STATE OF NORTH CAROLINA C203845
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

# CONTRACT AND
# CONTRACT BONDS

FOR CONTRACT NO. C203845

| | |
|---|---|
| WBS | 34497.3.9 STATE FUNDED |
| T.I.P NO. | R-2707F |
| COUNTY OF | CLEVELAND |
| THIS IS THE | ROADWAY CONTRACT |
| ROUTE NUMBER | US 74 LENGTH 5.660 MILES |
| LOCATION | US-74 (SHELBY BYPASS) FROM EAST OF SR-1162 (PEACHTREE RD) TO EAST OF NC-226. |
| CONTRACTOR | THE LANE CONSTRUCTION CORPORATION |
| ADDRESS | 90 FIELDSTONE COURT<br>CHESHIRE, CT 06410 |
| BIDS OPENED | JANUARY 16, 2018 |
| CONTRACT EXECUTION | 2/15/2018 |

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

# PROPOSAL

## INCLUDES ADDENDUM No. 1 DATED 01-08-2018

DATE AND TIME OF BID OPENING: **JANUARY 16, 2018 AT 2:00 PM**

| | |
|---|---|
| CONTRACT ID | C203845 |
| WBS | 34497.3.9 |

| | |
|---|---|
| FEDERAL-AID NO. | STATE FUNDED |
| COUNTY | CLEVELAND |
| T.I.P. NO. | R-2707F |
| MILES | 5.660 |
| ROUTE NO. | US 74 |
| LOCATION | US-74 (SHELBY BYPASS) FROM EAST OF SR-1162 (PEACHTREE RD) TO EAST OF NC-226. |
| TYPE OF WORK | GRADING, DRAINAGE, PAVING, SIGNING, AND SIGNALS. |

**NOTICE:**

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

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

**THIS IS A ROADWAY PROPOSAL**

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

**PROPOSAL FOR THE CONSTRUCTION OF**

**CONTRACT No. C203845 IN CLEVELAND 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. **C203845** 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 2018 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. **C203845** in **Cleveland 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 2018* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

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

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

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

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


*State Contract Officer*

DocuSigned by:
Ronald E. Davenport, Jr.
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1/8/2018

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# PROJECT SPECIAL PROVISIONS

## GENERAL

**CONTRACT TIME AND LIQUIDATED DAMAGES**:
(4-17-12) 108 SP1 G07 C

The date of availability for this contract is **April 1, 2018**.

The completion date for this contract is **March 13, 2020**.

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 **April 1, 2018**.

The completion date for this intermediate contract time is **September 15, 2019**.

The liquidated damages for this intermediate contract time are **Two Thousand Dollars ($ 2,000.00)** 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.

**PERMANENT VEGETATION ESTABLISHMENT:**
(2-16-12) (Rev. 10-15-13) 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 permanent vegetation on all erodible areas 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 *2018 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Department will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, 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 *2018 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

## INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:

(2-20-07) 108 SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on **US 74** during the following time restrictions:

DAY AND TIME RESTRICTIONS

**Monday thru Friday**
**7:00 A.M to 9:00 A.M.**
**And**
**4:00 P.M. to 6:00 P.M.**

In addition, the Contractor shall not close or narrow a lane of traffic on **US 74**, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.

2. For **New Year's Day**, between the hours of **7:00 A.M.** December 31st and **6:00 P.M.** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **6:00 P.M.** the following Tuesday.

3. For **Easter**, between the hours of **7:00 A.M.** Thursday and **6:00 P.M.** Monday.

4. For **Memorial Day**, between the hours of **7:00 A.M.** Friday and **6:00 P.M.** Tuesday.

5. For **Independence Day**, between the hours of **7:00 A.M.** the day before Independence Day and **6:00 P.M.** the day after Independence Day.

   If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **7:00 A.M.** the Thursday before Independence Day and **6:00 P.M.** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **7:00 A.M.** Friday and **6:00 P.M.** Tuesday.

7. For **Thanksgiving Day**, between the hours of **7:00 A.M.** Tuesday and **6:00 P.M.** Monday.

8. For **Christmas**, between the hours of **7:00 A.M.** the Friday before the week of Christmas Day and **6:00 P.M.** the following Tuesday after the week of Christmas Day.

9. For any **NASCAR** event at Charlotte Motor Speedway between the hours of **7:00 A.M.** the Wednesday before the first event and **6:00 P.M.** the day after last event.

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 will not be 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 above and place traffic in the existing traffic pattern.

The liquidated damages are **One Thousand Dollars** ($ **1,000.00**) per hour.

**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 *2018 Standard Specifications*):

| **Line #** | | **Description** |
|---|---|---|
| 11 | — | Aggregate Base Course |
| 18 | — | Asphalt Concrete Intermediate Course, Type I19.0 C |
| 20 | — | Asphalt Concrete Surface Course, Type S9.5 C |

## 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 *2018 Standard Specifications*).

| Line # | Description |
|---|---|
| 38 thru 48 | Guardrail |
| 50 thru 73 | Signing |
| 89 thru 95, 97, 102 thru 103 | Long-Life Pavement Markings |
| 96 | Removable Tape |
| 108 thru 109 | Permanent Pavement Markers |
| 114 thru 135 | Erosion Control |
| 136 thru 154 | Signals/ITS System |

## FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14) 109-8 SP1 G43

Revise the *2018 Standard Specifications* as follows:

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

The base index price for DIESEL #2 FUEL is **$ 2.0016** 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 |
| Sub-Ballast | Gal/Ton | 0.55 |
| Asphalt Concrete Base Course, Type ____ | Gal/Ton | 2.90 |
| Asphalt Concrete Intermediate Course, Type ____ | Gal/Ton | 2.90 |
| Asphalt Concrete Surface Course, Type ____ | Gal/Ton | 2.90 |
| Open-Graded Asphalt Friction Course | Gal/Ton | 2.90 |
| Permeable Asphalt Drainage Course, Type ____ | Gal/Ton | 2.90 |
| Sand Asphalt Surface Course, Type ____ | Gal/Ton | 2.90 |
| Aggregate for Cement Treated Base Course | Gal/Ton | 0.55 |
| Portland Cement for Cement Treated Base Course | Gal/Ton | 0.55 |
| __" Portland Cement Concrete Pavement | Gal/SY | 0.245 |
| Concrete Shoulders Adjacent to __" Pavement | Gal/SY | 0.245 |

## SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-16-17) 108-2 SP1 G58

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

| | Fiscal Year | Progress (% of Dollar Value) |
|---|---|---|
| 2018 | (7/01/17 - 6/30/18) | **25**% of Total Amount Bid |
| 2019 | (7/01/18 - 6/30/19) | **68**% of Total Amount Bid |
| 2020 | (7/01/19 - 6/30/20) | **7**% of Total Amount Bid |

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

## MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE:

(10-16-07)(Rev. 1-17-17) 102-15(J) SP1 G66

### Description

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

### Definitions

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

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

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

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

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

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

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

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

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

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

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

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

**Forms and Websites Referenced in this Provision**

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

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

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

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

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

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

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

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

**MBE and WBE Goal**

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

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

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

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

(B) Women Business Enterprises **6.0 %**

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

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

**Directory of Transportation Firms (Directory)**

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

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

**Listing of MBE/WBE Subcontractors**

At the time of bid, bidders shall submit all MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the MBE goal and the WBE goal will be considered committed, even though the listing shall include both committed MBE/WBE subcontractors and additional MBE/WBE subcontractors. Any additional MBE/WBE subcontractor participation above the goal for which letters of intent are received will follow the banking guidelines found elsewhere in this provision. All other additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goals. Only those firms with current MBE and WBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

(A) Electronic Bids

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

(1) Submit the names and addresses of MBE and WBE firms identified to participate in the contract. If the bidder uses the updated listing of MBE and WBE firms shown in Expedite, the bidder may use the dropdown menu to access the name and address of the firms.

(2) Submit the contract line numbers of work to be performed by each MBE and WBE firm. When no figures or firms are entered, the bidder will be considered to have no MBE or WBE participation.

(3) The bidder shall be responsible for ensuring that the MBE and WBE are certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving either the MBE or WBE goal.

(B) Paper Bids

(1) *If either the MBE or WBE goal is more than zero,*

(a) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.

(b) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have MBE and WBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.

(c) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving the corresponding goal.

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

**MBE or WBE Prime Contractor**

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

For example, on a proposed contract, the WBE goal is 10%, and the MBE goal is 8%. A WBE bidder puts in a bid where they will perform 40% of the contract work and have a WBE subcontractor which will perform another 5% of the work. Together the two WBE firms submit on the *Listing of MBE and WBE Subcontractors* a value of 45% of the contract which fulfills the WBE goal. The 8% MBE goal shall be obtained through MBE participation with MBE certified subcontractors or documented through a good faith effort. It should be noted that you cannot combine the two goals to meet an overall value. The two goals shall remain separate.

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

**Written Documentation – Letter of Intent**

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

The documentation shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. 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 10:00 a.m. on the next official state business day.

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

**Banking MBE/WBE Credit**

If the bid of the lowest responsive bidder exceeds $500,000 and if the committed MBE/WBE participation submitted by Letter of Intent exceeds the algebraic sum of the MBE or WBE goal by $1,000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

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

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

**Submission of Good Faith Effort**

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

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. on the sixth calendar day following opening of bids unless the sixth day falls on an official state holiday. In that situation, it would be due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day. If the contractor cannot send the information electronically, then one complete set and 9 copies of this information shall be received under the same time constraints above.

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

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

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

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

(A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs that are also prequalified subcontractors. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.

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

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

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

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

(D) (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract MBE or WBE goals, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.

(E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.

(G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening the Business Opportunity and Work Force Development Unit at DBE@ncdot.gov to give notification of the bidder's inability to get MBE or WBE quotes.

(I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the MBE and WBE goal.

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

(1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the MBE and WBE goals.

(2) The bidders' past performance in meeting the MBE and WBE goals.

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

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

**Non-Good Faith Appeal**

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

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

(A) Participation

The total dollar value of the participation by a committed MBE/WBE will be counted toward the contract goal requirements. The total dollar value of participation by

a committed MBE/WBE will be based upon the value of work actually performed by the MBE/WBE and the actual payments to MBE/WBE firms by the Contractor.

(B) Joint Checks

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

(C) Subcontracts (Non-Trucking)

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

(D) Joint Venture

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

(E) Suppliers

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

(F) Manufacturers and Regular Dealers

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

(1) The fees or commissions charged by a MBE/WBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be

reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.

(2) With respect to materials or supplies purchased from a MBE/WBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

**Commercially Useful Function**

(A) MBE/WBE Utilization

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

(B) MBE/WBE Utilization in Trucking

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

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

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

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

(4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE

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

(5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.

(6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.

(7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

**MBE/WBE Replacement**

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

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

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

(A) Performance Related Replacement

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

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

(1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.

(2) Efforts to negotiate with MBEs/WBEs for specific subbids including, at a minimum:

(a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.
(b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.

(3) A list of reasons why MBE/WBE quotes were not accepted.

(4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

(1) When a committed MBE/WBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement MBE/WBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.

(2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor

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

**Changes in the Work**

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

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

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

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

**Reports and Documentation**

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

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

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

**Reporting Minority and Women Business Enterprise Participation**

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

(A) Withholding of money due in the next partial pay estimate; or

(B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

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

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

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

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

At any time, the Engineer can request written verification of subcontractor payments.

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

**Failure to Meet Contract Requirements**

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

**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).

**SUBSURFACE INFORMATION:**
(7-1-95) 450 SP1 G112 A

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

**MAINTENANCE OF THE PROJECT:**
(11-20-07) (Rev. 1-17-12) 104-10 SP1 G125

Revise the *2018 Standard Specifications* as follows:

**Page 1-39, 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 1-39, 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 1-39, 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.

**COOPERATION BETWEEN CONTRACTORS:**

(7-1-95) 105-7 SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2018 Standard Specifications*.

The Contractor's attention is directed to the fact that project R-2707C (C203905), tying into the east end of this project, is currently under construction and will not be completed prior to the availability of this project.

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

**OUTSOURCING OUTSIDE THE USA:**

(9-21-04) (Rev. 5-16-06) SP1 G150

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

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

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

**PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:**

(2-20-07) (Rev. 3-19-13) 105-16, 230, 801 SP1 G181

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams,

lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

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

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

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

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

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

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

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

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

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix,* available at http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf 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.

# PROJECT SPECIAL PROVISIONS

## ROADWAY

### SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02) 235, 560 SP2 R45 A

**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 *2018 Standard Specifications*.

**Measurement and Payment**

Where the material has been obtained from an authorized stockpile or from a borrow source and *Borrow Excavation* is not included in the contract, no direct payment will be made for this work, as the cost of this work will be part of the work being paid at the contract lump sum price for *Grading.* If *Borrow Excavation* is included in this contract and the material has been obtained from an authorized stockpile or from a borrow source, measurement and payment will be as provided in Section 230 of the *2018 Standard Specifications* for *Borrow Excavation*.

### CLASS IV SUBGRADE STABILIZATION IN LIEU OF CHEMICAL STABILIZATION:

(6-16-15) (Rev. 1-16-18) 501, 542 SP05 R017

**Description**

In lieu of chemical stabilization, provide Class IV Subgrade Stabilization by replacing 8 inches of subgrade soils with geotextile and Class IV select material. This substitution is allowed in full typical section width and cannot result in chemically stabilized sections less than 1,000 feet in length, unless otherwise approved by the Engineer. This substitution is not allowed for chemically stabilized sections with geotextile for pavement stabilization. Notify the Engineer at least 30 days in advance of starting Class IV Subgrade Stabilization in lieu of Chemical Stabilization.

**Materials**

Refer to the *2018 Standard Specifications*.

| Item | Section |
|---|---|
| Geotextile for Soil Stabilization, Type 4 | 1056 |
| Select Material, Class IV | 1016 |

Use Class IV select material for Class IV Subgrade Stabilization.

**Construction Methods**

Install geotextile for soil stabilization in accordance with Article 270-3 in the *2018 Standard Specifications*. Place, compact and maintain Class IV Subgrade Stabilization in accordance with Article 505-3 of the *2018 Standard Specifications*.

**Measurement and Payment**

*Class IV Subgrade Stabilization in Lieu of Chemical Stabilization* will be paid at the prices established in the contract that relate to the chemical stabilization type that is being replaced (Lime or Cement). No direct payment will be made for additional excavation required to accommodate this alternate.

The total amount paid for this subgrade stabilization alternative will be limited to the contract amounts per square yard for replacement for Portland cement or lime, theoretical tons of Portland cement or lime replaced, mixing of cement or lime, and theoretical gallons of asphalt curing seal replaced at the rate of 0.15 gallons per square yard.

A Supplement Agreement will be executed prior to starting the work to create a square yard price for the *Class IV Subgrade Stabilization in Lieu of Chemical Stabilization* and deleting the quantities associated with the work being replaced.

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

(11-21-00) 620 SP6 R25

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

The base price index for asphalt binder for plant mix is **$ 374.50** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **December 1, 2017**.

