

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PROJECT: U-3459

COUNTY: Rowan

PROJECT SPECIAL PROVISIONS

Utility

UTILITIES BY OTHERS:

General:

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

- A. Duke Energy Corporation – Transmission
- B. Duke Energy Corporation – Substation
- C. Duke Energy Corporation – Distribution
- D. AT&T – Telephone
- E. Windstream Communications -- Telephone
- F. Piedmont Natural Gas – Gas
- G. City of Salisbury (Fibrant) – Fiber Optic
- H. Time Warner – CATV

The conflicting facilities of these concerns will be adjusted prior to the date of availability, unless otherwise noted, and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be done by the utility owners. All utilities are shown on the plans from the best available information. For utility relocations, see the Utilities By Others Plans.

The Contractor's attention is directed to Article 105-8 of the Standard Specifications.

Utilities Requiring Adjustment:

A) Duke Energy – Power Transmission

1. The 44KV Transmission line at the East end of the proposed RR detour at the location shown on the UBO plans must be relocated prior to that area being available for the RR detour construction. This relocation is scheduled for completion by January 31, 2013. For this date to be met the permit submitted to the Rail Road Authorities by Duke for this relocation must be received back to Duke no later than November 1, 2012.

The tower carrying the 100 KV Transmission line located in the Southeast corner of the intersection of New Klumac and MLK will be relocated to the Southwest corner of this intersection. The existing tower will have to be

protected by temporary means until it is relocated. This protection can either be physical or a delay of grading next to it. The proposed schedule for completing the relocation of the tower by Duke Energy is April 1, 2013.

The 100 KV lines on one side of the circuitry closest to the western end of the new RR bridge can be deactivated with at least two weeks notice to accommodate pile driving operations on that end of the new bridge.

2. Contact is Mr. Larry Morris, 704-382-6299
3. See Utilities By Others Plans for details.

B) Duke Energy Corporation -- Substation – Substation relocation and construction

1. Substation construction will be internal to the substation property and will not impact roadway or rail construction but will have to be coordinated with the contractor to insure that the area next to Avenue A has been cleared of all substation needs and the required fencing has been installed. This property will be available to the roadway contractor in 150 days after official conveyance of the newly acquired property next to the existing substation from NCDOT to Duke Energy.
2. Contact is Mr. Larry Morris, 704-382-6299
3. See Utilities By Others Plans for details.

C) Duke Energy Corporation -- Power Distribution

1. All distribution power relocations will be completed by approximately March 15, 2013. This date and subsequent dates of completion for other utilities attached to Duke Energy poles are completely reliant upon Duke Energy's receipt of a permit to relocate the pole at the existing Klumac Rd. railroad grade crossing from the Rail Road Authorities by no later than November 1, 2012.
2. Contact is Mr. Larry Morris, 704-382-6299
3. See Utilities By Others Plans for details

D) AT& T – Telephone

1. AT& T relocations will be on joint use poles with Duke Energy Distribution Existing underground cables are not in conflict but should be marked and caution exercised in their vicinity. On poles shared with Duke Energy Distribution and Fibrant, AT&T will complete relocation within 120 calendar days of the Duke Energy completion.
2. Contact is Mr. Steve Mode, Telics., 800-686-9188
3. See Utilities By Others Plans for details.

E) Windstream -- Telephone

1. Windstream relocations will be on joint use poles with Duke Energy Distribution (along existing Main Street) and will be accomplished within 120 calendar days after the Duke Power distribution relocations are complete.
2. Contact is .Mr. Jim Foley, 704-722-2822
3. See Utilities By Others plans for details.

F) Piedmont Natural Gas

1. Existing gas lines shown on the plans shall be adjusted as necessary. Where adjustments are necessary, Piedmont Natural Gas shall be given 14 days notice prior to when they can begin work, and 21 days to complete their work.
2. Contact is Mr. Kevin Sell, 704-797-2210
3. See Utilities by Others plans for details.

G) City of Salisbury (Fibrant) - Multi-use Fiber Optic Cable

1. Fibrant relocations will be on joint use poles with Duke Energy Distribution and will be accomplished within 90 calendar days after the Duke Power distribution relocations are complete. Existing underground cables are not in conflict but should be marked and caution exercised in their vicinity.
2. Contact is .Mr. Keith Storm, 704-216-7585
3. See Utilities by Others plans for details.

H) Time Warner -- CATV

1. All TWC conflicts have been cleared from the project
2. Contact is Mr. Michael Connell, 704-378-2624

U-3459

**Project Special Provisions
Erosion Control**

Rowan County

STABILIZATION REQUIREMENTS:

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

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

The stabilization timeframe for High Quality Water (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:

(West)

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

Shoulder and Median Areas

August 1 - June 1

20#	Kentucky Bluegrass
75#	Hard Fescue
25#	Rye Grain
500#	Fertilizer
4000#	Limestone

May 1 - September 1

20#	Kentucky Bluegrass
75#	Hard Fescue
10#	German or Browntop Millet
500#	Fertilizer
4000#	Limestone

Areas Beyond the Mowing Pattern, Waste and Borrow Areas:

August 1 - June 1

100#	Tall Fescue
15#	Kentucky Bluegrass
30#	Hard Fescue
25#	Rye Grain
500#	Fertilizer
4000#	Limestone

May 1 - September 1

100#	Tall Fescue
15#	Kentucky Bluegrass
30#	Hard Fescue
10#	German or Browntop Millet
500#	Fertilizer
4000#	Limestone

Approved Tall Fescue Cultivars

2 nd Millennium	Duster	Magellan	Rendition
Avenger	Endeavor	Masterpiece	Scorpion
Barlexas	Escalade	Matador	Shelby
Barlexas II	Falcon II, III, IV & V	Matador GT	Signia
Barrera	Fidelity	Millennium	Silverstar
Barrington	Finesse II	Montauk	Southern Choice II
Biltmore	Firebird	Mustang 3	Stetson
Bingo	Focus	Olympic Gold	Tarheel
Bravo	Grande II	Padre	Titan Ltd
Cayenne	Greenkeeper	Paraiso	Titanium
Chapel Hill	Greystone	Picasso	Tomahawk
Chesapeake	Inferno	Piedmont	Tacer
Constitution	Justice	Pure Gold	Trooper
Chipper	Jaguar 3	Prospect	Turbo
Coronado	Kalahari	Quest	Ultimate
Coyote	Kentucky 31	Rebel Exeda	Watchdog
Davinci	Kitty Hawk	Rebel Sentry	Wolfpack
Dynasty	Kitty Hawk 2000	Regiment II	
Dominion	Lexington	Rembrandt	

Approved Kentucky Bluegrass Cultivars:

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

Approved Hard Fescue Cultivars:

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

On cut and fill slopes 2:1 or steeper add 20# Sericea Lespedeza January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet, or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, and the rate of application may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MOWING:

The minimum mowing height on this project shall be six inches.

RESPONSE FOR EROSION CONTROL:**Description**

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the following work as shown herein, by an approved subcontractor.

Section	Erosion Control Item	Unit
1605	Temporary Silt Fence	LF
1606	Special Sediment Control Fence	LF/TON
1615	Temporary Mulching	ACR
1620	Seed - Temporary Seeding	LB
1620	Fertilizer - Temporary Seeding	TN
1631	Matting for Erosion Control	SY

SP	Coir Fiber Mat	SY
1640	Coir Fiber Baffles	LF
SP	Permanent Soil Reinforcement Mat	SY
1660	Seeding and Mulching	ACR
1661	Seed - Repair Seeding	LB
1661	Fertilizer - Repair Seeding	TON
1662	Seed - Supplemental Seeding	LB
1665	Fertilizer Topdressing	TON
SP	Safety/Highly Visible Fencing	LF
SP	Response for Erosion Control	EA

Construction Methods

Provide an approved subcontractor who performs an erosion control action as described in the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the above work items.

Measurement and Payment

Response for Erosion Control will be measured and paid for by counting the actual number of times the subcontractor moves onto the project, including borrow and waste sites, and satisfactorily completes an erosion control action described in Form 1675. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

Payment will be made under:

Pay Item

Response for Erosion Control

Pay Unit

Each

MINIMIZE REMOVAL OF VEGETATION:

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

STOCKPILE AREAS:

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

ACCESS AND HAUL ROADS:

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

WASTE AND BORROW SOURCES:

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

TEMPORARY DIVERSION:

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

CLEAN WATER DIVERSION:**Description**

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

Materials

Refer to Division 10

Item	Section
Geotextile for Soil Stabilization, Type 4	1056

Construction Methods

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

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

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

Measurement and Payment

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

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

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

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

PERMANENT SOIL REINFORCEMENT MAT:

Description

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

Materials

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

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

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

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

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

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

Construction Methods

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

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

Measurement and Payment

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

Payment will be made under:

Pay Item	Pay Unit
Permanent Soil Reinforcement Mat	Square Yard

SKIMMER BASIN WITH BAFFLES:

Description

Provide a skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Skimmer Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of temporary slope drain pipe and coir fiber baffles, furnishing, installation and cleanout of Faircloth Skimmers or other approved equivalent device, providing and placing stone pad on bottom of

basin underneath skimmer device, providing and placing a geotextile emergency spillway liner, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drain, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

Materials

Item	Section
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Fertilizer for Temporary Seeding	1060-2
Seed for Temporary Seeding	1060-4
Seeding and Mulching	1060-4
Matting for Erosion Control	1060-8
Staples	1060-8
Coir Fiber Mat	1060-14
Temporary Slope Drain	1622-2
Coir Fiber Baffle	1640

Provide appropriately sized Faircloth skimmer or other approved equivalent device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of Faircloth skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

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

Steel Reinforcement Bars:

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

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drain pipe and construct the emergency spillway according to the Skimmer Basin with Baffles Detail sheet in the erosion control plans. Temporary slope drain pipe at inlet of basin may be replaced by geotextile as directed. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*.

Install Faircloth skimmer or other approved equivalent device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and attach the 6 ft. arm pipe to the coupling connection and Faircloth skimmer according to manufacturer recommendations. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line emergency spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the emergency spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Skimmer Basin with Baffles detail.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and 1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

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

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

__" *Skimmer* will be measured in units of each. __" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of __" *Skimmer* is considered incidental to the measurement of the quantity of __" *Skimmer* and no separate payment will be made. No separate payment shall be made if __" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

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

Temporary Slope Drain will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

Stone for Erosion Control, Class __ will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

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

Seed for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Fertilizer for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Matting for Erosion Control will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
__" Skimmer	Each
Coir Fiber Mat	Square Yard

COIR FIBER WATTLES WITH POLYACRYLAMIDE (PAM):**Description**

Coir Fiber Wattles are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting. Coir Fiber Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Coir Fiber Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of coir fiber wattles, matting installation, PAM application, and removing wattles.

Materials

Coir Fiber Wattle shall meet the following specifications:

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

Anchors: Stakes shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

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

Construction Methods

Coir Fiber Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install coir fiber wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

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

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

Measurement and Payment

Coir Fiber Wattles will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Coir Fiber Wattles*.

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

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the coir fiber wattles. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM)*.

Payment will be made under:

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

SILT FENCE COIR FIBER WATTLE BREAK:

(8-21-12)

1605,1630

Description

Silt fence coir fiber wattle breaks are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting and used in conjunction with temporary silt fence at the toe of fills to intercept runoff. Silt fence coir fiber wattle breaks are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation, maintenance and removing Silt fence coir fiber wattle breaks.

Materials

Coir fiber wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12"
Minimum Length	10 ft
Minimum Density	3.5 lb/cf \pm 10%
Net Material	Coir Fiber
Net Openings	2" x 2"
Net Strength	90 lb.
Minimum Weight	2.6 lb/ft \pm 10%

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 shall be sharpened or beveled to facilitate driving down into the underlying soil.

Provide staples made of 0.125" diameter new steel wire formed into a U-shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate a trench the entire length of each wattle with a depth of 1" to 2" for the wattle to be placed. Secure silt fence coir fiber wattle breaks to the soil by wire staples approximately every linear foot and at the end of each wattle. Install at least 4 stakes on the downslope side of the wattle with a maximum spacing of 2 linear feet and according to the detail. Install at least 2 stakes on the upslope side of the silt fence coir fiber wattle break according to the detail provided in the plans. Drive stakes into the ground at least 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.

Install temporary silt fence in accordance with Section 1605 of the *2012 Standard Specifications* and overlap each downslope side of silt fence wattle break by 6".

Maintain the silt fence coir fiber wattle breaks until the project is accepted or until the silt fence coir fiber wattle breaks are removed, and remove and dispose of silt accumulations at the silt

fence coir fiber wattle breaks when so directed in accordance with Section 1630 of the *2012 Standard Specifications*.

Measurement and Payment

Coir Fiber Wattle will be measured and paid as the actual number of linear feet of wattles installed and accepted. Such price and payment will be full compensation for all work covered by this provision, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the silt fence coir fiber wattle break.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Wattle	Linear Foot

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

Description

Temporary Rock Silt Checks Type A with Excelsior Matting and Polyacrylamide (PAM) are devices utilized in temporary and permanent ditches to reduce runoff velocity and incorporate PAM into the construction runoff to increase settling of sediment particles and reduce turbidity of runoff. Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of Temporary Rock Silt Checks Type A, matting installation, PAM application, and removing Temporary Rock Silt Checks Type A with Excelsior Matting and PAM.

Materials

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

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

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

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

Construction Methods

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

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

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

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

Measurement and Payment

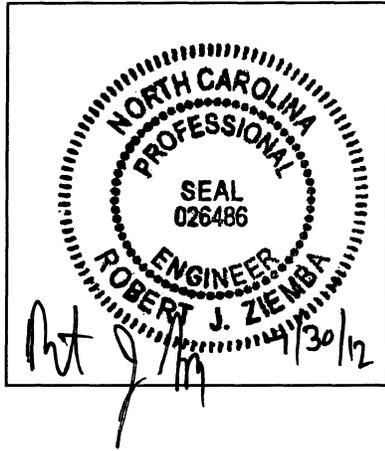
Temporary Rock Silt Checks Type A will be measured and paid for in accordance with Article 1633-5 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

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

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the Temporary Rock Silt Checks Type A. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM)*.

Payment will be made under:

Pay Item	Pay Unit
Polyacrylamide(PAM)	Pound



U-3459

Project Special Provisions
(Version 12.1)
Signals and Intelligent Transportation Systems

Prepared By: R. Hough
30-Jul-12

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1. SIGNAL HEADS

1.1. MATERIALS

A. General:

Fabricate vehicle signal head housings and end caps from die-cast aluminum. Fabricate 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel or corrosion resistant material.

Fabricate tunnel and traditional visors from sheet aluminum.

Paint all surfaces inside and outside of signal housings and doors. Paint outside surfaces of tunnel and traditional visors, messenger cable mounting assemblies, pole and pedestal mounting assemblies, and pedestrian pushbutton housings. Have electrostatically-applied, fused-polyester paint in highway yellow (Federal Standard 595C, Color Chip Number 13538) a minimum of 2.5 to 3.5 mils thick. Do not apply paint to the latching hardware or rigid vehicle signal head mounting brackets for mast-arm attachments.

Have the interior surfaces of tunnel and traditional visors painted an alkyd urea black synthetic baking enamel with a minimum gloss reflectance and meeting the requirements of MIL-E-10169, "Enamel Heat Resisting, Instrument Black."

For pole mounting, provide side of pole mounting assemblies with framework and all other hardware necessary to make complete, watertight connections of the signal heads to the poles and pedestals. Fabricate the mounting assemblies and frames from aluminum with all necessary hardware, screws, washers, etc. to be stainless steel. Provide mounting fittings that match the positive locking device on the signal head with the serrations integrally cast into the brackets. Provide upper and lower pole plates that have a 1 ¼-inch vertical conduit entrance hubs with the hubs capped on the lower plate and 1 ½-inch horizontal hubs. Ensure that the assemblies provide rigid attachments to poles and pedestals so as to allow no twisting or swaying of the signal heads. Ensure that all raceways are free of sharp edges and protrusions, and can accommodate a minimum of ten Number 14 AWG conductors.

For light emitting diode (LED) traffic signal modules, provide the following requirements for inclusion on the Department's Qualified Products List for traffic signal equipment.

1. Sample submittal,
2. Third-party independent laboratory testing results for each submitted module with evidence of testing and conformance with all of the Design Qualification Testing specified in section 6.4 of each of the following Institute of Transportation Engineers (ITE) specifications:
 - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement
 - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement
 - Pedestrian Traffic Control Signal Indications –Light Emitting Diode (LED) Signal Modules.

(Note: The Department currently recognizes two approved independent testing laboratories. They are Intertek ETL Semko and Light Metrics, Incorporated with Garwood Laboratories. Independent laboratory tests from other laboratories may be considered as part of the QPL submittal at the discretion of the Department,

3. Evidence of conformance with the requirements of these specifications,
4. A manufacturer's warranty statement in accordance with the required warranty, and
5. Submittal of manufacturer's design and production documentation for the model, including but not limited to, electrical schematics, electronic component values, proprietary part numbers, bill of materials, and production electrical and photometric test parameters.
6. Evidence of approval of the product to bear the Intertek ETL Verified product label for LED traffic signal modules.

In addition to meeting the performance requirements for the minimum period of 60 months, provide a written warranty against defects in materials and workmanship for the modules for a period of 60 months after installation of the modules. During the warranty period, the manufacturer must provide new replacement modules within 45 days of receipt of modules that have failed at no cost to the State. Repaired or refurbished modules may not be used to fulfill the manufacturer's warranty obligations. Provide manufacturer's warranty documentation to the Department during evaluation of product for inclusion on Qualified Products List (QPL).

B. Vehicle Signal Heads:

Comply with the ITE standard "Vehicle Traffic Control Signal Heads". Provide housings with provisions for attaching backplates.

Provide visors that are 10 inches in length for 12-inch vehicle signal heads.

Provide a termination block with one empty terminal for field wiring for each indication plus one empty terminal for the neutral conductor. Have all signal sections wired to the termination block. Provide barriers between the terminals that have terminal screws with a minimum Number 8 thread size and that will accommodate and secure spade lugs sized for a Number 10 terminal screw.

Mount termination blocks in the yellow signal head sections on all in-line vehicle signal heads. Mount the termination block in the red section on five-section vehicle signal heads.

Furnish vehicle signal head interconnecting brackets. Provide one-piece aluminum brackets less than 4.5 inches in height and with no threaded pipe connections. Provide hand holes on the bottom of the brackets to aid in installing wires to the signal heads. Lower brackets that carry no wires and are used only for connecting the bottom signal sections together may be flat in construction.

For messenger cable mounting, provide messenger cable hangers, wire outlet bodies, balance adjusters, bottom caps, wire entrance fitting brackets, and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the messenger cable. Fabricate mounting assemblies from malleable iron or steel and provide serrated rings made of aluminum. Provide messenger cable hangers and balance adjusters that are galvanized before being painted. Fabricate balance adjuster eyebolt and eyebolt nut from stainless steel or galvanized malleable iron. Provide messenger cable hangers with U-bolt clamps. Fabricate washers, screws, bolts, clevis pins, cotter pins, nuts, and U-bolt clamps from stainless steel.

Provide LED vehicular traffic signal modules (hereafter referred to as modules) that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections. Use LEDs that are aluminum indium gallium phosphorus (AlInGaP) technology for red and yellow indications and indium gallium nitride (InGaN) for green indications. Install the ultra bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

For the modules, provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard signal head. Do not provide other types of crimped terminals with a spade adapter.

Ensure the power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Tint the red, yellow and green lenses to correspond with the wavelength (chromaticity) of the LED. Transparent tinting films are unacceptable. Provide a lens that is integral to the unit with a smooth outer surface.

1. LED Circular Signal Modules:

Provide modules in the following configurations: 12-inch circular sections, and 8-inch circular sections. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer’s model number and the product number (assigned by the Department) for each module that appears on the 2012 or most recent Qualified Products List. In addition, provide manufacturer’s certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE “Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement” dated June 27, 2005 (hereafter referred to as VTCSH Circular Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Circular Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red circular	17	11
12-inch green circular	15	15

For yellow circular signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to insure power required at 77° F is 22 Watts or less for the 12-inch circular module.

Note: Use a wattmeter having an accuracy of ±1% to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

2. LED Arrow Signal Modules

Provide 12-inch omnidirectional arrow signal modules. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer’s model number and the product number (assigned by the Department) for each module that appears on the 2012 or most recent Qualified Products List. In addition, provide manufacturer’s certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the requirements for 12-inch omnidirectional modules specified in the ITE “Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement” dated July 1, 2007 (hereafter referred to as VTCSH Arrow Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Arrow Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red arrow	12	9
12-inch green arrow	11	11

For yellow arrow signal modules, provide modules tested under the procedures outlined in the VTCSH Arrow Supplement to insure power required at 77° F is 12 Watts or less.

Note: Use a wattmeter having an accuracy of ±1% to measure the nominal wattage and maximum wattage of an arrow traffic signal module. Power may also be derived from voltage, current and power factor measurements.

C. Signal Cable:

Furnish 16-4 and 16-7 signal cable that complies with IMSA specification 20-1 except provide the following conductor insulation colors:

- For 16-4 cable: white, yellow, red, and green
- For 16-7 cable: white, yellow, red, green, yellow with black stripe tracer, red with black stripe tracer, and green with black stripe tracer. Apply continuous stripe tracer on conductor insulation with a longitudinal or spiral pattern.

Provide a ripcord to allow the cable jacket to be opened without using a cutter. IMSA specification 19-1 will not be acceptable. Provide a cable jacket labeled with the IMSA specification number and provide conductors constructed of stranded copper.

2. COMMUNICATIONS SYSTEM SUPPORT EQUIPMENT

2.1. DESCRIPTION

Furnish communications system support equipment with all necessary hardware in accordance with the plans and specifications.

2.2. MATERIALS

A. General:

Furnish equipment with test probes/leads, batteries (for battery-operated units), line cords (for AC-operated units), and carrying cases. Provide operating instructions and maintenance manuals with each item.

Before starting any system testing or training, furnish all communications system support equipment.

B. Fiber-Optic Support Equipment

1. Fiber-optic Restoration Kit:

Furnish a fully functional fiber-optic restoration kit consisting of the following items (minimum):

- Plier-type strippers
- Non-niks fiber stripper tool with procedures
- Buffer tube stripper tool with procedures
- Fiber-optic Cleaver (average cut less than 0.5 degrees from perpendicular) Diamond Blade
- Screw driver set
- 48 Alcohol wipes
- Tape, 3/4-inch, electrician
- Chemical removal wipes

- Metal ruler
- Tweezers
- Crimping pliers
- Mechanical Splice Manual
- Mechanical Splice Fixture
- 12, Non-adhesive, mechanical splices
- 2 Mechanical Splice Trays, 12 Mechanical Splice Devices, Compatible with the Interconnect Centers being installed in the Traffic Signal Controller Cabinets
- Scissors
- Hard-sided, padded, storage case

2. Fiber-optic Power Meter:

Furnish fiber-optic power meters for measuring absolute power and link losses, as well as monitoring power levels and testing threshold levels. Provide the following features:

- Spectral range750 nm to 1700 nm
- Calibrated wavelengths850, 1310, and 1550 nm
- Accuracy± 3 percent (± 0.1 dB) at -20 dBm at 70 degrees F
at calibrated wavelengths
- Readout resolution4 digits, 0.01 dBm
- DisplayBacklit LCD
- Fiber-optic connectorST type
- Power-up stabilizationLess than five seconds at ambient temperature
- Tone threshold settingsUser selectable from 1 to 35 dB, plus OFF
- Analog output port
 - Voltage0 to + 1 V FSD of linear power range
 - Output impedance5 kilohms, nominal
- Temperature
 - Operating32 to 122 degrees F
 - Storage0 to 150 degrees F
- Relative humidity5 to 95 percent, non-condensing
- Battery powerAlkaline: 28 hours; NiCad: 8 hours (recharger and NiCad batteries provided)
- Carrying case

3. Optical Light Generator:

Furnish optical light generators for measuring absolute power and link losses, as well as monitoring power levels and testing threshold levels. Provide the following features:

- Calibrated wavelengths1310 nm, and 1550 nm
- Accuracy3 percent at 70 degrees F at calibrated wavelengths
- Fiber-optic connectorST type
- Power-up stabilizationLess than five seconds at ambient temperature
- Temperature
 - Operating32 to 122 degrees F
 - Storage-10 to 150 degrees F
- Relative humidity5 to 95 percent, non-condensing
- Battery powerAlkaline: 28 hours; NiCad: 8 hours (recharger and NiCad

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batteries provided)

- Carrying case

2.3. MEASUREMENT AND PAYMENT

Actual number of fiber-optic restoration kits furnished and accepted.

Actual number of fiber-optic power meters furnished and accepted.

Actual number of optical light generators furnished and accepted.

Payment will be made under:

Furnish Fiber-optic Restoration Kit	Each
Furnish Fiber-optic Power Meter.....	Each
Furnish Optical Light Generator.....	Each

3. TRAFFIC SIGNAL SUPPORTS

3.1. METAL TRAFFIC SIGNAL SUPPORTS – ALL POLES

A. General:

Furnish and install metal strain poles and metal poles with mast arms, grounding systems, and all necessary hardware. The work covered by this special provision includes requirements for the design, fabrication, and installation of both standard and custom/site specifically designed metal traffic signal supports and associated foundations.

Provide metal traffic signal support systems that contain no guy assemblies, struts, or stay braces. Provide designs of completed assemblies with hardware that equals or exceeds AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals* 4th Edition, 2001 (hereafter called 4th Edition AASHTO), including the latest interim specifications. Provide assemblies with a round or near-round (18 sides or more) cross-section, or a multi sided cross section with no less than six sides. The sides may be straight, convex, or concave.

Pole heights shown on signal plans are estimated from available data for bid purposes. Prior to furnishing metal signal poles, use field measurements and adjusted cross-sections to determine whether pole heights are sufficient to obtain required clearances. If pole heights are not sufficient, the Contractor should immediately notify the Engineer of the required revised pole heights.

Ensure that metal signal poles permit cables to be installed inside poles and any required mast arms. For holes in the poles and arms used to accommodate cables, provide full-circumference grommets. Arm flange plate wire access holes should be deburred, non grommets, and oversized to fit around the 2” diameter grommets shaft flange plate wire access hole.

After fabrication, have steel poles, required mast arms, and all parts used in the assembly hot-dip galvanized per section 1076. Design structural assemblies with weep holes large enough and properly located to drain molten zinc during galvanization process. Provide hot-dip galvanizing on structures that meets or exceeds ASTM Standard A-123. Provide galvanizing on hardware that meets or exceeds ASTM Standard A-153. Ensure that threaded material is brushed and retapped as necessary after galvanizing. Perform repair of damaged galvanizing that complies with the following:

Repair of Galvanizing Article 1076-6

Standard Drawings for Metal Poles are available that supplement these project special provisions. These drawings are located on the Department’s website:

<http://www.ncdot.gov/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html>

Comply with article 1098-1B “General Requirements” of the 2012 *STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES*, hereinafter referred to as the *Standard Specifications* for submittal requirements. Furnish shop drawings for approval. Provide the copies of detailed shop drawings for each type of structure as summarized below. Ensure that shop drawings include material specifications for each component and identify welds by type and size on the drawing details, not in table format. Do not release structures for fabrication until shop drawings have been approved by NCDOT. Provide an itemized bill of materials for all structural components and associated connecting hardware on the drawings.

Comply with article 1098-1A “General Requirements” of the *Standard Specifications* for Qualified Products List (QPL) submittals. All shop drawings must include project location description, signal inventory number(s) and a project number or work order number on the drawings.

Summary of information required for metal pole review submittal:

Item	Hardcopy Submittal	Electronic Submittal	Comments / Special Instructions
Sealed, Approved Signal Plan/Loading Diagram	1	1	All structure design information needs to reflect the latest approved signal plans
Custom Pole Shop Drawings	4 sets	1 set	Submit drawings on 11” x 17” format media Show NCDOT inventory number(s) in or above the title block
Standard Pole Shop Drawings (from the QPL)	4 sets	1 set	Submit drawings on 11” x 17” format media Show NCDOT inventory number(s) in or above the title block
Structure Calculations	1 set	1 set	Not required for Standard QPL Poles
Standard Pole Foundation Drawings	1 set	1 set	Submit drawings on 11” x 17” format media. Submit a completed Standard Foundation Selection form for each pole using foundation table on Metal Pole Drawing M-8.
Custom Foundation Drawings	4 sets	1 set	Submit drawings on 11” x 17” format media. If QPL Poles are used, include the corresponding QPL pole shop drawings with this submittal.
Foundation Calculations	1	1	Not required for Standard QPL Poles
Soil Boring Logs and Report	1	1	Report should include a location plan and a soil classification report including soil capacity, water level, hammer efficiency, soil bearing pressure, soil density, etc. for each pole.

NOTE – All shop drawings and custom foundation design drawings must be sealed by a professional Engineer licensed in the state of North Carolina. All geotechnical information must be sealed by either a Professional Engineer or geologist licensed in the state of North Carolina. Include a title block and revision block on the shop drawings and foundation designs showing the NCDOT inventory number.

Shop drawings and foundation drawings may be submitted together or separately for approval. However, shop drawings must be approved before foundations can be reviewed. Foundation designs will be returned without review if the associated shop drawing has not been approved. Incomplete submittals will be returned without review.

B. Materials:

Fabricate metal pole and arm shaft from coil or plate steel to meet the requirements of ASTM A 595 Grade A tubes. For structural steel shapes, plates and bars use A572 Gr 50 min or ASTM A709 Gr 50 min.. Provide pole and arm shafts that are round in cross section or multisided tubular shapes

and have a uniform linear taper of 0.14 in/ft. Construct shafts from one piece of single ply plate or coil so there are no circumferential weld splices. Galvanize in accordance with AASHTO M 111 and/or ASTM A 123 or an approved equivalent.

Use the submerged arc process or other NCDOT previously approved process suitable for pole shaft and arms to continuously weld pole shafts and arm shafts along their entire length. The longitudinal seam weld will be finished flush to the outside contour of the base metal. Ensure shafts have no circumferential welds except at the lower end joining the shaft to the pole base and arm base. Provide welding that conforms to Article 1072-20 of the *Standard Specifications*, except that no field welding on any part of the pole will be permitted unless approved by a qualified engineer.

Refer to Metal Pole Standard Drawing Sheets M2 through M5 for fabrication details. Fabricate anchor bases from plate steel meeting, as a minimum, the requirements of ASTM A 36M or cast steel meeting the requirements of ASTM A 27M Grade 485-250, AASHTO M270 Gr 36 or an approved equivalent. Conform to the applicable bolt pattern and orientation as shown on Metal Pole Standard Drawing Sheet M2.

Ensure all hardware is galvanized steel or stainless steel. The Contractor is responsible for ensuring that the designer/fabricator specifies connecting hardware and/or materials that do not create a dissimilar metal corrosive reaction.

Unless otherwise required by the design, ensure each anchor rod is 2" diameter and 60" length. Provide 10" minimum thread projection at the top of the rod, and 8" minimum at the bottom of the rod. Use anchor rod assembly and drilled pier foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

For each structural bolt and other steel hardware, hot dip galvanizing shall conform to the requirements of AASHTO M 232 (ASTM A 153). Ensure end caps for poles or mast arms are constructed of cast aluminum conforming to Aluminum Alloy 356.0F.

Provide a circular anchor bolt lock plate that will be secured to the anchor bolts at the embedded end with 2 washers and 2 nuts. Provide a base plate template that matches the bolt circle diameter of the anchor bolt lock plate. Construct plates and templates from ¼" minimum thick steel with a minimum width of 4". Galvanizing is not required.

Provide 4 heavy hex nuts and 4 flat washers for each anchor bolt. For nuts, use AASHTO M291 grade 2H, DH, or DH3 or equivalent material. For flat washers, use AASHTO M293 or equivalent material.

C. Construction Methods:

Erect signal support poles only after concrete has attained a minimum allowable compressive strength of 3000 psi. Install anchor rod assemblies in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

For further construction methods, see construction methods for Metal Strain Pole, or Metal Pole with Mast Arm.

Connect poles to grounding electrodes and bond them to the electrical service grounding electrodes.

For holes in the poles used to accommodate cables, install grommets before wiring pole or arm. Do not cut or split grommets.