**GUARDRAIL END UNITS, TYPE - TL-3:**

(4-20-04) (Rev. 7-1-17) 862 SP8 R65

**Description**

Furnish and install guardrail end units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2018 Standard Specifications*, and at locations shown in the plans.

**Materials**

Furnish guardrail end units listed on the NCDOT Approved Products List at https://apps.dot.state.nc.us/vendor/approvedproducts/ or approved equal.

Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each guardrail end unit certifying it meets the requirements of the AASHTO Manual for Assessing Safety Hardware, Test Level 3, in accordance with Article 106-2 of the *2018 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each guardrail end unit in accordance with Article 105-2 of the *2018 Standard Specifications*.

No modifications shall be made to the guardrail end unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, 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 *2018 Standard Specifications* and is incidental to the cost of the guardrail end unit.

**Measurement and Payment**

Measurement and payment will be made in accordance with Article 862-6 of the *2018 Standard Specifications*.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Guardrail End Units, Type TL-3 | Each |

**GUARDRAIL ANCHOR UNITS AND TEMPORARY GUARDRAIL ANCHOR UNITS:**

(1-16-2018) 862 SP8 R70

Guardrail anchor units will be in accordance with the details in the plans and the applicable requirements of Section 862 of the *2018 Standard Specifications*.

Revise the *2018 Standard Specifications* as follows:

**Page 8-42, Article 862-6 MEASUREMENT AND PAYMENT,** add the following:

*Guardrail Anchor Units, Type ___ and Temporary Guardrail Anchor Units Type ___* will be measured and paid as units of each completed and accepted. No separate measurement will be made of any rail, terminal sections, posts, offset blocks, concrete, hardware or any other components of the completed unit that are within the pay limits shown in the plans for the unit as all such components will be considered to be part of the unit.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Guardrail Anchor Units, Type ____ | Each |
| Temporary Guardrail Anchor Units, Type ___ | Each |

**IMPACT ATTENUATOR UNITS, TYPE 350:**

(4-20-04) (Rev. 7-21-15) SP8 R75

**Description**

Furnish and install impact attenuator units and any components necessary to connect the impact attenuator units in accordance with the manufacturer's requirement, the details in the plans and at locations shown in the plans.

**Materials**

Furnish impact attenuator units listed on the Approved Products List at https://apps.dot.state.nc.us/vendor/approvedproducts/ or approved equal. Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each impact attenuator unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2018 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each impact attenuator unit in accordance with Article 105-2 of the *2018 Standard Specifications*.

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

**Construction Methods**

If the median width is 40 feet or less, the Contractor shall supply NON-GATING Impact Attenuator Units.

If the median width is greater than 40 feet, the Contractor may use GATING or NON-GATING Impact Attenuator Units.

**Measurement and Payment**

*Impact Attenuator Unit, Type 350* will be measured and paid at the contract unit price per each. Such prices and payment will be full compensation for all work covered by this provision including, but not limited to, furnishing, installing and all incidentals necessary to complete the work.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Impact Attenuator Units, Type 350 | Each |

## ADJUSTMENT OF JUNCTION BOXES:

The Contractor shall adjust Junction Boxes using construction methods and materials in accordance with Section 858 of the *Standard Specifications* and as directed by the Engineer.

*Adjustment of Junction Boxes* will be measured and paid in units of each for junction boxes satisfactorily adjusted.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Adjustment of Junction Boxes | Each |

## FIELD OFFICE (Lump Sum):

(6-1-07)(Rev. 8-18-15) SPI 8-01

### Description

This work consists of furnishing, erecting, equipping, and maintaining a field office for the exclusive use of Department Engineers and Inspectors at a location on the project approved by the Engineer. Provide a field office that complies with the current ADA Design and Accessibility Standards, the National Electric Code, local, state, and federal regulations, and the following requirements.

### Procedures

The field office and equipment will remain the property of the Contractor upon completion of the contract. The field office shall be separated from buildings and trailers used by the Contractor and shall be erected and functional as an initial operation. Failure to have the field office functional when work first begins on the project will result in withholding payment of the Contractor's monthly progress estimate. The field office shall be operational throughout the duration of the project and shall be removed upon completion and final acceptance of the project.

Provide a field office that is weatherproof, tightly floored and roofed, constructed with an air space above the ceiling for ventilation, supported above the ground, has a width of at least 10 feet, and the floor-to-ceiling height that is at least 7 feet 6 inches. Provide inside walls and a ceiling constructed of plywood, fiber board, gypsum board, or other suitable materials. Have the exterior walls, ceiling, and floor insulated.

Provide a field office with at least 600 square feet of floor space and that is equipped with the following:

| Number | Item |
|---|---|
| 1 | Double-pedestal desk (approximately 60 by 34 inches, at least 2,000 square inches). |
| 1 | Plan and drafting table (approximately 30 by 96 inches) with adjustable stool. |
| 1 | Computer table at least 48 by 30 by 29 inches. |
| 1 | Plan rack for 24 by 36 inch drawings with 6 plan clamps. |
| 1 | Printing calculator. |

| | |
|---|---|
| 2 | 2-drawer fire protection file, 15 inch drawer width, minimum UL rating of Class 350. |
| 6 | Office chairs with at least two chairs having casters. |
| 2 | Wastebaskets. |
| 1 | Pencil sharpener. |
| 1 | Copy machine (8 inch x 11 inch copies) |
| 1 | Telephone. |
| 1 | Fax Machine. |
| 1 | Answering machine. |
| 1 | Internet Connection Service (modem for Wi-Fi). |

**Windows and Doors**

Provide a field office with at least three windows with blinds, each having an area of at least 540 square inches, capable of being easily opened and secured from the inside and having at least two exterior passage doors. Provide doors at least 30 inches in width and 78 inches in height. Provide screens for windows and doors. Equip exterior passage doors with locks, and furnish at least two keys to the Engineer.

**Steps**

Provide accessibility in compliance with the current ADA Design and Accessibility Standards, and the State Building Code and maintain them free from obstructions.

**Storage Facility For Nuclear Gage**

Furnish the field office with an outside storage facility for the Department's nuclear gage. The storage facility shall not be located within 10 feet of any other structure including the field office.

**Lighting, Heating, and Air Conditioning**

The field office shall have satisfactory lighting, electrical outlets, heating equipment, an exhaust fan, and an air conditioner connected to an operational power source. Provide at least one of the light fixtures that is a fluorescent light situated over the plan and drafting table. Furnish electrical current and fuel for heating equipment.

**Fire Extinguishers**

Furnish and maintain one fire extinguisher for each required exterior passage door. Fire extinguisher may be chemical or dry powder. UL Classification 10-B:C (minimum), suitable for Type A:B:C: fires. Mount and maintain fire extinguishers in accordance with OSHA Safety and Health Standards.

**Toilets**

Provide a toilet conforming to the requirements of the state and local boards of health or other bodies or courts having jurisdiction in the area. When separate facilities for men and women are not available, place a sign with the words "Rest Room" (with letters at least 1 inch in height) over the doorway, and provide an adequate positive locking system on the inside of the doorway. Maintain responsibility for the water and sewer connections or the installation and connection of a water well and septic tank and drain field. These facilities shall conform to all local and state permits.

**Utilities**

Except for telephone service, make necessary utility and internet connections, maintain utilities and internet connections, pay internet and utility service fees and bills, and handle final disconnection of internet and utilities. Furnish a telephone in each field office and permit the work necessary to install it.

**Storage Facility for Test Equipment**

Provide the field office with a storage facility, separate from the office for storage of test equipment, other than the nuclear gage. Provide a facility that has at least 64 square feet of floor space, is weatherproof, tightly floored and roofed, and has a tamper resistant key operated lock.

**Miscellaneous Items**

The field office shall also include the following:

1. A certification that the office is free of asbestos and other hazardous materials.
2. A broom, dust pan, mop and bucket, and general cleaning supplies.
3. Provide and maintain an all weather parking area for six vehicles, including graveled access to the paved surface.

**Measurement and Payment**

Payment at the contract lump sum bid price for *Field Office* will be full compensation for all work covered by this provision including but not limited to furnishing, erecting, maintaining, and removing the field office as outlined in this provision.

Installation and service fees for the telephone will be paid for by the Department.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Field Office | Lump Sum |

**WATER FILLED BARRIER:**

(11-19-13) 1170 SP11 R25

Revise the *2018 Standard Specifications* as follows:

**Page 11-17, Article 1170-4 MEASUREMENT AND PAYMENT, lines 32-35,** replace the fourth paragraph with the following:

*Remove and Reset Water Filled Barrier* will be measured and paid as the number of linear feet of barrier moved from one location on the project to another location on the project. Measurement will be made by counting the number of barrier units moved during any one move and multiplying by the length of a unit. Where barrier units are moved more than once, each move will be measured separately. Whenever the Engineer directs the Contractor to move barrier units from an installed location to a stock pile either on or off the project and then back to another installed location, the complete move from the first installed location to the next installed location will be measured as 2 moves.

**Page 11-17, Article 1170-4 MEASUREMENT AND PAYMENT, line 38,** replace "Reset Water Filled Barrier" with "Remove and Reset Water Filled Barrier".

**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 *2018 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:

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

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall

not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

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

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

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

Sericea Lespedeza
Oats (seeds)

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

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

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

Common or Sweet Sundangrass

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

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

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

Centipedegrass
Crownvetch
Pensacola Bahiagrass
Creeping Red Fescue
Japanese Millet
Reed Canary Grass
Zoysia

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

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

**STANDARD SPECIAL PROVISION**

**ERRATA**

(1-16-18) Z-4

Revise the *2018 Standard Specifications* as follows:

**Division 7**

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

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

## STANDARD SPECIAL PROVISION

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

(3-18-03) (Rev. 12-20-16) Z-04a

### Within Quarantined Area

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

### Originating in a Quarantined County

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

### Contact

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

### Regulated Articles Include

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

## STANDARD SPECIAL PROVISION

## MINIMUM WAGES

(7-21-09) Z-5

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

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

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

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

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

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

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

## STANDARD SPECIAL PROVISION

## ON-THE-JOB TRAINING

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

### Description

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

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

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

### Minorities and Women

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

### Assigning Training Goals

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

**Training Classifications**

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

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

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

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

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

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

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

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

**Records and Reports**

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

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

**Trainee Interviews**

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

**Trainee Wages**

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

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

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

**Achieving or Failing to Meet Training Goals**

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

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

**Measurement and Payment**

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

**PROJECT SPECIAL PROVISIONS**

**GEOTECHNICAL**



DocuSigned by:
Geotechnical Engineering Unit
E06538624A11498...
11/8/2017

**GEOTEXTILE FOR PAVEMENT STABILIZATION:** **(1-16-18)**

**Description**

Supply and install geotextile for pavement stabilization in accordance with the contract. Geotextile for pavement stabilization may be required above chemically stabilized subgrades or below Class IV Subgrade Stabilization to prevent pavement cracking at locations shown in the plans and as directed. Define "subbase" as the portion of the roadbed below the Class IV Subgrade Stabilization.

**Materials**

Refer to Division 10 of the *Standard Specifications*.

| **Item** | **Section** |
|---|---|
| Geotextiles | 1056 |

Provide Type 5 geotextile for geotextile for pavement stabilization that meets the following tensile strength requirements:

| **GEOTEXTILE FOR PAVEMENT STABILIZATION REQUIREMENTS** | | |
|---|---|---|
| **Tensile Strength** | **Requirement (MARV[A])** | **Test Method** |
| Tensile Strength @ 5% Strain (MD & CD[A]) | 1,900 lb/ft | ASTM D4595 |
| Ultimate Tensile Strength (MD & CD[A]) | 4,800 lb/ft | ASTM D4595 |

**A.** MD, CD and MARV per Article 1056-3 of the *Standard Specifications*.

**Construction Methods**

Geotextile for pavement stabilization may be required at locations shown in the plans and other locations as directed. For locations with ABC on chemically stabilized subgrades, use of geotextile for pavement stabilization will be based on sampling and testing for chemical stabilization. For all other locations, notify the Engineer when the embankment is completed to within 2 ft of subgrade elevation and allow 3 days for the Engineer to determine if geotextile for pavement stabilization is required.

Place geotextile for pavement stabilization above chemically stabilized subgrades or below Class IV Subgrade Stabilization as shown in the plans. Pull geotextiles taut so they are in tension and free of kinks, folds, wrinkles or creases. Install geotextile for pavement stabilization perpendicular to the survey or lane line in the MD and adjacent to each other in the CD as shown in the plans. Continuous geotextiles are required in the MD, i.e., do not splice or overlap geotextiles so seams are parallel to the survey or lane line. Completely cover stabilized subgrades or subbases with geotextile for pavement stabilization. Overlapping geotextiles in the CD is permitted but not required. Overlap geotextiles in the direction that aggregate will be placed to prevent lifting the edge of the top geotextile. Hold geotextiles in place with wire staples or anchor pins as needed.

Do not damage geotextile for pavement stabilization when placing ABC or Class IV Subgrade Stabilization. Place and compact ABC in accordance with the contract and *Standard Specifications*. Place, compact and maintain Class IV Subgrade Stabilization in accordance with Article 505-3 of the *Standard Specifications*. Do not operate heavy equipment on geotextiles any more than necessary to construct base courses or subgrades. Replace any damaged

geotextiles to the satisfaction of the Engineer.

**Measurement and Payment**

*Geotextile for Pavement Stabilization* will be measured and paid in square yards. Geotextiles will be measured along subgrades or subbases as the square yards of exposed geotextiles installed before placing ABC or Class IV Subgrade Stabilization. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile for Pavement Stabilization* will be full compensation for providing, transporting and installing geotextiles, wire staples and anchor pins.

*Class IV Subgrade Stabilization* will be measured and paid in accordance with Article 505-4 of the *Standard Specifications*.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Geotextile for Pavement Stabilization | Square Yard |


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R-2707F Cleveland County

**WORK ZONE TRAFFIC CONTROL**
**Project Special Provisions**
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11/13/2017

R-2707F Cleveland County

**TRAFFIC CONTROL DEVICES REMAINING FROM PREVIOUS PROJECT:**

(9/29/2017)

**Description**

Accept ownership, monitor, maintain, replace, and remove the following traffic control devices, which are remaining from the previous project in accordance with the plans and specifications.

1-**Barricades**
2-**Drums**
3-**Water Filled Barrier**

**Materials**

Replace any of the above mentioned devices which do not meet the material requirements of their respective specifications as directed by the Engineer.

**Construction Methods**

Accept ownership and maintenance responsibilities of the above mentioned devices, and retain ownership of only the Barricades and Drums at the completion of the project.

The Water Filled Barrier shall become the property of the Department as described in the special provision for Traffic Control Devices to Remain on the Project.

Section 1105-3 of the 2018 Standard Specifications applies to this special provision.

**Maintenance**

Maintain the above mentioned devices in accordance with Section 1105-4 of the 2018 Standard Specifications.