Attach the terminal compartment cover to the pole by a sturdy chain or cable. Ensure the chain or cable is long enough to permit the cover to hang clear of the compartment opening when the cover is

removed, and is strong enough to prevent vandalism. Ensure the chain or cable will not interfere with service to the cables in the pole base.

Attach cap to pole with a sturdy chain or cable. Ensure the chain or cable is long enough to permit the cap to hang clear of the opening when the cap is removed.

Perform repair of damaged galvanizing that complies with the *Standard Specifications*, Article 1076-6 "Repair of Galvanizing."

Install galvanized wire mesh around the perimeter of the base plate to cover the gap between the base plate and top of foundation for debris and pest control.

Install a ¼" thick plate for concrete foundation tag to include: concrete grade, depth, diameter, and reinforcement sizes of the installed foundation.

3.2. METAL STRAIN POLE

A. Materials:

Provide either steel or aluminum poles as indicated on the plans.

Comply with the following for Aluminum Poles:

- Have poles fabricated from Aluminum Association Alloy 6061-T6, 6063-T6, or approved equivalent. The structural requirement does not pertain to castings that are decorative only.
- Have shafts tapered by spinning and cold-working a seamless extruded tube of the aluminum alloy.
- Have shafts with no circumferential welds except at the lower end joining the shaft to the base.
- Ensure aluminum poles are properly protected from damage prior to shipment.
- Have bases of the shaft fabricated in accordance with the Aluminum Association Alloy 356.0-T6, and of adequate strength, shape and size, and capable of withstanding the design load of the shaft.
- Have aluminum surfaces in contact with concrete or dissimilar metal coated with bituminous paint.

Comply with the following for Steel Poles:

- Have shafts of the tapered tubular type and fabricated of steel conforming to ASTM A-595 Grade A or an approved equivalent.
- Have galvanization in accordance with AASHTO M 111 (ASTM A 123).
- Have shafts that are continuously welded for the entire length by the submerged arc process, and with exposed welds ground or rolled smooth and flush with the base metal. Provide welding that conforms to Article 1072-20 per *Standard Specification* except that no field welding on any part of the pole will be permitted.
- Have anchor bases for steel poles fabricated from plate steel meeting as a minimum the requirements of ASTM A 36M or cast steel meeting the requirements of ASTM A 27M Grade 485-250 or an approved equivalent.

For each strain pole, provide 2 messenger cable (span wire) clamps and associated hardware for attachment of support cable of the messenger cable suspension. Ensure that diameter of the clamp is appropriate to its location on the pole and that the diameter of the clamps is appropriately designed to be adjustable from 1'-6" below the top, down to 6'-6" below the top of the pole. Do not attach more than one support cable to a messenger cable clamp.

For strain poles, provide a minimum of three (3) 2 inch (50 mm) holes equipped with an associated coupling and weatherhead on the messenger cable load side of the pole to accommodate passage of signal cables from inside the pole to the suspension. Provide galvanized threaded plugs for all unused couplings at pole entrance points. Refer to Metal Pole Standard Drawing Sheet M3 for fabrication details.

Provide a grounding lug(s) in the approximate vicinity of the messenger cable clamp for bonding and grounding messenger cable. Lugs must accept #4 or #6 AWG wire to bond messenger cables to the pole in order to provide an effective ground fault circuit path. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

Have poles permanently stamped above the hand holes with the identification tag details as shown on Metal Pole Standard Drawing Sheet M2.

Provide liquid tight flexible metal conduit (Type LFMC), liquid tight flexible nonmetallic conduit (Type LFNC), high density polyethylene conduit (Type HDPE), or approved equivalent to isolate conductors feeding luminaires.

Fabricate poles from a single piece of steel or aluminum with single line seam weld with no transverse butt welds. Fabrication of two ply pole shafts is unacceptable with the exception of fluted shafts. Provide tapers for all shafts that begin at base and that have diameters which decrease uniformly at the rate of not more than 0.14 inch per foot (11.7 millimeters per meter) of length.

Ensure that allowable pole deflection does not exceed that allowed per 4th Edition AASHTO. For messenger cable poles (with primarily transverse loads), ensure that maximum deflection at the top of the pole does not exceed 2.5 percent of the pole height. For mast arm poles (with primarily moment loads), ensure that maximum angular rotation of the top of the pole does not exceed 1° 40'.

Provide four anchor nuts and four washers for each anchor bolt. Ensure that anchor bolts have required diameters, lengths, and positions, and will develop strengths comparable to their respective poles.

Provide a terminal compartment with cover and screws in each pole that encompasses the hand hole and contains a 12-terminal barrier type terminal block. Provide two terminal screws with a removable shorting bar between them for each termination. Furnish terminal compartment covers attached to the pole by a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cover to hang clear of the compartment opening when the cover is removed, and is strong enough to prevent vandals from being able to disconnect the cover from the pole. Ensure that the chain or cable will not interfere with service to the cables in the pole base.

Install grounding lugs that will accept #4 or #6 AWG wire to electrically bond messenger cables to the pole. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

For each pole, provide a 1/2 inch minimum thread diameter, coarse thread stud and nut for grounding which will accommodate #6 AWG ground wire. Ensure that the lug is electrically bonded to the pole and is conveniently located inside the pole at the hand hole.

Provide a removable pole cap with stainless steel attachment screws for the top of each pole. Ensure that the cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to the pole with a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cap to hang clear of the pole-top opening when the cap is removed.

When required by the plans, furnish couplings 42 inches above the bottom of the base for mounting of pedestrian pushbuttons. Provide mounting points consisting of 1-1/2 inch internally threaded half-couplings that comply with the NEC and that are mounted within the poles. Ensure that couplings are essentially flush with the outside surfaces of the poles and are installed before any required galvanizing. Provide a threaded plug in each mounting point. Ensure that the surface of the plug is essentially flush with the outer end of the mounting point when installed and has a recessed hole to accommodate a standard wrench.

B. Construction Methods:

Install metal poles, hardware, and fittings as shown on the manufacturer's installation drawings. Install metal poles so that when the pole is fully loaded it is within 2 degrees of vertical. Install poles with the manufacturer's recommended "rake." Use threaded leveling nuts to establish rake if required.

3.3. DRILLED PIER FOUNDATIONS FOR METAL TRAFFIC SIGNAL POLES

Analysis procedures and formulas shall be based on AASHTO, ACI code and per FHWA manuals. Design methods based on engineering publications or research papers needs to have prior approval from NCDOT. The Department reserves the right to accept or disapprove any method used for the analysis.

Use a Factor of Safety of 1.33 for torsion and 2.0 for bending for the foundation design.

Foundation design for lateral load shall not exceed 1" lateral deflection at top of foundation.

Design all custom foundations to carry the maximum capacity of each metal pole. For standard case strain poles only, if a custom foundation is designed, use the actual moment reactions from the Standard Foundation Selection Table shown on Standard Drawing No. M8.

When poor soil conditions are encountered which could create an excessively large foundation design, consideration may be given to allowing an exemption to the maximum capacity design. The contractor must gain approval from the engineer before reducing a foundation's capacity. On projects where poor soil is known to be present, it is advisable that the contractor consider getting foundations approved before releasing poles for fabrication.

A. Description:

Furnish and install foundations for NCDOT metal poles with all necessary hardware in accordance with the plans and specifications.

Metal Pole Standards have been developed and implemented by NCDOT for use at signalized intersections in North Carolina. If the plans call for a standard pole, then a standard foundation may be selected from the plans. However, the Contractor is not required to use a standard foundation. If the Contractor chooses to design a non-standard site-specific foundation for a standard pole or if the plans call for a non-standard site-specific pole, design the foundation to conform to the applicable provisions in the NCDOT Metal Pole Standards and Section B4 (Non-Standard Foundation Design) below. If non-standard site specific foundations are designed for standard QPL approved strain

poles, the foundation designer must use the design moment specified by load case on Metal Pole Standard Drawing Sheet M8. Failure to conform to this requirement will be grounds for rejection of the design.

If the Contractor chooses to design a non-standard foundation for a standard pole and the soil test results indicate a standard foundation is feasible for the site, the Contractor will be paid the cost of the standard foundation (drilled pier and wing wall, if applicable). Any additional costs associated with a non-standard site-specific foundation including additional materials, labor and equipment will be considered incidental to the cost of the standard foundation. All costs for the non-standard foundation design will also be considered incidental to the cost of the standard foundation.

B. Soil Test and Foundation Determination:

1. General:

Drilled piers are reinforced concrete sections, cast-in-place against in situ, undisturbed material. Drilled piers are of straight shaft type and vertical.

Some standard drilled piers for supporting poles with mast arms may require wing walls to resist torsional rotation. Based upon this provision and the results of the required soil test, a drilled pier length and wing wall requirement may be determined and constructed in accordance with the plans.

For non-standard site-specific poles, the contractor-selected pole fabricator will determine if the addition of wing walls is necessary for the supporting foundations.

2. Soil Test:

Perform a soil test at each proposed metal pole location. Complete all required fill placement and excavation at each signal pole location to finished grade before drilling each boring. Soil tests performed that are not in compliance with this requirement may be rejected and will not be paid. Drill one boring to a depth of 26 feet within a 25 foot radius of each proposed foundation.

Perform standard penetration tests (SPT) in accordance with ASTM D 1586 at depths of 1, 2.5, 5, 7.5, 10, 15, 20 and 26 feet. Discontinue the boring if one of the following occurs:

- A total of 100 blows have been applied in any 2 consecutive 6-in. intervals.
- A total of 50 blows have been applied with < 3-in. penetration.

Describe each intersection as the “Intersection of (Route or SR #), (Street Name) and (Route or SR #), (Street Name), _____ County, Signal Inventory No. _____”. Label borings with “B- N, S, E, W, NE, NW, SE or SW” corresponding to the quadrant location within the intersection. Pole numbers should be made available to the Drill Contractor. Include pole numbers in the boring label if they are available. If they are not available, ensure the boring labels can be cross-referenced to corresponding pole numbers. For each boring, submit a legible (hand written or typed) boring log signed and sealed by a licensed Geologist or Professional Engineer registered in North Carolina. Include on each boring the SPT blow counts and N-values at each depth, depth of the boring, and a general description of the soil types encountered.

3. Standard Foundation Determination:

Use the following method for determining the Design N-value:

$$N_{AVG} = \frac{(N@1' + N@2.5' + \dots + N@Deepest\ Boring\ Depth)}{\text{Total Number of N-values}}$$

$$Y = (N@1')^2 + (N@2.5')^2 + \dots + (N@Deepest\ Boring\ Depth)^2$$

$$Z = (N@1' + N@2.5' + \dots + N@Deepest\ Boring\ Depth)$$

$$N_{STD\ DEV} = \left[\frac{(\text{Total Number of N-values} \times Y) - Z^2}{(\text{Total Number of N-values}) \times (\text{Total Number of N-values} - 1)} \right]^{0.5}$$

Design N-value equals lesser of the following two conditions:

$$N_{AVG} - (N_{STD\ DEV} \times 0.45)$$

Or

$$\text{Average of First Four N-Values} = \frac{(N@1' + N@2.5' + N@5' + N@7.5')}{4}$$

Note: If less than 4 N-values are obtained because of criteria listed in Section 2 above, use average of N-values collected for second condition. Do not include the N-value at the deepest boring depth for above calculations if the boring is discontinued at or before the required boring depth because of criteria listed in Section 2 above. Use N-value of zero for weight of hammer or weight of rod. If N-value is greater than 50, reduce N-value to 50 for calculations.

If standard NCDOT strain poles are shown on the plans and the Contractor chooses to use standard foundations, determine a drilled pier length, "L," for each signal pole from the Standard Foundations Chart (sheet M 8) based on the Design N-value and the predominant soil type. For each standard pole location, submit a completed "Metal Pole Standard Foundation Selection Form" signed by the Contractor's representative. Signature on form is for verification purposes only. Include the Design N-value calculation and resulting drilled pier length, "L," on each form.

If non-standard site-specific poles are shown on the plans, submit completed boring logs collected in accordance with Section 2 (Soil Test) above along with pole loading diagrams from the plans to the contractor-selected pole fabricator to assist in the pole and foundation design.

If one of the following occurs, the Standard Foundations Chart shown on the plans may not be used and a non-standard foundation may be required. In such case, contact the Engineer.

- The Design N-value is less than 4.
- The drilled pier length, "L", determined from the Standard Foundations Chart, is greater than the depth of the corresponding boring.

In the case where a standard foundation cannot be used, the Department will be responsible for the additional cost of the non-standard foundation.

Foundation designs are based on level ground around the traffic signal pole. If the slope around the edge of the drilled pier is steeper than 8:1 (H:V) or the proposed foundation will be less than 10 feet from the top of an embankment slope, the Contractor is responsible for providing slope information to the foundation designer and to the Engineer so it can be considered in the design.

The "Metal Pole Standard Foundation Selection Form" may be found at:

<http://www.ncdot.gov/doh/preconstruct/highway/geotech/formdet/misc/MetalPole.pdf>

If assistance is needed, contact the Engineer.

4. Non-Standard Foundation Design:

Design non-standard foundations based upon site-specific soil test information collected in accordance with Section 2 (Soil Test) above. Design drilled piers for side resistance only in accordance with Section 4.6 of the *AASHTO Standard Specifications for Highway Bridges*. Use the computer software LPILE version 5.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Use the computer software gINT version 8.0 or later manufactured by Bentley Systems, Inc. with the

current NCDOT gINT library and data template to produce SPT boring logs. Provide a drilled pier foundation for each pole with a length and diameter that result in a horizontal lateral movement of less than 1 inch at the top of the pier and a horizontal rotational movement of less than 1 inch at the edge of the pier. Contact the Engineer for pole loading diagrams for standard poles to be used for non-standard foundation designs. Submit any non-standard foundation designs including drawings, calculations, and soil boring logs to the Engineer for review and approval before construction.

C. Drilled Pier Construction:

Construct drilled pier foundations in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

3.4. CUSTOM DESIGN OF TRAFFIC SIGNAL SUPPORTS

A. General:

Design traffic signal supports with foundations consisting of metal strain poles.

The lengths of the metal signal poles shown on the plans are estimated from available data for bid purposes. Determine the actual length of each pole from field measurements and adjusted cross-sections. Furnish the revised pole heights to the Engineer. Use all other dimensional requirements shown on the plans.

Ensure each pole includes an identification tag with information and location positions as defined on Metal Pole Standard Drawing Sheets M2, M3 and M4. All pole shaft tags must include the NCDOT Inventory number followed by the pole number shown on the traffic signal or ITS (non-signalized locations) plan.

Design all traffic signal support structures using the following 4th Edition AASHTO specifications:

- Design for a 50 year service life as recommended by Table 3-3.
- Use the wind pressure map developed from 3-second gust speeds, as provided in Article 3.8.
- Ensure signal support structures include natural wind gust loading and truck-induced gust loading in the fatigue design, as provided for in Articles 11.7.3 and 11.7.4, respectively. Designs need not consider periodic galloping forces.
- Assume the natural wind gust speed in North Carolina is 11.2 mph. For natural wind fatigue stress calculations, utilize a drag coefficient (C_d) computed for 11.2 mph wind velocity and not the basic wind speed velocity.
- Design for Category II fatigue, as provided for in Article 11.6, unless otherwise specified.
- Calculate all stresses using applicable equations from Section 5. The Maximum allowable stress ratios for all signal support designs are 0.9.
- Conform to article 10.4.2 and 11.8 for all deflection requirements.

Ensure that the design permits cables to be installed inside poles and mast arms.

Unless otherwise specified by special loading criteria, the computed surface area for ice load on signal heads is:

- 3-section, 12-inch, Surface area: 26.0 ft² (17.0 ft² without back plate)
- 4-section, 12-inch, Surface area: 32.0 ft² (21.0 ft² without back plate)
- 5-section, 12-inch, Surface area: 42.0 ft² (29.0 ft² without back plate)

The ice loading for signal heads defined above includes the additional surface area that back plates will induce. Special loading criteria may be specified in instances where back plates will not be installed on signal heads. Refer to the Loading Schedule on each Metal Pole Loading Diagram for revised signal head surface areas. The pole designer should revise ice loads accordingly in this

instance. Careful examination of the plans when this is specified is important as this may impact sizing of the metal support structure and foundation design which could affect proposed bid quotes. All maximum stress ratios of 0.9 still apply.

Assume the combined minimum weight of a messenger cable bundle (including messenger cable, signal cable and detector lead-in cables) is 1.3 lbs/ft. Assume the combined minimum diameter of this cable bundle is 1.3 inches.

Ensure that designs provide a removable pole cap with stainless steel attachment screws for each pole top and mast arm end.

B. Metal Poles:

Submit design drawings for approval including pre-approved QPL pole drawings. Show all the necessary details and calculations for the metal poles including the foundation and connections. Include signal inventory number on design drawings. Include as part of the design calculations the ASTM specification numbers for the materials to be used. Provide the types and sizes of welds on the design drawings. Include a Bill of Materials on design drawings. Ensure design drawings and calculations are signed, dated, and sealed by the responsible professional engineer licensed in the state of North Carolina. Immediately bring to the attention of the Engineer any structural deficiency that becomes apparent in any assembly or member of any assembly as a result of the design requirements imposed by these specifications, the plans, or the typical drawings. Said Professional Engineer is wholly responsible for the design of all poles and arms. Review and acceptance of these designs by the Department does not relieve the said Professional Engineer of his responsibility. Do not fabricate the assemblies until receipt of the Department's approval of the design drawings.

Where ice is present, assume wind loads as shown in Figure 3-5 of the 4th Edition AASHTO Specification for Group III loading.

For each strain pole, provide two messenger cable clamps and associated hardware to attach the messenger support cable. Ensure that the diameter of the clamps is appropriately designed to be adjustable from 18 inches below the top, down to 6'-6" below the top of the pole. Do not attach more than one messenger support cable to a messenger cable clamp.

Provide a grounding lug(s) in the approximate vicinity of the messenger cable clamp for bonding and grounding messenger cable. Lugs must accept #4 or #6 AWG wire to bond messenger cables to the pole in order to provide an effective ground fault circuit path. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

Design tapers for all pole shafts that begin at the base with diameters that decrease uniformly at the rate of 0.14 inch per foot of length.

Design a base plate on each pole. The minimum base plate thickness for all poles is determined by the following criteria:

Case 1 Circular or rectangular solid base plate with the upright pole welded to the top surface of base plate with full penetration butt weld, and where no stiffeners are provided. A base plate with a small center hole, which is less than 1/3 of the upright diameter, and located concentrically with the upright pole, may be considered as a solid base plate.

The magnitude of bending moment in the base plate, induced by the anchoring force of each anchor bolt is $M = (P \times D_1) / 2$, where

M = bending moment at the critical section of the base plate induced by one anchor bolt
 P = anchoring force of each anchor bolt

D_1 = horizontal distance between the anchor bolt center and the outer face of the upright, or the difference between the bolt circle radius and the outside radius of the upright

Locate the critical section at the face of the anchor bolt and perpendicular to the bolt circle radius. The overlapped part of two adjacent critical sections is considered ineffective.

Case 2 Circular or rectangular base plate with the upright pole socketed into and attached to the base plate with two lines of fillet weld, and where no stiffeners are provided, or any base plate with a center hole that is larger in diameter than 1/3 of the upright diameter.

The magnitude of bending moment induced by the anchoring force of each anchor bolt is $M = P \times D_2$,

where P = anchoring force of each anchor bolt

D_2 = horizontal distance between the face of the upright and the face of the anchor bolt nut

Locate the critical section at the face of the anchor bolt top nut and perpendicular to the radius of the bolt circle. The overlapped part of two adjacent critical sections is considered ineffective.

If the base plate thickness calculated for Case 2 is less than Case 1, use the thickness calculated for Case 1.

The following additional owner requirements apply concerning pole base plates.

- Ensure that whichever case governs as defined above, the anchor bolt diameter is set to match the base plate thickness. If the minimum diameter required for the anchor bolt exceeds the thickness required for the base plate, set the base plate thickness equal to the required bolt diameter.

Ensure that designs have anchor bolt holes with a diameter 1/4 inch larger than the anchor bolt diameters in the base plate.

Ensure that the anchor bolts have the required diameters, lengths, and positions, and will develop strengths comparable to their respective poles.

Provide designs with a 6 x 12-inch hand hole with a reinforcing frame for each pole.

Provide designs with a terminal compartment with cover and screws in each pole that encompasses the hand hole and contains provisions for a 12-terminal barrier type terminal block.

For each pole, provide designs with provisions for a 1/2 inch minimum thread diameter, coarse thread stud and nut for grounding which will accommodate a #6 AWG ground wire. Ensure the lug is electrically bonded to the pole and is conveniently located inside the pole at the hand hole.

When required, design couplings on the pole for mounting pedestrian pushbuttons at a height of 42 inches above the bottom of the base. Provide mounting points consisting of 1-1/2 inch internally threaded half-couplings that comply with the NEC that are mounted within the poles. Ensure the couplings are essentially flush with the outside surfaces of the poles and are installed before any required galvanizing. Provide a threaded plug for each half coupling. Ensure that the surface of the plug is essentially flush with the outer end of the mounting point when installed and has a recessed hole to accommodate a standard wrench.

3.5. POLE NUMBERING SYSTEM

Attach an identification tag to each pole shaft and mast arm section as shown on Metal Pole Standard Drawing Sheet M2 "Typical Fabrication Details Common To All Metal Poles".

3.6. MEASUREMENT AND PAYMENT

Actual number of metal strain signal poles (without regard to height or load capacity) furnished, installed and accepted.

Actual number of soil tests with SPT borings drilled furnished and accepted.

Actual volume of concrete poured in cubic yards of drilled pier foundation furnished, installed and accepted.

No measurement will be made for foundation designs prepared with metal pole designs, as these will be considered incidental to designing signal support structures.

Payment will be made under:

Metal Strain Signal Pole	Each
Soil Test	Each
Drilled Pier Foundation.....	Cubic Yard

4. CONTROLLERS WITH CABINETS

4.1. MATERIALS – TYPE 2070L CONTROLLERS

Conform to CALTRANS *Transportation Electrical Equipment Specifications* (TEES) (dated August 16, 2002, plus Errata 1 dated October 27, 2003 and Errata 2 dated June 08, 2004) except as required herein.

Furnish Model 2070L controllers. Ensure that removal of the CPU module from the controller will place the intersection into flash.

The Department will provide software at the beginning of the burning-in period. Contractor shall give 5 working days notice before needing software. Program software provided by the Department.

Provide model 2070L controllers with the latest version of OS9 operating software and device drivers, composed of the unit chassis and at a minimum the following modules and assemblies:

- MODEL 2070 1B, CPU Module, Single Board
- MODEL 2070-2A, Field I/O Module (FI/O)
- MODEL 2070-3B, Front Panel Module (FP), Display B (8x40)
- MODEL 2070-4A, Power Supply Module, 10 AMP
- MODEL 2070-7A, Async Serial Com Module (9-pin RS-232)

Furnish one additional MODEL 2070-7A, Async Serial Com Module (9-pin RS-232) for all master controller locations.

4.2. MATERIALS – NEMA TS-2 TYPE 2 CONTROLLERS

Furnish NEMA TS-2, Type 2 (*insert model number here*), or approved equivalent. Include a NEMA standard overlap card.

Ensure that all components are arranged for easy access during servicing. When modular in construction, provide guides and positive connection devices to insure proper pin alignment and connection.

Provide a moisture resistant coating on all circuit boards.

4.3. MATERIALS – GENERAL CABINETS

Provide a moisture resistant coating on all circuit boards.

Provide one 20 mm diameter radial lead UL-recognized metal oxide varistor (MOV) between each load switch field terminal and equipment ground. Electrical performance is outlined below.

PROPERTIES OF MOV SURGE PROTECTOR	
Maximum Continuous Applied Voltage at 185° F	150 VAC (RMS) 200 VDC
Maximum Peak 8x20µs Current at 185° F	6500 A
Maximum Energy Rating at 185° F	80 J
Voltage Range 1 mA DC Test at 77° F	212-268 V
Max. Clamping Voltage 8x20µs, 100A at 77° F	395 V
Typical Capacitance (1 MHz) at 77° F	1600 pF

Provide a power line surge protector that is a two-stage device that will allow connection of the radio frequency interference filter between the stages of the device. Ensure that a maximum continuous current is at least 10A at 120V. Ensure that the device can withstand a minimum of 20 peak surge current occurrences at 20,000A for an 8x20 microsecond waveform. Provide a maximum clamp voltage of 395V at 20,000A with a nominal series inductance of 200µh. Ensure that the voltage does not exceed 395V. Provide devices that comply with the following:

Frequency (Hz)	Minimum Insertion Loss (dB)
60	0
10,000	30
50,000	55
100,000	50
500,000	50
2,000,000	60
5,000,000	40
10,000,000	20
20,000,000	25

4.4. MATERIALS – TYPE 170E CABINETS

A. Type 170 E Cabinets General:

Conform to the city of Los Angeles’ Specification No. 54-053-08, *Traffic Signal Cabinet Assembly Specification* (dated July 2008), except as required herein.

Furnish model 332 base mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. When overlaps are required, provide auxiliary output files for the overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details.

Provide model 200 load switches, model 222 loop detector sensors, model 252 AC isolators, and model 242 DC isolators according to the electrical details. As a minimum, provide one (1) model 2018 conflict monitor, one (1) model 206L power supply unit, two (2) model 204 flashers, one (1) DC isolator (located in slot I14), and four (4) model 430 flash transfer relays (provide seven (7) model 430 flash transfer relays if auxiliary output file is installed) with each cabinet.

B. Type 170 E Cabinet Electrical Requirements:

Provide a cabinet assembly designed to ensure that upon leaving any cabinet switch or conflict monitor initiated flashing operation, the controller starts up in the programmed start up phases and start up interval.

Furnish two sets of non-fading cabinet wiring diagrams and schematics in a paper envelope or container and placed in the cabinet drawer.

All AC+ power is subject to radio frequency signal suppression.

Provide surge suppression in the cabinet for each type of cabinet device. Provide surge protection for the full capacity of the cabinet input file. Provide surge suppression devices that operate properly over a temperature range of -40° F to +185° F. Ensure the surge suppression devices provide both common and differential modes of protection.

Provide a pluggable power line surge protector that is installed on the back of the PDA (power distribution assembly) chassis to filter and absorb power line noise and switching transients. Ensure the device incorporates LEDs for failure indication and provides a dry relay contact closure for the purpose of remote sensing. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....20,000A
- Occurrences (8x20µs waveform).....10 minimum @ 20,000A
- Maximum Clamp Voltage.....395VAC
- Operating Current.....15 amps
- Response Time.....< 5 nanoseconds

Provide a loop surge suppressor for each set of loop terminals in the cabinet. Ensure the device meets the following specifications:

- Peak Surge Current (6 times, 8x20µs)
 - (Differential Mode).....400A
 - (Common Mode).....1,000A
- Occurrences (8x20µs waveform).....500 min @ 200A
- Maximum Clamp Voltage
 - (Differential Mode @400A).....35V
 - (Common Mode @1,000A).....35V
- Response Time.....< 5 nanoseconds
- Maximum Capacitance.....35 pF

Provide a data communications surge suppressor for each communications line entering or leaving the cabinet. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....10,000A
- Occurrences (8x20µs waveform).....100 min @ 2,000A
- Maximum Clamp Voltage.....Rated for equipment protected
- Response Time.....< 1 nanosecond
- Maximum Capacitance.....1,500 pF
- Maximum Series Resistance.....15Ω

Provide a DC signal surge suppressor for each DC input channel in the cabinet. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....10,000A
- Occurrences (8x20µs waveform).....100 @ 2,000A
- Maximum Clamp Voltage.....30V
- Response Time.....< 1 nanosecond

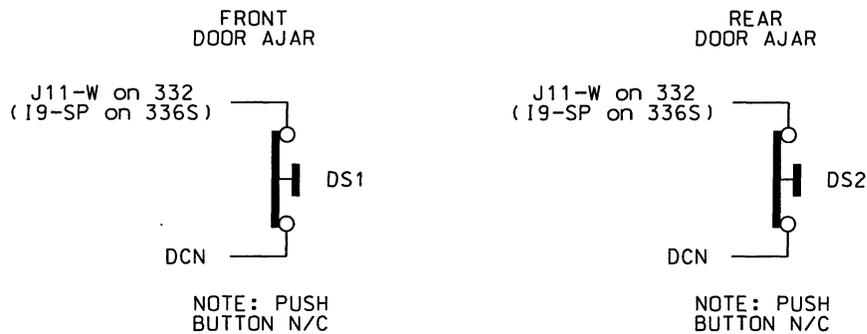
Provide a 120 VAC signal surge suppressor for each AC+ interconnect signal input. Ensure the device meets the following specifications:

- Peak Surge Current (Single pulse, 8x20µs).....20,000A
- Maximum Clamp Voltage.....350VAC
- Response Time.....< 200 nanoseconds
- Discharge Voltage.....<200 Volts @ 1,000A
- Insulation Resistance.....≥100 MΩ

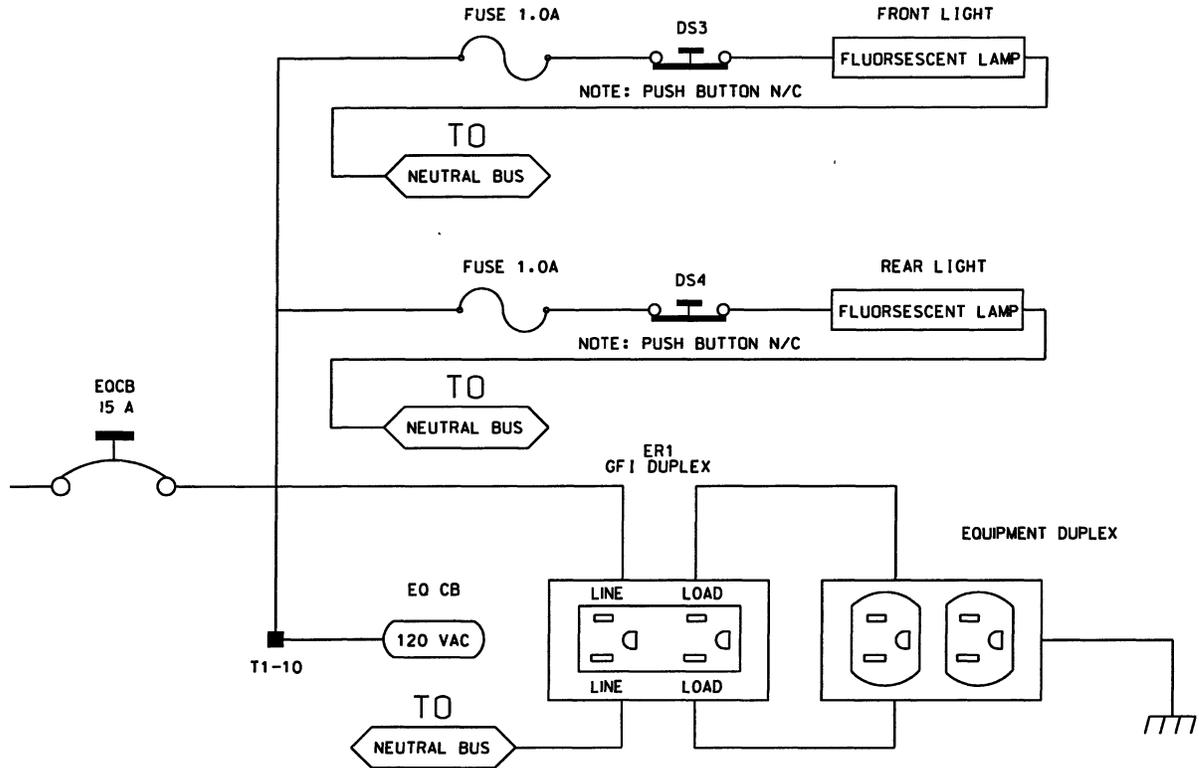
Provide conductors for surge protection wiring that are of sufficient size (ampacity) to withstand maximum overcurrents which could occur before protective device thresholds are attained and current flow is interrupted.

If additional surge protected power outlets are needed to accommodate fiber transceivers, modems, etc., install a UL listed, industrial, heavy-duty type power outlet strip with a minimum rating of 15 A / 125 VAC, 60 Hz. Provide a strip that has a minimum of 3 grounded outlets. Ensure the power outlet strip plugs into one of the controller unit receptacles located on the rear of the PDA. Ensure power outlet strip is mounted securely; provide strain relief if necessary.

Provide a door switch in the front and a door switch in the rear of the cabinet that will provide the controller unit with a Door Ajar alarm when either the front or the rear door is open. Ensure the door switches apply DC ground to the Input File when either the front door or the rear door is open.



Furnish a fluorescent fixture in the rear across the top of the cabinet and another fluorescent fixture in the front across the top of the cabinet at a minimum. Ensure that the fixtures provide sufficient light to illuminate all terminals, labels, switches, and devices in the cabinet. Conveniently locate the fixtures so as not to interfere with a technician’s ability to perform work on any devices or terminals in the cabinet. Provide a protective diffuser to cover exposed bulbs. Install 16 watt T-4 lamps in the fluorescent fixtures. Provide a door switch to provide power to each fixture when the respective door is open. Wire the fluorescent fixtures to the 15 amp ECB (equipment circuit breaker).



Furnish a police panel with a police panel door. Ensure that the police panel door permits access to the police panel when the main door is closed. Ensure that no rainwater can enter the cabinet even with the police panel door open. Provide a police panel door hinged on the right side as viewed from the front. Provide a police panel door lock that is keyed to a standard police/fire call box key. In addition to the requirements of LA Specification No. 54-053-08, provide the police panel with a toggle switch connected to switch the intersection operation between normal stop-and-go operation (AUTO) and manual operation (MANUAL). Ensure that manual control can be implemented using inputs and software such that the controller provides full programmed clearance times for the yellow clearance and red clearance for each phase while under manual control.

Provide a 1/4-inch locking phone jack in the police panel for a hand control to manually control the intersection. Provide sufficient room in the police panel for storage of a hand control and cord.

For model 332 base mounted cabinets, ensure terminals J14-E and J14-K are wired together on the rear of the Input File. Connect TB9-12 (J14 Common) on the Input Panel to T1-2 (AC-) on the rear of the PDA.

Provide detector test switches mounted at the top of the cabinet rack or other convenient location which may be used to place a call on each of eight phases based on the chart below. Provide three positions for each switch: On (place call), Off (normal detector operation), and Momentary On (place momentary call and return to normal detector operation after switch is released). Ensure that the switches are located such that the technician can read the controller display and observe the intersection.

Connect detector test switches for cabinets as follows:

332 Cabinet	
Detector Call Switches	Terminals
Phase 1	I1-W
Phase 2	I4-W
Phase 3	I5-W
Phase 4	I8-W
Phase 5	J1-W
Phase 6	J4-W
Phase 7	J5-W
Phase 8	J8-W

Provide the PCB 28/56 connector for the conflict monitor unit (CMU) with 28 independent contacts per side, dual-sided with 0.156 inch contact centers. Provide the PCB 28/56 connector contacts with solder eyelet terminations. Ensure all connections to the PCB 28/56 connector are soldered to the solder eyelet terminations.

Ensure that all cabinets have the CMU connector wired according to the 332 cabinet connector pin assignments (include all wires for auxiliary output file connection). Wire pins 13, 16, R, and U of the CMU connector to a separate 4 pin plug, P1, as shown below. Provide a second plug, P2, which will mate with P1 and is wired to the auxiliary output file as shown below. Provide an additional plug, P3, which will mate with P1 and is wired to the pedestrian yellow circuits as shown below. When no auxiliary output file is installed in the cabinet, provide wires for the green and yellow inputs for channels 11, 12, 17, and 18, the red inputs for channels 17 and 18, and the wires for the P2 plug. Terminate the two-foot wires with ring type lugs, insulated, and bundled for optional use.

PIN	P1		P2		P3	
	FUNCTION	CONN TO	FUNCTION	CONN TO	FUNCTION	CONN TO
1	CH-9G	CMU-13	OLA-GRN	A123	2P-YEL	114
2	CH-9Y	CMU-16	OLA-YEL	A122	4P-YEL	105
3	CH-10G	CMU-R	OLB-GRN	A126	6P-YEL	120
4	CH-10Y	CMU-U	OLB-YEL	A125	8P-YEL	111

Connect the P20 terminal assembly (red monitor board) to a connector installed on the front of the type 2018 enhanced conflict monitor through a 3-1/2 foot 20-wire ribbon cable. Ensure that the ribbon cable connector and the connector on the conflict monitor are keyed to ensure proper connection. Ensure that removal of the P20 ribbon cable will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.

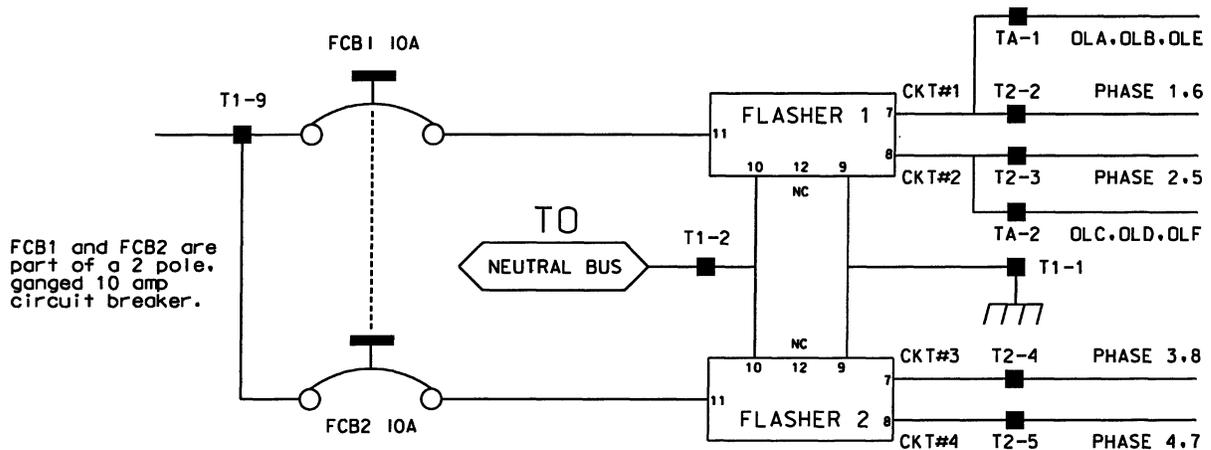
Wire the P20 connector to the traffic signal red displays to provide inputs to the conflict monitor as shown below. Ensure the pedestrian Don't Walk circuits are wired to channels 13 through 16 of the P20 connector. When no auxiliary output file is installed in the cabinet, provide wires for channels 9 through 12 reds. Terminate the two-foot wires with ring type lugs, insulated, and bundled for optional use.

Pin #	Function	Pin #	Function
1	Channel 15 Red	11	Channel 9 Red
2	Channel 16 Red	12	Channel 8 Red
3	Channel 14 Red	13	Channel 7 Red
4	GND	14	Channel 6 Red
5	Channel 13 Red	15	Channel 5 Red
6	Special Function 2	16	Channel 4 Red
7	Channel 12 Red	17	Channel 3 Red
8	Special Function 1	18	Channel 2 Red
9	Channel 10 Red	19	Channel 1 Red
10	Channel 11 Red	20	Red Enable

Ensure the controller unit outputs to the auxiliary output file are pre-wired to the C5 connector. When no auxiliary output file is installed in the cabinet, connect the C5 connector to a storage socket located on the Input Panel or on the rear of the PDA.

In addition to the requirements of LA Specification No. 54-053-08, ensure relay K1 on the Power Distribution Assembly (PDA) is a four pole relay and K2 on the PDA is a two pole relay.

Provide a two pole, ganged circuit breaker for the flash bus circuit. Ensure the flash bus circuit breaker is an inverse time circuit breaker rated for 10 amps at 120 VAC with a minimum of 10,000 RMS symmetrical amperes short circuit current rating. Do not provide the auxiliary switch feature on the flash bus circuit breaker. Ensure the ganged flash bus circuit breaker is certified by the circuit breaker manufacturer to provide gang tripping operation.



Ensure auxiliary output files are wired as follows:

AUXILIARY OUTPUT FILE TERMINAL BLOCK TA ASSIGNMENTS	
POSITION	FUNCTION
1	Flasher Unit #1, Circuit 1/FTR1 (OLA, OLB)/FTR3 (OLE)
2	Flasher Unit #1, Circuit 2/FTR2 (OLC, OLD)/FTR3 (OLF)
3	Flash Transfer Relay Coils
4	AC -
5	Power Circuit 5
6	Power Circuit 5
7	Equipment Ground Bus
8	NC

Provide four spare load resistors mounted in each cabinet. Ensure each load resistor is rated as shown in the table below. Wire one side of each load resistor to AC-. Connect the other side of each resistor to a separate terminal on a four (4) position terminal block. Mount the load resistors and terminal block either inside the back of Output File No. 1 or on the upper area of the Service Panel.

ACCEPTABLE LOAD RESISTOR VALUES	
VALUE (ohms)	WATTAGE
1.5K – 1.9 K	25W (min)
2.0K – 3.0K	10W (min)

Provide Model 200 load switches, Model 204 flashers, Model 242 DC isolators, Model 252 AC isolators, and Model 206L power supply units that conform to CALTRANS' "Transportation Electrical Equipment Specifications" dated March 12, 2009 with Erratum 1.

C. Type 170 E Cabinet Physical Requirements:

Do not mold, cast, or scribe the name "City of Los Angeles" on the outside of the cabinet door as specified in LA Specification No. 54-053-08. Do not provide a Communications Terminal Panel as specified in LA Specification No. 54-053-08. Do not provide terminal block TBB on the Service Panel. Do not provide Cabinet Verification Test Program software or associated test jigs as specified in LA Specification No. 54-053-08.

Furnish unpainted, natural, aluminum cabinet shells. Ensure that all non-aluminum hardware on the cabinet is stainless steel or a Department approved non-corrosive alternate.

Ensure the lifting eyes, gasket channels, police panel, and all supports welded to the enclosure and doors are fabricated from 0.125 inch minimum thickness aluminum sheet and meet the same standards as the cabinet and doors.

Provide front and rear doors with latching handles that allow padlocking in the closed position. Furnish 0.75 inch minimum diameter stainless steel handles with a minimum 0.5 inch shank. Place the padlocking attachment at 4.0 inches from the handle shank center to clear the lock and key. Provide an additional 4.0 inches minimum gripping length.

Provide Corbin #2 locks on the front and rear doors. Provide one (1) Corbin #2 and one (1) police master key with each cabinet. Ensure main door locks allow removal of keys in the locked position only.

Provide a surge protection panel with 16 loop surge protection devices and designed to allow sufficient free space for wire connection/disconnection and surge protection device replacement. For model 332 cabinets, provide an additional 20 loop surge protection devices. Provide an additional

two AC+ interconnect surge devices to protect one slot and eight DC surge protection devices to protect four slots. Provide no protection devices on slot I14.

For base mounted cabinets, mount surge protection panels on the left side of the cabinet as viewed from the rear. Attach each panel to the cabinet rack assembly using bolts and make it easily removable. Mount the surge protection devices in vertical rows on each panel and connect the devices to one side of 12 position, double row terminal blocks with #8 screws. For each surge protection panel, terminate all grounds from the surge protection devices on a copper equipment ground bus attached to the surge protection panel. Wire the terminals to the rear of a standard input file using spade lugs for input file protection.

Provide permanent labels that indicate the slot and the pins connected to each terminal that may be viewed from the rear cabinet door. Label and orient terminals so that each pair of inputs is next to each other. Indicate on the labeling the input file (I or J), the slot number (1-14) and the terminal pins of the input slots (either D & E for upper or J & K for lower).

Provide a minimum 14 x 16 inch pull out, hinged top shelf located immediately below controller mounting section of the cabinet. Ensure the shelf is designed to fully expose the table surface outside the controller at a height approximately even with the bottom of the controller. Ensure the shelf has a storage bin interior which is a minimum of 1 inch deep and approximately the same dimensions as the shelf. Provide an access to the storage area by lifting the hinged top of the shelf. Fabricate the shelf and slide from aluminum or stainless steel and ensure the assembly can support the 2070L controller plus 15 pounds of additional weight. Ensure shelf has a locking mechanism to secure it in the fully extended position and does not inhibit the removal of the 2070L controller or removal of cards inside the controller when fully extended. Provide a locking mechanism that is easily released when the shelf is to be returned to its non-use position directly under the controller.

D. Model 2018 Enhanced Conflict Monitor:

Furnish Model 2018 Enhanced Conflict Monitors that provide monitoring of 18 channels. Ensure each channel consists of a green, yellow, and red field signal input. Ensure that the conflict monitor meets or exceeds CALTRANS' Transportation Electrical Equipment Specifications dated March 12, 2009 with Erratum 1 (hereafter referred to as CALTRANS' 2009 TEES) for a model 210 monitor unit and other requirements stated in this specification.

Ensure the conflict monitor is provided with an 18 channel conflict programming card. Pin EE and Pin T of the conflict programming card shall be connected together. Pin 16 of the conflict programming card shall be floating. Ensure that the absence of the conflict programming card will cause the conflict monitor to trigger (enter into fault mode), and remain in the triggered state until the programming card is properly inserted and the conflict monitor is reset.

Provide a conflict monitor that incorporates LED indicators into the front panel to dynamically display the status of the monitor under normal conditions and to provide a comprehensive review of field inputs with monitor status under fault conditions. Ensure that the monitor indicates the channels that were active during a conflict condition and the channels that experienced a failure for all other per channel fault conditions detected. Ensure that these indications and the status of each channel are retained until the Conflict Monitor is reset. Furnish LED indicators for the following:

- AC Power (Green LED indicator)
- VDC Failed (Red LED indicator)
- WDT Error (Red LED indicator)
- Conflict (Red LED indicator)

- Red Fail (Red LED indicator)
- Dual Indication (Red LED indicator)
- Yellow/Clearance Failure (Red LED indicator)
- PCA/PC Ajar (Red LED indicator)
- Monitor Fail/Diagnostic Failure (Red LED indicator)
- 54 Channel Status Indicators (1 Red, 1 Yellow, and 1 Green LED indicator for each of the 18 channels)

Provide a switch to set the Red Fail fault timing. Ensure that when the switch is in the ON position the Red Fail fault timing value is set to 1350 +/- 150ms (2018 mode). Ensure that when the switch is in the OFF position the Red Fail fault timing value is set to 850 +/- 150ms (210 mode).

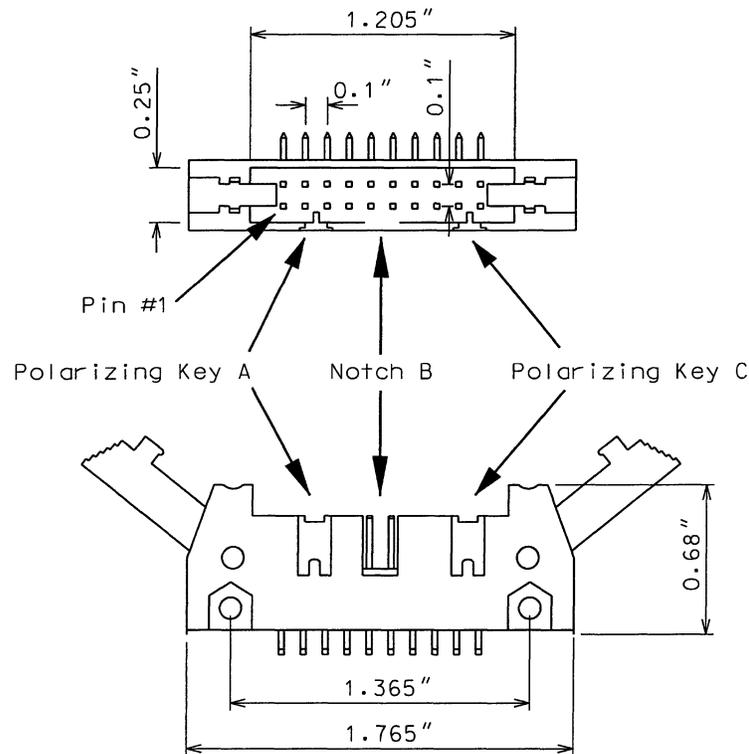
Provide a switch to set the Watchdog fault timing. Ensure that when the switch is in the ON position the Watchdog fault timing value is set to 1.0 +/- 0.1s (2018 mode). Ensure that when the switch is in the OFF position the Watchdog fault timing value is set to 1.5 +/- 0.1s (210 mode).

Provide a jumper or switch to set the AC line brown-out levels. Ensure that when the jumper is present or the switch is in the ON position the AC line dropout voltage threshold is 98 +/- 2 Vrms, the AC line restore voltage threshold is 103 +/- 2 Vrms, and the AC line brown-out timing value is set to 400 +/- 50ms (2018 mode). Ensure that when the jumper is not present or the switch is in the OFF position the AC line dropout voltage threshold is 92 +/- 2 Vrms, the AC line restore voltage threshold is 98 +/- 2 Vrms, and the AC line brown-out timing value is set to 80 +/- 17ms (210 mode).

Provide a jumper or switch that will enable and disable the Watchdog Latch function. Ensure that when the jumper is not present or the switch is in the OFF position the Watchdog Latch function is disabled. In this mode of operation, a Watchdog fault will be reset following a power loss, brownout, or power interruption. Ensure that when the jumper is present or the switch is in the ON position the Watchdog Latch function is enabled. In this mode of operation, a Watchdog fault will be retained until a Reset command is issued.

Provide a jumper that will reverse the active polarity for pin #EE (output relay common). Ensure that when the jumper is not present pin #EE (output relay common) will be considered 'Active' at a voltage greater than 70 Vrms and 'Not Active' at a voltage less than 50 Vrms (Caltrans mode). Ensure that when the jumper is present pin #EE (output relay common) will be considered 'Active' at a voltage less than 50 Vrms and 'Not Active' at a voltage greater than 70 Vrms (Failsafe mode).

In addition to the connectors required by CALTRANS' 2009 TEES, provide the conflict monitor with a red interface connector mounted on the front of the monitor. Ensure the connector is a 20 pin, right angle, male connector with latching clip locks and polarizing keys. Ensure the right angle solder tails are designed for a 0.062" thick printed circuit board. Keying of the connector shall be between pins 3 and 5, and between 17 and 19. Ensure the connector has two rows of pins with the odd numbered pins on one row and the even pins on the other row. Ensure the connector pin row spacing is 0.10" and pitch is 0.10". Ensure the mating length of the connector pins is 0.24". Ensure the pins are finished with gold plating 30μ" thick.



Ensure the red interface connector pins on the monitor have the following functions:

Pin #	Function	Pin #	Function
1	Channel 15 Red	2	Channel 16 Red
3	Channel 14 Red	4	Chassis Ground
5	Channel 13 Red	6	Special Function 2
7	Channel 12 Red	8	Special Function 1
9	Channel 10 Red	10	Channel 11 Red
11	Channel 9 Red	12	Channel 8 Red
13	Channel 7 Red	14	Channel 6 Red
15	Channel 5 Red	16	Channel 4 Red
17	Channel 3 Red	18	Channel 2 Red
19	Channel 1 Red	20	Red Enable

Ensure that the removal of the P-20 red interface ribbon cable will cause the monitor to recognize a latching fault condition and place the cabinet into flashing operation.

Provide Special Function 1 and Special Function 2 inputs to the unit which shall disable only Red Fail Monitoring when either input is sensed active. A Special Function input shall be sensed active when the input voltage exceeds 70 Vrms with a minimum duration of 550 ms. A Special Function input shall be sensed not active when the input voltage is less than 50 Vrms or the duration is less than 250 ms. A Special Function input is undefined by these specifications and may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms or the duration is between 250 ms and 550 ms.

Ensure the conflict monitor recognizes field signal inputs for each channel that meet the following requirements:

- consider a Red input greater than 70 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Red input less than 50 Vrms or with a duration of less than 200 ms as an “off” condition (no valid signal);
- consider a Red input between 50 Vrms and 70 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications;
- consider a Green or Yellow input greater than 25 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Green or Yellow input less than 15 Vrms or with a duration of less than 200 ms as an “off” condition; and
- consider a Green or Yellow input between 15 Vrms and 25 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications.

Provide a conflict monitor that recognizes the faults specified by CALTRANS’ 2009 TEES and the following additional faults. Ensure the conflict monitor will trigger upon detection of a fault and will remain in the triggered (in fault mode) state until the unit is reset at the front panel or through the external remote reset input for the following failures:

1. **Red Monitoring or Absence of Any Indication (Red Failure):** A condition in which no “on” voltage signal is detected on any of the green, yellow, or red inputs to a given monitor channel. If a signal is not detected on at least one input (R, Y, or G) of a conflict monitor channel for a period greater than 1000 ms when used with a 170 controller and 1500 ms when used with a 2070L controller, ensure monitor will trigger and put the intersection into flash. If the absence of any indication condition lasts less than 750 ms when used with a 170 controller and 1200 ms when used with a 2070L controller, ensure conflict monitor will not trigger. Red fail monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. Have red monitoring occur when all of the following input conditions are in effect:
 - a) Red Enable input to monitor is active (Red Enable voltages are “on” at greater than 70 Vrms, off at less than 50 Vrms, undefined between 50 and 70 Vrms), and
 - b) Neither Special Function 1 nor Special Function 2 inputs are active.
 - c) Pin #EE (output relay common) is not active
2. **Short/Missing Yellow Indication Fault (Clearance Error):** Yellow indication following a green is missing or shorter than 2.7 seconds (with ± 0.1 -second accuracy). If a channel fails to detect an “on” signal at the Yellow input for a minimum of 2.7 seconds (± 0.1 second) following the detection of an “on” signal at a Green input for that channel, ensure that the monitor triggers and generates a clearance/short yellow error fault indication. Short/missing yellow (clearance) monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. This fault shall not occur when the channel is programmed for Yellow Inhibit, when the Red Enable signal is inactive or pin #EE (output relay common) is active.
3. **Dual Indications on the Same Channel:** In this condition, more than one indication (R,Y,G) is detected as “on” at the same time on the same channel. If dual indications are detected for a period greater than 500 ms, ensure that the conflict monitor triggers and displays the proper failure indication (Dual Ind fault). If this condition is detected for less than 200 ms, ensure that the monitor does not trigger. G-Y-R dual indication monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor.

G-Y dual indication monitoring shall be enabled for all channels by use of a switch located on the conflict monitor. This fault shall not occur when the Red Enable signal is inactive or pin #EE (output relay common) is active.

4. **Configuration Settings Change:** The configuration settings are comprised of (as a minimum) the permissive diode matrix, dual indication switches, yellow disable jumpers, any option switches, any option jumpers, and the Watchdog Enable switch. Ensure the conflict monitor compares the current configuration settings with the previous stored configuration settings on power-up, on reset, and periodically during operation. If any of the configuration settings are changed, ensure that the conflict monitor triggers and causes the program card indicator to flash. Ensure that configuration change faults are only reset by depressing and holding the front panel reset button for a minimum of three seconds. Ensure the external remote reset input does not reset configuration change faults.

Ensure the conflict monitor will trigger and the AC Power indicator will flash at a rate of 2 Hz \pm 20% with a 50% duty cycle when the AC Line voltage falls below the “drop-out” level. Ensure the conflict monitor will resume normal operation when the AC Line voltage returns above the “restore” level. Ensure the AC Power indicator will remain illuminated when the AC voltage returns above the “restore” level. Should an AC Line power interruption occur while the monitor is in the fault mode, then upon restoration of AC Line power, the monitor will remain in the fault mode and the correct fault and channel indicators will be displayed.

Provide a flash interval of at least 6 seconds and at most 10 seconds in duration following a power-up, an AC Line interruption, or a brownout restore. Ensure the conflict monitor will suspend all fault monitoring functions, close the Output relay contacts, and flash the AC indicator at a rate of 4 Hz \pm 20% with a 50% duty cycle during this interval. Ensure the termination of the flash interval after at least 6 seconds if the Watchdog input has made 5 transitions between the True and False state and the AC Line voltage is greater than the “restore” level. If the watchdog input has not made 5 transitions between the True and False state within 10 \pm 0.5 seconds, the monitor shall enter a WDT error fault condition.

Ensure the conflict monitor will monitor an intersection with a minimum of four approaches using the four-section Flashing Yellow Arrow (FYA) vehicle traffic signal as outlined by the NCHRP 3-54 research project for protected-permissive left turn signal displays. Ensure the conflict monitor will operate in the FYA mode and FYAc (Compact) mode as specified below to monitor each channel for the following fault conditions: Conflict, Red Fail, Dual Indication, and Clearance. Provide a switch to select between the FYA mode and FYAc mode. Provide a switch to select each FYA phase movement for monitoring.

FYA mode

FYA Signal Head	Phase 1	Phase 3	Phase 5	Phase 7
Red Arrow	Channel 9 Red	Channel 10 Red	Channel 11 Red	Channel 12 Red
Yellow Arrow	Channel 9 Yellow	Channel 10 Yellow	Channel 11 Yellow	Channel 12 Yellow
Flashing Yellow Arrow	Channel 9 Green	Channel 10 Green	Channel 11 Green	Channel 12 Green
Green Arrow	Channel 1 Green	Channel 3 Green	Channel 5 Green	Channel 7 Green

FYAc mode

FYA Signal Head	Phase 1	Phase 3	Phase 5	Phase 7
Red Arrow	Channel 1 Red	Channel 3 Red	Channel 5 Red	Channel 7 Red
Yellow Arrow	Channel 1 Yellow	Channel 3 Yellow	Channel 5 Yellow	Channel 7 Yellow
Flashing Yellow Arrow	Channel 1 Green	Channel 3 Green	Channel 5 Green	Channel 7 Green
Green Arrow	Channel 9 Green	Channel 9 Yellow	Channel 10 Green	Channel 10 Yellow

Ensure that the conflict monitor will log at least nine of the most recent events detected by the monitor in non-volatile EEPROM memory (or equivalent). For each event, record at a minimum the time, date, type of event, status of each field signal indication with RMS voltage, and specific channels involved with the event. Ensure the conflict monitor will log the following events: monitor reset, configuration, previous fault, and AC line. Furnish the signal sequence log that shows all channel states (Greens, Yellows, and Reds) and the Red Enable State for a minimum of 2 seconds prior to the current fault trigger point. Ensure the display resolution of the inputs for the signal sequence log is not greater than 50 ms.

Provide a RS-232C/D compliant port (DB-9 female connector) on the front panel of the conflict monitor in order to provide communications from the conflict monitor to the 170/2070L controller or to a Department-furnished laptop computer. Electrically isolate the port interface electronics from all monitor electronics, excluding Chassis Ground. Ensure that the controller can receive all event log information through a controller Asynchronous Communications Interface Adapter (Type 170E) or Async Serial Comm Module (2070L). Provide a Windows based graphic user interface software to communicate directly through the same monitor RS-232C/D compliant port to retrieve and view all event log information to a Department-furnished laptop computer. The RS-232C/D compliant port on the monitor shall allow the monitor to function as a DCE device with pin connections as follows:

Conflict Monitor RS-232C/D (DB-9 Female) Pinout		
Pin Number	Function	I/O
1	DCD	O
2	TX Data	O
3	RX Data	I
4	DTR	I
5	Ground	-
6	DSR	O
7	CTS	I
8	RTS	O
9	NC	-

MONITOR BOARD EDGE CONNECTOR

Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 2 Yellow
2	Channel 13 Green	B	Channel 6 Green
3	Channel 6 Yellow	C	Channel 15 Green
4	Channel 4 Green	D	Channel 4 Yellow
5	Channel 14 Green	E	Channel 8 Green
6	Channel 8 Yellow	F	Channel 16 Green
7	Channel 5 Green	H	Channel 5 Yellow
8	Channel 13 Yellow	J	Channel 1 Green
9	Channel 1 Yellow	K	Channel 15 Yellow
10	Channel 7 Green	L	Channel 7 Yellow
11	Channel 14 Yellow	M	Channel 3 Green
12	Channel 3 Yellow	N	Channel 16 Yellow
13	Channel 9 Green	P	Channel 17 Yellow
14	Channel 17 Green	R	Channel 10 Green
15	Channel 11 Yellow	S	Channel 11 Green
16	Channel 9 Yellow	T	Channel 18 Yellow
17	Channel 18 Green	U	Channel 10 Yellow
--		--	
18	Channel 12 Yellow	V	Channel 12 Green
19	Channel 17 Red	W	Channel 18 Red
20	Chassis Ground	X	Not Assigned
21	AC-	Y	DC Common
22	Watchdog Timer	Z	External Test Reset
23	+24VDC	AA	+24VDC
24	Tied to Pin 25	BB	Stop Time (Output)
25	Tied to Pin 24	CC	Not Assigned
26	Not Assigned	DD	Not Assigned
27	Relay Output, Side #3, N.O.	EE	Relay Output, Side #2, Common
28	Relay Output, Side #1, N.C.	FF	AC+

-- Slotted for keying between Pins 17/U and 18/V

CONFLICT PROGRAM CARD PIN ASSIGNMENTS

Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 1 Green
2	Channel 3 Green	B	Channel 2 Green
3	Channel 4 Green	C	Channel 3 Green
4	Channel 5 Green	D	Channel 4 Green
5	Channel 6 Green	E	Channel 5 Green
6	Channel 7 Green	F	Channel 6 Green
7	Channel 8 Green	H	Channel 7 Green
8	Channel 9 Green	J	Channel 8 Green
9	Channel 10 Green	K	Channel 9 Green
10	Channel 11 Green	L	Channel 10 Green
11	Channel 12 Green	M	Channel 11 Green
12	Channel 13 Green	N	Channel 12 Green
13	Channel 14 Green	P	Channel 13 Green
14	Channel 15 Green	R	Channel 14 Green
15	Channel 16 Green	S	Channel 15 Green
16	N/C	T	PC AJAR
17	Channel 1 Yellow	U	Channel 9 Yellow
18	Channel 2 Yellow	V	Channel 10 Yellow
19	Channel 3 Yellow	W	Channel 11 Yellow
20	Channel 4 Yellow	X	Channel 12 Yellow
21	Channel 5 Yellow	Y	Channel 13 Yellow
22	Channel 6 Yellow	Z	Channel 14 Yellow
23	Channel 7 Yellow	AA	Channel 15 Yellow
24	Channel 8 Yellow	BB	Channel 16 Yellow
--		--	
25	Channel 17 Green	CC	Channel 17 Yellow
26	Channel 18 Green	DD	Channel 18 Yellow
27	Channel 16 Green	EE	PC AJAR (Program Card)
28	Yellow Inhibit Common	FF	Channel 17 Green

-- Slotted for keying between Pins 24/BB and 25/CC

B. NEMA TS-2 Type 1 Cabinet Physical Requirements:

Provide a handle and three point latching mechanism designed to be disassembled using hand tools. Provide a shaft connecting the latching plate to the door handle by passing through the door within a bushing, bearing, or equivalent device. Provide a latching plate at least 3/16 inch thick and that mates securely with the lock bolt. Provide a lock bolt with a flat end (no bevel) and that has at least 1/4 inch of length in contact with the latching plate.

Ensure that the handle and lock are positioned so that the lock does not lie in the path of the rotating handle as the door is unlatched and that the handle points down in the latched position.

Provide continuous welds made from the inside wherever possible. On the exterior, provide smooth and flush joints. Ensure that no screws, bolts, or rivets protrude to outside of cabinet shell.

Provide a main door opening that encompasses the full frontal area of the cabinet shell exclusive of the area reserved for plenums and flanges. Provide a rear door in base-mounted cabinets, unless otherwise specified. Ensure that the rear door complies with all requirements for the front door, except as follows:

- Hinge the rear door on the left side as viewed from the rear of the cabinet shell facing the door.
- No police compartment is required on a rear door.

Ensure that the cabinet shell is sturdy and does not exhibit noticeable flexing, bending or distortion under normal conditions except that a minor amount of flexing is permitted in the main door and rear door only when the cabinet is open. In such case, the flexing must not result in permanent deformation of the door or damage to components mounted on the door. Ensure that pedestal-mounted cabinets have sufficient framing around the slipfitter attachment so that no noticeable flexing will occur at or about this point.

Provide NEMA TS-2, Type 1 cabinets with 2 shelves. Ensure top shelf has an unobstructed depth of at least 12 inches for base-mounted cabinets. Ensure top shelf has an unobstructed shelf depth of at least 13 inches for pole-mounted cabinets. Locate the top shelf at least 12 inches below the top of the door opening. Provide a lower shelf for mounting detector racks, its associated BIU, and other auxiliary equipment. Locate the lower shelf at least 10 inches below the top shelf, and provide at least 13 inches of unobstructed shelf depth. Secure card racks and associated BIU connector housings to the shelf by a removable means. Place the rack so that the front of the rack is not obscured by any object and so that backpanel terminals are not obscured even when the rack is fully utilized.