**Basis of Payment**

No separate payment will be made for the maintenance, replacement, and removal of the Barricades and Drums. Such work will be considered as incidental to the other traffic control items listed in the contract.

No separate payment will be made for the maintenance and replacement of the Water Filled Barrier. Such work will be considered as incidental to the other traffic control items listed in the contract.

R-2707F Cleveland County

Removal of and relocating the water filled barrier off the project shall be made in accordance with article 1170-4 of the Standard Specifications (Remove and Reset Water Filled Barrier), and as described in the special provision for Traffic Control Devices to Remain on the Project.

**TRAFFIC CONTROL DEVICES TO REMAIN ON PROJECT:**

(9/29/2017)

**Description**

Furnish, install, maintain during the life of the project, and leave Traffic Control Devices on the project at its completion in accordance with the plans and specifications.

**Construction Methods**

Install and leave on the project the Traffic Control Devices necessary to accommodate the final traffic pattern shown on sheets **PMP-17, 22, and 23 of the Final Pavement Marking Plan,** unless otherwise directed by the Engineer.

Provide devices to remain on the project, which meet the requirements of their respective specifications in the 2018 Standard Specifications or their respective special provisions.

Provide devices to remain on the project that are in good condition and subject to the approval of the Engineer.

When no longer needed as described in the Project Phasing on TMP-1C, remove and relocate the Water Filled Barrier which was accepted from the previous project off of the project to the NCDOT Cleveland County Maintenance Facility located at 254 Kemper Rd, Shelby, NC in a location suitable to the Engineer. The Contractor shall coordinate delivery with the Engineer at least twenty-one (21) days in advance of delivery. Payment for the removal and relocating of the water filled barrier shall be made in accordance with article 1170-4 of the Standard Specifications, Remove and Reset Water Filled Barrier.

The devices required to remain on the project at its completion and the Water Filled Barrier stockpiled at the NCDOT Cleveland County maintenance facility will become the property of the Department.

**Basis of Payment**

No additional payment will be made for leaving devices on the project or at the NCDOT Cleveland County Maintenance Facility. These devices will be paid under their respective pay items in the Contract which will include full compensation for furnishing, installing, maintaining during the life of the project, and leaving the devices on the project at its completion.

**Project Special Provisions**
**Erosion Control**

## STABILIZATION REQUIREMENTS:

(3-11-2016)

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 1, 2016 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** | | **May 1 - September 1** | |
|---|---|---|---|
| 20# | Kentucky Bluegrass | 20# | Kentucky Bluegrass |
| 75# | Hard Fescue | 75# | Hard Fescue |
| 25# | Rye Grain | 10# | German or Browntop Millet |
| 500# | Fertilizer | 500# | Fertilizer |
| 4000# | Limestone | 4000# | Limestone |

Areas Beyond the Mowing Pattern, Waste and Borrow Areas:

| **August 1 - June 1** | | **May 1 - September 1** | |
|---|---|---|---|
| 100# | Tall Fescue | 100# | Tall Fescue |
| 15# | Kentucky Bluegrass | 15# | Kentucky Bluegrass |
| 30# | Hard Fescue | 30# | Hard Fescue |
| 25# | Rye Grain | 10# | German or Browntop Millet |
| 500# | Fertilizer | 500# | Fertilizer |
| 4000# | Limestone | 4000# | Limestone |

Approved Tall Fescue Cultivars

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

Approved Kentucky Bluegrass Cultivars:

| | | | |
|---|---|---|---|
| 4-Season | Blue Velvet | Gladstone | Quantum Leap |
| Alexa II | Blueberry | Granite | Rambo |
| America | Boomerang | Hampton | Rhapsody |
| Apollo | Brilliant | Harmonie | Rhythm |
| Arcadia | Cabernet | Impact | Rita |
| Aries | Champagne | Jefferson | Royce |
| Armada | Champlain | Juliet | Rubicon |
| Arrow | Chicago II | Jump Start | Rugby II |
| Arrowhead | Corsair | Keeneland | Shiraz |
| Aura | Courtyard | Langara | Showcase |
| Avid | Delight | Liberator | Skye |
| Award | Diva | Madison | Solar Eclipse |
| Awesome | Dynamo | Mercury | Sonoma |
| Bandera | Eagleton | Midnight | Sorbonne |
| Barduke | Emblem | Midnight II | Starburst |
| Barnique | Empire | Moon Shadow | Sudden Impact |
| Baroness | Envicta | Moonlight SLT | Total Eclipse |
| Barrister | Everest | Mystere | Touche |
| Barvette HGT | Everglade | Nu Destiny | Tsunami |
| Bedazzled | Excursion | NuChicago | Unique |
| Belissimo | Freedom II | NuGlade | Valor |
| Bewitched | Freedom III | Odyssey | Voyager II |
| Beyond | Front Page | Perfection | Washington |
| Blacksburg II | Futurity | Pinot | Zinfandel |
| Blackstone | Gaelic | Princeton 105 | |
| Blue Note | Ginney II | Prosperity | |

Approved Hard Fescue Cultivars:

| | | | |
|---|---|---|---|
| Aurora II | Eureka II | Oxford | Scaldis II |
| Aurora Gold | Firefly | Reliant II | Spartan II |
| Berkshire | Granite | Reliant IV | Stonehenge |
| Bighorn GT | Heron | Rescue 911 | |
| Chariot | Nordic | Rhino | |

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** | **Pay Unit** |
|---|---|
| Response for Erosion Control | Each |

**MINIMIZE REMOVAL OF VEGETATION:**

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.

**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.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

## WATTLE:

### Description

Wattles are tubular products consisting of excelsior fibers encased in synthetic netting. Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Wattles are to be placed at locations shown on the plans or as directed. Install as directed. Work includes furnishing materials, installation of wattles, matting installation, and removing wattles.

### Materials

Wattle shall meet the following specifications:

| | |
|---|---|
| 100% Curled Wood (Excelsior) Fibers | |
| Minimum Diameter | 12 in. |
| Minimum Density | 2.5 lb/ft$^3$ +/- 10% |
| Net Material | Synthetic |
| Net Openings | 1 in. x 1 in. |
| Net Configuration | Totally Encased |

Minimum Weight 20 lb. +/- 10% per 10 ft. length

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.

**Construction Methods**

Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle. Install a minimum of 2 stakes on the upstream side of the wattle. 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.

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

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

**Measurement and Payment**

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

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Wattle | Linear Foot |

## MAINTENANCE AND REMOVAL OF EROSION CONTROL DEVICES:

### Description

Furnish the labor, materials, tools and equipment necessary to maintain and remove erosion control devices within project limits of R-2707F installed under the R-2707AA, R-2707AB, and R-2707B projects as directed. Maintenance and removal of items shall include, but are not limited to:

(A) Skimmer Basins
(B) Infiltration Basins
(C) Temporary Rock Silt Checks type 'A' and 'B'
(D) Rock Inlet Stabilization type 'A', 'B', and 'C'
(E) Silt Fence
(F) Special Sediment Control Fence
(G) Temporary Rock Sediment Dams type 'A' and 'B'
(H) Temporary Silt Ditch
(I) Temporary Diversion
(J) Wattles
(K) Wattles with PAM
(L) Temporary Slope Drains and Inlets

### Construction Methods

Maintain erosion and sediment control devices until areas have been stabilized as directed by engineer. Remove erosion and sediment control devices once areas have been stabilized as directed. Devices removed shall become the property of the contractor. Areas of device removal shall be stabilized with vegetation or appropriate groundcover as directed.

### Measurement and Payment

Maintenance of existing erosion control devices shall be paid for by item type as specified elsewhere in the contract.

*Removal of Erosion Control Devices* will be measured and paid for by lump sum. Seeding and mulching of areas associated with Removal of Erosion Control Devices shall comply with Section 1660 of the *Standard Specifications*. Payment will be made for Seeding and Mulching in accordance with Section 1660 of the *Standard Specifications*.

Payment for *Removal of Erosion Control Devices* will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Removal of Erosion Control Devices | Lump Sum |

## CONCRETE WASHOUT STRUCTURE:

(12-01-15)

### Description

Concrete washout structures are enclosures above or below grade to contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment. Concrete washouts must collect and retain all the concrete washout water and solids, so that this material does not migrate to surface waters or into the ground water. These enclosures are not intended for concrete waste not associated with wash out operations.

The concrete washout structure may include constructed devices above or below ground and or commercially available devices designed specifically to capture concrete waste water.

### Materials

| Item | Section |
|---|---|
| Temporary Silt Fence | 1605 |

*Safety Fence* shall meet the specifications as provided elsewhere in this contract.

Geomembrane basin liner shall meet the following minimum physical properties for low permeability; it shall consist of a polypropylene or polyethylene 10 mil think geomembrane. If the minimum setback dimensions can be achieved the liner is not required. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

### Construction Methods

Build an enclosed earthen berm or excavate to form an enclosure in accordance with the details and as directed.

Install temporary silt fence around the perimeter of the enclosure in accordance with the details and as directed if structure is not located in an area where existing erosion and sedimentation control devices are capable to containing any loss of sediment.

Post a sign with the words “Concrete Washout” in close proximity of the concrete washout area, so it is clearly visible to site personnel.

The construction details for the above grade and below grade concrete washout structures can be found on the following web page link:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/soil_water/details/

Alternate details for accommodating concrete washout may be submitted for review and approval.

The alternate details shall include the method used to retain and dispose of the concrete waste water within the project limits and in accordance with the minimum setback requirements. (5 feet

above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

**Maintenance and Removal**

Maintain the concrete washout structure(s) to provide adequate holding capacity plus a minimum freeboard of 12 inches. Remove and dispose of hardened concrete and return the structure to a functional condition after reaching 75% capacity.

Inspect concrete washout structures for damage and maintain for effectiveness.

Remove the concrete washout structures and sign upon project completion. Grade the earth material to match the existing contours and permanently seed and mulch area.

**Measurement and Payment**

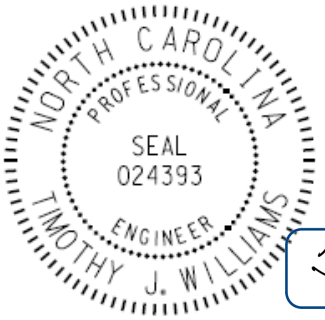
*Concrete Washout Structure* will be paid for per each enclosure installed in accordance with the details. If alternate details are approved then those details will also be paid for per each approved and installed device.

*Temporary Silt Fence* will be measured and paid for in accordance with Article 1605-5 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** |
|---|---|
| Concrete Washout Structure | Each |




Document not considered final unless all signatures completed.

# Signals and Intelligent Transportation Systems
# Project Special Provisions
## *(Version 18.1)*

*Prepared By: RNZ*
*23-Oct-17*

## Contents

## 1. 2018 STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES

***The 2018 Standard Specifications are revised as follows:***

### 1.1. GENERAL REQUIREMENTS – Construction Methods (1700-3(K))

Page 17-4, revise sentence starting on line 14 to read "Modify existing electrical services, as necessary, to meet the grounding requirements of the NEC, these *Standard Specifications, Standard Drawings,* and the project plans."

Page 17-4, revise sentence beginning on line 21 to read "Furnish and install additional ground rods to grounding electrode system as necessary to meet the *Standard Specifications, Standard Drawings*, and test requirements."

### 1.2. WOOD POLES – Construction Methods (1720-3)

Page 17-18, revise sentence starting on line 13 to read "On new Department-owned poles, install a grounding system consisting of #6 AWG solid bare copper wire that is mechanically crimped using an irreversible compression tool with die to a single ground rod installed at base of pole or to the electrical service grounding electrode system located within 10 feet of the pole."

## 2. SIGNAL HEADS

### 2.1. MATERIALS

**A. General:**

Fabricate vehicle signal head housings and end caps from die-cast aluminum. Fabricate 12-inch and 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Fabricate 9-inch pedestrian signal head housings, end caps, and visors from virgin polycarbonate material. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel.

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, wire outlet bodies, wire entrance fitting brackets and end caps when supplied as components of 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, rigid vehicle signal head mounting brackets for mast-arm attachments, messenger cable hanger components or balance adjuster components.

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."

Where required, provide polycarbonate signal heads and visors that comply with the provisions pertaining to the aluminum signal heads listed on the QPL with the following exceptions:

Fabricate signal head housings, end caps, and visors from virgin polycarbonate material. Provide UV stabilized polycarbonate plastic with a minimum thickness of 0.1 ± 0.01 inches that is highway yellow (Federal Standard 595C, Color Chip 13538). Ensure the color is incorporated

into the plastic material before molding the signal head housings and end caps. Ensure the plastic formulation provides the following physical properties in the assembly (tests may be performed on separately molded specimens):

| Test | Required | Method |
|---|---|---|
| Specific Gravity | 1.17 minimum | ASTM D 792 |
| Flammability | Self-extinguishing | ASTM D 635 |
| Tensile Strength, yield, PSI | 8500 minimum | ASTM D 638 |
| Izod impact strength, ft-lb/in [notched, 1/8 inch] | 12 minimum | ASTM D 256 |

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 pedestal mounting, provide a post-top slipfitter mounting assembly that matches the positive locking device on the signal head with serrations integrally cast into the slipfitter. Provide stainless steel hardware, screws, washers, etc. Provide a minimum of six 3/8 X 3/4-inch long square head bolts for attachment to pedestal. Provide a center post for multi-way slipfitters.

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 8 inches in length for 8-inch vehicle signal head sections. 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 messenger cable hanger components, wire outlet bodies and balance adjuster components from stainless steel or malleable iron galvanized in accordance with ASTM A153 (Class A) or ASTM A123. Provide serrated rings made of aluminum. Provide messenger cable hangers with U-bolt clamps. Fabricate washers, screws, hex-head bolts and associated nuts, clevis pins, cotter pins, U-bolt clamps and nuts from stainless steel.

For mast-arm mounting, provide rigid vehicle signal head mounting brackets and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the mast arms and to provide a means for vertically adjusting the vehicle signal heads to proper alignment. Fabricate the mounting assemblies from aluminum, and provide serrated rings made of aluminum. Provide stainless steel cable attachment assemblies to secure the brackets to the mast arms. Ensure all fastening hardware and fasteners are fabricated 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 2018 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 |
| 8-inch red circular | 13 | 8 |
| 12-inch green circular | 15 | 15 |
| 8-inch green circular | 12 | 12 |

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 and 13 Watts or less for the 8-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 2018 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.

**3. LED U-Turn Arrow Signal Modules:**

Provide modules in the following configurations: 12-inch left u-turn arrow signal modules and 12-inch right u-turn arrow signal modules.

Modules are not required to be listed on the ITS and Signals Qualified Products List. 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 have minimum maintained luminous intensity values that are not less than 16% of the values calculated using the method described in section 4.1 of the VTCSH Circular Supplement.

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 u-turn arrow | 17 | 11 |
| 12-inch green u-turn arrow | 15 | 15 |

For yellow u-turn arrow signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to ensure power required at 77° F is 22 Watts or less.

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.