Provide a back panel hinged at the bottom for access during service.

Provide a minimum 12 x 14 inch plastic envelope or container located in the cabinet so that it is convenient for service personnel.

Furnish two sets of non-fading cabinet wiring diagrams and schematics in a paper envelope or container and placed in the plastic envelope or container.

Do not locate permanently mounted equipment in such a way that will restrict access to terminals.

C. NEMA TS-2 Type 1 Cabinet Electrical Requirements:

Provide a neutral that is not connected to the earth ground or the logic ground anywhere within the cabinet. Ensure the earth ground bus and the neutral ground bus each have ten compression type terminals each of which can accommodate wires ranging from number 14 through number 4.

Provide surge suppression in the cabinet and ensure that all devices operate over the temperature range of -40 to 185 degrees F.

Provide a loop surge suppresser for each set of loop terminals in the cabinet. Use terminal mount or stud mount devices for terminating the loop surge suppresser. Ensure that the device can withstand a minimum of 25 peak surge current occurrences at 100A in differential and common modes for a 10x700 microsecond waveform. Ensure that the maximum breakover voltage is 170V and the maximum on-state clamping voltage is 30V. Provide a maximum response time less than 5 nanoseconds and an off-state leakage current less than 10 μ A. Ensure that a nominal capacitance less than 220pf for both differential and common modes.

Provide surge suppression on each communications line entering or leaving a cabinet. Ensure that the communications surge suppresser can withstand at least 80 occurrences of an 8x20 microsecond waveform at 2000A, or a 10x700 microsecond waveform at 400A. Provide a maximum clamping voltage suited to the equipment protected. Provide a maximum response time less than 1 nanosecond with a nominal capacitance less than 1500pf and a series resistance less than 15 Ω .

Furnish a fluorescent fixture as required by NEMA TS-2 Specifications with a second lighting fixture mounted under the bottom shelf to light the terminals. Ensure that the second fixture is a fluorescent lighting fixture that complies with NEMA TS-2 Specifications or is a flexible gooseneck fixture containing a protected incandescent reflector bulb of at least 25 Watts. Furnish all bulbs. Ensure that the lamps are door switch actuated.

Provide connector type harnesses for all equipment installed in the cabinet, including detector racks. Furnish a harness with connectors to adapt the NEMA TS-2, Type 2 controller "A" connector to the NEMA TS-2, Type 1 "A" connector furnished with the cabinet assembly.

Tag all conductors that are likely to be disconnected from time to time with non-fading, permanent sleeve labels at the ends of the conductors.

In cabinets that are not base mounted, have no terminals closer than 4 inches to the bottom of the cabinet.

Fasten all wiring and harness supports to the cabinet with screws or other removable mechanical means. Do not use adhesives.

Provide harnesses in the cabinet for non-permanently mounted equipment that are long enough to allow the equipment to be relocated in an upright position to the roof of the cabinet or to be located to the ground 1 foot below cabinet level.

Do not locate terminals on the underside of shelves or at other places where they are not readily visible and accessible, or where they may be a hazard to personnel. Provide a clear plastic guard for exposed 120 volt AC terminals on the power panel and the rear of terminal facilities accessible from the rear door.

Provide compression type earth grounds with 10 position terminal buses sized for four Number 14 AWG wires. Provide screw-type terminals for signal feed, detector lead-in, NEMA I/Os, backpanels, and interconnect terminals. Provide screw terminals for all other devices not defined by NEMA TS-2 Specifications. Ensure that wiring by the manufacturer is terminated either on double terminal strips with crimped-on lugs or soldered to rear terminals.

Ensure that upon leaving any cabinet or malfunction management unit (MMU) initiated flashing operation, the controller reverts to its programmed start-up operation through the use of the START UP FLASH CALL feature. Do not require special controller software to implement the return from flash in the start up mode of operation. Wire one of the output relays of the MMU to apply a logic ground to the STOP TIME input for rings 1 and 2 when the MMU initiates flashing operation because

of a sensed failure. Ensure that the MMU is interlocked within the cabinet control circuitry as to prevent normal signal operation with the MMU disconnected. Ensure that the 24Vdc supply to the load switches is disconnected when cabinet flashing operation is initialized. Provide a momentary pushbutton, or equivalent method, to apply 24Vdc to the load switches during cabinet flash for troubleshooting purposes.

Unless otherwise required, provide switches that are heavy-duty toggle switches.

Provide a technician panel mounted on the inside of the door with an EQUIPMENT POWER (ON/OFF) switch and an AUTO/FLASH switch. Ensure switches are protected against accidental activation by a flip-up switch guard that does not affect switch position when closed. Provide an EQUIPMENT POWER (ON/OFF) toggle switch that connects or disconnects protected equipment power to all devices in the cabinet and does not affect AC power to the flasher. Provide an AUTO/FLASH toggle switch which immediately places the intersection into flashing operation, disconnects the STOP TIME input generated by the MMU, and applies a logic ground to the LOCAL FLASH STATUS input of the MMU. When placed in the AUTO position, ensure that this switch causes the return of the intersection to normal operation at the programmed start up phases and intervals via the START-UP FLASH CALL feature of the controller unit. Provide a DETECTOR CHANNEL CALL three position detector test switch (on, normal, momentary on) installed for every detector channel in the detector racks. Provide four pedestrian detector test switches (on normal, momentary on) to the 4 pedestrian detector inputs of BIU no. 1. The switches may be installed on the door or on the non-door hinge side of the cabinet at the front of the cabinet.

Provide a police compartment constructed such that neither water nor dust will enter the interior of the cabinet through the police compartment, even when the police compartment door is open. Provide a rigid enclosure over the terminals of its components. Do not use flexible guards. Provide a SIGNAL POWER (ON/OFF) switch, an AUTO/FLASH switch, and an AUTO/MANUAL switch. Provide a locking jack for an optional manual push-button. Provide a SIGNAL POWER (ON/OFF) toggle switch which, when in the "OFF" position, disconnects AC power to the field terminals, applies logic ground to the LOCAL FLASH STATUS input of the MMU, and disconnects the STOP TIME input generated by the MMU. Ensure that a means to prevent recognition of red failure by the malfunction management unit is used and the switch does not affect power to equipment in the cabinet. When the SIGNAL POWER switch is switched to the "ON" position, ensure controller reverts to the programmed start-up phases and intervals via the START-UP FLASH CALL feature of the controller unit. Provide an AUTO/FLASH toggle switch that immediately places the intersection into flashing operation, and applies logic ground to the MMU LOCAL FLASH STATUS input. When placed in the AUTO position, ensure this switch allows the return of the intersection to normal operation at the programmed start-up phases and intervals via THE START-UP FLASH CALL feature of the controller unit. Provide an AUTO/MANUAL toggle switch that selects between normal operation (in the AUTO position) and manually controlled operation (in the MANUAL position). When in the MANUAL position, ensure that a logic ground is applied to the Manual Control Enable input of the controller. Ensure that only when a logic ground signal is applied to Manual Control Enable, the optional manual push-button can be used to advance the phases by applying and removing a logic ground signal to the Interval Advance input.

Provide one flash transfer relay and flasher for each corresponding socket. Provide 2 spare terminals for each flasher circuit output. Provide 1 MMU and 1 cabinet DC power supply (shelf mounted) with all necessary harnesses wired to the appropriate cabinet/back panel termination points. Terminate unused MMU inputs. Provide BIUs with sockets and terminal facilities. BIUs 3 and 4 may be mounted in a rack separate from the back panel.

Provide a minimum of 2 sets of loop terminals and a single earth ground terminal between the 2 sets of loop wire terminals for each slot in each detector rack provided.

In cabinets with less than 16 loadbay positions, provide flash transfer relay circuits for load switches used to implement pedestrian signals that are brought out to separate terminals but not connected for flashing operation when pedestrian signals are assigned to the load switch channel. Ensure that the flash circuit inputs and outputs are available for easy connection to allow conversion of a pedestrian movement load switch for use as an overlap (vehicle phase) movement load switch. Provide a reserved flash transfer relay circuit for four vehicle movements and all necessary flash transfer relay input and output wiring and flash circuit wiring that can be made available at each pedestrian load switch position.

Comply with the applicable tables for the type of cabinet furnished:

TS-2 Type 1 Cabinet Configurations

CABINET CONFIGURATION	LOAD SWITCH SOCKETS	FLASH RELAY SOCKETS	FLASHER SOCKETS	BIU'S REQUIRED (BACK PANEL/ DETECTOR)	DETECTOR RACK TYPE/ QUANTITY	TS-2 CABINET TYPE*

- *See NEMA TS-2-1998, Table 7-1 for actual dimensions.
- **Type 5 cabinet may be substituted for four position base mount cabinet.
- † BIU 3 required along with BIU 1, BIU 2, and detector BIU(s).
- ‡ BIU 3 and BIU 4 required along with BIU 1, BIU 2, and detector BIU(s).

16 Position Loadbay Cabinet Phase Assignments

PHASE /OL NUMBER	MALFUNCTION MANAGEMENT UNIT CHANNEL ASSIGNMENT	ASSIGNED TO LOAD SWITCH POSITION NUMBER	ASSIGNED TO FLASH RELAY NUMBER	ASSIGNED TO FLASHER CIRCUIT/	PROGRAM FLASH COLOR
1	1	1	1	1	R
2	2	2	1	2	Y
3	3	3	2	1	R
4	4	4	2	2	R
5	5	5	3	2	R
6	6	6	3	1	Y
7	7	7	4	2	R
8	8	8	4	1	R
2 PED	9	9	-	-	D
4 PED	10	10	-	-	D
6 PED	11	11	-	-	D
8 PED	12	12	-	-	D
O/L A	13	13	5	1	R
O/L B	14	14	5	2	R
O/L C	15	15	6	1	R
O/L D	16	16	6	2	R

Provide flasher circuits and flash transfer relay outputs and inputs that are brought out to terminals which provide a convenient means of changing flash color and flash circuit at each load switch position. Ensure that changing flash color of a given phase or overlap involves no more than moving three wires. Ensure that the selected phase or overlap flash color load switch output is easily movable to connect to the normally open flash transfer relay input assigned to the phase or overlap. Ensure that the common output of the flash transfer relay circuit assigned to the phase or overlap is easily movable to the selected field terminal (input) of the phase or overlap flash color. Ensure that

the non-flashed load switch output is easily moved to provide power directly to the phase or overlap field terminal for that color.

In cabinets requiring a Type 1 detector rack, route to and terminate on a conveniently located terminal block on the back panel or elsewhere in the cabinet, the eight unused detector BIU Vehicle Call inputs. Tie the 8 unused detector BIU Detector Status inputs to the logic ground.

Provide detector racks and associated detector rack BIUs that are removable and replaceable from the cabinet either as a complete assembly or separately. Ensure that disconnection and reconnection of these units is through quick disconnect type connectors.

4.6. MATERIALS – TYPE 170 DETECTOR SENSOR UNITS

Furnish detector sensor units that comply with Chapter 5 Section 1, “General Requirements,” and Chapter 5 Section 2, “Model 222 & 224 Loop Detector Sensor Unit Requirements,” of the CALTRANS “Transportation Electrical Equipment Specifications” dated March 12, 2009 with Erratum 1.

4.7. MATERIALS – NEMA TS-2 DETECTOR CARDS AND RACKS

Furnish NEMA TS-2 multi-channel detector cards and racks.

Provide cards that sequentially scan each of its channels. Provide channels with a minimum of eight sensitivity levels.

On a multi-channel detector, ensure that it is possible to turn a channel off and disable its operation from the front panel.

Ensure that detector units meet the requirements of NEMA TS-2 Specifications except as follows:

- Class 2 vehicle output is maintained for a minimum of 4 minutes, and
- Class 3 vehicle output is maintained for a minimum of 30 minutes, maximum 120 minutes.

Where required, furnish detector cards equipped with required timing features. Provide a delay that is settable in one second increments (maximum) over the range of zero to thirty seconds. Provide an extend that is settable in 1/4 second increments (maximum) over the range of 0 to 15 seconds. Provide cards that can set both delay and extend timing for the same channel. If both timings are set, ensure that the delay operates first. After the delay condition has been satisfied, ensure that the extend timer operates normally and that it is not necessary to satisfy the delay timing for an actuation arriving during the extend portion.

Ensure that two-channel detector cards operate normally with the same loop connected to both channels.

Provide lightning and surge protection that is incorporated into the design of the detector. Ensure that each channel operates properly when used with the loop detector surge protector.

In addition to NEMA TS-2 Specifications, ensure that each channel is capable of tuning to and operating on any loop system inductance within the range of 50 to 2,000 μ h. Ensure that the channel will operate properly even on a loop system that has a single-point short to earth ground.

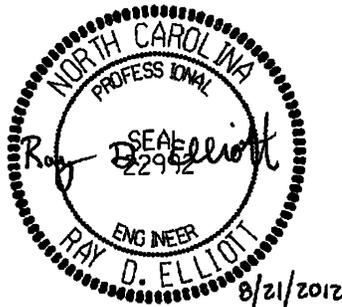
NORFOLK SOUTHERN RAILWAY BRIDGE over KLUMAC ROAD

CITY of SALISBURY ROWAN COUNTY, NC

U-3459

STA. P.O.T. 8916+54.58 -MAINI- =
STA. P.O.C. 35+81.23 -L-

NORFOLK SOUTHERN RAILWAY MILEPOST: 335.2



Project Special Provisions

Project Number: U-3459

Catawba County

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Project Special Provisions**Project Number: U-3459****Rowan County**

The "Standard Specifications for Roads and Structures, January 2012" of the North Carolina Department of Transportation, hereinafter referred to as the Standard Specifications, shall apply to the articles of the Project Special Provisions.

TEMPORARY RAILROAD SHORING**(SPECIAL)****GENERAL**

Provide temporary railroad shoring for each abutment, pier, and additional sections along the Detour track indicated in the plans in accordance with the Standard Specifications and this Special Provision.

ALTERNATE DESIGN AND PLANS

The submittal of an alternate design and plans for excavation and shoring is permitted in lieu of the excavation and shoring detailed on the plans. The alternate design shall be in accordance with the current railway design criteria. Have the alternate design computations and plans sealed by a North Carolina Registered Professional Engineer and submit them for review, comments and acceptance. After the appropriate State agency accepts them, they are submitted by the State agency to the Railroad for review, comments and acceptance. Allow a minimum of 30 days for the Railroad's review. Do not begin excavation at the excavation site or sites in question until the Engineer confirms that both the State and Railroad accept the alternate design and plans. No extension of intermediate completion dates and/or final completion dates will be allowed due to delays in review of alternate excavation and shoring design and plans.

BASIS OF PAYMENT

Payment for the temporary railroad shoring will be made at the lump sum price bid for "Temporary Railroad Shoring" along the Detour track, along each abutment, and around each pier. Such lump sum price will be full compensation for all materials, equipment, tools, labor, and incidentals necessary to complete the work. All shoring materials must be "like new".

FOUNDATION EXCAVATION**(Special)**

The Standard Specifications shall be revised as follows: Foundation Excavation for Abutments and Foundation Excavation for Piers shall be in accordance with Section 410 of the Standard Specifications with the following exception.

Payment will be made under:
Foundation Excavation for Abutment _____ at StationLump Sum

Payment will be made under:
Foundation Excavation for Pier _____ at Station.....Lump Sum

PORTLAND CEMENT (Special)

Portland cement shall meet the requirements of the Standard Specifications for the type specified for the work. In addition to the other requirements, in order to prevent alkali reaction in concrete, all cement used on the railroad structure shall have a low alkali content. The total percentage of the sodium oxide (Na₂ O) present, plus 0.658 times the total percentage of potassium oxide (K₂O) present, shall not exceed 0.60 percent. The Contractor shall furnish the Engineer with two (2) copies of certified mill test reports from the manufacturer of all cement, stating that the above requirements have been complied with.

No substitution of fly ash, blast furnace slag or other material will be permitted in meeting these minimum cement requirements.

FINE AND COURSE AGGREGATE (Special)

The fine and coarse aggregates used in all concrete on the railway structure shall be non-reactive in accordance with the "Method of Test for Potential Reactivity of Aggregates (Chemical Method)", ASTM Designation C289-81. The Contractor shall furnish the Engineer with two (2) copies of the above test reports certifying that the fine and coarse aggregates are non-reactive and will not cause an alkali reaction.

WATERSTOPS (Special)

Waterstops shall be made of an approved flexible polyvinyl-chloride plastic, conforming to the U.S. Corps of Engineers Specification CRD-C-572-74, or rubber conforming to U.S. Corps of Engineers Specification CRD-C-513-75. Waterstops shall be made in the shape and of the material specified on the plans. The material shall form a continuous waterstop across the slab and up the curb of bridge decks, in abutment wings, or other locations as shown on the plans. Waterstops shall be fabricated in continuous units without splice, using material of the longest length available. Where bonded joints are necessary, like materials shall be bonded together by experienced men in accordance with the manufacturer's instructions. The entire cost of the waterstop, complete in place, shall be included in the unit contract price bid for "Reinforced Concrete Deck Slab."

ELASTOMERIC FLASHING (Special)

The elastomeric flashing at the expansion joint between deck slabs shall be a continuous sheet of

synthetic rubber 1/16” thick by 10” wide, or equal based on polychloroprene having properties specified by the following test data:

Tensile Strength	ASTM D-412-80	13.8 MPa minimum
Elongation	ASTM D-412-80	300% minimum
Hardness	ASTM D-2240-81	60 " 10
Water Absorption	ASTM D-471-79	10% maximum

The adhesive for use with the flashing shall be as recommended by the manufacturer of the synthetic rubber furnished and shall be applied according to manufacturer's instructions.

The entire cost of the elastomeric flashing, complete in place, shall be included in the unit contract price bid for "Reinforced Concrete Deck Slab."

RUBBER JOINT COMPOUNDS

(Special)

Expansion joints shall be sealed with a two component elastomeric polymer type cold-applied synthetic joint sealer, manufactured with thiokol polysulfide liquid polymers. The material shall be grey polysulfide rubber base caulking compound conforming to Specification ANSI A-116.1. Pouring type compound shall be used for horizontal joints and non-sag type for other joints. The mixing and application of the joint sealing compound shall be performed with the equipment recommended and in strict accordance with the manufacturer's instructions. The entire cost of the rubber joint compounds shall be included in the unit contract price bid for "Reinforced Concrete Deck Slab."

WATERPROOFING

(Special)

Waterproofing for protection of concrete surfaces on substructure to be backfilled against shall consist of a two (2) part system having a membrane layer and a protection course layer meeting the requirements of the American Railway Engineering and Maintenance of Way Association’s (AREMA) Manual of Railway Engineering Chapter 29, Waterproofing.

The Waterproofing shall be installed per manufacture’s instructions. The entire cost of the two 2) part system shall be included in the unit contract price bid per sq. yard for “Two Part Membrane Waterproofing System”.

Waterproofing for protection of the concrete deck shall consist of a two (2) part system having a membrane layer and an asphalt plank, or other Railroad approved, protection course meeting the requirements of the AREMA Manual Chapter 29, Waterproofing.

The Waterproofing shall be installed per manufacture’s instructions. The entire cost of the membrane waterproofing shall be included in the unit contract price bid per sq. yard for “Membrane Layer Waterproofing For Deck”.

The entire cost of the Asphalt Plank shall be included in the unit contract price bid per sq. yard for "one inch Asphalt Planking Protective Course For Deck".

The Contractor has the option to use a polyurethane based membrane waterproofing system on the deck in lieu Of the Asphalt Plank when approved by the Engineer.

STRUCTURE DRAINAGE SYSTEM

(Special)

- A. **Materials:** Ductile iron pipe collector system shall be as detailed and specified on the plans. French drain material behind abutments shall be No. 467M crushed stone or gravel conforming to Table 1005-1, Aggregate Gradation.
- B. **Installation:** Deck drains shall be located as shown on the plans. The ductile iron pipe collector system shall be installed as detailed and specified on the plans.

Perforated pipe drains behind the abutments shall be laid with perforations turned down and bedded on a layer of compacted impervious clay. The perforations shall be kept open and free from the clay bedding course, asphalt coating, or other materials. The french drain material shall be placed concurrently with the backfill and shall be kept separate with a thin timber slide or burlap bag. Perforated pipe behind abutments and outfall pipes shall be laid on a grade of at least one percent (1%) and shall be as shown on the plans. Grades of pipe drains shall be set by the Engineer. Copies of shop drawing details of the drainage system shall be submitted by the Contractor to the Department of Transportation for approval. The drainage system must be approved before fabrication.

- C. **Basis of Payment:** Payment for the "Structure Drainage System, Sta. _____" will be made at the contract lump sum price bid, which price and payment shall be full compensation for furnishing all materials and labor to install the drainage system complete, including corrugated metal and ductile iron pipe, deck drains, fittings, excavation, french drain material, pipe sleeves inserts, other backfill and outfall pipes.

CONDUIT IN PARAPETS

(Special)

Conduit in the parapets shall be 4" diameter PVC conduit conforming to applicable Underwriters Laboratory specifications and shall be located as shown on the Plans. Provisions shall be made for expansion between the deck slab and abutment backwalls and between deck slabs at expansion joints. Couplings shall be provided behind backwalls for connection to the 4" diameter rigid pipe. If non-PVC fittings, couplings, or other incidental items are required, they must be fully compatible with PVC conduit. Details and material data shall be submitted by the Contractor to the Engineer for approval by the Railroad Company of all materials required for this work. The entire cost of furnishing and installing all conduit, expansion fittings, couplings and incidental items required for this work shall be included in the bid price of cubic yards for "Class AA Concrete."

BACKFILLING AROUND STRUCTURES**(Special)**

Backfill material behind abutments (except No. 467M crushed stone or gravel for french drains over perforated drain pipes) shall be Type A Aggregate Base Course (ABC) in accordance with the Standard Specifications. Placing and compacting shall be as provided for in Section 410-9 of the Standard Specifications.

Backfill around structures, except as specified above, shall be suitable material available from the excavations. In the event material excavated is not approved for use as backfill by the Engineer, the Contractor will be required to furnish and haul to the structure site necessary suitable backfill material. Placing and compacting shall be as provided in Section 410-9 of the Standard Specifications.

Disposal of surplus excavated material shall be as specified in Section 410-1 of the Standard Specifications.

Payment for furnishing ABC backfill material and any suitable material to replace excavated material and for placing and compacting all backfill material shall be included in the contract unit price for other pay items.

SELF-LUBRICATING EXPANSION BEARING ASSEMBLIES**(Special)****Description:**

The self-lubricating expansion bearing assemblies shall each consist of an oilless self-lubricating copper alloy plate, a sole plate, a sliding plate with keeper bars, a masonry plate, any necessary fill plates, bearing pad, anchor bolt assembly which includes anchor bolts, nuts, washers, pipe, and any other necessary material as detailed on the plans. These bearing assemblies are located at the expansion ends of applicable spans as shown on the plans.

Requirements:

The self-lubricating copper alloy bearing plates shall be an approved article of standard production by an established manufacturer of such equipment installed in accordance with the manufacturer of such equipment installed in accordance with the manufacturer's recommendations and shall conform to the following requirements:

- (A) The copper alloy shall conform to AASHTO M107 Alloy 911 or AASHTO M108 Alloy 510.
- (B) The lubricant shall be of the solid type and shall consist of graphite, metallic substances having lubricating properties and a lubricating binder. Materials which do not have lubricating qualities or which promote chemical or electrolytic reactions, will not be

acceptable. The lubricant shall be integrally molded and compressed into the lubrication recesses to form a dense, non-plastic lubricant.

- (C) The recesses shall be arranged in a geometric pattern such that successive rows shall overlap in the direction of motion and the distance between extremities of recesses shall be closer in the direction of motion than that perpendicular to motion. The entire bearing area of all surfaces which have provisions for motion shall be lubricated by means of these lubricant filled recesses. The total area of these recesses shall comprise not less than 25 % nor more than 35 % of the total bearing area of the plate.
- (D). The bearing plates shall be furnished to the sizes specified on the drawings. Bearing surfaces shall be machine finished and the surface roughness shall not exceed 125 micro inches(3.18 microns) when measured in accordance with ASA Standard B46.1-1955. Also, the bearing surfaces of the opposing steel plates shall also be finished as above. Align the tool marks shall be in the direction of motion. Finish the bearing surfaces so that all machine surfaces shall be flat within 0.0005 inch per inch of length and width.
- (E) For mating curved surfaces of steel and copper alloy ,the maximum positive tolerance for the concave surface is 0.010 inch and the maximum negative tolerance for the convex surface is 0.010 inch.
- (F) The coefficient of friction between the copper alloy self-lubricating plates and the steel plates in contact with them shall not exceed 0.10 when subjected to the designed unit loading and also at twice the designed unit loading.

Payment for the bearing assemblies shall be at the contract lump sum price bid for "Self-lubricating Expansion Bearing Assemblies". This price shall be full compensation for all materials, tools, equipment, labor and incidentals necessary to furnish and install the self-lubricating bearing assemblies.

Payment for the Fixed Bearing Assemblies as shown on plans shall be included in the Lump Sum price bid for structural steel.

METAL HANDRAIL**(Special)**

The Metal Handrail shall be constructed as shown on the plans. The quantity of Handrail to be paid for will be the actual number of linear meters of handrail, measured along the top bar of the rail, on the abutment wing walls and on the bridge superstructure, which has been completed and accepted. The quantities of Handrail, measured as provided herein, will be paid for at the contract unit price per linear feet for "Metal Handrail".

The above prices and payments will be full compensation for all work covered by this provision including but not limited to furnishing posts, rail bars, base plates, anchor cords, hardware and all other materials; fabrication and erection of the handrail; and incidentals necessary to complete the work as shown on the plans.

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

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

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

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

2.0 MATERIALS

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

the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS

A. Working Drawings

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1. Wind Loads

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

Table 2.2 - Wind Pressure Values

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

2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

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

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

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

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

B. Review and Approval

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

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

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

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

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

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

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

A. Maintenance and Inspection

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

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

B. Foundations

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

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

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

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

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

5.0 REMOVAL

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

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

6.0 METHOD OF MEASUREMENT

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

7.0 BASIS OF PAYMENT

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

SUBMITTAL OF WORKING DRAWINGS

(2-10-12)

1.0 GENERAL

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

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

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

2.0 ADDRESSES AND CONTACTS

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

Via US mail:

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

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

Via other delivery service:

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

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

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

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

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)

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

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

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical
Manager
North Carolina Department
of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
1570 Mail Service Center
Raleigh, NC 27699-1570

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical
Manager
North Carolina Department
of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
3301 Jones Sausage Road, Suite 100
Garner, NC 27529

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

Via US mail:

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

Via other delivery service:

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

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

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

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

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

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

Western Regional Geotechnical Contact (Divisions 8-14):

8902 John Pilipchuk (704) 455 –
 (704) 455 – 8912 facsimile
jpilipchuk@ncdot.gov

3.0 SUBMITTAL COPIES

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

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

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

STRUCTURE SUBMITTALS

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Reference Requiring Submittal ¹
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Box Culvert Falsework ⁷	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Cofferdams	6	2	Article 410-4
Foam Joint Seals ⁶	9	0	“Foam Joint Seals”
Expansion Joint Seals (hold down plate type with base angle)	9	0	“Expansion Joint Seals”
Expansion Joint Seals (modular)	2, then 9	0	“Modular Expansion Joint Seals”

Expansion Joint Seals (strip seals)	9	0	“Strip Seals”
Falsework & Forms ² (substructure)	8	0	Article 420-3 & “Falsework and Formwork”
Falsework & Forms (superstructure)	8	0	Article 420-3 & “Falsework and Formwork”
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	“Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____”
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings ^{4,5}	7	0	Article 1072-8
Miscellaneous Metalwork ^{4,5}	7	0	Article 1072-8
Optional Disc Bearings ⁴	8	0	“Optional Disc Bearings”
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings ⁴	8	0	“Pot Bearings”
Precast Concrete Box Culverts	2, then 1 reproducible	0	“Optional Precast Reinforced Concrete Box Culvert at Station ____”
Prestressed Concrete Cored Slab (detensioning sequences) ³	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078- 11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions

Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	“Modular Expansion Joint Seals”
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & “Sound Barrier Wall”
Sound Barrier Wall Steel Fabrication Plans ⁵	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel ⁴	2, then 7	0	Article 1072-8
Temporary Detour Structures	10	2	Article 400-3 & “Construction, Maintenance and Removal of Temporary Structure at Station _____”
TFE Expansion Bearings ⁴	8	0	Article 1072-8

FOOTNOTES

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

GEOTECHNICAL SUBMITTALS

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

FOOTNOTES

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

CRANE SAFETY

(8-15-05)

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

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

CRANE SAFETY SUBMITTAL LIST

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

GROUT FOR STRUCTURE

(9-30-11)

DESCRIPTION

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

MATERIAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

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

SAMPLING AND PLACEMENT

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

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

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

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

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

BASIS OF PAYMENT

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

FABRICATION OF STRUCTURAL STEEL

(Special)

- A. These specifications cover the furnishing, fabricating, preparing, assembling, welding, testing, painting and delivering of all structural steel and bridge bearings as shown on the plans.
- B. The following specifications are referred to in this document. The term current shall indicate the edition listed below:
 1. American Railway Engineering and Maintenance of Way Association (AREMA) Manual for Railway Engineering (Manual)
 2. American Society for Testing and Materials, Annual Book of Standards - dated 1990 (A.S.T.M.)

3. American Institute of Steel Construction, Manual of Steel Construction - Ninth Edition (A.I.S.C.)
 4. American Welding Society - Bridge Welding Code, D1.5, dated 1995 (A.W.S.)
- C. Fabricator shall be certified for "Major Steel Bridges" Category Cbr (Old III), under the AISC Quality Certification Program.
- D. Except as otherwise specified hereinafter, the current American Railway Engineering and Maintenance of Way Association (AREMA) Manual for Railway Engineering (Manual), Chapter 15 - Steel Structures, apply to all work.
- E. Materials
1. Structural steel shall meet the current requirements of the Specifications of the American Society for Testing and Materials, for Structural Steel, Designation A-709, Grade 50, S84-F2 (Fracture Critical - Charpy Test Zone 2), S91 (Fine Austentic Grain Size), S93 (Limitation on Weld Repairs), except as noted on the plans or in these specifications.
 2. High strength bolts shall meet the current requirements of the Specifications of the American Society for Testing and Materials for High Strength Bolts for Structural Steel Joints, Designation A-325, unless otherwise indicated.
 3. Welding electrodes for arc welding shall meet the current requirements of the Specifications for mild steel arc-welding electrodes Series E70, AWS 5.1, Low Hydrogen Classification for SMAW and AWS 5.17 for SAW.
- F. Shop Drawings
1. The Fabricator's attention is called to the requirements for shop drawings, Chapter 15, Article 1.1.3 Shop Drawings, AREMA Specifications.
 2. The Fabricator shall furnish eight (8) complete sets of detailed shop drawings to the Department for approval prior to starting fabrication. Unchecked drawings shall not be submitted for approval.
 3. The rejection of or the procedure for the correction of shop drawings will not be considered as cause for delay.
 4. Approval by the Engineer of shop drawings shall not relieve the Fabricator from furnishing material of proper dimensions, quantities and quality, nor will such approval relieve the Fabricator from responsibility for errors of any sort in the shop drawings.
 5. Copies of approved shop drawings shall be furnished to the Department for distribution.
- G. Welding Inspection by Company:
1. The Company may arrange for additional inspection by an independent inspection firm under a separate contract. This will be in addition to the Fabricator's Quality Assurance Program.
 2. The Fabricator shall notify the Company and the Company's inspector of the scheduled date for beginning fabrication and shall not begin fabrication until the Company's

inspector is present.

3. The Contractor shall retain and pay for an Independent Testing Agency to perform the following weld inspection:
 - a. Inspection shall verify that welds meet the quality requirements of American Welding Society (A.W.S.) Structural Welding Code, D1.1, dated 1985.
 - b. Welds shall be inspected visually and by use of nondestructive testing.
 - c. All nondestructive testing shall be performed by the Independent Testing Agency.
 - d. The Independent Testing Agency shall furnish copies of all nondestructive weld testing reports.
 - e. Nondestructive Testing:
 - All welds shall be visually inspected.
 - 100 percent of all flange to web fillet welds shall be magnetic particle tested and ultrasonically tested.
 - 100 percent of all transverse stiffener welds (bearing and intermediate) shall be magnetic particle tested.
 - 25 percent of other fillet welds shall be magnetic particle tested.
 - f. The Contractor shall submit the name and address of the Independent Testing Agency and evidence of AWS certification of welding inspectors to the Company for approval prior to the weld inspection. The Contractor shall submit test reports.