**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.

## 3. MICROWAVE VEHICLE DETECTOR – SINGLE ZONE

### 3.1. DESCRIPTION

Furnish and install a microwave vehicle detection unit and manufacturer recommended cables and hardware in accordance with the plans and specifications.

### 3.2. MATERIALS

Furnish material, equipment, and hardware under this section that is pre-approved on the ITS and Signals QPL.

Provide a detector for either side-fire or forward-fire configuration. Ensure the detector will detect vehicle in sunny, cloudy, rainy, snowy, and foggy weather conditions with self-tuning to auto-adjust in changing environmental conditions. Ensure the detector can operate from the voltage supplied by a NEMA and Type-170 traffic signal cabinet. Ensure the detector can provide detection calls to the traffic signal controller within a NEMA and Type-170 cabinet. Ensure the detector will put out a constant call in the event of a component failure or loss of power. Ensure the detector has an operating temperature range of -20 to 150 degrees F. Ensure a water resistant housing for the detector.

For advance pulse detection, ensure the detector senses vehicles in motion at a range of 200 feet with an operating frequency of 10.525 GHz +/- 25MHz.

For stop bar presence detection, ensure the detector outputs a constant call while a vehicle is in the detection zone. Ensure the presence detection unit can cover a detection zone as shown on the plans and has an effective range of at least 75 feet from the detector unit to the aim point on the road surface.

For units without an integrated card rack interface, provide Form C output relay contacts rated a minimum of 3A, 24VDC.

If a laptop is used to adjust detector settings, ensure that software is licensed for use by the Department and by any other agency responsible for maintaining or operating the microwave detection system. Provide the Department with a license to duplicate and distribute the software as necessary for design and maintenance support.

### 3.3. CONSTRUCTION METHODS

Install the microwave vehicle detector in accordance with the manufacturer's recommendations.

Monitor and maintain the detector unit during construction to ensure microwave vehicle detector is functioning properly and aimed for the detection zone shown in the plans. Refer to Subarticle 1700-3 (D) Maintenance and Repair of Materials of the *Standard Specifications* for failure to maintain the microwave detection system.

### 3.4. MEASUREMENT AND PAYMENT

Actual number of microwave vehicle detector units furnished, installed, and accepted.

No measurement will be made of cables or hardware, as these will be considered incidental to furnishing and installing microwave vehicle detectors.

Payment will be made under:

Microwave Vehicle Detector – Single Zone..... Each

## 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)
    - Note: Configure the Field I/O Module to disable both the External WDT Shunt/Toggle Switch and SP3 (SP3 active indicator is "off")
- 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.

For each master location and central control center, furnish a U.S. Robotics V.92 or approved equivalent auto-dial/auto-answer external modem to accomplish the interface to the Department-furnished microcomputers. Include all necessary hardware to ensure telecommunications.

### 4.2.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)<br>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 |

## 4.3. 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 336S pole mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details. Provide 336S pole mounted cabinets that are 46" high with 40" high internal rack assemblies.

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 -40º F to +185º 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

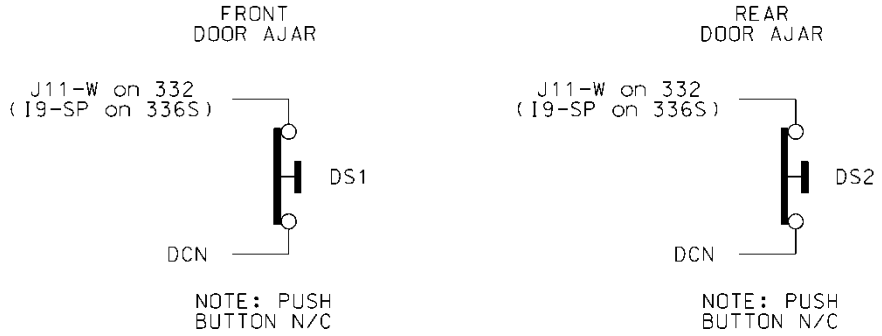
Discharge Voltage……<200 Volts @ 1,000A

Insulation Resistance……≥100 MΩ

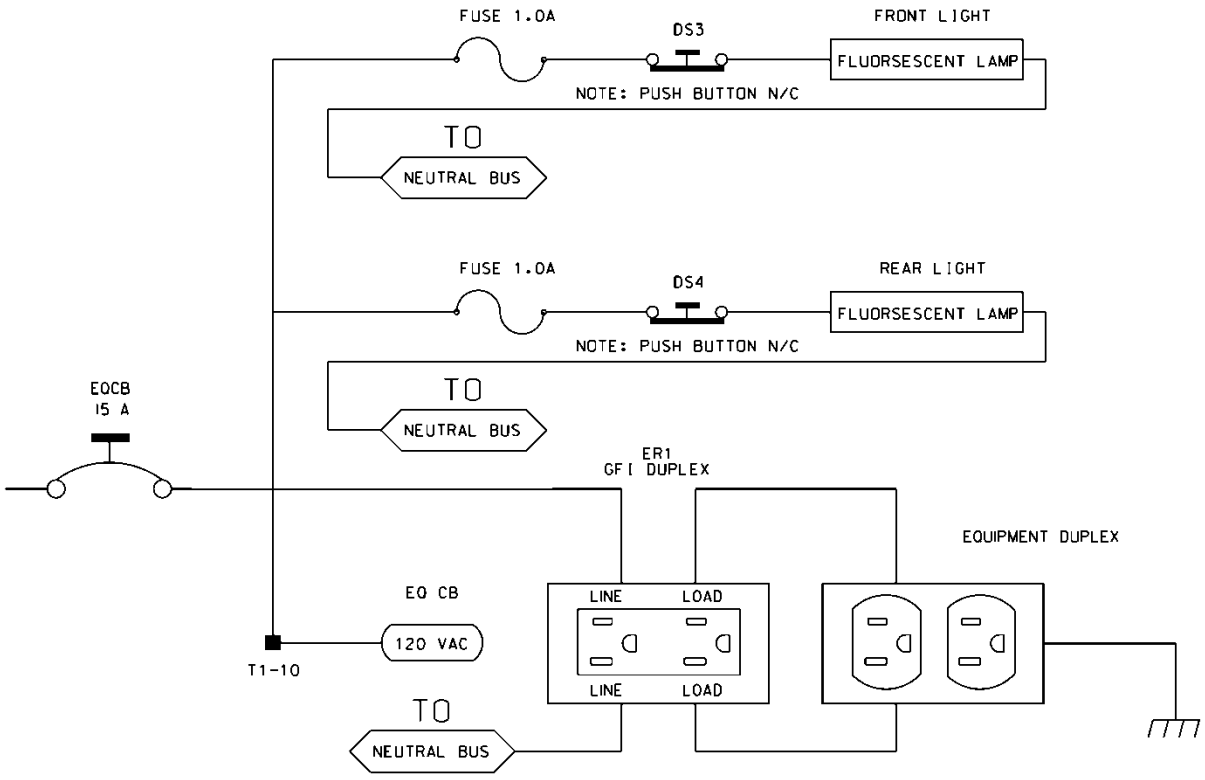
Provide conductors for surge protection wiring that are of sufficient size (ampacity) to withstand maximum overcurrents which could occur before protective device thresholds are attained and current flow is interrupted.

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. For model 336S cabinets, mount the police panel on the rear 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.

Ensure the 336S cabinet Input File is wired as follows:

| 336S Cabinet<br>Port-Bit/C-1 Pin Assignment | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Slot # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| C-1 (Spares) | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 75 | 76 | 77 | 78 | 79 | 80 |
| Port | 3-2 | 1-1 | 3-4 | 1-3 | 3-1 | 1-2 | 3-3 | 1-4 | 2-5 | 5-5 | 5-6 | 5-1 | 5-2 | 6-7 |
| C-1 | 56 | 39 | 58 | 41 | 55 | 40 | 57 | 42 | 51 | 71 | 72 | 67 | 68 | 81 |
| Port | 2-1 | 1-5 | 2-3 | 1-7 | 2-2 | 1-6 | 2-4 | 1-8 | 2-6 | 5-7 | 5-8 | 5-3 | 5-4 | 6-8 |
| C-1 | 47 | 43 | 49 | 45 | 48 | 44 | 50 | 46 | 52 | 73 | 74 | 69 | 70 | 82 |

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:

| 336S Cabinet | | 332 Cabinet | |
|---|---|---|---|
| **Detector Call Switches** | **Terminals** | **Detector Call Switches** | **Terminals** |
| Phase 1 | I1-F | Phase 1 | I1-W |
| Phase 2 | I2-F | Phase 2 | I4-W |
| Phase 3 | I3-F | Phase 3 | I5-W |
| Phase 4 | I4-F | Phase 4 | I8-W |
| Phase 5 | I5-F | Phase 5 | J1-W |
| Phase 6 | I6-F | Phase 6 | J4-W |
| Phase 7 | I7-F | Phase 7 | J5-W |
| Phase 8 | I8-F | 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.

| | P1 | | P2 | | P3 | |
|---|---|---|---|---|---|---|
| **PIN** | **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 |

Do not provide the P20 terminal assembly (red monitor board) or red interface ribbon cable as specified in LA Specification No. 54-053-08.

Provide a P20 connector that mates with and is compatible with the red interface connector mounted on the front of the conflict monitor. Ensure that the P20 connector and the red interface connector on the conflict monitor are center polarized to ensure proper connection. Ensure that removal of the P20 connector will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.

Wire the P20 connector to the output file and auxiliary output file using 22 AWG stranded wires. Ensure the length of these wires is a minimum of 42 inches in length. Provide a durable braided sleeve around the wires to organize and protect the wires.

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. Provide a wire for special function 1. Terminate the unused wires with ring type lugs, insulated, and bundled for optional use.

| | P20 Connector | | | | |
|---|---|---|---|---|---|
| **PIN** | **FUNCTION** | **CONN TO** | **PIN** | **FUNCTION** | **CONN TO** |
| 1 | Channel 15 Red | 119 | 2 | Channel 16 Red | 110 |
| 3 | Channel 14 Red | 104 | 4 | Chassis GND | 01-9 |
| 5 | Channel 13 Red | 113 | 6 | N/C | |
| 7 | Channel 12 Red | AUX 101 | 8 | Spec Function 1 | |
| 9 | Channel 10 Red | AUX 124 | 10 | Channel 11 Red | AUX 114 |
| 11 | Channel 9 Red | AUX 121 | 12 | Channel 8 Red | 107 |

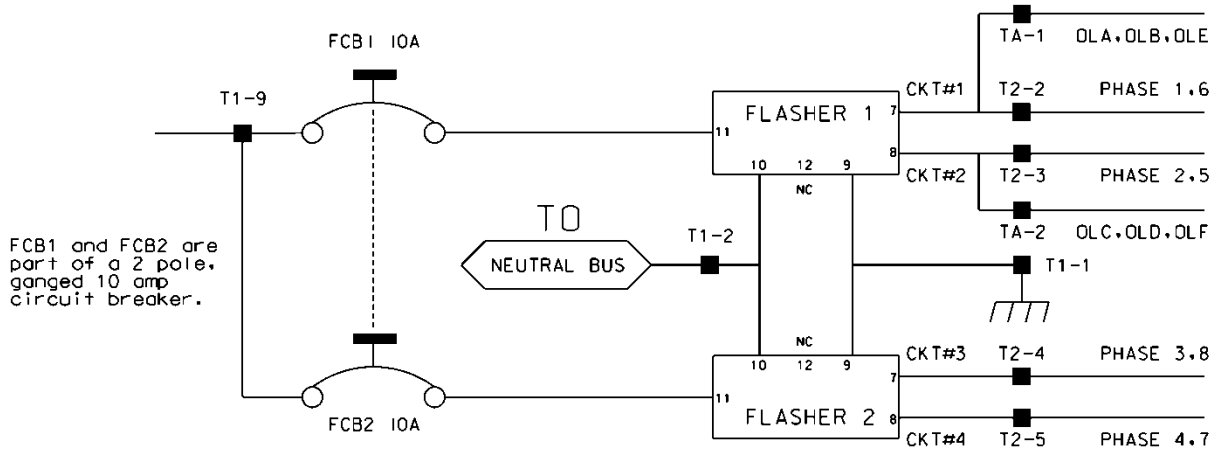
| | | | | | |
|---|---|---|---|---|---|
| 13 | Channel 7 Red | 122 | 14 | Channel 6 Red | 134 |
| 15 | Channel 5 Red | 131 | 16 | Channel 4 Red | 101 |
| 17 | Channel 3 Red | 116 | 18 | Channel 2 Red | 128 |
| 19 | Channel 1 Red | 125 | 20 | Red Enable | 01-14 |

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.

Do not wire pin 12 of the load switch sockets.

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.

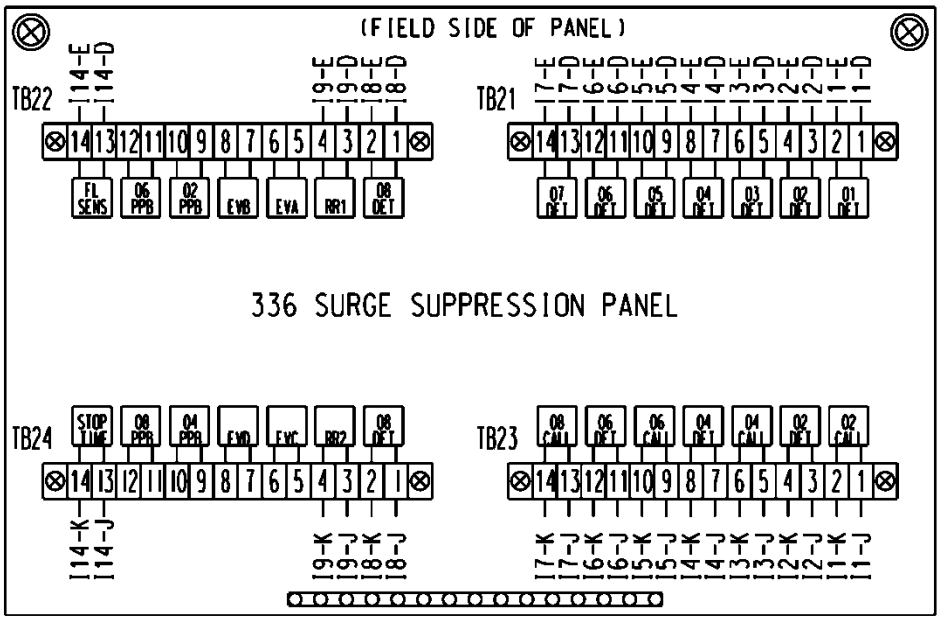
Ensure the lifting eyes, gasket channels, police panel, and all supports welded to the enclosure and doors are fabricated from 0.125 inch minimum thickness aluminum sheet and meet the same standards as the cabinet and doors.