H. Welding Inspection by the Department

The Fabricator shall notify the Department and the Department's inspector of the schedule date for beginning fabrication and shall not begin fabrication until the Department's inspector is present.

Welding Inspection shall be in accordance with the above-mentioned AREA specifications. In addition to the weld inspection required by the AREMA specifications, the following weld inspection shall be made:

The top and bottom flange-to-web welds shall be tested on both sides by the ultrasonic and magnetic particle method as follows:

- (a) Along top flange within 15 feet length end of girder: 1 foot of every 3 feet of weld length.
- (b) Along the top flange for remainder length of girder: 1 foot of every 8 feet of weld.
- (c) The bottom flange-to-web welds: full length of each girder.

Groove welds in top and bottom flanges shall be 100% radiographic tested and 100%

ultrasonic tested. Twenty-five percent (25%) of all other groove welds shall be tested by radiographic or ultrasonic testing.

Ten percent (10%) of all fillet welds shall be tested by ultrasonic or magnetic particle testing. Any single weld having unacceptable deficiencies shall be 100% tested. If more than 10% of the tested groove or fillet welds have unacceptable deficiencies, then all groove or fillet welds, whichever is deficient, shall be 100% tested.

Magnetic particle, radiographic, and ultrasonic procedure, technique, and standard of acceptance shall be in accordance with Section 6 of the current AWS Structural Welding Code.

The Contractor shall require the Fabricator to make provision for convenient access to the joints to be inspected and cooperate with the Inspector in doing the required work. The inspection equipment and supplies will be furnished by the Inspector and payment for the work will be handled between the Department of Transportation and the Inspector except in the event corrections are necessary as the result of such inspection, the cost of any additional inspection of the joints must be borne by the Contractor, and he will be required to pay the Inspector directly for this portion of the work. Except for the cost of the first inspection as specified above, the entire cost of the first inspection as specified above, the entire cost of any nature resulting from the required magnetic particle, radiographic or ultrasonic inspection shall be included in the lump sum contract price for structural steel.

I. Paint

All steel preparation and shop painting shall be in accordance with the Special Provision for PAINTING OF STRUCTURAL STEEL.

J. Measurement and Payment

Payment will be made at the contract lump sum price for the bid item "STRUCTURAL STEEL " and shall constitute full payment for all costs of plant, superintendence, labor, material, and equipment necessary to furnish, fabricate, shop paint, shop assemble and deliver, all the structural steel required for the project in accordance with the Plans and Specifications, including furnishing the fixed bearing assemblies and anchor bolts.

PROTECTION OF PAINTED STEEL

(SPECIAL)

The painted structural steel shall be protected during concreting operations. Any concrete that gets on the painted steel is to be removed as soon as possible by a method approved by the Engineer to restore the surface to the specified condition.

Project Special Provisions

Norfolk Southern Specification - Painting Of Structural Steel

(Special)

Dated : February 8, 2002

I. General

A. Plans and Specifications

1. This work consists of furnishing all labor, material, plant and equipment, and performing all operations in connection with Shop Painting (prime coat, wash coat, and Finish coat applied in the fabricators plant or unless otherwise specified by the Railway). All painting shall be in accordance with AREMA Specifications, Chapter 15 - Section 3.4, and recommendations of the Society of Protective Coatings Specifications with the following specific requirements.
2. The paint thickness will be measured according to "SSPC-PA2" Method for Measurement of Dry Paint Thickness with Magnetic Gages.

B. Surface Preparation

1. The surface preparation shall be in accordance with Steel Structures Painting Council Specifications SP 10 (NEAR WHITE BLAST) latest revision and Visual Standard NACE No. 2. Average surface profile to be 2 mils.
2. Application - The paint shall be applied in accordance with SSPC Specifications for Paint Application - PA1.
3. The Prime Coat shall be applied in the shop promptly after blast cleaning, but in no case shall the prime coat be applied more than 8 hours after blast cleaning or after visible or detrimental rusting occurs.
4. Steel shall be cleaned by washing, or other mechanical means to remove all residue (loose zinc dust and foreign matter) prior to applying Wash and Finish Coat.
5. Surfaces damaged during shipment and handling shall be repaired using the same paint system as applied in the shop except that the Prime coat shall be repaired using an ***Organic Zinc Primer*** when the Primer Coat is repaired in the field.

C. Welded Areas And Faying (Contact) Surfaces

1. No paint shall be applied to areas to be welded in the field. No Vinyl paint (wash or Finish coat) shall be applied to any Faying surfaces.

II. Painting Requirements

A. Paint System

1. The fabricator will be given the option of using one of the following paint systems (***Prime Coat, Intermediate and Finish Coats shall be applied in the fabricator's plant unless otherwise specified by the Railway***). If the Intermediate Coat and Top Coat are applied in the field, the steel shall be solvent wiped to removed all grease and oil and a ***"High Pressure Power Washing" with clean water (3500 p.s.i. minimum)*** shall be used to clean all mud and dirt off prior to applying the touch-up Primer or Intermediate and Finish Coats. ***The fabricator shall supply sufficient***

quantities of touch-up Organic Zinc-Rich Primer, Intermediate Coat, Finish Coat and Thinner. The Chief Engineer Bridges and Structures is to be notified of the fabricator's choice. Priming of the contact surfaces with **Inorganic Zinc-Rich primer** is required.

2. If approved, or further specified by the Railway, the Wash Coat and Finish Coat shall be applied in the shop.
3. DFT denotes **Dry Film Thickness** in all system information listings hereinafter.
4. Provide a STRIPE COAT in accordance with NCDOT Standards Section 442-7, system 3.

B. System #1 (Elite)

Prime Coat: Elite 1312 Inorganic Zinc Rich Primer applied at 4.0 - 5.0 mils DFT.
Intermediate Coat - Elite 156 Exterior Acrylic Latex (White) applied at 3.0 - 4.0 mils DFT.

Finish Coat - Elite 156 Exterior Acrylic Latex (gray) applied at 3.0 - 4.0 mils DFT.

Touch Up Primer - Elite 305 Organic Zinc-Rich Primer applied at 4.0 - 5.0 mils DFT.

Suggested Supplier: Elite Coatings Company, Inc.

P. O. Box 130

Gordon, GA 31031

Telephone: 912/628-2111

C. System #2 (Devoe)

Prime Coat: Catha-Coat 301 Inorganic Zinc-Rich Primer applied at 4.0 - 5.0 mils DFT.
Intermediate Coat: DEVRAN 646 Water Based Epoxy primer (White) applied at 3.0 - 4.0 mils DFT.

Prime Coat: DEVFLEX 604-S-9903 Water Based Gloss Enamel (Gray) applied at 3.0 - 4.0 mils DFT.

Touch Up Primer - Cata-Coat 303H Organic Zinc-Rich Epoxy applied at 4.0 - 5.0 mils DFT.

Suggested Supplier: Devoe Coatings Company
320 Westbrook Drive
Butler, PA 16001
Telephone: 724/283-1471
Attn. : Gary M. Mato

D. System #3 (Sherwin-Williams)

Prime Coat: ZINC CLAD II HS - (B69VZ1 B69VZ3 B69D11) Inorganic Zinc-Rich Primer applied at 4.0 - 5.0 mils DFT.

Intermediate Coat - B66 Series DTM ACRYLIC GLOSS (White) applied at 3.0 - 4.0 mils DFT.

Finish Coat - B66 Series DTM ACRYLIC GLOSS (Gray) applied at 3.0 - 4.0 mils DFT.

Touch Up Primer - ZINC-CLAD IV - (B69 A8/B69 V8) applied at 4.0 - 5.0 mils DFT.

Suggested Supplier: The Sherwin-Williams Company
765 North Avenue NE
Atlanta, GA 30306
Telephone: 404/873-6723

E. System #4 (Ameron)

Prime Coat: Amercoat 21-5 Inorganic Zinc-Rich primer applied at 4.0 - 5.0 mils DFT.
Intermediate Coat - Amercoat 148 Waterborne Acrylic primer applied at 3.0 - 4.0 mils DFT.

Finish Coat - Amercoat 220 Waterborne Acrylic (Gray) applied at 3.0 - 4.0 mils DFT.

Touch Up Primer - Amercoat 68HS Zinc-Rich Primer applied at 4.0 - 5.0 mils DFT

Suggested Supplier: Ameron Protective Coatings Division
11605 Vimy Ridge Road
Little Rock, AK 72209
Telephone: 800/283-6627

F. Post-Painting Requirements

1. Steel shall be cleaned by washing, or other mechanical means to remove all residue (loose zinc dust and foreign matter) prior to applying Wash and Top Coat. An "**M. E. K. Rub Test**" shall be used to assure proper cure of the inorganic zinc primer prior to applying the next coat.
2. ***The Intermediate Coat may have to be thinned to prevent gassing.***

III. Painting Materials Requirements

A. Packaging and Shipping

1. All paint shall be received at the point of use in original containers and carefully stored. All paint to be used shall be freshly mixed and shall be ordered only a sufficient length of time in advance of its use to insure an adequate supply being on hand at all times so as not to delay the work.

2. Paint shipped to the job shall arrive in sealed containers clearly marked with the type of paint and specifications controlling its manufacture.
3. There shall be no modification of the paint except upon, and in accordance with, express written stipulation by an authorized representative of the paint manufacturer and with specific approval of the Engineer.

B. Storage

Paint in storage at the shop or in the field shall have the position of the containers reversed at least once a week to prevent settlement and separation of the pigment from the vehicle. There shall be suitable devices maintained at the point of storage and used for agitation and thorough mixing of the paint prior to its use on this work.

C. Sample Panel

If directed by the Engineer, a sample panel shall be made up. The panel shall be used as a basis of comparison of the work on this contract. The panel shall be of size designated by the Engineer and shall be prepared and painted in all respects in the same manner as the work will be done.

IV. Workmanship

A. Weather Conditions

Paint shall not be applied when the temperature of the air is less than 40 degrees F., when the surface of the metal is not dry, the relative humidity is above 85%, or when, in the opinion of the Engineer, conditions are otherwise unsatisfactory for such work. Paint shall not be applied upon damp, or frosted surfaces. Material painted under cover in damp or cold weather shall remain under cover until dry or until weather conditions permit its exposure in the open. Painting shall not be done when the metal is hot enough to cause the paint to blister and produce a porous paint film.

B. Application

1. Paint shall be applied in accordance with SSPC Specifications for Paint Application - PA1 and in accordance with manufacturer's recommendation.
2. All blast cleaned steel surfaces shall be primed before completion of the work day.
3. Steel shall be cleaned by washing, brushing or other mechanical means of all residue (loose foreign matter) prior to applying the finish coat.

C. Removal Of Unsatisfactory Paint

If the Prime Coat "mud- cracks", the Finish Coat wrinkles or shows evidence of having been applied under unfavorable conditions or if the workmanship is poor, the Engineer may order it removed and the metal thoroughly cleaned and repainted. Any "Blushing" of the Finish Coat shall be corrected by solvent wiping and/or re-coating before final acceptance by the Company.

D. Thinning

No thinner shall be used if the paint can be applied in a neat workmanlike manner without thinning. If the paint is too thick to spray, only the manufacturer's specified thinner (in hot

weather vinyl paint shall be thinned with M.I.B.K. to reduce the chances of "Blushing" occurring) may be added to the paint up to 25% by volume or as otherwise specified by the manufacturer. Thinning shall not relieve the contractor from applying the specified coating D.F.T.

E. Paint Touch-Up

After erection, all damaged areas shall be cleaned of mud and dirt by **High Pressure Power Washing with clean water (3500 p.s.i. minimum)**; grease, and oil by **solvent wiping**; and rusted areas shall be cleaned by **sand blasting** or **power tool cleaning** with non-woven abrasives prior to touch-up or Finish coating. The paint used for touch-up shall be the same system used in the shop. The Contractor and/or Fabricator shall be responsible for cleaning all damaged surfaces and applying all field touch-up coatings in accordance with all manufacturer's recommendations. The Zinc Primer shall be touched up with only **Organic Zinc Primer** when applied in the field.

F. Warranty

The Fabricator and or Contractor will be required to guarantee his work against defective workmanship or the use of defective materials for a period of one (1) year from the completion of the contract.

G. Handling Shop Primed Steel

Only Nylon web slings or padded lifting points shall be used to move shop primed steel to prevent damage to the coating.

V. Environmental Protection Requirements

A. Air Quality Requirements

Abrasive blasting operations shall be conducted in full compliance with all current **National primary and secondary ambient air quality standards 40 CFR 50**, (for Particulate matter - 40 CFR 50.6; Lead - 40 CFR 50.12; and nuisance dust). Abrasive blasting operations shall also be compliant with any and all local and state air quality requirements.

VI. Environmental Protection Statement

"All collection, containment, disposal and transportation for disposal must be compliant with all applicable State, Federal and Local air pollution, water pollution, solid waste and hazardous waste regulations, ordinances or statutes."

VII. Measurement and Payment

All work covered by this provision, except for shop painting, will be paid for at the contract lump sum price for this item.

Payment will be made under:

"Structural Steel (Approximately _____ pounds)"
Lump Sum (full compensation for the work of shop painting)

Painting Structural Steel Lump Sum
(full compensation for all other work of painting)

Project Special Provisions
Norfolk Southern Specification

PROTECTION OF RAILWAY INTEREST

1. AUTHORITY OF RAILROAD ENGINEER AND DEPARTMENT ENGINEER:

The authorized representative of the Railroad Company, hereinafter referred to as Railroad Engineer, shall have final authority in all matters affecting the safe maintenance of Railroad traffic of Railroad Company including the adequacy of the foundations and structures supporting the Railroad tracks.

The authorized representative of the Department, hereinafter referred to as the Engineer, shall have authority over all other matters as prescribed herein and in the Project Specifications.

2. NOTICE OF STARTING WORK:

- A. The contractor shall not commence any work on railroad rights-of-way until the contractor has complied with the following conditions:
- a. Given the Railroad written notice, with copy to the Engineer who has been designated to be in charge of the work, at least ten days in advance of the date the contractor proposes to begin work on Railroad rights-of-way.
Notice to be given to:

Office of Chief Engineer
Bridges & Structures
Norfolk Southern Corporation
99 Spring Street, SW
Atlanta, Georgia 30303
 - b. Obtained written authorization from the Railroad to begin work on Railroad rights-of-way, such authorization to include an outline of specific conditions with which the contractor must comply.
 - c. Obtained written approval from the Railroad of Railroad Protective Insurance Liability coverage as required by paragraph 14 herein.
 - d. Furnished a schedule for all work within the Railroad rights-of-way as required by paragraph 7,B.1.
- B. The Railroad's written authorization to proceed with the work shall include the names, addresses, and telephone numbers of the Railroad's representatives who are to be notified as hereinafter required. Where more than one representative is designated, the area of responsibility of each representative shall be specified.

3. INTERFERENCE WITH RAILROAD OPERATIONS:

- A. The Contractor shall so arrange and conduct the work that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to poles, wires, and other facilities of tenants on the rights-of-way of the Railroad Company. Whenever work is liable to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor that requires flagging service or inspection service shall be deferred by the Contractor until the flagging service or inspection service required by the Railroad is available at the job site.
- B. Whenever work within Railroad rights-of-way is of such a nature that impediment to Railroad operations such as use of runaround tracks or necessity for reduced speed is unavoidable, the Contractor shall schedule and conduct construction operations so that such impediment is reduced to the absolute minimum.
- C. Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect operations and property of the Railroad, the Contractor shall make such provisions. If in the judgment of the Railroad Engineer, or in the Railroad Engineer's absence, the Engineer, determine such provisions are insufficient, either may require or provide such provisions as deemed necessary. In any event, such unusual provisions shall be at the Contractor's expense and without cost to the Railroad or the Department.

4. TRACK CLEARANCES:

- A. The minimum track clearances to be maintained by the Contractor are shown on the Project Plans. However, before undertaking any work within Railroad right-of-way, or before placing any obstruction over any track, the Contractor shall:
 - 1. Notify the Railroad's representative at least 72 hours in advance of the work.
 - 2. Receive assurance from the Railroad's representative that arrangements have been made for flagging service as may be necessary.
 - 3. Receive permission from the Railroad's representative to proceed with the work.
 - 4. Ascertain that the Engineer has received copies of notice to the Railroad and of the Railroad's response thereto.

5. CONSTRUCTION PROCEDURES:

A. General:

Construction work and operations by the Contractor on Railroad property shall be:

1. Subject to the inspection and approval of the Railroad.
2. In accord with all of the Railroad's written specific conditions.
3. In accord with the Railroad's general rules, regulations and requirements including those relating to safety, fall protection and personal protective equipment.
4. In accord with these Special Provisions.

B. Excavation:

The subgrade of an operated track shall be maintained with edge of beam at least 14'-0" from centerline of track and not more than 24-inches below top of rail. Contractor will not be required to make existing section meet this specification if substandard, in which case existing section will be maintained.

C. Excavation for Structures:

The Contractor will be required to take special precaution and care in connection with excavating and shoring pits, and in driving piles or sheeting for footings adjacent to tracks to provide adequate lateral support for the tracks and the loads which they carry, without disturbance of track alignment and surface, and to avoid obstructing track clearances with working equipment, tools or other material. All plans and calculations for shoring shall be prepared and signed by a Registered Professional Engineer. The Registered Professional Engineer will be responsible for the accuracy for all controlling dimensions as well as the selection of soil design values that accurately reflect the actual field conditions. The procedure for doing such work, including the need of and plans and calculations for shoring, shall first be approved by the Engineer and the Railroad Engineer, but such approval shall not relieve the Contractor from liability

D. Demolition, Erection, Hoisting

1. Railroad tracks and other railroad property must be protected from damage during the procedure.
2. The Contractor is required to submit a plan showing the location of cranes, horizontally and vertically, operating radii, with delivery or disposal

locations shown. The location of all tracks and other railroad facilities as well as all obstructions such as wire lines, poles, adjacent structures, etc. must also be shown.

3. Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted.
4. Plans and computations showing the weight of the pick must be submitted. Calculations shall be made from plans of the existing and/or proposed structure showing complete and sufficient details with supporting data for the demolition or erection of the structure. If plans do not exist, lifting weights must be calculated from field measurements. The field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and calculations.
5. A data sheet must be submitted listing the types, size, and arrangements of all rigging and connection equipment.
6. A complete procedure is to be submitted, including the order of lifts, time required for each lift, and any repositioning or re-hitching of the crane or cranes.
7. All erection or demolition plans, procedures, data sheets, etc. submitted must be prepared, signed and sealed by a Registered Professional Engineer.
8. The Railroad's representative must be present at the site during the entire demolition and erection procedure period.
9. All procedures, plans and calculations shall first be approved by the Engineer and the Railroad Engineer, but such approval does not relieve the Contractor from liability.

E. Blasting:

1. The Contractor shall obtain advance approval of the Railroad Engineer and the Engineer for use of explosives on or adjacent to Railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the Contractor will be required to comply with the following:
 - (a) Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Contractor and a licensed blaster.

- (b) Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way radios.
- (c) No blasting shall be done without the presence of an authorized representative of the Railroad. At least 72 hours advance notice to the person designated in the Railroad's notice of authorization to proceed (see paragraph 2B) will be required to arrange for the presence of an authorized Railroad representative and such flagging as the Railroad may require.
- (d) Have at the job site adequate equipment, labor and materials and allow sufficient time to clean up debris resulting from the blasting without delay to trains, as well as correcting at his expense any track misalignment or other damage to Railroad property resulting from the blasting as directed by the Railway's authorized representative. If his actions result in delay of trains, the Contractor shall bear the entire cost thereof.

2. The Railroad representative will:

- (a) Advise the Contractor of the amount of track time available for the blasting operation and clean up.
- (b) Have the authority to order discontinuance of blasting if, in his opinion, blasting is too hazardous or is not in accord with these special

F. Maintenance of Railroad Facilities:

- 1. The Contractor will be required to maintain all ditches and drainage structures free of silt or other obstructions that may result from construction operations and provide and maintain any erosion control measures as required. The Contractor will promptly repair eroded areas within Railroad rights-of-way and repair any other damage to the property of the Railroad or its tenants.
- 2. All such maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

G. Storage of Materials and Equipment:

Materials and equipment shall not be stored where they will interfere with Railroad operations, nor on the rights-of-way of the Railroad Company without first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable for

damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.

All grading or construction machinery that is left parked near the track unattended by a watchman shall be effectively immobilized so that it cannot be moved by unauthorized persons. The Contractor shall protect, defend, indemnify and save Railroad, and any associated, controlled or affiliated corporation, harmless from and against all losses, costs, expenses, claim or liability for loss or damage to property or the loss of life or personal injury, arising out of or incident to the Contractor's failure to immobilize grading or construction machinery.

H. Cleanup:

Upon completion of the work, the Contractor shall remove from within the limits of the Railroad rights-of-way, all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the Contractor, and leave said rights-of-way in a neat condition satisfactory to the Chief Engineer of the Railroad or his authorized representative.

6. DAMAGES:

- A. The Contractor shall assume all liability for any and all damages to his work, employees, servants, equipment and materials caused by Railroad traffic.
- B. Any cost incurred by the Railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Railroad by the Contractor.

7. FLAGGING SERVICES:

Any work to be performed by the Contractor requiring flagging service shall be deferred by the Contractor until the flagging protection required by the Railroad is available at the job site. It will take approximately 45 days from the date the railroad receives notification of award from the N. C. Department of Transportation to provide flag protection for this project.

A. When Required:

Under the terms of the agreement between the Department and the Railroad, the Railroad has sole authority to determine the need for flagging required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are or are likely to be, working on the Railroad's right-of-way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of

trains must be controlled by flagging.

Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three (3) flagmen may be required. However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required full time until the project has been completed.

B. Scheduling and Notification:

1. The Contractor's work requiring railroad flagging should be scheduled to limit the presence of a flagman at the site to a maximum of 50 hours per week. The Contractor shall receive Railroad approval of work schedules requiring a flagman's presence in excess of 40 hours per week.
2. Not later than the time that approval is initially requested to begin work on Railroad right-of-way, Contractor shall furnish to the Railroad and the Department a schedule for all work required to complete the portion of the project within Railroad right-of-way and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.
3. The Contractor, through the Engineer, will be required to give the Railroad representative at least 10 working days of advance written notice of intent to begin work within Railroad right-of-way in accordance with this special provision. Once begun, when such work is then suspended at any time, or for any reason, the Contractor, through the Engineer, will be required to give the Railroad representative at least 3 working days of advance notice before resuming work on Railroad right-of-way. Such notices shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally, it shall be confirmed in writing with copy to the Engineer. If flagging is required, no work shall be undertaken until the flagman, or flagmen is present at the job site. It may take up to 30 days to obtain flagging initially from the Railroad. When flagging begins, the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and cannot be called for on a spot basis. If flagging becomes unnecessary and is suspended, it may take up to 30 days to again obtain from the Railroad. Due to Railroad labor agreements, it is necessary to give 5 working days notice before flagging service may be discontinued and responsibility for payment stopped.

4. If, after the flagman is assigned to the project site, an emergency arises that requires the flagman's presence elsewhere, then the Contractor shall delay work on Railroad right-of-way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Department or Railroad.

C. Payment:

1. The Department will be responsible for paying the Railroad directly for any and all costs of flagging which may be required to accomplish the construction.
2. The estimated cost of flagging is \$425 per day based on a 10hour work day. This cost includes the base pay for the flagman, overhead, and includes an estimated \$50 per diem charge for travel expenses, meals and lodging. The charge to the Department by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.
3. Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 and 1/2 times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 and 1/2 times the normal rate.
4. Railroad work involved in preparing and handling bills will also be charged to the Department. Charges to the Department by the Railroad shall be in accordance with applicable provisions of Subchapter B, Part 140, Subpart I and Subchapter G, Part 646, Subpart B of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging costs are provided for information only and are not binding in any way.

D. Verification:

1. The Railroad flagman assigned to the project will notify or make an attempt to notify the Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Engineer will document such notification in the project records. The Engineer will also sign the flagman's diary showing daily time spent and activity at the project site, when requested.

8. HAUL ACROSS RAILROAD:

- A. Where the plans show or imply that materials of any nature must be hauled across the Railroad, unless the plans clearly show that the Department has included arrangements for such haul in its agreement with the Railroad, the Contractor will be required to make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Contractor will be required to bear all costs incidental to such crossings whether services are performed by the contractor's own forces or by Railroad personnel.
- B. No crossing, including those arranged for by the Department, may be established for use of the Contractor for transporting materials or equipment across the track or tracks of the Railroad unless specific authority for its installation, maintenance, necessary watching and flagging thereof and removal has been obtained, and until a private crossing agreement has been executed between the Contractor and Railroad.

9. WORK FOR THE BENEFIT OF THE CONTRACTOR:

- A. All temporary or permanent changes in wire lines or other facilities which are considered necessary to the project are shown on the plans; included in the force account agreement between the Department and the Railroad or will be covered by appropriate revisions to same which will be initiated and approved by the Department and/or the Railroad.
- B. Should the Contractor desire any changes in addition to the above, then the Contractor shall make separate arrangements with the Railroad for same to be accomplished at the Contractor's expense.

10. COOPERATION AND DELAYS:

- A. It shall be the Contractor's responsibility to arrange a schedule with the Railroad for accomplishing stage construction involving work by the Railroad or tenants of the Railroad. In arranging the schedule the contractor shall ascertain, from the Railroad, the lead tie required for assembling crews and materials and shall make due allowance therefore.
- B. No charge or claim of the Contractor against either the Department or the Railroad Company will be allowed for hindrance or delay on account of railway traffic; any work done by the Railway Company or other delay incident to or necessary for safe maintenance of railway traffic or for any delays due to compliance with these special provisions.

11. TRAINMAN'S WALKWAYS:

Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than 10 feet from centerline of track,

shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while Railway's protective service is provided shall be removed before the close of each work day. If there is any excavation near the walkway, a handrail, with 10'-0" minimum clearance from centerline of track, shall be placed.

12. GUIDELINES FOR PERSONNEL ON RAILROAD RIGHT-OF-WAY:

- A. All persons shall wear hard hats. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip-on type boots is prohibited. Hard-sole, lace-up footwear, zippered boots or boots cinched up with straps which fit snugly about the ankle are adequate. Safety boots are strongly recommended.
- B. No one is allowed within 25' of the centerline of track without specific authorization from the flagman.
- C. All persons working near track while train is passing are to lookout for dragging bands, chains and protruding or shifted cargo.
- D. No one is allowed to cross tracks without specific authorization from the flagman.
- E. All welders and cutting torches working within 25' of track must stop when train is passing.
- F. No steel tape or chain will be allowed to cross or touch rails without permission.

13. GUIDELINES EQUIPMENT ON RAILROAD RIGHT-OF-WAY:

- A. No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15' of centerline of track without specific permission from railroad official and flagman.
- B. No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.
- C. All employees will stay with their machines when crane or boom equipment is pointed toward track.
- D. All cranes and boom equipment under load will stop work while train is passing (including pile driving).
- E. Swinging loads must be secured to prevent movement while train is passing.

- F. No loads will be suspended above a moving train.
- G. No equipment will be allowed within 25' of centerline of track without specific authorization of the flagman.
- H. Trucks, tractors or any equipment will not touch ballast line without specific permission from railroad official and flagman.
- I. No equipment or load movement within 25' or above a standing train or railroad equipment without specific authorization of the flagman.
- J. All operating equipment within 25' of track must halt operations when a train is passing. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.
- K. All equipment, loads and cables are prohibited from touching rails.
- L. While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from the Railroad Engineer and flagman.
- M. No equipment or materials will be parked or stored on Railroad's property unless specific authorization is granted from the Railroad Engineer.
- N. All unattended equipment that is left parked on Railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.
- O. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.

14. INSURANCE:

- A. In addition to any other forms of insurance or bonds required under the terms of the contract and specifications, the Prime Contractor will be required to carry insurance of the following kinds and amounts:
 1. Commercial General Liability Insurance having a combined single limit of not less than \$2,000,000 per occurrence for all loss, damage, cost and expense, including attorneys' fees, arising out of bodily injury liability and property damage liability during the policy period. Said policy shall include "explosion, collapse, and underground hazard" ("XCU") coverage, shall be endorsed to name Railroad specified in item A.2 below as an additional insured, and shall include a severability of interests provision.
 2. Railroad Protective Liability Insurance having a combined single limit of not less than \$2,000,000 each occurrence and \$6,000,000 in the aggregate

applying separately to each annual period. If the project involves track over which passenger trains operate, the insurance limits required are not less than a combined single limit of \$5,000,000 each occurrence and \$10,000,000 in the aggregate applying separately to each annual period. Said policy shall provide coverage for all loss, damage or expense arising from bodily injury and property damage liability, and physical damage to property attributed to acts or omissions at the job site. The standards for the Railroad Protective Liability Insurance are as follows: The insurer must be rated A- or better by A.M. Best Company, Inc. The policy must be written using one of the following combinations of Insurance Services Office ("ISO") Railroad Protective Liability Insurance Form Numbers: CG 00 35 01 96 and CG 28 31 10 93; or CG 00 35 07 98 and CG 28 31 07 98.

The named insured shall read:

[Name of railroad that owns the track]; and
Norfolk Southern Railway Company
Three Commercial Place
Norfolk, Virginia 23510-2191
Attn: D. W. Fries, Director Risk Management

The description of operations must appear on the Declarations, must match the project description in this agreement, and must include the appropriate Department project and contract identification numbers.

The job location must appear on the Declarations and must include the city, state and appropriate highway name/number. The name and address of the prime contractor must appear on the Declarations.

The name and address of the Department must be identified on the Declarations as the "Involved Governmental Authority or Other Contracting Party."

Other endorsements/forms that will be accepted are: Broad Form Nuclear Exclusion – Form IL 00 21 30-day Advance Notice of Non-renewal or cancellation Required State Cancellation Endorsement Quick Reference or Index Form CL/IL 240

Endorsements/forms that are NOT acceptable are: Any Pollution Exclusion Endorsement except CG 28 31 Any Punitive or Exemplary Damages Exclusion Known injury or Damage Exclusion form CG 00 59 Any Common Policy Conditions form Any other endorsement/form not specifically authorized in item no. 2.h above.

- B. If any part of the work is sublet, similar insurance, and evidence thereof as specified in A.1 above, shall be provided by or on behalf of the subcontractor to cover its operations on Railroad's right of way.

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- C. Prior to entry on Railroad right-of-way, the original Railroad Protective Liability Insurance Policy shall be submitted by the Prime Contractor to the Department at the address below for its review and transmittal to the Railroad. In addition, certificates of insurance evidencing the Prime Contractor's and any subcontractors' Commercial General Liability Insurance shall be issued to the Railroad and the Department at the addresses below, and forwarded to the Department for its review and transmittal to the Railroad. The certificates of insurance shall state that the insurance coverage will not be suspended, voided, canceled, or reduced in coverage or limits without (30) days advance written notice to Railroad and the Department. No work will be permitted by Railroad on its right-of-way until it has reviewed and approved the evidence of insurance required herein.

DEPARTMENT:
Division of Highways
Dept. of Transportation
c/o State Railroad Agent
Corporation
1555 Mail Service Center
Raleigh, NC 27699-1555

RAILROAD:
Mr. D. W. Fries, ARM
Risk Manager
Norfolk Southern

Three Commercial Place
Norfolk, VA 23510-2191

15. FAILURE TO COMPLY:

In the event the Contractor violates or fails to comply with any of the requirements of these Special Provisions:

- A. The Railroad Engineer may require that the Contractor vacate Railroad property.
- B. The Engineer may withhold all monies due the Contractor on monthly statements. Any such orders shall remain in effect until the Contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

16. PAYMENT FOR COST OF COMPLIANCE:

No separate payment will be made for any extra cost incurred on account of compliance with these special provisions. All such costs shall be included in prices bid for other items of the work as specified in the payment items.

Office of Chief Engineer
Bridges & Structures
Norfolk Southern Corporation
Atlanta, GA 30303

Train Data:

Number of Trains - 40
Number of Tracks - 2
Speed - 79 mph
Type - Passenger/Freight

Project Special Provisions

Norfolk Southern Specification

STRUCTURAL STEEL

I. STRUCTURAL STEEL

A. Scope

These specifications shall cover the furnishing, fabrication, preparation, assembly, welding, painting, and erection of all structural steel shown on the plans.