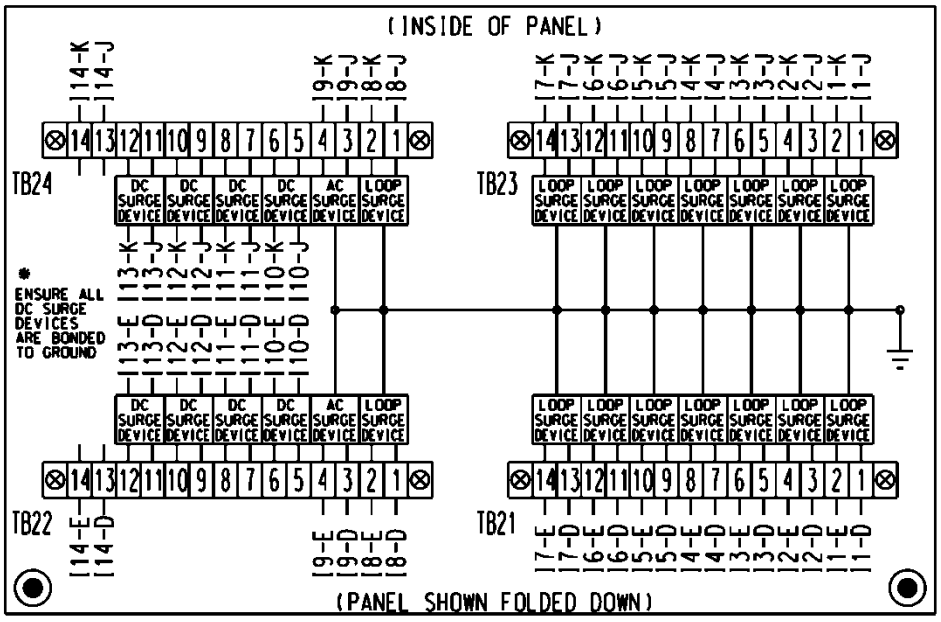
Provide front and rear doors with latching handles that allow padlocking in the closed position. Furnish 0.75 inch minimum diameter stainless steel handles with a minimum 0.5 inch shank. Place the padlocking attachment at 4.0 inches from the handle shank center to clear the lock and key. Provide an additional 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 pole mounted cabinets, mount surge protection devices for the AC+ interconnect inputs, inductive loop detector inputs, and low voltage DC inputs on a swing down panel assembly fabricated from sturdy aluminum. Attach the swing down panel to the bottom rear cabinet rack assembly using thumb screws. Ensure the swing down panel allows for easy removal of the input file without removing the surge protection panel assembly or its parts. Have the surge protection devices mounted horizontally on the panel and soldered to the feed through terminals of four 14 position terminal blocks with #8 screws mounted on the other side. Ensure the top row of terminals is connected to the upper slots and the bottom row of terminals is connected to the bottom slots. Provide a 15 position copper equipment ground bus attached to the field terminal side (outside) of the swing down panel for termination of loop lead-in shield grounds. Ensure that a Number 4 AWG green wire connects the surge protection panel assembly ground bus to the main cabinet equipment ground.




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

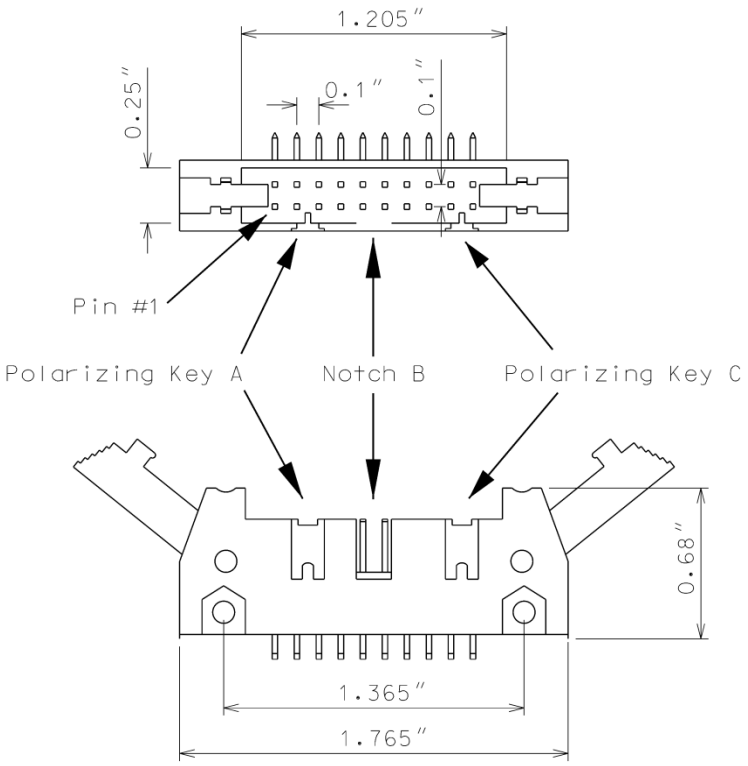
Provide a switch to set the Watchdog fault timing. Ensure that when the switch is in the ON position the Watchdog fault timing value is set to 1.0 +/- 0.1 s (2018 mode). Ensure that when the switch is in the OFF position the Watchdog fault timing value is set to 1.5 +/- 0.1 s (210 mode).

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 +/- 17 ms (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, center polarized, 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 removal of the P20 cable connector will cause the conflict 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 2070 controller, ensure monitor will trigger and put the intersection into flash. If the absence of any indication condition lasts less than 700 ms when used with a 170 controller and 1200 ms when used with a 2070 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 ± 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 ± 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 ± 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 pair for the following fault conditions: Conflict, Flash Rate Detection, 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 |

If a FYA channel pair is enabled for FYA operation, the conflict monitor will monitor the FYA logical channel pair for the additional following conditions:

1. **Conflict:** Channel conflicts are detected based on the permissive programming jumpers on the program card. This operation remains unchanged from normal operation except for the solid Yellow arrow (FYA clearance) signal.
2. **Yellow Change Interval Conflict:** During the Yellow change interval of the Permissive Turn channel (flashing Yellow arrow) the conflict monitor shall verify that no conflicting channels to the solid Yellow arrow channel (clearance) are active. These conflicting channels shall be determined by the program card compatibility programming of the Permissive Turn channel (flashing Yellow arrow). During the Yellow change interval of the Protected Turn channel (solid Green arrow) the conflict monitor shall verify that no conflicting channels to the solid Yellow arrow channel (clearance) are active as determined by the program card compatibility programming of the Protected Turn channel (solid Green arrow).
3. **Flash Rate Detection:** The conflict monitor unit shall monitor for the absence of a valid flash rate for the Permissive turn channel (flashing Yellow arrow). If the Permissive turn channel (flashing Yellow arrow) is active for a period greater than 1600 milliseconds, ensure the conflict monitor triggers and puts the intersection into flash. If the Permissive turn channel (flashing Yellow arrow) is active for a period less than 1400 milliseconds, ensure the conflict monitor does not trigger. Ensure the conflict monitor 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. Provide a jumper or switch that will enable and disable the Flash Rate Detection function. Ensure that when the jumper is not present or the switch is in the OFF position the Flash Rate Detection function is enabled. Ensure that when the jumper is present or the switch is in the ON position the Flash Rate Detection function is disabled.
4. **Red Monitoring or Absence of Any Indication (Red Failure):** The conflict monitor unit shall detect a red failure if there is an absence of voltage on all four of the inputs of a FYA channel pair (RA, YA, FYA, GA).
5. **Dual Indications on the Same Channel:** The conflict monitor unit shall detect a dual indication if two or more inputs of a FYA channel pair (RA, YA, FYA, GA) are “on” at the same time.
6. **Short/Missing Yellow Indication Fault (Clearance Error):** The conflict monitor unit shall monitor the solid Yellow arrow for a clearance fault when terminating both the Protected Turn channel (solid Green arrow) interval and the Permissive Turn channel (flashing Yellow arrow) interval.

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.

For conflict monitors used within an Ethernet communications system, provide a conflict monitor with an Ethernet 10/100 Mbps, RJ-45 port for data communication access to the monitor by a local notebook computer and remotely via a workstation or notebook computer device connected to the signal system local area network. The Ethernet port shall be electrically isolated from the conflict monitor's electronics and shall provide a minimum of 1500 Vrms isolation. Integrate monitor with Ethernet network in cabinet. Provide software to retrieve the time and date from a network server in order to synchronize the on-board times between the conflict monitor and the controller. Furnish and install the following Windows based, graphic user interface software on workstations and notebook computers where the signal system client software is installed: 1) software to view and retrieve all event log information, 2) software that will search and display a list of conflict monitor IP addresses and IDs on the network, and 3) software to change the conflict monitor's network parameters such as IP address and subnet mask.

For non-Ethernet connected monitors, 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 170/2070 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 (2070). Furnish and connect a serial cable from the conflict monitor's DB-9 connector to Comm Port 1 of the 2070 controller. Ensure conflict monitor communicates with the controller. 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**

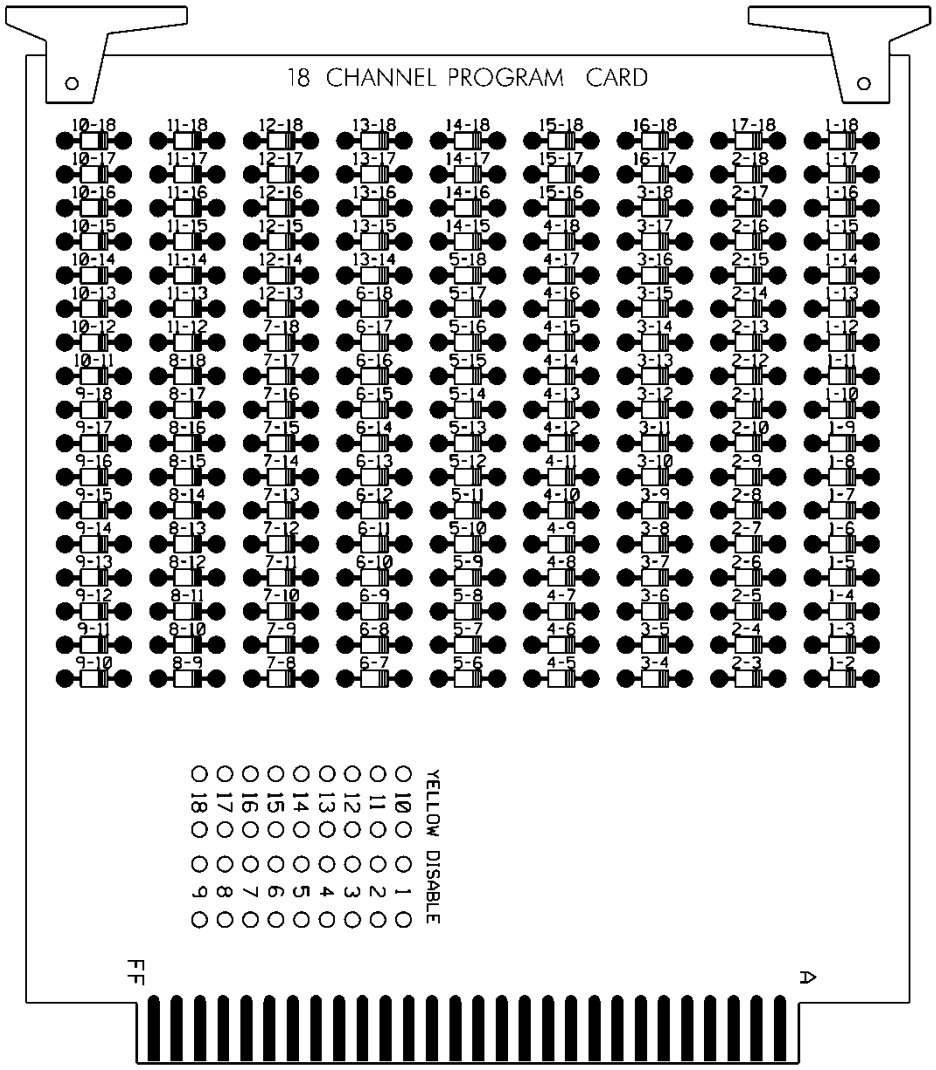
| Pin # | Function (Back Side) | Pin # | Function (Component Side) |
|---|---|---|---|
| 1 | Channel 2 Green | A | Channel 2 Yellow |
| 2 | Channel 13 Green | B | Channel 6 Green |
| 3 | Channel 6 Yellow | C | Channel 15 Green |
| 4 | Channel 4 Green | D | Channel 4 Yellow |
| 5 | Channel 14 Green | 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




**E. Preemption and Sign Control Box**

Provide preemption and sign control box to operate in a Model 332 and Model 336S cabinet. Provide hardware to mount the box to the cage of the cabinet to ensure the front side is facing the opposite side of the cabinet. Furnish the material of the box from a durable finished metallic or thermoplastic case. Ensure the size of the box is not greater than 7(l) x 5(w) x 5(d) inches. Ensure that no modification is necessary to mount the box on the cabinet cage.

Provide the following components in the preemption and sign control box: relays, fuses, terminal blocks, MOVs, resistor, RC network, lamp, and push button switch.

Provide UL Listed or Recognized relay K1 as a DPDT enclosed relay (120 VAC, 60 Hz coil) with an 8-pin octal-style plug and associated octal base. Provide contact material made of AgCdO with a 10 amp, 240 VAC rating. Ensure the relay has a specified pickup voltage of 102 VAC.

Provide relay SSR1 as a Triac SPST normally open solid state relay that is rated for 120 VAC input and zero-crossing (resistive load) 25 amp @ 120 VAC output. Ensure the relay turns on at 90 Vrms within 10 ms and turns off at 10 Vrms within 40 ms. Ensure the relay has physical

characteristics as shown in the wiring detail in Figure 1. Provide 4 terminal screws with saddle clamps.

Provide fuses F1 and F2 as a UL Listed ¼″ x 1-1/4″ glass tube rated at 250 volts with a 10kA interrupting rating. Ensure F1 non-delay (fast-acting) and F2 slow-blow (time-delay) fuses have a maximum opening times of 60 minutes and 120 seconds for currents of 135 and 200 percent of the ampere rating, respectively. Ensure F2 slow-blow (time-delay) fuses have a minimum opening times of 12 seconds at 200 percent of the ampere rating. Provide fuse holders that are UL Recognized panel-mounted holders rated 250V, 15 ampere minimum with bayonet-type knobs which accept ¼″ x 1-1/4″ glass tube fuses.

Provide terminal blocks that are rated for 300V and are made of electrical grade thermoplastic or thermosetting plastic. Ensure each terminal block is of closed back design and has recessed-screw terminals with molded barriers between terminals. Ensure each terminal block is labeled with a block designation. Ensure each terminal is labeled with the function and a number.

Provide 3/4-inch diameter radial lead UL-recognized metal oxide varistors (MOVs) that have electrical performance as outlined below.

| **PROPERTIES OF MOV SURGE PROTECTOR** | |
|---|---|
| Maximum Continuous Applied Voltage at 185° F | 150 VAC (RMS)<br>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 resistor R1 as a 2K ohm, 12 watt, wirewound resistor with tinned terminals and attaching leads. Ensure the resistor is spaced apart from surrounding wires.

Provide a LED or incandescent lamp that has a voltage rating of 120 VAC with a minimum life rating at 50,000 hours.

Wire the preemption and sign control box as shown in Figure 1.

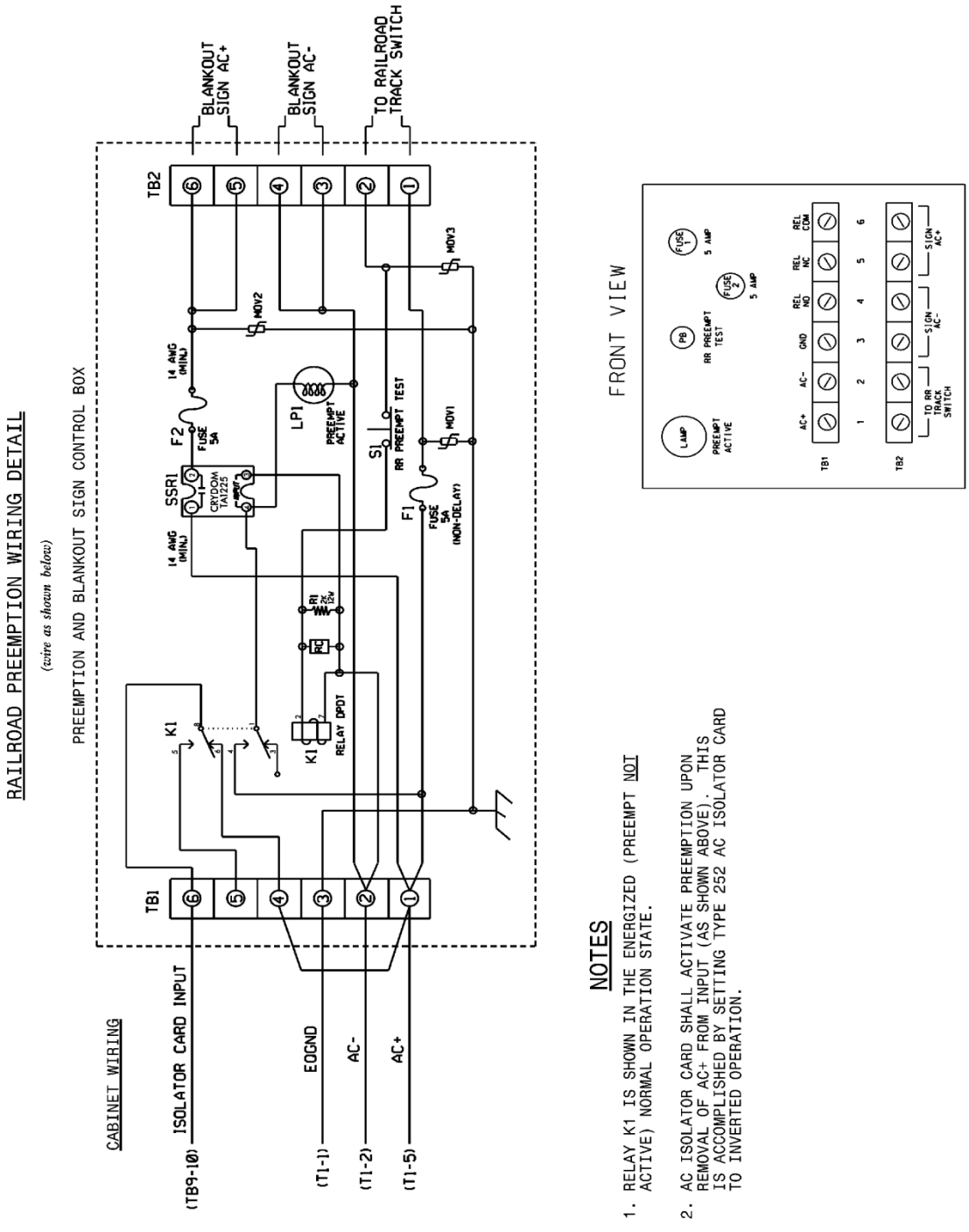

RAILROAD PREEMPTION WIRING DETAIL
(wire as shown below)
PREEMPTION AND BLANKOUT SIGN CONTROL BOX
CABINET WIRING
ISOLATOR CARD INPUT
(TB9-10)
EOGND
(T1-1)
AC-
(T1-2)
AC+
(T1-5)
TB1
TB2
K1
RELAY DPDT
R1
18W
R2
SSR1
CRYDOM
TA1225
F2
FUSE
5A
14 AWG
(MIN.)
LP1
PREEMPT
ACTIVE
S1
RR PREEMPT TEST
F1
FUSE
5A
(NON-DELAY)
MOV1
MOV2
MOV3
BLANKOUT
SIGN AC+
BLANKOUT
SIGN AC-
TO RAILROAD
TRACK SWITCH
NOTES
1. RELAY K1 IS SHOWN IN THE ENERGIZED (PREEMPT NOT ACTIVE) NORMAL OPERATION STATE.
2. AC ISOLATOR CARD SHALL ACTIVATE PREEMPTION UPON REMOVAL OF AC+ FROM INPUT (AS SHOWN ABOVE). THIS IS ACCOMPLISHED BY SETTING TYPE 252 AC ISOLATOR CARD TO INVERTED OPERATION.
FRONT VIEW
LAMP
PREEMPT ACTIVE
PB
RR PREEMPT TEST
FUSE 1
5 AMP
FUSE 2
5 AMP
AC+
AC-
GND
REL NO
REL NC
REL COM
TB1
1 2 3 4 5 6
TB2
TO RR TRACK SWITCH
SIGN AC-
SIGN AC+

Figure 1

### 4.4. 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.

County : Cleveland

| 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 | 0000700000-N | SP | FIELD OFFICE | Lump Sum | L.S. | |
| 0005 | 0050000000-E | 226 | SUPPLEMENTARY CLEARING & GRUBBING | 1 ACR | | |
| 0006 | 0192000000-N | 260 | PROOF ROLLING | 60 HR | | |
| 0007 | 1044000000-E | 501 | LIME TREATED SOIL (SLURRY METHOD) | 95,520 SY | | |
| 0008 | 1066000000-E | 501 | LIME FOR LIME TREATED SOIL | 960 TON | | |
| 0009 | 1110000000-E | 510 | STABILIZER AGGREGATE | 765 TON | | |
| 0010 | 1115000000-E | SP | GEOTEXTILE FOR PAVEMENT STABILIZATION | 87,700 SY | | |
| 0011 | 1121000000-E | 520 | AGGREGATE BASE COURSE | 144,200 TON | | |
| 0012 | 1176000000-E | 542 | SOIL CEMENT BASE | 143,280 SY | | |
| 0013 | 1187000000-E | 542 | PORTLAND CEMENT FOR SOIL CEMENT BASE | 3,950 TON | | |
| 0014 | 1209000000-E | 543 | ASPHALT CURING SEAL | 35,820 GAL | | |
| 0015 | 1220000000-E | 545 | INCIDENTAL STONE BASE | 500 TON | | |
| 0016 | 1275000000-E | 600 | PRIME COAT | 96,600 GAL | | |
| 0017 | 1498000000-E | 610 | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B | 7,200 TON | | |
| 0018 | 1503000000-E | 610 | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C | 43,700 TON | | |
| 0019 | 1519000000-E | 610 | ASPHALT CONC SURFACE COURSE, TYPE S9.5B | 8,350 TON | | |
| 0020 | 1523000000-E | 610 | ASPHALT CONC SURFACE COURSE, TYPE S9.5C | 36,600 TON | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0021 | 1575000000-E | 620 | ASPHALT BINDER FOR PLANT MIX | 5,104 TON | | |
| 0022 | 1840000000-E | 665 | MILLED RUMBLE STRIPS (ASPHALT CONCRETE) | 111,500 LF | | |
| 0023 | 2143000000-E | 818 | BLOTTING SAND | 31 TON | | |
| 0024 | 2364200000-N | 840 | FRAME WITH TWO GRATES, STD 840.20 | 1 EA | | |
| 0025 | 2374000000-N | 840 | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) | 1 EA | | |
| 0026 | 2374000000-N | 840 | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) | 1 EA | | |
| 0027 | 2396000000-N | 840 | FRAME WITH COVER, STD 840.54 | 2 EA | | |
| 0028 | 2451000000-N | 852 | CONCRETE TRANSITIONAL SECTION FOR DROP INLET | 11 EA | | |
| 0029 | 2473000000-N | SP | GENERIC DRAINAGE ITEM ADJUSTMENT OF JUNCTION BOXES | 2 EA | | |
| 0030 | 2549000000-E | 846 | 2'-6" CONCRETE CURB & GUTTER | 4,900 LF | | |
| 0031 | 2556000000-E | 846 | SHOULDER BERM GUTTER | 1,750 LF | | |
| 0032 | 2577000000-E | 846 | CONCRETE EXPRESSWAY GUTTER | 10,500 LF | | |
| 0033 | 2647000000-E | 852 | 5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED) | 3,400 SY | | |
| 0034 | 2724000000-E | 857 | PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED | 650 LF | | |
| 0035 | 2800000000-N | 858 | ADJUSTMENT OF CATCH BASINS | 2 EA | | |
| 0036 | 2815000000-N | 858 | ADJUSTMENT OF DROP INLETS | 12 EA | | |
| 0037 | 2830000000-N | 858 | ADJUSTMENT OF MANHOLES | 2 EA | | |
| 0038 | 3000000000-N | SP | IMPACT ATTENUATOR UNIT, TYPE 350 | 12 EA | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0039 | 3030000000-E | 862 | STEEL BEAM GUARDRAIL | 21,800 LF | | |
| 0040 | 3150000000-N | 862 | ADDITIONAL GUARDRAIL POSTS | 10 EA | | |
| 0041 | 3210000000-N | 862 | GUARDRAIL END UNITS, TYPE CAT-1 | 18 EA | | |
| 0042 | 3287000000-N | SP | GUARDRAIL END UNITS, TYPE TL-3 | 26 EA | | |
| 0043 | 3317000000-N | SP | GUARDRAIL ANCHOR UNITS, TYPE B-77 | 34 EA | | |
| 0044 | 3345000000-E | 864 | REMOVE & RESET EXISTING GUARD-RAIL | 75 LF | | |
| 0045 | 3360000000-E | 863 | REMOVE EXISTING GUARDRAIL | 50 LF | | |
| 0046 | 3389400000-E | 865 | DOUBLE FACED CABLE GUIDERAIL | 26,500 LF | | |
| 0047 | 3389500000-N | 865 | ADDITIONAL GUIDERAIL POSTS | 10 EA | | |
| 0048 | 3389600000-N | 865 | CABLE GUIDERAIL ANCHOR UNITS | 39 EA | | |
| 0049 | 3656000000-E | 876 | GEOTEXTILE FOR DRAINAGE | 750 SY | | |
| 0050 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (A) | 3,156 SF | | |
| 0051 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (B) | 419 SF | | |
| 0052 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (D) | 169 SF | | |
| 0053 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (E) | 1,040 SF | | |
| 0054 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (F) | 61 SF | | |
| 0055 | 4048000000-E | 902 | REINFORCED CONCRETE SIGN FOUN-DATIONS | 22 CY | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0056 | 4054000000-E | 902 | PLAIN CONCRETE SIGN FOUNDATIONS | 2 CY | | |
| 0057 | 4060000000-E | 903 | SUPPORTS, BREAKAWAY STEEL BEAM | 11,855 LB | | |
| 0058 | 4066000000-E | 903 | SUPPORTS, SIMPLE STEEL BEAM | 9,349 LB | | |
| 0059 | 4072000000-E | 903 | SUPPORTS, 3-LB STEEL U-CHANNEL | 3,365 LF | | |
| 0060 | 4078000000-E | 903 | SUPPORTS, 2-LB STEEL U-CHANNEL | 12 EA | | |
| 0061 | 4096000000-N | 904 | SIGN ERECTION, TYPE D | 19 EA | | |
| 0062 | 4102000000-N | 904 | SIGN ERECTION, TYPE E | 105 EA | | |
| 0063 | 4108000000-N | 904 | SIGN ERECTION, TYPE F | 7 EA | | |
| 0064 | 4109000000-N | 904 | SIGN ERECTION, TYPE *** (OVERHEAD) (A) | 8 EA | | |
| 0065 | 4109000000-N | 904 | SIGN ERECTION, TYPE *** (OVERHEAD) (B) | 2 EA | | |
| 0066 | 4110000000-N | 904 | SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A) | 23 EA | | |
| 0067 | 4110000000-N | 904 | SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B) | 15 EA | | |
| 0068 | 4114000000-N | 904 | SIGN ERECTION, MILEMARKERS | 12 EA | | |
| 0069 | 4116100000-N | 904 | SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (F) | 1 EA | | |
| 0070 | 4116100000-N | 904 | SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (MILEMARKER) | 2 EA | | |
| 0071 | 4155000000-N | 907 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL | 3 EA | | |
| 0072 | 4192000000-N | 907 | DISPOSAL OF SUPPORT, U-CHANNEL | 3 EA | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0073 | 4234000000-N | 907 | DISPOSAL OF SIGN, A OR B (OVERHEAD) | 1 EA | | |
| 0074 | 4400000000-E | 1110 | WORK ZONE SIGNS (STATIONARY) | 320 SF | | |
| 0075 | 4405000000-E | 1110 | WORK ZONE SIGNS (PORTABLE) | 192 SF | | |
| 0076 | 4410000000-E | 1110 | WORK ZONE SIGNS (BARRICADE MOUNTED) | 210 SF | | |
| 0077 | 4415000000-N | 1115 | FLASHING ARROW BOARD | 1 EA | | |
| 0078 | 4422000000-N | 1120 | PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM) | 76 DAY | | |
| 0079 | 4430000000-N | 1130 | DRUMS | 92 EA | | |
| 0080 | 4435000000-N | 1135 | CONES | 25 EA | | |
| 0081 | 4445000000-E | 1145 | BARRICADES (TYPE III) | 336 LF | | |
| 0082 | 4455000000-N | 1150 | FLAGGER | 105 DAY | | |
| 0083 | 4480000000-N | 1165 | TMA | 1 EA | | |
| 0084 | 4508000000-E | SP | REMOVE & RESET WATER FILLED BA RRIER | 820 LF | | |
| 0085 | 4510000000-N | 1190 | LAW ENFORCEMENT | 16 HR | | |
| 0086 | 4516000000-N | 1180 | SKINNY DRUM | 58 EA | | |
| 0087 | 4520000000-N | 1266 | TUBULAR MARKERS (FIXED) | 15 EA | | |
| 0088 | 4650000000-N | 1251 | TEMPORARY RAISED PAVEMENT MARKERS | 87 EA | | |
| 0089 | 4685000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) | 10,423 LF | | |
| 0090 | 4686000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) | 3,592 LF | | |
| 0091 | 4695000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) | 336 LF | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0092 | 4700000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS) | 490 LF | | |
| 0093 | 4710000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS) | 217 LF | | |
| 0094 | 4725000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) | 62 EA | | |
| 0095 | 4770000000-E | 1205 | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III) | 988 LF | | |
| 0096 | 4770000000-E | 1205 | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV) | 491 LF | | |
| 0097 | 4780000000-E | 1205 | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III) | 125 LF | | |
| 0098 | 4810000000-E | 1205 | PAINT PAVEMENT MARKING LINES (4") | 13,282 LF | | |
| 0099 | 4815000000-E | 1205 | PAINT PAVEMENT MARKING LINES (6") | 3,888 LF | | |
| 0100 | 4820000000-E | 1205 | PAINT PAVEMENT MARKING LINES (8") | 212 LF | | |
| 0101 | 4825000000-E | 1205 | PAINT PAVEMENT MARKING LINES (12") | 566 LF | | |
| 0102 | 4847030000-E | 1205 | POLYUREA PAVEMENT MARKING LINES (6", 20 MILS) | 144,444 LF | | |
| 0103 | 4847070000-E | 1205 | POLYUREA PAVEMENT MARKING LINES (12", 20 MILS) | 4,717 LF | | |
| 0104 | 4850000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (4") | 6,796 LF | | |
| 0105 | 4855000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (6") | 3,145 LF | | |
| 0106 | 4860000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (8") | 400 LF | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0107 | 4865000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (12") | 1,950 LF | | |
| 0108 | 4900000000-N | 1251 | PERMANENT RAISED PAVEMENT MARKERS | 61 EA | | |
| 0109 | 4905000000-N | 1253 | SNOWPLOWABLE PAVEMENT MARKERS | 1,493 EA | | |
| 0110 | 4935000000-N | 1267 | FLEXIBLE DELINEATORS (CRYSTAL) | 154 EA | | |
| 0111 | 4940000000-N | 1267 | FLEXIBLE DELINEATORS (YELLOW) | 134 EA | | |
| 0112 | 4945000000-N | 1267 | FLEXIBLE DELINEATORS (CRYSTAL & RED) | 15 EA | | |
| 0113 | 4950000000-N | 1267 | FLEXIBLE DELINEATORS (YELLOW & RED) | 15 EA | | |
| 0114 | 6000000000-E | 1605 | TEMPORARY SILT FENCE | 2,200 LF | | |
| 0115 | 6006000000-E | 1610 | STONE FOR EROSION CONTROL, CLASS A | 440 TON | | |
| 0116 | 6009000000-E | 1610 | STONE FOR EROSION CONTROL, CLASS B | 600 TON | | |
| 0117 | 6012000000-E | 1610 | SEDIMENT CONTROL STONE | 850 TON | | |
| 0118 | 6015000000-E | 1615 | TEMPORARY MULCHING | 3 ACR | | |
| 0119 | 6018000000-E | 1620 | SEED FOR TEMPORARY SEEDING | 100 LB | | |
| 0120 | 6021000000-E | 1620 | FERTILIZER FOR TEMPORARY SEEDING | 0.5 TON | | |
| 0121 | 6024000000-E | 1622 | TEMPORARY SLOPE DRAINS | 1,100 LF | | |
| 0122 | 6030000000-E | 1630 | SILT EXCAVATION | 1,600 CY | | |
| 0123 | 6036000000-E | 1631 | MATTING FOR EROSION CONTROL | 1,500 SY | | |
| 0124 | 6042000000-E | 1632 | 1/4" HARDWARE CLOTH | 2,250 LF | | |
| 0125 | 6071010000-E | SP | WATTLE | 1,000 LF | | |