B. General Specifications

Except as otherwise specified hereinafter, the current AREMA Specification, Chapter 15, Steel Structures, apply to all work.

C. Structural Steel

1. Fracture Critical Members

- a. All fracture critical members are identified on the plans.
- b. All fracture critical members will be fabricated in accordance with the Fracture Control Plan stated in the AREMA Specifications, Chapter 15, Section 1.14.
- c. Fabricator shall be certified under the AISC Quality Certification Program as follows:
 - Welded Plate Girders, Category III
 - Rolled Beam Bridges, Category I.
- d. Structural Steel shall meet the current requirements of the A.S.T.M. Specifications for Structural Steel, Designation A-709, Grade 50, (345) S84-F2, S91, S93.

S84-F2	(Fracture Critical - Charpy Test Zone 2)
S91	(Fine Austenitic Grain Size)
S93	(Limitation on Weld Repairs)

Except as noted in the AREMA Fracture Control Plans.

2. Non-Fracture Critical Members

- a. All primary members or components requiring improved notch toughness are identified on the plans.
- b. Fabricator shall be certified under the AISC Quality Certification Program as follows:

Welded Plate Girders	Category III
Rolled Beam Bridges	Category I

- c. Structural steel shapes and plates used as primary members or components shall meet the current requirements of the A.S.T.M. Specifications for Structural Steel, Designation A-709, Grade 50, (345) S83-T2, S91.

S83-T2	(Non-Fracture Critical - Charpy Test Zone 2)
S91	(Fine Austenitic Grain Size)

3. Other Structural Steel

- a. It is preferred that the Fabricator be certified under the AISC Quality Certification Program, Category I.
- b. All structural steel shall meet the current requirements of the Specification for A.S.T.M. A-709, Grade 50, unless specified otherwise in these specifications or on the plans.

D. Other Materials

- 1. High strength bolts shall meet the current requirements of the A.S.T.M. Specifications for High Strength Bolts for Structural Steel Joints, Designation A 325-97.
- 2. Anchor bolts shall be threaded rods with heavy hex nut meeting the current requirements of ASTM specification for fasteners, Designation A-307-97.
- 3. Welding electrodes for arc welding shall meet the current requirements of the Specifications for mild steel arc-welding electrodes Series E70, AWS 5.1, Low Hydrogen Classification for SMAW and AWS 5.17 for SAW.
- 4. Prefomed fabric bearing pads shall be Shock Pad Style No. 15175 as manufactured by Alert Manufacturing and Supply Company, Chicago, Illinois, or FABREEKA Pads as manufactured by Fabreeka Products Company, 1190 Adams Street, Boston, Massachusetts, or SORBTEX Pads as manufactured by Voss Engineering, Inc., Chicago, Illinois, or approved equal.

E. Welding Processes

Only submerged arc welding (SAW) or shielded metal arc welding (SMAW) may be used. No other process will be allowed.

F. Bolted Connections

Permanent bolted connections using High Strength Bolts shall be installed and tightened using the Turn-of-the-Nut Method.

G. Paint

All steel preparation and painting shall be in accordance with Norfolk Southern Corporation Paint Specifications.

H. Shop Drawings

1. The Contractor's attention is called to the requirements for shop drawings, Chapter 15, Article 1.1.2 Shop Drawings, AREMA Specifications.
2. The Contractor shall furnish three (3) complete sets of detailed shop drawings to the Company for approval prior to starting fabrication. Unchecked drawings shall not be submitted for approval. After approval of shop drawings, the Contractor shall supply the Company with one set of reproducible of the approved drawings.
3. The rejection of or the procedure for the correction of shop drawings will not be considered as cause for delay.
4. Approval by the Engineer of the shop drawings shall not relieve the Contractor from furnishing material of proper dimensions, quantity, and quality, nor will such approval relieve the Contractor from the responsibility for errors of any sort in the shop drawings.
5. Original drawings or photographic reproducible on mylar, or equivalent film, shall be furnished at the completion of the Contract in accordance with Chapter 15, Article 1.1.3, AREMA specifications. Reproducible made by the diazo process are not acceptable.

The plans shall be sent to:

Chief Engineer - Bridges & Structures
Norfolk Southern Corporation
99 Spring Street, SW
Atlanta, GA 30303

I. SHOP INSPECTION & TESTING

1. The Company may arrange for inspection by an independent inspection firm under a separate contract. This inspection will be in addition to the Fabricator's Quality Control Program.
2. The Fabricator shall notify the Company and its inspector of the scheduled date for beginning fabrication and shall not begin fabrication until the Company's Inspector is present.
3. The Fabricator shall furnish copies of certified mill inspection reports to the Company for all structural steel requiring improved notch toughness.
4. The Fabricator shall meet the requirements of the AREMA Fracture Control Plan described in Chapter 15, Section 1.14 for all members and components designated as fracture critical.
5. Welding inspection shall verify that all welds and welding procedures meet the requirements of the American Welding Society (A.W.S.) Bridge Welding Code, D1.5, dated 2002.
6. All welds shall be inspected visually and by use of nondestructive testing. All nondestructive testing shall be performed by the Fabricator and witnessed by the Company's Inspector.
7. Witnessing of weld inspection shall be done in a timely manner without disruption of normal shop operations. Copies of all weld inspections and nondestructive testing reports shall be furnished to the Company.
8. The Fabricator shall perform the following weld inspection and testing:
 - a. All transverse tension groove welds in FCM members, when allowed by the Engineer, shall be RT and UT tested 100%. In non-FCM components of FCM's all transverse groove welds shall be RT or UT tested 100%.
 - b. All flange to web welds shall be tested on both sides as follows:
 1. Top flange to web welds will be UT tested 100% over 10% of the length from each end and the remaining length of weld will be UT tested 10%.
 2. Bottom flange to web welds will be UT tested 100% .

- c. All flange to web fillet welds, when allowed by the Engineer, are to be magnetic particle tested 100%.
- d. Ten percent (10%) of all welds not mentioned above shall be magnetic particle tested.

PROJECT SPECIAL PROVISION

(10-18-95)

Z-1

PERMITS

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

<u>PERMIT</u>	<u>AUTHORITY GRANTING THE PERMIT</u>
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by * are the responsibility of the department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2012 Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID. 2011-00132

County: Rowan

U.S.G.S. Quad: Salisbury

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: NCDOT; Rail Division
Address: ATTN: Marc Hamel
1553 Mail Service Center
Raleigh, North Carolina 27699-1553
Telephone No.: (919) 733-7245, ext. 270

Property description: Study area for propose grade separation at Klumac Road and Norfolk Southern RR, SW of Salisbury, NC.

Size (acres)	<u>N/A</u>	Nearest Town	<u>Salisbury</u>
Nearest Waterway	<u>UT to Town Creek</u>	River Basin	<u>Yadkin</u>
USGS HUC	<u>03040103</u>	Coordinates	<u>N 35.653 W -80.489</u>

Indicate Which of the Following Apply:

A. Preliminary Determination

Based on preliminary information, there may be waters of the U.S. including wetlands on the above described project area. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

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

We strongly suggest you have the waters of the U.S. including wetlands on your project area delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

The waters of the U.S. including wetland on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact Eric Alsmeyer at 919-554-4884, Ext. 23.

C. Basis For Determination

The study area contains no waters, with indicators of ordinary high water marks, or wetlands, regulated under Section 404 of the Clean Water Act.

D. Remarks

This JD was done as a desktop jurisdictional determination. The only wetlands within the study area are isolated from any waters of the US, with no discrete surface flows connecting the wetlands. The drawings "Soils Map" and "Wetland Map" (copies att.), submitted on 12/8/2010, show the limits of the study area and the location of the non-404 isolated wetlands.

Corps Regulatory Official



Digitally signed by
ALSMAYER.ERIC.C.1087624486
DN: cn=US, o=U.S. Government, ou=DoD,
bu=PCO, ou=USA,
c=ALSMAYER.ERIC.C.1087624486
Date: 2011.04.01 14:56:25 -04'00'

Date: 4/1/2011 Determination Expiration Date: 4/1/2016

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at <http://per2.nwp.usace.army.mil/survey.html> to complete the survey online.

Copy furnished (w/ att.):

Stantec
Attn: Andrea L. Dvorak-Grantz
801 Jones Franklin Road, Ste. 300
Raleigh, NC 27606



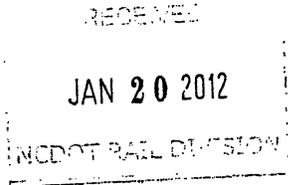
North Carolina Department of Environment and Natural Resources

Division of Water Quality

Beverly Eaves Perdue
Governor

Charles Wakild, P.E.
Director

Dee Freeman
Secretary



January 17, 2012
Rowan County
DWQ Project No. 20120010
Klumac Road Grade Separation
TIP No. U-3459

APPROVAL of ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS

Mr. Ryan White, P.E., Rail Project Development Engineer
NCDOT, Rail Division
1553 Mail Service Center
Raleigh, NC 27699-1553

Dear Mr. White:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of the proposed Klumac Road Grade Separation in Rowan County:

Isolated Wetland Impacts in the Yadkin-Pee Dee River Basin (non-riverine)

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
1	0.17					0.17
Total	0.17					0.17

Total Isolated Wetland Impact for Project: 0.17 acres.

The project shall be constructed in accordance with your application dated received January 1, 2012 with additional information dated received January 17, 2012. After reviewing your application, we have decided that these impacts are covered by State General Permit IWGP100000. In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This permit will expire at midnight on October 31, 2013 or unless otherwise rescinded or until deemed appropriate by the Director of the NC Division of Water Quality (DWQ).

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification and any conditions listed below.

Condition(s) of Certification:

1. All stormwater runoff shall be directed as sheetflow through stream buffers at nonerosive velocities, unless otherwise approved by this certification.

2. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.
- * 3. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
4. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
5. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
6. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
- * 7. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Rail Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.
8. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

If you do not accept any of the conditions of this certification, you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. To ask for a hearing, send a written petition that conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699. This certification and its conditions are final and binding unless you ask for a hearing. This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Amy Euliss at (336) 771-4959.

Sincerely,



for Charles Wakild

Attachments (State General Permit IWGP100000-permittee only and Certificate of Completion form)

cc: Wetlands/401 Transportation Permitting Unit
File Copy



North Carolina Department of Environment and Natural Resources

Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

DWQ Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

* Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401/Wetlands Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to DWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

If this project was designed by a Certified Professional

I, _____, as a duly registered Professional _____ (i.e., Engineer, Landscape Architect, Surveyor, etc.) in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Registration No. _____

Date _____

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:

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

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

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

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

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

Sericea Lespedeza
Oats (seeds)

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

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

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

Common or Sweet Sundangrass

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

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

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 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. 9-18-12)

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 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 10

Page 10-74, Table 1056-1 Geotextile Requirements, replace “50%” for the UV Stability (Retained Strength) of Type 5 geotextiles with “70%”.

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 15-6, 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)

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.com/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**AWARD OF CONTRACT**

(6-28-77)

Z-6

“The North Carolina Department of Transportation, in accordance with the provisions of *Title VI of the Civil Rights Act of 1964* (78 Stat. 252) and the Regulations of the Department of Transportation (*49 C.F.R., Part 21*), issued pursuant to such act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin”.

STANDARD SPECIAL PROVISION**MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS**

Z-7

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (*EXECUTIVE NUMBER 11246*)

1. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, see as shown on the attached sheet entitled "Employment Goals for Minority and Female participation".

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in *41 CFR Part 60-4* shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in *41 CFR 60-4.3(a)*, and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project or the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the executive Order and the regulations in *41 CFR Part 60-4*. Compliance with the goals will be measured against the total work hours performed.

2. As used in this Notice and in the contract resulting from this solicitation, the "covered area" is the county or counties shown on the cover sheet of the proposal form and contract.

**EMPLOYMENT GOALS FOR MINORITY
AND FEMALE PARTICIPATION**

Economic Areas

Area 023 29.7%

Bertie County
Camden County
Chowan County
Gates County
Hertford County
Pasquotank County
Perquimans County

Area 024 31.7%

Beaufort County
Carteret County
Craven County
Dare County
Edgecombe County
Green County
Halifax County
Hyde County
Jones County
Lenoir County
Martin County
Nash County
Northampton County
Pamlico County
Pitt County
Tyrrell County
Washington County
Wayne County
Wilson County

Area 025 23.5%

Columbus County
Duplin County
Onslow County
Pender County

Area 026 33.5%

Bladen County
Hoke County
Richmond County
Robeson County
Sampson County
Scotland County

Area 027 24.7%

Chatham County
Franklin County
Granville County
Harnett County
Johnston County
Lee County
Person County
Vance County
Warren County

Area 028 15.5%

Alleghany County
Ashe County
Caswell County
Davie County
Montgomery County
Moore County
Rockingham County
Surry County
Watauga County
Wilkes County

Area 029 15.7%

Alexander County
Anson County
Burke County
Cabarrus County
Caldwell County
Catawba County
Cleveland County
Iredell County
Lincoln County
Polk County
Rowan County
Rutherford County
Stanly County

Area 0480 8.5%

Buncombe County
Madison County

Area 030 6.3%

Avery County
Cherokee County
Clay County
Graham County
Haywood County
Henderson County
Jackson County
McDowell County
Macon County
Mitchell County
Swain County
Transylvania County
Yancey County

SMSA Areas

Area 5720 26.6%
Currituck County

Area 9200 20.7%
Brunswick County
New Hanover County

Area 2560 24.2%
Cumberland County

Area 6640 22.8%
Durham County
Orange County
Wake County

Area 1300 16.2%
Alamance County

Area 3120 16.4%
Davidson County
Forsyth County
Guilford County
Randolph County
Stokes County
Yadkin County

Area 1520 18.3%
Gaston County
Mecklenburg County
Union County

Goals for Female

Participation in Each Trade

(Statewide) 6.9%

STANDARD SPECIAL PROVISION**REQUIRED CONTRACT PROVISIONS FEDERAL - AID CONSTRUCTION CONTRACTS**

FHWA - 1273 Electronic Version - May 1, 2012

Z-8

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

- A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).
The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).
2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are

incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

- a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.
 - b. The contractor will accept as its operating policy the following statement:
"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
- a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
 - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
 - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
 - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
- a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
 - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
 - c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
- a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
 - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
 - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
 - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.
6. **Training and Promotion:**
- a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
 - b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
 - c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
 - d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
 - a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
 - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
 - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
 - d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
 - a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
 - b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
10. **Assurance Required by 49 CFR 26.13(b):**
 - a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
 - b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
 - a. The records kept by the contractor shall document the following:
 - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
 - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
 - b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. **Minimum wages**
 - a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the

Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (ii) The classification is utilized in the area by the construction industry; and
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
 - (2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - (3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
 3. **Payrolls and basic records**
 - a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
 - b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the

payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

- (2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - (i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
 - (ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
 - (iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
 - (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.
 - (4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.
4. **Apprentices and trainees**
- a. Apprentices (programs of the USDOL). Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
 - b. Trainees (programs of the USDOL). Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- d. Apprentices and Trainees (programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.
5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.
7. **Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
10. **Certification of eligibility.**
 - a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
 - a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees

from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
 - (2) the prime contractor remains responsible for the quality of the work of the leased employees;
 - (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
 - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
 3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
 4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
 5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
 - (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
 - (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and
 - (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
 - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

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

(10-16-07) (Rev. 7-21-09)

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. A sample agreement is available at www.ncdot.org/business/ocs/ojt/.

Training Classifications

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

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

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

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

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

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

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

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

Records and Reports

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

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

Trainee Interviews

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

Trainee Wages

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

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

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

Achieving or Failing to Meet Training Goals

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

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

Measurement and Payment

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

STANDARD SPECIAL PROVISION
MINIMUM WAGES
GENERAL DECISION NC120096 01/06/2012 NC96

Z-96

Date:

General Decision Number: NC120096 01/06/12 NC96

Superseded General Decision Numbers: NC20100133

State: North Carolina

Construction Type: HIGHWAY

COUNTIES:

Bladen	Lee	Robeson
Cleveland	Lenoir	Rowan
Columbus	Lincoln	Sampson
Davidson	Montgomery	Scotland
Duplin	Moore	Stanly
Harnett	Richmond	Wilson
Iredell		

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, railroad construction, bascule, suspension and spandrel arch bridges designed for commercial navigation, bridges involving marine construction, and other major bridges).

Modification Number

0

Publication Date

01/06/2012

SUNC2011-077 09/16/2011

	Rates	Fringes
CARPENTER (Form Work Only)	13.30	
CEMENT MASON/CONCRETE FINISHER	14.18	
INSTALLER (Guardrail) (includes Guiderail/Post Driver Work)	11.76	
IRONWORKER (Reinforcing)	13.90	
LABORER		
Asphalt, Asphalt Distributor, Raker, and Spreader	12.81	
Common or General		
Davidson County	10.64	
Harnett County	10.41	
Iredell County	10.38	
Lenoir County	9.98	
Remaining Counties	10.27	
Richmond County	10.46	
Robeson County	10.07	
Rowan County	10.25	
Stanly County	9.03	
Concrete Saw	11.56	
Landscape	9.90	
Luteman	12.68	
Mason Tender (Cement/Concrete)	10.53	
Pipelayer		
Remaining Counties	11.79	
Stanly County	12.25	
Traffic Control (Flagger)	10.31	
POWER EQUIPMENT OPERATORS		
Backhoe/Excavator/Trackhoe	14.64	
Broom/Sweeper	12.29	
Bulldozer	15.32	
Crane	19.10	
Grader/Blade	19.29	
Loader	13.93	
Mechanic	15.92	
Milling Machine		
Columbus, Davidson, Duplin, Lenoir, Lincoln, Moore, Richmond, and Stanly Counties	14.09	
Remaining Counties	13.80	
Oiler	14.19	
Paver	14.10	
Roller	12.83	
Scraper	12.29	
Screed	14.75	
Tractor	13.92	
TRUCK DRIVER		
Dump Truck		
Davidson County	12.61	
Remaining Counties	11.80	
Lowboy Truck	15.99	
Single Axle Truck	12.07	
Water Truck	13.82	

Welders – Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUBBING	1 ACR		
0005	0022000000-E	225	UNCLASSIFIED EXCAVATION	39,800 CY		
0006	0036000000-E	225	UNDERCUT EXCAVATION	4,400 CY		
0007	0106000000-E	230	BORROW EXCAVATION	21,200 CY		
0008	0134000000-E	240	DRAINAGE DITCH EXCAVATION	460 CY		
0009	0141000000-E	240	BERM DITCH CONSTRUCTION	640 LF		
0010	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	3,110 SY		
0011	0192000000-N	260	PROOF ROLLING	5 HR		
0012	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	5,500 SY		
0013	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	860 TON		
0014	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	2,660 SY		
0015	0335200000-E	305	15" DRAINAGE PIPE	568 LF		
0016	0335300000-E	305	18" DRAINAGE PIPE	476 LF		
0017	0335400000-E	305	24" DRAINAGE PIPE	448 LF		
0018	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	60 LF		
0019	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	252 LF		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0020	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	1,262 LF		
0021	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	600 LF		
0022	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	364 LF		
0023	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	184 LF		
0024	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	16 LF		
0025	0594000000-E	310	24" CS PIPE CULVERTS, 0.064" THICK	140 LF		
0026	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (24", 0.064")	4 EA		
0027	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (36", 0.5")	46 LF		
0028	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (36", 0.5")	46 LF		
0029	0974000000-E	SP	*** WELDED STEEL PIPE, ***** THICK, GRADE B, (UNDER RR) (24", 0.5")	72 LF		
0030	0986000000-E	SP	GENERIC PIPE ITEM 18" BIT COAT CS PIPE, 0.079" THICK (UNDER RAILROAD)	80 LF		
0031	0995000000-E	340	PIPE REMOVAL	807 LF		
0032	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0033	1220000000-E	545	INCIDENTAL STONE BASE	200 TON		
0034	1330000000-E	607	INCIDENTAL MILLING	1,175 SY		
0035	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	3,350 TON		
0036	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	2,870 TON		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0037	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2,540 TON		
0038	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	440 TON		
0039	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	400 TON		
0040	2000000000-N	806	RIGHT OF WAY MARKERS	61 EA		
0041	2022000000-E	815	SUBDRAIN EXCAVATION	90 CY		
0042	2033000000-E	815	SUBDRAIN FINE AGGREGATE	70 CY		
0043	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	400 LF		
0044	2070000000-N	815	SUBDRAIN PIPE OUTLET	1 EA		
0045	2077000000-E	815	6" OUTLET PIPE	6 LF		
0046	2209000000-E	838	ENDWALLS	1.4 CY		
0047	2253000000-E	840	PIPE COLLARS	1.5 CY		
0048	2275000000-E	SP	FLOWABLE FILL	30 CY		
0049	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	63 EA		
0050	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	13.9 LF		
0051	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	4 EA		
0052	2365000000-N	840	FRAME WITH TWO GRATES, STD 840.22	5 EA		
0053	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	7 EA		
0054	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	1 EA		
0055	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	3 EA		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0056	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	20 EA		
0057	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	19 EA		
0058	2396000000-N	840	FRAME WITH COVER, STD 840.54	2 EA		
0059	2535000000-E	846	***X *** CONCRETE CURB (8" X 12")	240 LF		
0060	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	50 LF		
0061	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	6,760 LF		
0062	2591000000-E	848	4" CONCRETE SIDEWALK	3,370 SY		
0063	2605000000-N	848	CONCRETE CURB RAMP	20 EA		
0064	2612000000-E	848	6" CONCRETE DRIVEWAY	320 SY		
0065	2619000000-E	850	4" CONCRETE PAVED DITCH	130 SY		
0066	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	495 LF		
0067	2830000000-N	858	ADJUSTMENT OF MANHOLES	4 EA		
0068	2845000000-N	858	ADJUSTMENT OF METER BOXES OR VALVE BOXES	1 EA		
0069	3030000000-E	862	STEEL BM GUARDRAIL	675 LF		
0070	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	162.5 LF		
0071	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	6 EA		
0072	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA		
0073	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	3 EA		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0074	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	7 EA		
0075	3360000000-E	863	REMOVE EXISTING GUARDRAIL	160 LF		
0076	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	276 LF		
0077	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	24 EA		
0078	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	7 EA		
0079	3649000000-E	876	RIP RAP, CLASS B	175 TON		
0080	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	1,780 SY		
0081	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	1 EA		
0082	3804000000-E	SP	AGGREGATE BASE COURSE (SUB-BALLAST)	8,700 TON		
0083	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (D)	25 SF		
0084	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	157 SF		
0085	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (F)	263 SF		
0086	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	675 LF		
0087	4096000000-N	904	SIGN ERECTION, TYPE D	2 EA		
0088	4102000000-N	904	SIGN ERECTION, TYPE E	20 EA		
0089	4108000000-N	904	SIGN ERECTION, TYPE F	12 EA		
0090	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	16 EA		
0091	4238000000-N	907	DISPOSAL OF SIGN, D, E OR F	12 EA		

County: Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0092	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	469 SF		
0093	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	261 SF		
0094	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	211 SF		
0095	4430000000-N	1130	DRUMS	91 EA		
0096	4435000000-N	1135	CONES	68 EA		
0097	4445000000-E	1145	BARRICADES (TYPE III)	575 LF		
0098	4450000000-N	1150	FLAGGER	624 HR		
0099	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	2 EA		
0100	4485000000-E	1170	PORTABLE CONCRETE BARRIER	620 LF		
0101	4516000000-N	1180	SKINNY DRUM	30 EA		
0102	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	721 LF		
0103	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	9,943 LF		
0104	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	430 LF		
0105	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	294 LF		
0106	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	18 EA		
0107	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	30,176 LF		
0108	4815000000-E	1205	PAINT PAVEMENT MARKING LINES (6")	598 LF		
0109	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	2,298 LF		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0110	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	9 EA		
0111	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	137 LF		
0112	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	164 EA		
0113	4915000000-E	1264	7' U-CHANNEL POSTS	3 EA		
0114	4955000000-N	1264	OBJECT MARKERS (END OF ROAD)	3 EA		
0115	5325600000-E	1510	6" WATER LINE	659 LF		
0116	5325800000-E	1510	8" WATER LINE	67 LF		
0117	5326200000-E	1510	12" WATER LINE	112 LF		
0118	5540000000-E	1515	6" VALVE	2 EA		
0119	5558000000-E	1515	12" VALVE	2 EA		
0120	5606000000-E	1515	2" BLOW OFF	2 EA		
0121	5648000000-N	1515	RELOCATE WATER METER	4 EA		
0122	5672000000-N	1515	RELOCATE FIRE HYDRANT	1 EA		
0123	5691300000-E	1520	8" SANITARY GRAVITY SEWER	2,607 LF		
0124	5775000000-E	1525	4' DIA UTILITY MANHOLE	10 EA		
0125	5776000000-E	1525	5' DIA UTILITY MANHOLE	4 EA		
0126	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	2.79 LF		
0127	5782000000-E	1525	UTILITY MANHOLE WALL, 5' DIA	14.64 LF		
0128	5800000000-E	1530	ABANDON 6" UTILITY PIPE	532 LF		
0129	5801000000-E	1530	ABANDON 8" UTILITY PIPE	1,102 LF		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0130	5804000000-E	1530	ABANDON 12" UTILITY PIPE	309 LF		
0131	5815500000-N	1530	REMOVE FIRE HYDRANT	1 EA		
0132	5816000000-N	1530	ABANDON UTILITY MANHOLE	1 EA		
0133	5828000000-N	1530	REMOVE UTILITY MANHOLE	2 EA		
0134	5835700000-E	1540	16" ENCASEMENT PIPE	76 LF		
0135	5835800000-E	1540	18" ENCASEMENT PIPE	162 LF		
0136	5872000000-E	1550	TRENCHLESS INSTALLATION OF 18" IN SOIL	40 LF		
0137	5872010000-E	1550	TRENCHLESS INSTALLATION OF 18" NOT IN SOIL	40 LF		
0138	6000000000-E	1605	TEMPORARY SILT FENCE	18,210 LF		
0139	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	345 TON		
0140	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	3,095 TON		
0141	6012000000-E	1610	SEDIMENT CONTROL STONE	1,760 TON		
0142	6015000000-E	1615	TEMPORARY MULCHING	24 ACR		
0143	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	500 LB		
0144	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	3 TON		
0145	6024000000-E	1622	TEMPORARY SLOPE DRAINS	793 LF		
0146	6030000000-E	1630	SILT EXCAVATION	5,610 CY		
0147	6036000000-E	1631	MATTING FOR EROSION CONTROL	18,850 SY		
0148	6037000000-E	SP	COIR FIBER MAT	60 SY		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0149	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,575	SY	
0150	6042000000-E	1632	1/4" HARDWARE CLOTH	3,900	LF	
0151	6070000000-N	1639	SPECIAL STILLING BASINS	4	EA	
0152	6071012000-E	SP	COIR FIBER WATTLE	1,975	LF	
0153	6071020000-E	SP	POLYACRYLAMIDE (PAM)	865	LB	
0154	6071030000-E	1640	COIR FIBER BAFFLE	905	LF	
0155	6071050000-E	SP	*** SKIMMER (1-1/2")	4	EA	
0156	6084000000-E	1660	SEEDING & MULCHING	15	ACR	
0157	6087000000-E	1660	MOWING	18	ACR	
0158	6090000000-E	1661	SEED FOR REPAIR SEEDING	250	LB	
0159	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.75	TON	
0160	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	350	LB	
0161	6108000000-E	1665	FERTILIZER TOPDRESSING	11	TON	
0162	6114500000-N	1667	SPECIALIZED HAND MOWING	10	MHR	
0163	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	150	EA	
0164	7060000000-E	1705	SIGNAL CABLE	2,300	LF	
0165	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	21	EA	
0166	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	2	EA	
0167	7252000000-E	1710	MESSENGER CABLE (1/4")	1,050	LF	
0168	7264000000-E	1710	MESSENGER CABLE (3/8")	960	LF	

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0169	7279000000-E	1715	TRACER WIRE	3,525 LF		
0170	7300000000-E	1715	UNPAVED TRENCHING (*****) (1, 2")	3,470 LF		
0171	7300100000-E	1715	UNPAVED TRENCHING FOR TEMP- ORARY LEAD-IN	30 LF		
0172	7301000000-E	1715	DIRECTIONAL DRILL (*****) (1, 2")	500 LF		
0173	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	10 EA		
0174	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEA- VY DUTY)	11 EA		
0175	7360000000-N	1720	WOOD POLE	7 EA		
0176	7372000000-N	1721	GUY ASSEMBLY	18 EA		
0177	7396000000-E	1722	1/2" RISER WITH WEATHERHEAD	2 EA		
0178	7408000000-E	1722	1" RISER WITH WEATHERHEAD	2 EA		
0179	7420000000-E	1722	2" RISER WITH WEATHERHEAD	10 EA		
0180	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	1,400 LF		
0181	7456000000-E	1726	LEAD-IN CABLE (***** (14-2)	4,150 LF		
0182	7516000000-E	1730	COMMUNICATIONS CABLE (**FIBER) (12)	3,650 LF		
0183	7528000000-E	1730	DROP CABLE	1,100 LF		
0184	7540000000-N	1731	SPLICE ENCLOSURE	2 EA		
0185	7552000000-N	1731	INTERCONNECT CENTER	1 EA		
0186	7566000000-N	1733	DELINEATOR MARKER	4 EA		
0187	7568000000-N	SP	FURNISH FIBER-OPTIC RESTORA- TION KIT	1 EA		

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0188	7570000000-N	SP	FURNISH FIBER-OPTIC POWER ME- TER	1 EA		
0189	7572000000-N	SP	FURNISH OPTICAL LIGHT GENERA- TOR	1 EA		
0190	7575160000-E	1734	REMOVE EXISTING COMMUNICATIONS CABLE	1,000 LF		
0191	7575180000-N	1735	CABLE TRANSFER	7 EA		
0192	7576000000-N	SP	METAL STRAIN SIGNAL POLE	2 EA		
0193	7613000000-N	SP	SOIL TEST	2 EA		
0194	7614100000-E	SP	DRILLED PIER FOUNDATION	16 CY		
0195	7636000000-N	1745	SIGN FOR SIGNALS	2 EA		
0196	7642200000-N	1743	TYPE II PEDESTAL WITH FOUND- ATION	1 EA		
0197	7684000000-N	1750	SIGNAL CABINET FOUNDATION	2 EA		
0198	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	1 EA		
0199	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	6 EA		
0200	7828000000-N	1751	CONTROLLER WITH CABINET (NEMA TS-2, TYPE 2 CONTROLLER, TYPE 1 CABINET, BASE MOUNTED)	1 EA		
0201	7852000000-N	1751	DETECTOR CARD (NEMA TS-2)	6 EA		
0202	7901000000-N	1753	CABINET BASE EXTENDER	1 EA		
0203	7948000000-N	1757	TRAFFIC SIGNAL REMOVAL	1 EA		

WALL ITEMS

0204	8802014000-E	SP	SOLDIER PILE RETAINING WALLS	2,806 SF		
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County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0205	8839000000-E	SP	GENERIC RETAINING WALL ITEM RETAINING WALL SAFETY RAIL	97 LF		
STRUCTURE ITEMS						
0206	8112730000-N	450	PDA TESTING	1 EA		
0207	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	5,182 SF		
0208	8175000000-E	420	CLASS AA CONCRETE (BRIDGE)	374.6 CY		
0209	8217000000-E	425	REINFORCING STEEL (BRIDGE)	64,412 LB		
0210	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	3,644 LB		
0211	8280000000-E	440	APPROX LBS STRUCTURAL STEEL	428,600 LS		
0212	8294000000-N	442	PAINTING OF STRUCTURAL STEEL	Lump Sum	L.S.	
0213	8364000000-E	450	HP12X53 STEEL PILES	6,149 LF		
0214	8453000000-E	454	METHOD B DAMPPROOFING	470 SY		
0215	8517000000-E	460	1'-***X ***** CONCRETE PARA- PET (1'-0" X 2'-1")	287.9 LF		
0216	8531000000-E	462	4" SLOPE PROTECTION	425 SY		
0217	8741000000-N	SP	STRUCTURE DRAINAGE SYSTEM AT STA***** (8916+54.58-MAIN1-)	Lump Sum	L.S.	
0218	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR ABUTMENT 1 AT STA 8916+54.582-MAIN1-	Lump Sum	L.S.	
0219	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR ABUTMENT 2 AT STA 8916+54.582-MAIN1-	Lump Sum	L.S.	