County : Cleveland

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0126 | 6084000000-E | 1660 | SEEDING & MULCHING | 7 ACR | | |
| 0127 | 6087000000-E | 1660 | MOWING | 12 ACR | | |
| 0128 | 6090000000-E | 1661 | SEED FOR REPAIR SEEDING | 150 LB | | |
| 0129 | 6093000000-E | 1661 | FERTILIZER FOR REPAIR SEEDING | 0.25 TON | | |
| 0130 | 6096000000-E | 1662 | SEED FOR SUPPLEMENTAL SEEDING | 175 LB | | |
| 0131 | 6108000000-E | 1665 | FERTILIZER TOPDRESSING | 5.25 TON | | |
| 0132 | 6114500000-N | 1667 | SPECIALIZED HAND MOWING | 10 MHR | | |
| 0133 | 6117000000-N | SP | RESPONSE FOR EROSION CONTROL | 13 EA | | |
| 0134 | 6117500000-N | SP | CONCRETE WASHOUT STRUCTURE | 8 EA | | |
| 0135 | 6133000000-N | SP | GENERIC EROSION CONTROL ITEM REMOVAL OF EROSION CONTROL DEVICES | Lump Sum | L.S. | |
| 0136 | 7060000000-E | 1705 | SIGNAL CABLE | 600 LF | | |
| 0137 | 7120000000-E | 1705 | VEHICLE SIGNAL HEAD (12", 3 SECTION) | 6 EA | | |
| 0138 | 7264000000-E | 1710 | MESSENGER CABLE (3/8") | 300 LF | | |
| 0139 | 7300000000-E | 1715 | UNPAVED TRENCHING (**********) (1, 2") | 750 LF | | |
| 0140 | 7300000000-E | 1715 | UNPAVED TRENCHING (**********) (3, 2") | 10 LF | | |
| 0141 | 7301000000-E | 1715 | DIRECTIONAL DRILL (**********) (1, 2") | 120 LF | | |
| 0142 | 7324000000-N | 1716 | JUNCTION BOX (STANDARD SIZE) | 9 EA | | |
| 0143 | 7360000000-N | 1720 | WOOD POLE | 5 EA | | |
| 0144 | 7372000000-N | 1721 | GUY ASSEMBLY | 6 EA | | |

**County : Cleveland**

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0145 | 7408000000-E | 1722 | 1" RISER WITH WEATHERHEAD | 1 EA | | |
| 0146 | 7420000000-E | 1722 | 2" RISER WITH WEATHERHEAD | 4 EA | | |
| 0147 | 7444000000-E | 1725 | INDUCTIVE LOOP SAWCUT | 220 LF | | |
| 0148 | 7456000000-E | 1726 | LEAD-IN CABLE (**********) (14-2) | 1,250 LF | | |
| 0149 | 7636000000-N | 1745 | SIGN FOR SIGNALS | 2 EA | | |
| 0150 | 7684000000-N | 1750 | SIGNAL CABINET FOUNDATION | 1 EA | | |
| 0151 | 7756000000-N | 1751 | CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED) | 1 EA | | |
| 0152 | 7780000000-N | 1751 | DETECTOR CARD (TYPE 2070L) | 3 EA | | |
| 0153 | 7901000000-N | 1753 | CABINET BASE EXTENDER | 1 EA | | |
| 0154 | 7980000000-N | SP | GENERIC SIGNAL ITEM MICROWAVE VEHICLE DETECTOR - SINGLE ZONE | 1 EA | | |
| 0155 | 0022000000-E | 225 | UNCLASSIFIED EXCAVATION | 1,000 CY | | |
| 0156 | 1011000000-N | 500 | FINE GRADING | Lump Sum | L.S. | |
| 0157 | 1231000000-E | 560 | SHOULDER BORROW | 10,000 CY | | |

**1256/Jan08/Q1148719.0/D661940210000/E156** **Total Amount Of Bid For Entire Project :**

MBE GOAL SET: 3.00%
MBE GOAL OBT: 3.38%
WBE GOAL SET: 6.00%
WBE GOAL OBT: 6.09%

# Vendor 1 of 3: THE LANE CONSTRUCTION CORPORATION (3317)
# Call Order 010 (Proposal: C203845)

## Bid Information

**Proposal County:** CLEVELAND
**Vendor Address:** PO BOX 32487
Charlotte , NC , 28232
**Signature Check:** David_J_Rankin_3317
**Time Bid Received:** January 16, 2018 12:50 PM
**Amendment Count:** 1

**Bid Checksum:** BAEC4E28
**Bid Total:** $16,056,942.24
**Items Total:** $16,056,942.24
**Time Total:** $0.00

**Bidding Errors:**
None.

# Vendor 1 of 3: THE LANE CONSTRUCTION CORPORATION (3317)
# Call Order 010 (Proposal: C203845)

## Bid Bond Information

| | | | |
|---|---|---|---|
| **Projects:** | | **Bond Maximum:** | |
| **Counties:** | | **State of Incorporation:** | |
| **Bond ID:** | RTU9-AS14-PBS2-KNSN | **Agency Execution Date:** | 1/8/2018 |
| **Paid by Check:** | No | **Surety Name:** | SurePathNetwork |
| **Bond Percent:** | 5% | **Bond Agency Name:** | Liberty Mutual Insurance Company |

Bidder 1 of 3

Vendor 3317's Bid Information for Call 010, Letting L180116, 01/16/18

The Lane Construction Corporation (3317)
Call Order 010 (Proposal ID C203845)

LIST OF MBE PARTICIPANTS

| VENDOR NUMBER | DBE NAME / ADDRESS | WORK CODE | TYPE OF WORK | CERT TYPE | AMOUNT | |
|---|---|---|---|---|---|---|
| 7334 | RRC CONCRETE INC<br>1432 NORTH SHARON AMITY ROAD , CHARLOTTE, NC 28211 | | | Sub | 543,414.50 | COMMITTED |
| | | | | TOTAL: | $543,414.50<br>3.38% | |

Vendor 3317's Bid Information for Call 010, Letting L180116, 01/16/18

The Lane Construction Corporation (3317)
Call Order 010 (Proposal ID C203845)

LIST OF WBE PARTICIPANTS

| VENDOR NUMBER | DBE NAME / ADDRESS | WORK CODE | TYPE OF WORK | CERT TYPE | AMOUNT | |
|---|---|---|---|---|---|---|
| 4898 | BULLINGTON CONSTRUCTION INC<br>417 FOXGLOVE LANE , INDIAN TRAIL, NC 28079 | | | Sub | 710,125.00 | COMMITTED |
| 5796 | A1 PAVEMENT MARKING LLC<br>238 N BIVENS RD , MONROE, NC 28110 | | | Sub | 267,356.54 | COMMITTED |
| | | | | TOTAL: | $977,481.54<br>6.09% | |

Vendor 3317's Bid Information for Call 010, Letting L180116, 01/16/18

The Lane Construction Corporation (3317)
Call Order 010 (Proposal ID C203845)

Miscelleneous 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 acknowleges 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)