County : Rowan

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0220	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR PIER 1 AT STA 8916+54.582-MAIN1-	Lump Sum	L.S.	
0221	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR PIER 2 AT STA 8916+54.582-MAIN1-	Lump Sum	L.S.	
0222	8860000000-N	SP	GENERIC STRUCTURE ITEM SELF-LUBRICATING EXPANSION BEARING ASSEMBLIES	Lump Sum	L.S.	
0223	8860000000-N	SP	GENERIC STRUCTURE ITEM TEMPORARY RAILROAD SHORING	Lump Sum	L.S.	
0224	8867000000-E	SP	GENERIC STRUCTURE ITEM METAL HANDRAIL	365.3 LF		
0225	8893000000-E	SP	GENERIC STRUCTURE ITEM 1" ASPHALT PLANKING PRO- TECTIVE COURSE FOR DECK	525 SY		
0226	8893000000-E	SP	GENERIC STRUCTURE ITEM MEMBRANE LAYER WATER-PROOFING FOR DECK	545 SY		
0227	8893000000-E	SP	GENERIC STRUCTURE ITEM TWO PART MEMBRANE WATER- PROOFING SYSTEM	70 SY		
0911/Oct17/Q770415.88/D1078529206000/E227			Total Amount Of Bid For Entire Project :			

**Vendor 1 of 7: BLYTHE CONSTRUCTION, INC. (3655)
Call Order 020 (Proposal: C203127)**

Bid Information

County: ROWAN	Bid Checksum: 637C579D
Address: PO Box 31635 2911 North Graham Street Charlotte , NC , 28231	Bid Total: \$7,629,459.20
Signature Check: JAMES_PAUL_McBRYDE_3655	Items Total: \$7,629,459.20 ✓
Time Bid Received: December 18, 2012 01:56 PM	Time Total: \$0.00
Amendment Count: 0	

Bidding Errors:

DBE Warning : DBE Warning: DBE Commitment Goal not met

DBE GOAL SET	10.0
DBE GOAL OBT	8.5

**Vendor 1 of 7: BLYTHE CONSTRUCTION, INC. (3655)
Call Order 020 (Proposal: C203127)**

Bid Bond Information

Projects:	Bond Maximum:
Counties:	State of Incorporation:
Bond ID: SNC12588682	Agency Execution Date: 12/3/2012 10
Paid by Check: No	Surety Name: surety2000
Bond Percent: 5%	Bond Agency Name: Travelers Casualty and Surety Company of America

Vendor 3655's Bid Information for Call 020, Letting L121218, 12/18/12

Blythe Construction Inc (3655)
 Call Order 020 (Proposal ID C203127)

LIST OF DBE PARTICIPANTS

VENDOR NUMBER	DBE NAME ADDRESS	WORK CODE TYPE OF WORK	CERT TYPE AMOUNT	
4906	MBE W. G. LEWIS TRUCKING, INC 1323 PENNY RD. , HIGH POINT, NC 27265		Sub 35,040.00	Committed
8262	WBE MUGO GRAVEL & GRADING INC P.O. BOX 1961 , CONCORD, NC 28026		Sub 269,100.00	Committed
4761	WBE TRAFFIC CONTROL SAFETY SERVICES POST OFFICE BOX 24511 , WINSTON-SALEM, NC 27114		Sub 13,093.06	Committed
4898	WBE BULLINGTON CONSTRUCTION INC 417 FOXGLOVE LANE , INDIAN TRAIL, NC 28079		Sub 15,823.00	Committed
1991	MBE MCCAIN STRIPING SERVICE, INC. 5711 CRAVEN ROAD , BROWNS SUMMIT, NC 27214		Sub 23,518.38	Committed
9183	MBE CORNERSTONE CONSTRUCTION GROUP 5736 N TRYON ST #211 , CHARLOTTE, NC 28213		Sub 215,770.00	Committed
3230	WBE HIATT & MASON ENTERPRISES, INC POST OFFICE BOX 1378 , MOUNT AIRY, NC 27030		Sub 74,054.97	Committed
			TOTAL: \$646,399.41	
				8.47%

Vendor 3655's Bid Information for Call 020, Letting L121218, 12/18/12

Blythe Construction Inc (3655)
 Call Order 020 (Proposal ID C203127)

Miscellaneous Data Info - Contractor Responses:

NON-COLLUSION AND DEBARMENT CERTIFICATION

Explanation of the prospective bidder that is unable to certify to any of the statements in this certification:

Explanation:
 NOT ANSWERED
 NOT ANSWERED
 NOT ANSWERED
 NOT ANSWERED

AWARD LIMITS ON MULTIPLE PROJECTS

By answering YES to this statement, the bidder acknowledges that they are using the award limits on multiple projects. No

It is the desire of the Bidder to be awarded contracts, the value of which will not exceed a total of NOT ANSWERED for those projects indicated herein, for which bids will be opened on (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number	County
NOT ANSWERED	
NOT ANSWERED	

NOT ANSWERED
NOT ANSWERED
NOT ANSWERED
NOT ANSWERED

Bid Bond Data Info - Contractor Responses:

=====

BondID: SNC12588682
Surety Registry Agency: surety2000
Verified?: Yes
Surety Agency: Travelers Casualty and Surety Company of America
Bond Execution Date: 12/3/2012 10
Bond Amount: \$381,472.96 (Five Percent of Bid)

Contract ID: C203127 Project(s): STATE FUNDED
 Letting Date: 12-18-12 Call Order: 020
 Bidder: 3655 - Blythe Construction Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
Section 0001 ROADWAY ITEMS				
Alt Group				
0001	0000100000-N MOBILIZATION	LUMP	LUMP	380,000.00
0002	0000400000-N CONSTRUCTION SURVEYING	LUMP	LUMP	100,000.00
0003	0001000000-E CLEARING & GRUBBING .. ACRE(S)	LUMP	LUMP	320,000.00
0004	0008000000-E SUPPLEMENTARY CLEARING & GRUBBING	1.000 ACR	4,500.00000	4,500.00
0005	0022000000-E UNCLASSIFIED EXCAVATION	39,800.000 CY	8.25000	328,350.00
0006	0036000000-E UNDERCUT EXCAVATION	4,400.000 CY	25.00000	110,000.00
0007	0106000000-E BORROW EXCAVATION	21,200.000 CY	12.00000	254,400.00
0008	0134000000-E DRAINAGE DITCH EXCAVATION	460.000 CY	7.50000	3,450.00
0009	0141000000-E BERM DITCH CONSTRUCTION	640.000 LF	7.50000	4,800.00
0010	0156000000-E REMOVAL OF EXISTING ASPHALT PAVEMENT	3,110.000 SY	3.50000	10,885.00
0011	0192000000-N PROOF ROLLING	5.000 HR	175.00000	875.00

Contract ID: C203127 Project(s): STATE FUNDED
Letting Date: 12-18-12 Call Order: 020
Bidder: 3655 - Blythe Construction Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0012	0196000000-E GEOTEXTILE FOR SOIL STABILIZATION	5,500.000 SY	1.25000	6,875.00
0013	0318000000-E FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	860.000 TON	30.00000	25,800.00
0014	0320000000-E FOUNDATION CONDITIONING GEOTEXTILE	2,660.000 SY	2.75000	7,315.00
0015	0335200000-E 15" DRAINAGE PIPE	568.000 LF	29.00000	16,472.00
0016	0335300000-E 18" DRAINAGE PIPE	476.000 LF	30.00000	14,280.00
0017	0335400000-E 24" DRAINAGE PIPE	448.000 LF	34.00000	15,232.00
0018	0378000000-E 24" RC PIPE CULVERTS, CLASS III	60.000 LF	36.00000	2,160.00
0019	0390000000-E 36" RC PIPE CULVERTS, CLASS III	252.000 LF	55.00000	13,860.00
0020	0448200000-E 15" RC PIPE CULVERTS, CLASS IV	1,262.000 LF	32.00000	40,384.00
0021	0448300000-E 18" RC PIPE CULVERTS, CLASS IV	600.000 LF	36.00000	21,600.00
0022	0448400000-E 24" RC PIPE CULVERTS, CLASS IV	364.000 LF	42.00000	15,288.00
0023	0448500000-E 30" RC PIPE CULVERTS, CLASS IV	184.000 LF	52.00000	9,568.00

State of NC
Dept of Transportation

Date: 11-19-12
Revised:

Contract ID: C203127 Project(s): STATE FUNDED
Letting Date: 12-18-12 Call Order: 020
Bidder: 3655 - Blythe Construction Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0024	0588000000-E 18" CS PIPE CULVERTS, 0.064" THICK	16.000 LF	34.00000	544.00
0025	0594000000-E 24" CS PIPE CULVERTS, 0.064" THICK	140.000 LF	38.00000	5,320.00
0026	0636000000-E *** CS PIPE ELBOWS, ***** THICK (24", 0.064")	4.000 EA	425.00000	1,700.00
0027	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (36", 0.5")	46.000 LF	255.00000	11,730.00
0028	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (36", 0.5")	46.000 LF	763.00000	35,098.00
0029	0974000000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B, (UNDER RR) (24", 0.5")	72.000 LF	80.00000	5,760.00
0030	0986000000-E GENERIC PIPE ITEM 18" BIT COAT CS PIPE, 0.079" THICK (UNDER RAILROAD)	80.000 LF	55.00000	4,400.00
0031	0995000000-E PIPE REMOVAL	807.000 LF	15.00000	12,105.00
0032	1011000000-N FINE GRADING	LUMP	LUMP	120,000.00
0033	1220000000-E INCIDENTAL STONE BASE	200.000 TON	30.00000	6,000.00
0034	1330000000-E INCIDENTAL MILLING	1,175.000 SY	4.00000	4,700.00

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0047	2253000000-E PIPE COLLARS	1.500 CY	900.00000	1,350.00
0048	2275000000-E FLOWABLE FILL	30.000 CY	175.00000	5,250.00
0049	2286000000-N MASONRY DRAINAGE STRUCTURES	63.000 EA	950.00000	59,850.00
0050	2308000000-E MASONRY DRAINAGE STRUCTURES	13.900 LF	225.00000	3,127.50
0051	2364000000-N FRAME WITH TWO GRATES, STD 840.16	4.000 EA	450.00000	1,800.00
0052	2365000000-N FRAME WITH TWO GRATES, STD 840.22	5.000 EA	430.00000	2,150.00
0053	2366000000-N FRAME WITH TWO GRATES, STD 840.24	7.000 EA	440.00000	3,080.00
0054	2367000000-N FRAME WITH TWO GRATES, STD 840.29	1.000 EA	500.00000	500.00
0055	2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	3.000 EA	500.00000	1,500.00
0056	2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	20.000 EA	500.00000	10,000.00
0057	2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	19.000 EA	500.00000	9,500.00
0058	2396000000-N FRAME WITH COVER, STD 840.54	2.000 EA	360.00000	720.00

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0071	3105000000-N STEEL BM GUARDRAIL TERMINAL SECTIONS	6.000 EA	25.00000	150.00
0072	3150000000-N ADDITIONAL GUARDRAIL POSTS	10.000 EA	1.00000	10.00
0073	3270000000-N GUARDRAIL ANCHOR UNITS, TYPE 350	3.000 EA	1,675.00000	5,025.00
0074	3317000000-N GUARDRAIL ANCHOR UNITS, TYPE B-77	7.000 EA	1,450.00000	10,150.00
0075	3360000000-E REMOVE EXISTING GUARDRAIL	160.000 LF	0.25000	40.00
0076	3536000000-E CHAIN LINK FENCE, 48" FABRIC	276.000 LF	7.00000	1,932.00
0077	3542000000-E METAL LINE POSTS FOR 48" CHAINLINK FENCE	24.000 EA	78.00000	1,872.00
0078	3548000000-E METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	7.000 EA	165.00000	1,155.00
0079	3649000000-E RIP RAP, CLASS B	175.000 TON	40.00000	7,000.00
0080	3656000000-E GEOTEXTILE FOR DRAINAGE	1,780.000 SY	4.25000	7,565.00
0081	3659000000-N PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	1.000 EA	1,100.00000	1,100.00
0082	3804000000-E AGGREGATE BASE COURSE (SUB-BALLAST)	8,700.000 TON	25.00000	217,500.00

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0083	4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (D)	25.000 SF	12.50000	312.50
0084	4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (E)	157.000 SF	12.50000	1,962.50
0085	4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (F)	263.000 SF	12.50000	3,287.50
0086	4072000000-E SUPPORTS, 3-LB STEEL U-CHANNEL	675.000 LF	4.95000	3,341.25
0087	4096000000-N SIGN ERECTION, TYPE D	2.000 EA	85.00000	170.00
0088	4102000000-N SIGN ERECTION, TYPE E	20.000 EA	55.00000	1,100.00
0089	4108000000-N SIGN ERECTION, TYPE F	12.000 EA	85.00000	1,020.00
0090	4155000000-N DISPOSAL OF SIGN SYSTEM, U-CHANNEL	16.000 EA	1.00000	16.00
0091	4238000000-N DISPOSAL OF SIGN, D, E OR F	12.000 EA	1.00000	12.00
0092	4400000000-E WORK ZONE SIGNS (STATIONARY)	469.000 SF	4.25000	1,993.25
0093	4405000000-E WORK ZONE SIGNS (PORTABLE)	261.000 SF	9.25000	2,414.25
0094	4410000000-E WORK ZONE SIGNS (BARRICADE MOUNTED)	211.000 SF	7.00000	1,477.00

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0095	4430000000-N DRUMS	91.000 EA	45.00000	4,095.00
0096	4435000000-N CONES	68.000 EA	19.00000	1,292.00
0097	4445000000-E BARRICADES (TYPE III)	575.000 LF	25.00000	14,375.00
0098	4450000000-N FLAGGER	624.000 HR	25.00000	15,600.00
0099	4465000000-N TEMPORARY CRASH CUSHIONS	2.000 EA	10,000.00000	20,000.00
0100	4485000000-E PORTABLE CONCRETE BARRIER	620.000 LF	15.00000	9,300.00
0101	4516000000-N SKINNY DRUM	30.000 EA	35.00000	1,050.00
0102	4685000000-E THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	721.000 LF	0.69000	497.49
0103	4686000000-E THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	9,943.000 LF	0.72000	7,158.96
0104	4695000000-E THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	430.000 LF	1.25000	537.50
0105	4710000000-E THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	294.000 LF	6.00000	1,764.00
0106	4725000000-E THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	18.000 EA	125.00000	2,250.00

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0107	4810000000-E PAINT PAVEMENT MARKING LINES (4")	30,176.000 LF	0.23000	6,940.48
0108	4815000000-E PAINT PAVEMENT MARKING LINES (6")	598.000 LF	0.35000	209.30
0109	4835000000-E PAINT PAVEMENT MARKING LINES (24")	2,298.000 LF	1.05000	2,412.90
0110	4845000000-N PAINT PAVEMENT MARKING SYMBOL	9.000 EA	40.00000	360.00
0111	4870000000-E REMOVAL OF PAVEMENT MARKING LINES (24")	137.000 LF	1.75000	239.75
0112	4900000000-N PERMANENT RAISED PAVEMENT MARKERS	164.000 EA	7.00000	1,148.00
0113	4915000000-E 7' U-CHANNEL POSTS	3.000 EA	4.95000	14.85
0114	4955000000-N OBJECT MARKERS (END OF ROAD)	3.000 EA	82.00000	246.00
0115	5325600000-E 6" WATER LINE	659.000 LF	60.00000	39,540.00
0116	5325800000-E 8" WATER LINE	67.000 LF	100.00000	6,700.00
0117	5326200000-E 12" WATER LINE	112.000 LF	125.00000	14,000.00
0118	5540000000-E 6" VALVE	2.000 EA	1,000.00000	2,000.00

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0119	5558000000-E 12" VALVE	2.000 EA	2,400.00000	4,800.00
0120	5606000000-E 2" BLOW OFF	2.000 EA	2,000.00000	4,000.00
0121	5648000000-N RELOCATE WATER METER	4.000 EA	850.00000	3,400.00
0122	5672000000-N RELOCATE FIRE HYDRANT	1.000 EA	2,500.00000	2,500.00
0123	5691300000-E 8" SANITARY GRAVITY SEWER	2,607.000 LF	70.00000	182,490.00
0124	5775000000-E 4' DIA UTILITY MANHOLE	10.000 EA	2,100.00000	21,000.00
0125	5776000000-E 5' DIA UTILITY MANHOLE	4.000 EA	2,700.00000	10,800.00
0126	5781000000-E UTILITY MANHOLE WALL, 4' DIA	2.790 LF	165.00000	460.35
0127	5782000000-E UTILITY MANHOLE WALL, 5' DIA	14.640 LF	200.00000	2,928.00
0128	5800000000-E ABANDON 6" UTILITY PIPE	532.000 LF	8.00000	4,256.00
0129	5801000000-E ABANDON 8" UTILITY PIPE	1,102.000 LF	10.00000	11,020.00
0130	5804000000-E ABANDON 12" UTILITY PIPE	309.000 LF	12.00000	3,708.00

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0131	5815500000-N REMOVE FIRE HYDRANT	1.000 EA	500.00000	500.00
0132	5816000000-N ABANDON UTILITY MANHOLE	1.000 EA	750.00000	750.00
0133	5828000000-N REMOVE UTILITY MANHOLE	2.000 EA	1,000.00000	2,000.00
0134	5835700000-E 16" ENCASEMENT PIPE	76.000 LF	150.00000	11,400.00
0135	5835800000-E 18" ENCASEMENT PIPE	162.000 LF	100.00000	16,200.00
0136	5872000000-E TRENCHLESS INSTALLATION OF 18" IN SOIL	40.000 LF	350.00000	14,000.00
0137	5872010000-E TRENCHLESS INSTALLATION OF 18" NOT IN SOIL	40.000 LF	900.00000	36,000.00
0138	6000000000-E TEMPORARY SILT FENCE	18,210.000 LF	1.55000	28,225.50
0139	6006000000-E STONE FOR EROSION CONTROL, CLASS A	345.000 TON	45.00000	15,525.00
0140	6009000000-E STONE FOR EROSION CONTROL, CLASS B	3,095.000 TON	45.00000	139,275.00
0141	6012000000-E SEDIMENT CONTROL STONE	1,760.000 TON	35.00000	61,600.00
0142	6015000000-E TEMPORARY MULCHING	24.000 ACR	400.00000	9,600.00

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0143	6018000000-E SEED FOR TEMPORARY SEEDING	500.000 LB	4.50000	2,250.00
0144	6021000000-E FERTILIZER FOR TEMPORARY SEED-ING	3.000 TON	700.00000	2,100.00
0145	6024000000-E TEMPORARY SLOPE DRAINS	793.000 LF	10.00000	7,930.00
0146	6030000000-E SILT EXCAVATION	5,610.000 CY	15.00000	84,150.00
0147	6036000000-E MATTING FOR EROSION CONTROL	18,850.000 SY	1.19000	22,431.50
0148	6037000000-E COIR FIBER MAT	60.000 SY	4.00000	240.00
0149	6038000000-E PERMANENT SOIL REINFORCEMENT MAT	1,575.000 SY	3.40000	5,355.00
0150	6042000000-E 1/4" HARDWARE CLOTH	3,900.000 LF	3.00000	11,700.00
0151	6070000000-N SPECIAL STILLING BASINS	4.000 EA	150.00000	600.00
0152	6071012000-E COIR FIBER WATTLE	1,975.000 LF	7.00000	13,825.00
0153	6071020000-E POLYACRYLAMIDE (PAM)	865.000 LB	5.00000	4,325.00
0154	6071030000-E COIR FIBER BAFFLE	905.000 LF	4.25000	3,846.25

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0155	6071050000-E *** SKIMMER (1-1/2")	4.000 EA	525.00000	2,100.00
0156	6084000000-E SEEDING & MULCHING	15.000 ACR	1,620.00000	24,300.00
0157	6087000000-E MOWING	18.000 ACR	40.00000	720.00
0158	6090000000-E SEED FOR REPAIR SEEDING	250.000 LB	2.75000	687.50
0159	6093000000-E FERTILIZER FOR REPAIR SEEDING	0.750 TON	700.00000	525.00
0160	6096000000-E SEED FOR SUPPLEMENTAL SEEDING	350.000 LB	3.00000	1,050.00
0161	6108000000-E FERTILIZER TOPDRESSING	11.000 TON	680.00000	7,480.00
0162	6114500000-N SPECIALIZED HAND MOWING	10.000 MHR	29.00000	290.00
0163	6117000000-N RESPONSE FOR EROSION CONTROL	150.000 EA	50.00000	7,500.00
0164	7060000000-E SIGNAL CABLE	2,300.000 LF	2.65000	6,095.00
0165	7120000000-E VEHICLE SIGNAL HEAD (12", 3 SECTION)	21.000 EA	668.00000	14,028.00
0166	7132000000-E VEHICLE SIGNAL HEAD (12", 4 SECTION)	2.000 EA	756.25000	1,512.50

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0167	7252000000-E MESSENGER CABLE (1/4")	1,050.000 LF	1.35000	1,417.50
0168	7264000000-E MESSENGER CABLE (3/8")	960.000 LF	2.75000	2,640.00
0169	7279000000-E TRACER WIRE	3,525.000 LF	0.35000	1,233.75
0170	7300000000-E UNPAVED TRENCHING (*****)(1, 2")	3,470.000 LF	4.75000	16,482.50
0171	7300100000-E UNPAVED TRENCHING FOR TEMPORARY LEAD-IN	30.000 LF	3.00000	90.00
0172	7301000000-E DIRECTIONAL DRILL (*****)(1, 2")	500.000 LF	14.10000	7,050.00
0173	7324000000-N JUNCTION BOX (STANDARD SIZE)	10.000 EA	205.00000	2,050.00
0174	7348000000-N JUNCTION BOX (OVER-SIZED, HEA-VY DUTY)	11.000 EA	390.15000	4,291.65
0175	7360000000-N WOOD POLE	7.000 EA	684.30000	4,790.10
0176	7372000000-N GUY ASSEMBLY	18.000 EA	345.10000	6,211.80
0177	7396000000-E 1/2" RISER WITH WEATHERHEAD	2.000 EA	175.45000	350.90
0178	7408000000-E 1" RISER WITH WEATHERHEAD	2.000 EA	267.45000	534.90

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0179	7420000000-E 2" RISER WITH WEATHERHEAD	10.000 EA	373.05000	3,730.50
0180	7444000000-E INDUCTIVE LOOP SAWCUT	1,400.000 LF	5.60000	7,840.00
0181	7456000000-E LEAD-IN CABLE (***** (14-2)	4,150.000 LF	1.30000	5,395.00
0182	7516000000-E COMMUNICATIONS CABLE (**FIBER) (12)	3,650.000 LF	1.51000	5,511.50
0183	7528000000-E DROP CABLE	1,100.000 LF	1.40000	1,540.00
0184	7540000000-N SPLICE ENCLOSURE	2.000 EA	864.00000	1,728.00
0185	7552000000-N INTERCONNECT CENTER	1.000 EA	873.52000	873.52
0186	7566000000-N DELINEATOR MARKER	4.000 EA	84.00000	336.00
0187	7568000000-N FURNISH FIBER-OPTIC RESTORATION KIT	1.000 EA	1,620.00000	1,620.00
0188	7570000000-N FURNISH FIBER-OPTIC POWER METER	1.000 EA	1,620.00000	1,620.00
0189	7572000000-N FURNISH OPTICAL LIGHT GENERATOR	1.000 EA	1,620.00000	1,620.00
0190	7575160000-E REMOVE EXISTING COMMUNICATIONS CABLE	1,000.000 LF	0.90000	900.00

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0191	7575180000-N CABLE TRANSFER	7.000 EA	270.00000	1,890.00
0192	7576000000-N METAL STRAIN SIGNAL POLE	2.000 EA	6,950.00000	13,900.00
0193	7613000000-N SOIL TEST	2.000 EA	925.00000	1,850.00
0194	7614100000-E DRILLED PIER FOUNDATION	16.000 CY	675.00000	10,800.00
0195	7636000000-N SIGN FOR SIGNALS	2.000 EA	179.20000	358.40
0196	7642200000-N TYPE II PEDESTAL WITH FOUNDATION	1.000 EA	1,148.50000	1,148.50
0197	7684000000-N SIGNAL CABINET FOUNDATION	2.000 EA	1,117.15000	2,234.30
0198	7756000000-N CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	1.000 EA	10,826.25000	10,826.25
0199	7780000000-N DETECTOR CARD (TYPE 2070L)	6.000 EA	108.50000	651.00
0200	7828000000-N CONTROLLER WITH CABINET (NEMA TS-2, TYPE 2 CONTROLLER, TYPE 1 CABINET, BASE MOUNTED)	1.000 EA	16,153.75000	16,153.75
0201	7852000000-N DETECTOR CARD (NEMA TS-2)	6.000 EA	167.00000	1,002.00

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0202	7901000000-N CABINET BASE EXTENDER	1.000 EA	290.70000	290.70
0203	7948000000-N TRAFFIC SIGNAL REMOVAL	1.000 EA	2,122.35000	2,122.35
Section 0001 Total				4,369,240.95

Section 0003 WALL ITEMS

Alt Group

0204	8802014000-E SOLDIER PILE RETAINING WALLS	2,806.000 SF	135.00000	378,810.00
0205	8839000000-E GENERIC RETAINING WALL ITEM RETAINING WALL SAFETY RAIL	97.000 LF	112.00000	10,864.00
Section 0003 Total				389,674.00

Section 0004 STRUCTURE ITEMS

Alt Group

0206	8112730000-N PDA TESTING	1.000 EA	2,300.00000	2,300.00
0207	8147000000-E REINFORCED CONCRETE DECK SLAB	5,182.000 SF	35.00000	181,370.00
0208	8175000000-E CLASS AA CONCRETE (BRIDGE)	374.600 CY	450.00000	168,570.00
0209	8217000000-E REINFORCING STEEL (BRIDGE)	64,412.000 LB	1.00000	64,412.00

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0210	8238000000-E SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	3,644.000 LB	1.50000	5,466.00
0211	8280000000-E APPROX LBS STRUCTURALSTEEL	LUMP	LUMP	900,500.00
0212	8294000000-N PAINTING OF STRUCTURAL STEEL	LUMP	LUMP	43,000.00
0213	8364000000-E HP12X53 STEEL PILES	6,149.000 LF	47.00000	289,003.00
0214	8453000000-E METHOD B DAMPPROOFING	470.000 SY	22.00000	10,340.00
0215	8517000000-E 1'-**"X *****" CONCRETE PARA- (1'-0" X 2'-1")	PET 287.900 LF	100.00000	28,790.00
0216	8531000000-E 4" SLOPE PROTECTION	425.000 SY	65.00000	27,625.00
0217	8741000000-N STRUCTURE DRAINAGE SYSTEM AT STA***** (8916+54.58-MAIN1-)	LUMP	LUMP	120,000.00
0218	8860000000-N GENERIC STRUCTURE ITEM FOUND EXCAV FOR ABUTMENT 1 AT STA 8916+54.582-MAIN1-	LUMP	LUMP	5,000.00
0219	8860000000-N GENERIC STRUCTURE ITEM FOUND EXCAV FOR ABUTMENT 2 AT STA 8916+54.582-MAIN1-	LUMP	LUMP	5,000.00
0220	8860000000-N GENERIC STRUCTURE ITEM FOUND EXCAV FOR PIER 1 AT STA 8916+54.582-MAIN1-	LUMP	LUMP	10,000.00

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0221	8860000000-N GENERIC STRUCTURE ITEM FOUND EXCAV FOR PIER 2 AT STA 8916+54.582-MAIN1-	LUMP	LUMP	10,000.00
0222	8860000000-N GENERIC STRUCTURE ITEM SELF-LUBRICATING EXPANSION BEARING ASSEMBLIES	LUMP	LUMP	80,000.00
0223	8860000000-N GENERIC STRUCTURE ITEM TEMPORARY RAILROAD SHORING	LUMP	LUMP	800,000.00
0224	8867000000-E GENERIC STRUCTURE ITEM METAL HANDRAIL	365.300 LF	110.00000	40,183.00
0225	8893000000-E GENERIC STRUCTURE ITEM 1" ASPHALT PLANKING PRO-TECTIVE COURSE FOR DECK	525.000 SY	0.01000	5.25
0226	8893000000-E GENERIC STRUCTURE ITEM MEMBRANE LAYER WATER-PROOFING FOR DECK	545.000 SY	134.00000	73,030.00
0227	8893000000-E GENERIC STRUCTURE ITEM TWO PART MEMBRANE WATER-PROOFING SYSTEM	70.000 SY	85.00000	5,950.00
	Section 0004 Total			2,870,544.25
	Bid Total			7,629,459.20

NON-COLLUSION AND DEBARMENT CERTIFICATION

The bidder certifies that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this bid, and that the bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor. In addition, submitting this electronic bid constitutes the bidder's certification of Status under penalty of perjury under the laws of the United States and in accordance with the Debarment Certification on file with the Department.

By submitting this bid, the bidder certifies to the best of his knowledge and belief that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Where the prospective bidder is unable to certify to any of the statements in this certification, the bidder shall submit an explanation in the blanks provided herein. The explanation will not necessarily result in denial of participation in a contract.

Explanation:
NOT ANSWERED
NOT ANSWERED
NOT ANSWERED
NOT ANSWERED

If the prequalified bidder's status changes, he shall immediately submit a new fully executed non-collusion affidavit and debarment certification with an explanation of the change to the Contract Office prior to submitting the bid.

Failure to furnish a certification or an explanation will be grounds for rejection of a bid

AWARD LIMITS ON MULTIPLE PROJECTS

By answering YES to this statement, the bidder acknowledges that they are using the award limits on multiple projects. No

A bidder who desires to bid on more than one project on which bids are to be opened on the same date, and who also desires to avoid receiving an award of more projects than he is equipped to handle, may bid on any number of projects but may limit the total amount of work awarded to him on selected projects by completing the AWARD LIMITS ON MULTIPLE PROJECTS.

The Award Limits on Multiple Projects must be filled in on each project bid for which the Bidder desires protection.

It is the desire of the Bidder to be awarded contracts, the value of which will not exceed a total of NOT ANSWERED for those

projects indicated herein, for which bids will be opened on (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number	County
NOT ANSWERED	

It is agreed that if I am (we are) the low Bidder(s) on indicated projects, the total value of which is more than the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated that have a total value not to exceed the award limit and will result in the lowest total bids to the Department of Transportation.

NORTH CAROLINA STATE DEPARTMENT OF TRANSPORTATION
 DBE COMMITMENT ITEMS

DATE:11-19-12
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PROPOSAL: C203127
 LETTING: L121218 CALL: 020
 VENDOR: 3655 Blythe Construction Inc

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
DBE SUBCONTRACTOR: 4906 W. G. LEWIS TRUCKING, INC Will Use Quote: Yes						
0035	1489000000-E	ASP CONC BAS	TON	3350.000	4.00000	13400.00
		Haul Only				
0036	1498000000-E	ASP CONC INT	TON	2870.000	4.00000	11480.00
		Haul Only				
0037	1519000000-E	ASP CONC SUR	TON	2540.000	4.00000	10160.00
		Haul Only				
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						35,040.00 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						35,040.
DBE SUBCONTRACTOR: 8262 MUGO GRAVEL & GRADING INC Will Use Quote: Yes						
0007	0106000000-E	BORROW EXCAV	CY	21200.000	8.00000	169600.00
		Haul, Deliver, & Provide Borrow Material				
0005	0022000000-E	UNCLASSIFIED	CY	39800.000	2.50000	99500.00
		Haul Only				
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						269,100.00 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						269,100
DBE SUBCONTRACTOR: 4761 TRAFFIC CONTROL SAFETY SERVICES, INC. Will Use Quote: Yes						
0083	4025000000-E	CONTR FURN,	SF	25.000	12.50000	312.50
0084	4025000000-E	CONTR FURN,	SF	157.000	12.50000	1962.50
0085	4025000000-E	CONTR FURN,	SF	263.000	12.50000	3287.50
0086	4072000000-E	SUPPORT, 3-L	LF	675.000	4.95000	3341.25
0087	4096000000-N	SIGN ERECTIO	EA	2.000	85.00000	170.00
0088	4102000000-N	SIGN ERECTIO	EA	20.000	55.00000	1100.00
0089	4108000000-N	SIGN ERECTIO	EA	12.000	85.00000	1020.00
0090	4155000000-N	DISPOSE SIGN	EA	16.000	1.00000	16.00
0091	4238000000-N	DISPOSE SIGN	EA	12.000	1.00000	12.00
0092	4400000000-E	WORK ZONE SI	SF	469.000	3.99000	1871.31
		Install & Remove Sign				
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						13,093.06 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						13,093.
DBE SUBCONTRACTOR: 4898 BULLINGTON CONSTRUCTION INC Will Use Quote: Yes						
0076	3536000000-E	CHN LK FENCE	LF	276.000	7.00000	1932.00
0077	3542000000-E	MET LINE PST	EA	24.000	78.00000	1872.00

NORTH CAROLINA STATE DEPARTMENT OF TRANSPORTATION
DBE COMMITMENT ITEMS

DATE:11-19-12
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LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
0078	3548000000-E	MET TERM PST EA		7.000	165.00000	1155.00
0205	8839000000-E	GENERIC RET LF		97.000	112.00000	10864.00
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						15,823.00 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						15,823.

DBE SUBCONTRACTOR: 1991 MCCAIN STRIPING SERVICE, INC.
Will Use Quote: Yes

0102	4685000000-E	THERMO PVT M LF		721.000	0.69000	497.49
0103	4686000000-E	THERMO PVT M LF		9943.000	0.72000	7158.96
0104	4695000000-E	THERMO PVT M LF		430.000	1.25000	537.50
0105	4710000000-E	24"WIDE THER LF		294.000	6.00000	1764.00
0106	4725000000-E	THERMO PVT S EA		18.000	125.00000	2250.00
0107	4810000000-E	PAINT PVMT M LF		30176.000	0.23000	6940.48
0108	4815000000-E	PAINT PVMT M LF		598.000	0.35000	209.30
0109	4835000000-E	PAINT PVT MK LF		2298.000	1.05000	2412.90
0110	4845000000-N	PAINT PVT MK EA		9.000	40.00000	360.00
0111	4870000000-E	LINE REMOVAL LF		137.000	1.75000	239.75
0112	4900000000-N	PERM RAISED EA		164.000	7.00000	1148.00
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						23,518.38 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						23,518.

DBE SUBCONTRACTOR: 9183 CORNERSTONE CONSTRUCTION GROUP LLC
Will Use Quote: Yes

0059	2535000000-E	***X*** CONC LF		240.000	16.00000	3840.00
0060	2542000000-E	1'-6" CONC C LF		50.000	25.00000	1250.00
0061	2549000000-E	2'-6" CONC C LF		6760.000	16.00000	108160.00
0062	2591000000-E	4" CONCRETE SY		3370.000	22.00000	74140.00
0063	2605000000-N	CONCRETE CUR EA		20.000	610.00000	12200.00
0064	2612000000-E	6" CONCRETE SY		320.000	40.00000	12800.00
0065	2619000000-E	4" CONCRETE SY		130.000	26.00000	3380.00
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						215,770.00 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						215,770

DBE SUBCONTRACTOR: 3230 HIATT & MASON ENTERPRISES, INC
Will Use Quote: Yes

0209	8217000000-E	REINF STEEL LB		64412.000	0.65840	42408.86
		Furnish & Install				
0210	8238000000-E	SPIRAL COL R LB		3644.000	1.00530	3663.31
		Furnish & Install				
0207	8147000000-E	REINF CONCRE SF		5182.000	5.40000	27982.80
		Furnish & Install Rebar				
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						74,054.97 Committed
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						74,054.

TOTAL DBE COMMITMENT FOR VENDOR:

Entered: 8.47% or 646399.41
Required: 10.00% or 762945.92
<GOAL NOT MET>

Contract Item Sheets For C203127

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum LS	380,000.00	380,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum LS	100,000.00	100,000.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum LS	320,000.00	320,000.00
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	1 ACR	4,500.00	4,500.00
0005	0022000000-E	225	UNCLASSIFIED EXCAVATION	39,800 CY	8.25	328,350.00
0006	0036000000-E	225	UNDERCUT EXCAVATION	4,400 CY	25.00	110,000.00
0007	0106000000-E	230	BORROW EXCAVATION	21,200 CY	12.00	254,400.00
0008	0134000000-E	240	DRAINAGE DITCH EXCAVATION	460 CY	7.50	3,450.00
0009	0141000000-E	240	BERM DITCH CONSTRUCTION	640 LF	7.50	4,800.00
0010	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	3,110 SY	3.50	10,885.00
0011	0192000000-N	260	PROOF ROLLING	5 HR	175.00	875.00
0012	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZA- TION	5,500 SY	1.25	6,875.00
0013	0318000000-E	300	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRUCTURES	860 TON	30.00	25,800.00
0014	0320000000-E	300	FOUNDATION CONDITIONING GEO- TEXTILE	2,660 SY	2.75	7,315.00
0015	0335200000-E	305	15" DRAINAGE PIPE	568 LF	29.00	16,472.00
0016	0335300000-E	305	18" DRAINAGE PIPE	476 LF	30.00	14,280.00
0017	0335400000-E	305	24" DRAINAGE PIPE	448 LF	34.00	15,232.00
0018	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	60 LF	36.00	2,160.00
0019	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	252 LF	55.00	13,860.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0020	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	1,262 LF	32.00	40,384.00
0021	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	600 LF	36.00	21,600.00
0022	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	364 LF	42.00	15,288.00
0023	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	184 LF	52.00	9,568.00
0024	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	16 LF	34.00	544.00
0025	0594000000-E	310	24" CS PIPE CULVERTS, 0.064" THICK	140 LF	38.00	5,320.00
0026	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (24", 0.064")	4 EA	425.00	1,700.00
0027	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (36", 0.5")	46 LF	255.00	11,730.00
0028	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (36", 0.5")	46 LF	763.00	35,098.00
0029	0974000000-E	SP	*** WELDED STEEL PIPE, ***** THICK, GRADE B, (UNDER RR) (24", 0.5")	72 LF	80.00	5,760.00
0030	0986000000-E	SP	GENERIC PIPE ITEM 18" BIT COAT CS PIPE, 0.079" THICK (UNDER RAILROAD)	80 LF	55.00	4,400.00
0031	0995000000-E	340	PIPE REMOVAL	807 LF	15.00	12,105.00
0032	1011000000-N	500	FINE GRADING	Lump Sum LS	120,000.00	120,000.00
0033	1220000000-E	545	INCIDENTAL STONE BASE	200 TON	30.00	6,000.00
0034	1330000000-E	607	INCIDENTAL MILLING	1,175 SY	4.00	4,700.00
0035	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	3,350 TON	45.50	152,425.00
0036	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	2,870 TON	46.00	132,020.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0037	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2,540 TON	45.75	116,205.00
0038	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	440 TON	580.00	255,200.00
0039	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	400 TON	125.00	50,000.00
0040	2000000000-N	806	RIGHT OF WAY MARKERS	61 EA	120.00	7,320.00
0041	2022000000-E	815	SUBDRAIN EXCAVATION	90 CY	7.50	675.00
0042	2033000000-E	815	SUBDRAIN FINE AGGREGATE	70 CY	50.00	3,500.00
0043	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	400 LF	4.25	1,700.00
0044	2070000000-N	815	SUBDRAIN PIPE OUTLET	1 EA	150.00	150.00
0045	2077000000-E	815	6" OUTLET PIPE	6 LF	7.50	45.00
0046	2209000000-E	838	ENDWALLS	1.4 CY	900.00	1,260.00
0047	2253000000-E	840	PIPE COLLARS	1.5 CY	900.00	1,350.00
0048	2275000000-E	SP	FLOWABLE FILL	30 CY	175.00	5,250.00
0049	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	63 EA	950.00	59,850.00
0050	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	13.9 LF	225.00	3,127.50
0051	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	4 EA	450.00	1,800.00
0052	2365000000-N	840	FRAME WITH TWO GRATES, STD 840.22	5 EA	430.00	2,150.00
0053	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	7 EA	440.00	3,080.00
0054	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	1 EA	500.00	500.00
0055	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	3 EA	500.00	1,500.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0056	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	20 EA	500.00	10,000.00
0057	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	19 EA	500.00	9,500.00
0058	2396000000-N	840	FRAME WITH COVER, STD 840.54	2 EA	360.00	720.00
0059	2535000000-E	846	***X *** CONCRETE CURB (8" X 12")	240 LF	16.00	3,840.00
0060	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	50 LF	25.00	1,250.00
0061	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	6,760 LF	16.00	108,160.00
0062	2591000000-E	848	4" CONCRETE SIDEWALK	3,370 SY	22.00	74,140.00
0063	2605000000-N	848	CONCRETE CURB RAMP	20 EA	610.00	12,200.00
0064	2612000000-E	848	6" CONCRETE DRIVEWAY	320 SY	40.00	12,800.00
0065	2619000000-E	850	4" CONCRETE PAVED DITCH	130 SY	26.00	3,380.00
0066	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	495 LF	60.00	29,700.00
0067	2830000000-N	858	ADJUSTMENT OF MANHOLES	4 EA	325.00	1,300.00
0068	2845000000-N	858	ADJUSTMENT OF METER BOXES OR VALVE BOXES	1 EA	230.00	230.00
0069	3030000000-E	862	STEEL BM GUARDRAIL	675 LF	15.00	10,125.00
0070	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	162.5 LF	15.00	2,437.50
0071	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	6 EA	25.00	150.00
0072	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA	1.00	10.00
0073	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	3 EA	1,675.00	5,025.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0074	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	7 EA	1,450.00	10,150.00
0075	3360000000-E	863	REMOVE EXISTING GUARDRAIL	160 LF	0.25	40.00
0076	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	276 LF	7.00	1,932.00
0077	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	24 EA	78.00	1,872.00
0078	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	7 EA	165.00	1,155.00
0079	3649000000-E	876	RIP RAP, CLASS B	175 TON	40.00	7,000.00
0080	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	1,780 SY	4.25	7,565.00
0081	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	1 EA	1,100.00	1,100.00
0082	3804000000-E	SP	AGGREGATE BASE COURSE (SUB-BALLAST)	8,700 TON	25.00	217,500.00
0083	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (D)	25 SF	12.50	312.50
0084	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	157 SF	12.50	1,962.50
0085	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (F)	263 SF	12.50	3,287.50
0086	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	675 LF	4.95	3,341.25
0087	4096000000-N	904	SIGN ERECTION, TYPE D	2 EA	85.00	170.00
0088	4102000000-N	904	SIGN ERECTION, TYPE E	20 EA	55.00	1,100.00
0089	4108000000-N	904	SIGN ERECTION, TYPE F	12 EA	85.00	1,020.00
0090	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	16 EA	1.00	16.00
0091	4238000000-N	907	DISPOSAL OF SIGN, D, E OR F	12 EA	1.00	12.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0092	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	469 SF	4.25	1,993.25
0093	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	261 SF	9.25	2,414.25
0094	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	211 SF	7.00	1,477.00
0095	4430000000-N	1130	DRUMS	91 EA	45.00	4,095.00
0096	4435000000-N	1135	CONES	68 EA	19.00	1,292.00
0097	4445000000-E	1145	BARRICADES (TYPE III)	575 LF	25.00	14,375.00
0098	4450000000-N	1150	FLAGGER	624 HR	25.00	15,600.00
0099	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	2 EA	10,000.00	20,000.00
0100	4485000000-E	1170	PORTABLE CONCRETE BARRIER	620 LF	15.00	9,300.00
0101	4516000000-N	1180	SKINNY DRUM	30 EA	35.00	1,050.00
0102	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	721 LF	0.69	497.49
0103	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	9,943 LF	0.72	7,158.96
0104	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	430 LF	1.25	537.50
0105	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	294 LF	6.00	1,764.00
0106	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	18 EA	125.00	2,250.00
0107	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	30,176 LF	0.23	6,940.48
0108	4815000000-E	1205	PAINT PAVEMENT MARKING LINES (6")	598 LF	0.35	209.30
0109	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	2,298 LF	1.05	2,412.90
0110	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	9 EA	40.00	360.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0111	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	137 LF	1.75	239.75
0112	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	164 EA	7.00	1,148.00
0113	4915000000-E	1264	7' U-CHANNEL POSTS	3 EA	4.95	14.85
0114	4955000000-N	1264	OBJECT MARKERS (END OF ROAD)	3 EA	82.00	246.00
0115	5325600000-E	1510	6" WATER LINE	659 LF	60.00	39,540.00
0116	5325800000-E	1510	8" WATER LINE	67 LF	100.00	6,700.00
0117	5326200000-E	1510	12" WATER LINE	112 LF	125.00	14,000.00
0118	5540000000-E	1515	6" VALVE	2 EA	1,000.00	2,000.00
0119	5558000000-E	1515	12" VALVE	2 EA	2,400.00	4,800.00
0120	5606000000-E	1515	2" BLOW OFF	2 EA	2,000.00	4,000.00
0121	5648000000-N	1515	RELOCATE WATER METER	4 EA	850.00	3,400.00
0122	5672000000-N	1515	RELOCATE FIRE HYDRANT	1 EA	2,500.00	2,500.00
0123	5691300000-E	1520	8" SANITARY GRAVITY SEWER	2,607 LF	70.00	182,490.00
0124	5775000000-E	1525	4' DIA UTILITY MANHOLE	10 EA	2,100.00	21,000.00
0125	5776000000-E	1525	5' DIA UTILITY MANHOLE	4 EA	2,700.00	10,800.00
0126	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	2.79 LF	165.00	460.35
0127	5782000000-E	1525	UTILITY MANHOLE WALL, 5' DIA	14.64 LF	200.00	2,928.00
0128	5800000000-E	1530	ABANDON 6" UTILITY PIPE	532 LF	8.00	4,256.00
0129	5801000000-E	1530	ABANDON 8" UTILITY PIPE	1,102 LF	10.00	11,020.00
0130	5804000000-E	1530	ABANDON 12" UTILITY PIPE	309 LF	12.00	3,708.00
0131	5815500000-N	1530	REMOVE FIRE HYDRANT	1 EA	500.00	500.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0132	5816000000-N	1530	ABANDON UTILITY MANHOLE	1 EA	750.00	750.00
0133	5828000000-N	1530	REMOVE UTILITY MANHOLE	2 EA	1,000.00	2,000.00
0134	5835700000-E	1540	16" ENCASEMENT PIPE	76 LF	150.00	11,400.00
0135	5835800000-E	1540	18" ENCASEMENT PIPE	162 LF	100.00	16,200.00
0136	5872000000-E	1550	TRENCHLESS INSTALLATION OF 18" IN SOIL	40 LF	350.00	14,000.00
0137	5872010000-E	1550	TRENCHLESS INSTALLATION OF 18" NOT IN SOIL	40 LF	900.00	36,000.00
0138	6000000000-E	1605	TEMPORARY SILT FENCE	18,210 LF	1.55	28,225.50
0139	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	345 TON	45.00	15,525.00
0140	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	3,095 TON	45.00	139,275.00
0141	6012000000-E	1610	SEDIMENT CONTROL STONE	1,760 TON	35.00	61,600.00
0142	6015000000-E	1615	TEMPORARY MULCHING	24 ACR	400.00	9,600.00
0143	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	500 LB	4.50	2,250.00
0144	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	3 TON	700.00	2,100.00
0145	6024000000-E	1622	TEMPORARY SLOPE DRAINS	793 LF	10.00	7,930.00
0146	6030000000-E	1630	SILT EXCAVATION	5,610 CY	15.00	84,150.00
0147	6036000000-E	1631	MATTING FOR EROSION CONTROL	18,850 SY	1.19	22,431.50
0148	6037000000-E	SP	COIR FIBER MAT	60 SY	4.00	240.00
0149	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,575 SY	3.40	5,355.00
0150	6042000000-E	1632	1/4" HARDWARE CLOTH	3,900 LF	3.00	11,700.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0151	6070000000-N	1639	SPECIAL STILLING BASINS	4 EA	150.00	600.00
0152	6071012000-E	SP	COIR FIBER WATTLE	1,975 LF	7.00	13,825.00
0153	6071020000-E	SP	POLYACRYLAMIDE (PAM)	865 LB	5.00	4,325.00
0154	6071030000-E	1640	COIR FIBER BAFFLE	905 LF	4.25	3,846.25
0155	6071050000-E	SP	*** SKIMMER (1-1/2")	4 EA	525.00	2,100.00
0156	6084000000-E	1660	SEEDING & MULCHING	15 ACR	1,620.00	24,300.00
0157	6087000000-E	1660	MOWING	18 ACR	40.00	720.00
0158	6090000000-E	1661	SEED FOR REPAIR SEEDING	250 LB	2.75	687.50
0159	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.75 TON	700.00	525.00
0160	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	350 LB	3.00	1,050.00
0161	6108000000-E	1665	FERTILIZER TOPDRESSING	11 TON	680.00	7,480.00
0162	6114500000-N	1667	SPECIALIZED HAND MOWING	10 MHR	29.00	290.00
0163	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	150 EA	50.00	7,500.00
0164	7060000000-E	1705	SIGNAL CABLE	2,300 LF	2.65	6,095.00
0165	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	21 EA	668.00	14,028.00
0166	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	2 EA	756.25	1,512.50
0167	7252000000-E	1710	MESSENGER CABLE (1/4")	1,050 LF	1.35	1,417.50
0168	7264000000-E	1710	MESSENGER CABLE (3/8")	960 LF	2.75	2,640.00
0169	7279000000-E	1715	TRACER WIRE	3,525 LF	0.35	1,233.75
0170	7300000000-E	1715	UNPAVED TRENCHING (***** (1, 2"))	3,470 LF	4.75	16,482.50

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0171	7300100000-E	1715	UNPAVED TRENCHING FOR TEMPORARY LEAD-IN	30 LF	3.00	90.00
0172	7301000000-E	1715	DIRECTIONAL DRILL (*****) (1, 2")	500 LF	14.10	7,050.00
0173	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	10 EA	205.00	2,050.00
0174	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	11 EA	390.15	4,291.65
0175	7360000000-N	1720	WOOD POLE	7 EA	684.30	4,790.10
0176	7372000000-N	1721	GUY ASSEMBLY	18 EA	345.10	6,211.80
0177	7396000000-E	1722	1/2" RISER WITH WEATHERHEAD	2 EA	175.45	350.90
0178	7408000000-E	1722	1" RISER WITH WEATHERHEAD	2 EA	267.45	534.90
0179	7420000000-E	1722	2" RISER WITH WEATHERHEAD	10 EA	373.05	3,730.50
0180	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	1,400 LF	5.60	7,840.00
0181	7456000000-E	1726	LEAD-IN CABLE (*****) (14-2)	4,150 LF	1.30	5,395.00
0182	7516000000-E	1730	COMMUNICATIONS CABLE (**FIBER) (12)	3,650 LF	1.51	5,511.50
0183	7528000000-E	1730	DROP CABLE	1,100 LF	1.40	1,540.00
0184	7540000000-N	1731	SPLICE ENCLOSURE	2 EA	864.00	1,728.00
0185	7552000000-N	1731	INTERCONNECT CENTER	1 EA	873.52	873.52
0186	7566000000-N	1733	DELINEATOR MARKER	4 EA	84.00	336.00
0187	7568000000-N	SP	FURNISH FIBER-OPTIC RESTORATION KIT	1 EA	1,620.00	1,620.00
0188	7570000000-N	SP	FURNISH FIBER-OPTIC POWER METER	1 EA	1,620.00	1,620.00
0189	7572000000-N	SP	FURNISH OPTICAL LIGHT GENERATOR	1 EA	1,620.00	1,620.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0190	7575160000-E	1734	REMOVE EXISTING COMMUNICATIONS CABLE	1,000 LF	0.90	900.00
0191	7575180000-N	1735	CABLE TRANSFER	7 EA	270.00	1,890.00
0192	7576000000-N	SP	METAL STRAIN SIGNAL POLE	2 EA	6,950.00	13,900.00
0193	7613000000-N	SP	SOIL TEST	2 EA	925.00	1,850.00
0194	7614100000-E	SP	DRILLED PIER FOUNDATION	16 CY	675.00	10,800.00
0195	7636000000-N	1745	SIGN FOR SIGNALS	2 EA	179.20	358.40
0196	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	1 EA	1,148.50	1,148.50
0197	7684000000-N	1750	SIGNAL CABINET FOUNDATION	2 EA	1,117.15	2,234.30
0198	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	1 EA	10,826.25	10,826.25
0199	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	6 EA	108.50	651.00
0200	7828000000-N	1751	CONTROLLER WITH CABINET (NEMA TS-2, TYPE 2 CONTROLLER, TYPE 1 CABINET, BASE MOUNTED)	1 EA	16,153.75	16,153.75
0201	7852000000-N	1751	DETECTOR CARD (NEMA TS-2)	6 EA	167.00	1,002.00
0202	7901000000-N	1753	CABINET BASE EXTENDER	1 EA	290.70	290.70
0203	7948000000-N	1757	TRAFFIC SIGNAL REMOVAL	1 EA	2,122.35	2,122.35

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0204	8802014000-E	SP	SOLDIER PILE RETAINING WALLS	2,806 SF	135.00	378,810.00
0205	8839000000-E	SP	GENERIC RETAINING WALL ITEM RETAINING WALL SAFETY RAIL	97 LF	112.00	10,864.00

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0206	8112730000-N	450	PDA TESTING	1 EA	2,300.00	2,300.00
0207	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	5,182 SF	35.00	181,370.00
0208	8175000000-E	420	CLASS AA CONCRETE (BRIDGE)	374.6 CY	450.00	168,570.00
0209	8217000000-E	425	REINFORCING STEEL (BRIDGE)	64,412 LB	1.00	64,412.00
0210	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	3,644 LB	1.50	5,466.00
0211	8280000000-E	440	APPROX LBS STRUCTURAL STEEL	428,600 LS	900,500.00	900,500.00
0212	8294000000-N	442	PAINTING OF STRUCTURAL STEEL	Lump Sum LS	43,000.00	43,000.00
0213	8364000000-E	450	HP12X53 STEEL PILES	6,149 LF	47.00	289,003.00
0214	8453000000-E	454	METHOD B DAMPPROOFING	470 SY	22.00	10,340.00
0215	8517000000-E	460	1'-**"X *****" CONCRETE PARA-PET (1'-0" X 2'-1")	287.9 LF	100.00	28,790.00
0216	8531000000-E	462	4" SLOPE PROTECTION	425 SY	65.00	27,625.00
0217	8741000000-N	SP	STRUCTURE DRAINAGE SYSTEM AT STA ***** (8916+54.58-MAIN1-)	Lump Sum LS	120,000.00	120,000.00
0218	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR ABUTMENT 1 AT STA 8916+54.582-MAIN1-	Lump Sum LS	5,000.00	5,000.00
0219	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR ABUTMENT 2 AT STA 8916+54.582-MAIN1-	Lump Sum LS	5,000.00	5,000.00
0220	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR PIER 1 AT STA 8916+54.582-MAIN1-	Lump Sum LS	10,000.00	10,000.00
0221	8860000000-N	SP	GENERIC STRUCTURE ITEM FOUND EXCAV FOR PIER 2 AT STA 8916+54.582-MAIN1-	Lump Sum LS	10,000.00	10,000.00
0222	8860000000-N	SP	GENERIC STRUCTURE ITEM SELF-LUBRICATING EXPANSION BEARING ASSEMBLIES	Lump Sum LS	80,000.00	80,000.00

Contract Item Sheets For C203127

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0223	8860000000-N	SP	GENERIC STRUCTURE ITEM TEMPORARY RAILROAD SHORING	Lump Sum LS	800,000.00	800,000.00
0224	8867000000-E	SP	GENERIC STRUCTURE ITEM METAL HANDRAIL	365.3 LF	110.00	40,183.00
0225	8893000000-E	SP	GENERIC STRUCTURE ITEM 1" ASPHALT PLANKING PRO- TECTIVE COURSE FOR DECK	525 SY	0.01	5.25
0226	8893000000-E	SP	GENERIC STRUCTURE ITEM MEMBRANE LAYER WATER-PROOFING FOR DECK	545 SY	134.00	73,030.00
0227	8893000000-E	SP	GENERIC STRUCTURE ITEM TWO PART MEMBRANE WATER- PROOFING SYSTEM	70 SY	85.00	5,950.00

TOTAL AMOUNT OF BID FOR ENTIRE PROJECT

\$7,629,459.20



Contract No. C203127
County Rowan

Rev. 5-19-11

**EXECUTION OF CONTRACT
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION
CORPORATION**

The Contractor being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion Affidavit and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

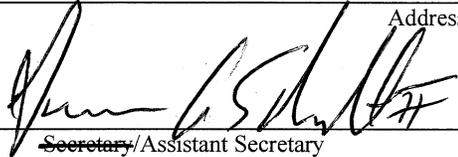
Blythe Construction, Inc.

Full name of Corporation

P.O. Box 31635, Charlotte, North Carolina 28231

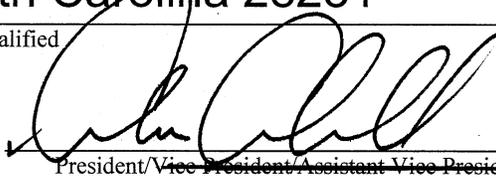
Address as Prequalified

Attest



~~Secretary/Assistant Secretary~~
Select appropriate title

By



~~President/Vice President/Assistant Vice President~~
Select appropriate title

Lawrence G. Schmidt, II

Print or type Signer's name

Alan M. Cahill

Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

10th day of January 20/13

Theresa E. Harrison

Signature of Notary Public

of Cabarrus County

State of North Carolina

My Commission Expires: 4/25/2017

NOTARY SEAL



DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

Check here if an explanation is attached to this certification.

Contract No. C203127

County (ies): Rowan

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION



Contract Officer



Date

Execution of Contract and Bonds
Approved as to Form:



Asst. Attorney General

Contract No. C203127
County Rowan

Rev 5-17-11

Bond # 105801808

CONTRACT PAYMENT BOND

Date of Payment Bond Execution January 7, 2013

Name of Principal Contractor Blythe Construction, Inc.

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: **North Carolina Department of Transportation**
Raleigh, North Carolina

Amount of Bond: \$7,629,459.20

Contract ID No.: C203127

County Name: Rowan

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No.
County

C203127
Rowan

Rev 5-17-11

CONTRACT PAYMENT BOND

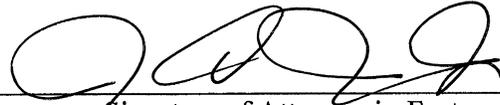
Affix Seal of Surety Company

Travelers Casualty and Surety Company of America

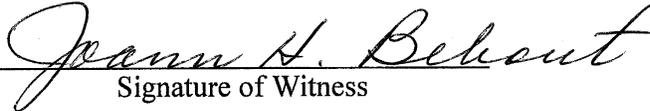
Print or type Surety Company Name

By Joseph D. Johnson, Jr.

Print, stamp or type name of Attorney-in-Fact



Signature of Attorney-in-Fact



Signature of Witness

JoAnn H. Bebout

Print or type Signer's name

801 N. Orange Avenue, Suite 510
Orlando, Florida 38201

Address of Attorney-in-Fact

Contract No. C203127
County Rowan

Rev 5-17-11

CONTRACT PAYMENT BOND

CORPORATION

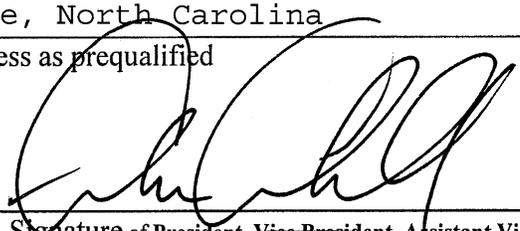
SIGNATURE OF CONTRACTOR (Principal)

Blythe Construction, Inc.

Full name of Corporation

P. O. Box 31635, Charlotte, North Carolina

Address as prequalified

By 

~~Signature of President, Vice President, Assistant Vice President~~
Select appropriate title

Alan M. Cahill, President & CEO

Print or type Signer's name

Affix Corporate Seal

Attest



Signature of ~~Secretary, Assistant Secretary~~
Select appropriate title

Lawrence G. Schmidt, II, Asst. Sec.

Print or type Signer's name



POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Attorney-In Fact No. 223941

Certificate No. 004487221

KNOW ALL MEN BY THESE PRESENTS: That St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company and St. Paul Mercury Insurance Company are corporations duly organized under the laws of the State of Minnesota, that Farmington Casualty Company, Travelers Casualty and Surety Company, and Travelers Casualty and Surety Company of America are corporations duly organized under the laws of the State of Connecticut, that United States Fidelity and Guaranty Company is a corporation duly organized under the laws of the State of Maryland, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

Todd L. Johnson, Joseph D. Johnson Jr., Francis T. O'Reardon, Joseph D. Johnson

of the City of Orlando, State of Florida, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 24th day of August, 2011.

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company



State of Connecticut
City of Hartford ss.

By: [Signature]
George W. Thompson, Senior Vice President

On this the 24th day of August, 2011, before me personally appeared George W. Thompson, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal. My Commission expires the 30th day of June, 2016.



[Signature]
Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of January, 20 13

WARNING: THIS POWER OF ATTORNEY IS INVALID WITHOUT THE RED BORDER

Kevin E. Hughes
Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.

Contract No. C203127
County Rowan

Rev 5-17-11

Bond # 105801808

CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: January 7, 2013

Name of Principal Contractor: Blythe Construction, Inc.

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: **North Carolina Department of Transportation**
Raleigh, North Carolina

Amount of Bond: \$7,629,459.20

Contract ID No.: C203127

County Name: Rowan

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No. C203127
County Rowan

Rev 5-17-11

CONTRACT PERFORMANCE BOND

Affix Seal of Surety Company

Travelers Casualty and Surety Company of America

Print or type Surety Company Name

By Joseph D. Johnson, Jr.
Print, stamp or type name of Attorney-in-Fact



Signature of Attorney-in-Fact



Signature of Witness

JoAnn H. Bebout
Print or type Signer's name

801 N. Orange Avenue, Suite 510
Orlando, Florida 32801

Address of Attorney-in-Fact

Contract No. C203127
County Rowan

Rev 5-17-11

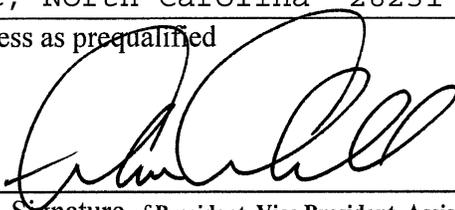
CONTRACT PERFORMANCE BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

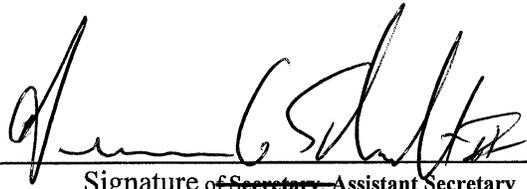
Blythe Construction, Inc.
Full name of Corporation

P. O. Box 31635, Charlotte, North Carolina 28231
Address as prequalified

By 
Signature of ~~President, Vice President, Assistant Vice President~~
Select appropriate title

Alan M. Cahill, President & CEO
Print or type Signer's name

Affix Corporate Seal

Attest 
Signature of ~~Secretary, Assistant Secretary~~
Select appropriate title

Lawrence G. Schmidt, II, Asst. Sec.
Print or type Signer's name



POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Attorney-In Fact No. 223941

Certificate No. 004487228

KNOW ALL MEN BY THESE PRESENTS: That St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company and St. Paul Mercury Insurance Company are corporations duly organized under the laws of the State of Minnesota, that Farmington Casualty Company, Travelers Casualty and Surety Company, and Travelers Casualty and Surety Company of America are corporations duly organized under the laws of the State of Connecticut, that United States Fidelity and Guaranty Company is a corporation duly organized under the laws of the State of Maryland, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

Todd L. Johnson, Joseph D. Johnson Jr., Francis T. O'Reardon, Joseph D. Johnson

of the City of Orlando, State of Florida, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 24th day of August, 2011

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company



State of Connecticut
City of Hartford ss.

By: George W. Thompson, Senior Vice President

On this the 24th day of August, 2011, before me personally appeared George W. Thompson, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal. My Commission expires the 30th day of June, 2016.



Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of January, 20 13

WARNING: THIS POWER OF ATTORNEY IS INVALID WITHOUT THE RED BORDER

Kevin E. Hughes
Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.