Bidder 1 of 3

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: RTU9-AS14-PBS2-KNSN
Surety Registry Agency: SurePathNetwork
            Verified?: Yes
         Surety Agency: Liberty Mutual Insurance Company
   Bond Execution Date: 1/8/2018
          Bond Amount:     $802,847.11 (Five Percent of Bid)
```

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| Section 0001 | ROADWAY ITEMS | | | | | |
| | Alt Group | | | | | |
| 0001 | 0000100000-N MOBILIZATION | LUMP | LUMP | | 800,000.00 | |
| 0002 | 0000400000-N CONSTRUCTION SURVEYING | LUMP | LUMP | | 130,000.00 | |
| 0003 | 0000700000-N FIELD OFFICE | LUMP | LUMP | | 58,000.00 | |
| 0005 | 0050000000-E SUPPLEMENTARY CLEARING & GRUB-BING | 1.000 ACR | 4,000.00000 | | 4,000.00 | |
| 0006 | 0192000000-N PROOF ROLLING | 60.000 HR | 175.00000 | | 10,500.00 | |
| 0007 | 1044000000-E LIME TREATED SOIL (SLURRY METHOD) | 95,520.000 SY | 3.10000 | | 296,112.00 | |
| 0008 | 1066000000-E LIME FOR LIME TREATED SOIL | 960.000 TON | 185.48000 | | 178,060.80 | |
| 0009 | 1110000000-E STABILIZER AGGREGATE | 765.000 TON | 23.00000 | | 17,595.00 | |
| 0010 | 1115000000-E GEOTEXTILE FOR PAVEMENT STA-BILIZATION | 87,700.000 SY | 2.00000 | | 175,400.00 | |
| 0011 | 1121000000-E AGGREGATE BASE COURSE | 144,200.000 TON | 22.00000 | | 3,172,400.00 | |
| 0012 | 1176000000-E SOIL CEMENT BASE | 143,280.000 SY | 1.58000 | | 226,382.40 | |

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0013 | 1187000000-E PORTLAND CEMENT FOR SOIL CE- MENT BASE | 3,950.000 TON | 170.14000 | | 672,053.00 | |
| 0014 | 1209000000-E ASPHALT CURING SEAL | 35,820.000 GAL | 2.30000 | | 82,386.00 | |
| 0015 | 1220000000-E INCIDENTAL STONE BASE | 500.000 TON | 23.00000 | | 11,500.00 | |
| 0016 | 1275000000-E PRIME COAT | 96,600.000 GAL | 2.50000 | | 241,500.00 | |
| 0017 | 1498000000-E ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B | 7,200.000 TON | 50.00000 | | 360,000.00 | |
| 0018 | 1503000000-E ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C | 43,700.000 TON | 44.00000 | | 1,922,800.00 | |
| 0019 | 1519000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5B | 8,350.000 TON | 59.50000 | | 496,825.00 | |
| 0020 | 1523000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5C | 36,600.000 TON | 44.00000 | | 1,610,400.00 | |
| 0021 | 1575000000-E ASPHALT BINDER FOR PLANT MIX | 5,104.000 TON | 415.00000 | | 2,118,160.00 | |
| 0022 | 1840000000-E MILLED RUMBLE STRIPS (ASPHALT CONCRETE) | 111,500.000 LF | 0.17000 | | 18,955.00 | |
| 0023 | 2143000000-E BLOTTING SAND | 31.000 TON | 75.00000 | | 2,325.00 | |
| 0024 | 2364200000-N FRAME WITH TWO GRATES, STD 840.20 | 1.000 EA | 1,000.00000 | | 1,000.00 | |

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0025 | 2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) | 1.000 EA | 1,000.00000 | | 1,000.00 | |
| 0026 | 2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) | 1.000 EA | 1,000.00000 | | 1,000.00 | |
| 0027 | 2396000000-N FRAME WITH COVER, STD 840.54 | 2.000 EA | 1,000.00000 | | 2,000.00 | |
| 0028 | 2451000000-N CONCRETE TRANSITIONAL SECTION FOR DROP INLET | 11.000 EA | 885.00000 | | 9,735.00 | |
| 0029 | 2473000000-N GENERIC DRAINAGE ITEM ADJUSTMENT OF JUNCTION BOXES | 2.000 EA | 2,000.00000 | | 4,000.00 | |
| 0030 | 2549000000-E 2'-6" CONCRETE CURB & GUTTER | 4,900.000 LF | 18.38000 | | 90,062.00 | |
| 0031 | 2556000000-E SHOULDER BERM GUTTER | 1,750.000 LF | 14.95000 | | 26,162.50 | |
| 0032 | 2577000000-E CONCRETE EXPRESSWAY GUTTER | 10,500.000 LF | 26.00000 | | 273,000.00 | |
| 0033 | 2647000000-E 5" MONOLITHIC CONCRETE ISLANDS(SURFACE MOUNTED) | 3,400.000 SY | 45.35000 | | 154,190.00 | |
| 0034 | 2724000000-E PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED | 650.000 LF | 95.00000 | | 61,750.00 | |
| 0035 | 2800000000-N ADJUSTMENT OF CATCH BASINS | 2.000 EA | 1,000.00000 | | 2,000.00 | |
| 0036 | 2815000000-N ADJUSTMENT OF DROP INLETS | 12.000 EA | 1,000.00000 | | 12,000.00 | |

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0037 | 2830000000-N ADJUSTMENT OF MANHOLES | 2.000 EA | 1,500.00000 | | 3,000.00 | |
| 0038 | 3000000000-N IMPACT ATTENUATOR UNIT, TYPE 350 | 12.000 EA | 25,000.00000 | | 300,000.00 | |
| 0039 | 3030000000-E STEEL BEAM GUARDRAIL | 21,800.000 LF | 15.25000 | | 332,450.00 | |
| 0040 | 3150000000-N ADDITIONAL GUARDRAIL POSTS | 10.000 EA | 45.00000 | | 450.00 | |
| 0041 | 3210000000-N GUARDRAIL END UNITS, TYPE CAT-1 | 18.000 EA | 500.00000 | | 9,000.00 | |
| 0042 | 3287000000-N GUARDRAIL END UNITS, TYPE TL-3 | 26.000 EA | 3,000.00000 | | 78,000.00 | |
| 0043 | 3317000000-N GUARDRAIL ANCHOR UNITS, TYPE B-77 | 34.000 EA | 1,500.00000 | | 51,000.00 | |
| 0044 | 3345000000-E REMOVE & RESET EXISTING GUARD-RAIL | 75.000 LF | 12.00000 | | 900.00 | |
| 0045 | 3360000000-E REMOVE EXISTING GUARDRAIL | 50.000 LF | 2.00000 | | 100.00 | |
| 0046 | 3389400000-E DOUBLE FACED CABLE GUIDERAIL | 26,500.000 LF | 6.75000 | | 178,875.00 | |
| 0047 | 3389500000-N ADDITIONAL GUIDERAIL POSTS | 10.000 EA | 85.00000 | | 850.00 | |
| 0048 | 3389600000-N CABLE GUIDERAIL ANCHOR UNITS | 39.000 EA | 1,500.00000 | | 58,500.00 | |

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0049 | 3656000000-E GEOTEXTILE FOR DRAINAGE | 750.000 SY | 4.65000 | | 3,487.50 | |
| 0050 | 4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (A) | 3,156.000 SF | 17.00000 | | 53,652.00 | |
| 0051 | 4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (B) | 419.000 SF | 17.00000 | | 7,123.00 | |
| 0052 | 4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (D) | 169.000 SF | 17.00000 | | 2,873.00 | |
| 0053 | 4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (E) | 1,040.000 SF | 17.00000 | | 17,680.00 | |
| 0054 | 4025000000-E CONTRACTOR FURNISHED, TYPE ***SIGN (F) | 61.000 SF | 17.00000 | | 1,037.00 | |
| 0055 | 4048000000-E REINFORCED CONCRETE SIGN FOUN-DATIONS | 22.000 CY | 950.00000 | | 20,900.00 | |
| 0056 | 4054000000-E PLAIN CONCRETE SIGN FOUNDA-TIONS | 2.000 CY | 400.00000 | | 800.00 | |
| 0057 | 4060000000-E SUPPORTS, BREAKAWAY STEEL BEAM | 11,855.000 LB | 5.50000 | | 65,202.50 | |
| 0058 | 4066000000-E SUPPORTS, SIMPLE STEEL BEAM | 9,349.000 LB | 5.50000 | | 51,419.50 | |
| 0059 | 4072000000-E SUPPORTS, 3-LB STEEL U-CHANNEL | 3,365.000 LF | 7.00000 | | 23,555.00 | |
| 0060 | 4078000000-E SUPPORTS, 2-LB STEEL U-CHANNEL | 12.000 EA | 55.00000 | | 660.00 | |

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0061 | 4096000000-N SIGN ERECTION, TYPE D | 19.000 EA | 150.00000 | | 2,850.00 | |
| 0062 | 4102000000-N SIGN ERECTION, TYPE E | 105.000 EA | 75.00000 | | 7,875.00 | |
| 0063 | 4108000000-N SIGN ERECTION, TYPE F | 7.000 EA | 150.00000 | | 1,050.00 | |
| 0064 | 4109000000-N SIGN ERECTION, TYPE *** (OVER-HEAD) (A) | 8.000 EA | 950.00000 | | 7,600.00 | |
| 0065 | 4109000000-N SIGN ERECTION, TYPE *** (OVER-HEAD) (B) | 2.000 EA | 450.00000 | | 900.00 | |
| 0066 | 4110000000-N SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A) | 23.000 EA | 650.00000 | | 14,950.00 | |
| 0067 | 4110000000-N SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B) | 15.000 EA | 275.00000 | | 4,125.00 | |
| 0068 | 4114000000-N SIGN ERECTION, MILEMARKERS | 12.000 EA | 100.00000 | | 1,200.00 | |
| 0069 | 4116100000-N SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (F) | 1.000 EA | 250.00000 | | 250.00 | |
| 0070 | 4116100000-N SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (MILEMARKER) | 2.000 EA | 100.00000 | | 200.00 | |
| 0071 | 4155000000-N DISPOSAL OF SIGN SYSTEM, U- CHANNEL | 3.000 EA | 1.50000 | | 4.50 | |

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Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0072 | 4192000000-N DISPOSAL OF SUPPORT, U-CHANNEL | 3.000 EA | 1.50000 | | 4.50 | |
| 0073 | 4234000000-N DISPOSAL OF SIGN, A OR B (OVERHEAD) | 1.000 EA | 1.50000 | | 1.50 | |
| 0074 | 4400000000-E WORK ZONE SIGNS (STATIONARY) | 320.000 SF | 13.50000 | | 4,320.00 | |
| 0075 | 4405000000-E WORK ZONE SIGNS (PORTABLE) | 192.000 SF | 9.25000 | | 1,776.00 | |
| 0076 | 4410000000-E WORK ZONE SIGNS (BARRICADE MOUNTED) | 210.000 SF | 9.50000 | | 1,995.00 | |
| 0077 | 4415000000-N FLASHING ARROW BOARD | 1.000 EA | 2,100.00000 | | 2,100.00 | |
| 0078 | 4422000000-N PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM) | 76.000 DAY | 60.00000 | | 4,560.00 | |
| 0079 | 4430000000-N DRUMS | 92.000 EA | 41.50000 | | 3,818.00 | |
| 0080 | 4435000000-N CONES | 25.000 EA | 17.00000 | | 425.00 | |
| 0081 | 4445000000-E BARRICADES (TYPE III) | 336.000 LF | 25.00000 | | 8,400.00 | |
| 0082 | 4455000000-N FLAGGER | 105.000 DAY | 50.00000 | | 5,250.00 | |
| 0083 | 4480000000-N TMA | 1.000 EA | 29,400.00000 | | 29,400.00 | |

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Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0084 | 4508000000-E REMOVE & RESET WATER FILLED BARRIER | 820.000 LF | 50.00000 | | 41,000.00 | |
| 0085 | 4510000000-N LAW ENFORCEMENT | 16.000 HR | 60.00000 | | 960.00 | |
| 0086 | 4516000000-N SKINNY DRUM | 58.000 EA | 28.50000 | | 1,653.00 | |
| 0087 | 4520000000-N TUBULAR MARKERS (FIXED) | 15.000 EA | 65.00000 | | 975.00 | |
| 0088 | 4650000000-N TEMPORARY RAISED PAVEMENT MARKERS | 87.000 EA | 15.00000 | | 1,305.00 | |
| 0089 | 4685000000-E THERMOPLASTIC PAVEMENT MARKINGLINES (4", 90 MILS) | 10,423.000 LF | 0.92000 | | 9,589.16 | |
| 0090 | 4686000000-E THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) | 3,592.000 LF | 1.10000 | | 3,951.20 | |
| 0091 | 4695000000-E THERMOPLASTIC PAVEMENT MARKINGLINES (8", 90 MILS) | 336.000 LF | 2.00000 | | 672.00 | |
| 0092 | 4700000000-E THERMOPLASTIC PAVEMENT MARKINGLINES (12", 90 MILS) | 490.000 LF | 4.00000 | | 1,960.00 | |
| 0093 | 4710000000-E THERMOPLASTIC PAVEMENT MARKINGLINES (24", 120 MILS) | 217.000 LF | 15.00000 | | 3,255.00 | |
| 0094 | 4725000000-E THERMOPLASTIC PAVEMENT MARKINGSYMBOL (90 MILS) | 62.000 EA | 225.00000 | | 13,950.00 | |

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Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0095 | 4770000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III) | 988.000 LF | 8.00000 | | 7,904.00 | |
| 0096 | 4770000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV) | 491.000 LF | 5.50000 | | 2,700.50 | |
| 0097 | 4780000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III) | 125.000 LF | 16.00000 | | 2,000.00 | |
| 0098 | 4810000000-E PAINT PAVEMENT MARKING LINES (4") | 13,282.000 LF | 0.30000 | | 3,984.60 | |
| 0099 | 4815000000-E PAINT PAVEMENT MARKING LINES (6") | 3,888.000 LF | 0.45000 | | 1,749.60 | |
| 0100 | 4820000000-E PAINT PAVEMENT MARKING LINES (8") | 212.000 LF | 1.00000 | | 212.00 | |
| 0101 | 4825000000-E PAINT PAVEMENT MARKING LINES (12") | 566.000 LF | 1.50000 | | 849.00 | |
| 0102 | 4847030000-E POLYUREA PAVEMENT MARKING LINES (6", 20 MILS) | 144,444.000 LF | 0.92000 | | 132,888.48 | |
| 0103 | 4847070000-E POLYUREA PAVEMENT MARKING LINES (12", 20 MILS) | 4,717.000 LF | 1.75000 | | 8,254.75 | |
| 0104 | 4850000000-E REMOVAL OF PAVEMENT MARKING LINES (4") | 6,796.000 LF | 1.00000 | | 6,796.00 | |
| 0105 | 4855000000-E REMOVAL OF PAVEMENT MARKING LINES (6") | 3,145.000 LF | 1.25000 | | 3,931.25 | |

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Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0106 | 4860000000-E REMOVAL OF PAVEMENT MARKING LINES (8") | 400.000 LF | 2.00000 | | 800.00 | |
| 0107 | 4865000000-E REMOVAL OF PAVEMENT MARKING LINES (12") | 1,950.000 LF | 4.00000 | | 7,800.00 | |
| 0108 | 4900000000-N PERMANENT RAISED PAVEMENT MARKERS | 61.000 EA | 9.00000 | | 549.00 | |
| 0109 | 4905000000-N SNOWPLOWABLE PAVEMENT MARKERS | 1,493.000 EA | 35.00000 | | 52,255.00 | |
| 0110 | 4935000000-N FLEXIBLE DELINEATORS (CRYSTAL) | 154.000 EA | 55.00000 | | 8,470.00 | |
| 0111 | 4940000000-N FLEXIBLE DELINEATORS (YELLOW) | 134.000 EA | 55.00000 | | 7,370.00 | |
| 0112 | 4945000000-N FLEXIBLE DELINEATORS (CRYSTAL & RED) | 15.000 EA | 55.00000 | | 825.00 | |
| 0113 | 4950000000-N FLEXIBLE DELINEATORS (YELLOW &RED) | 15.000 EA | 55.00000 | | 825.00 | |
| 0114 | 6000000000-E TEMPORARY SILT FENCE | 2,200.000 LF | 2.35000 | | 5,170.00 | |
| 0115 | 6006000000-E STONE FOR EROSION CONTROL, CLASS A | 440.000 TON | 55.00000 | | 24,200.00 | |
| 0116 | 6009000000-E STONE FOR EROSION CONTROL, CLASS B | 600.000 TON | 55.00000 | | 33,000.00 | |
| 0117 | 6012000000-E SEDIMENT CONTROL STONE | 850.000 TON | 55.00000 | | 46,750.00 | |

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0118 | 6015000000-E TEMPORARY MULCHING | 3.000 ACR | 1,000.00000 | | 3,000.00 | |
| 0119 | 6018000000-E SEED FOR TEMPORARY SEEDING | 100.000 LB | 1.00000 | | 100.00 | |
| 0120 | 6021000000-E FERTILIZER FOR TEMPORARY SEED-ING | 0.500 TON | 400.00000 | | 200.00 | |
| 0121 | 6024000000-E TEMPORARY SLOPE DRAINS | 1,100.000 LF | 20.00000 | | 22,000.00 | |
| 0122 | 6030000000-E SILT EXCAVATION | 1,600.000 CY | 15.00000 | | 24,000.00 | |
| 0123 | 6036000000-E MATTING FOR EROSION CONTROL | 1,500.000 SY | 1.75000 | | 2,625.00 | |
| 0124 | 6042000000-E 1/4" HARDWARE CLOTH | 2,250.000 LF | 5.00000 | | 11,250.00 | |
| 0125 | 6071010000-E WATTLE | 1,000.000 LF | 7.50000 | | 7,500.00 | |
| 0126 | 6084000000-E SEEDING & MULCHING | 7.000 ACR | 1,895.00000 | | 13,265.00 | |
| 0127 | 6087000000-E MOWING | 12.000 ACR | 70.00000 | | 840.00 | |
| 0128 | 6090000000-E SEED FOR REPAIR SEEDING | 150.000 LB | 2.95000 | | 442.50 | |
| 0129 | 6093000000-E FERTILIZER FOR REPAIR SEEDING | 0.250 TON | 1,000.00000 | | 250.00 | |

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Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0130 | 6096000000-E SEED FOR SUPPLEMENTAL SEEDING | 175.000 LB | 4.70000 | | 822.50 | |
| 0131 | 6108000000-E FERTILIZER TOPDRESSING | 5.250 TON | 550.00000 | | 2,887.50 | |
| 0132 | 6114500000-N SPECIALIZED HAND MOWING | 10.000 MHR | 85.00000 | | 850.00 | |
| 0133 | 6117000000-N RESPONSE FOR EROSION CONTROL | 13.000 EA | 100.00000 | | 1,300.00 | |
| 0134 | 6117500000-N CONCRETE WASHOUT STRUCTURE | 8.000 EA | 2,500.00000 | | 20,000.00 | |
| 0135 | 6133000000-N GENERIC EROSION CONTROL ITEM REMOVAL OF EROSION CONTROL DEVICES | LUMP | LUMP | | 65,000.00 | |
| 0136 | 7060000000-E SIGNAL CABLE | 600.000 LF | 3.25000 | | 1,950.00 | |
| 0137 | 7120000000-E VEHICLE SIGNAL HEAD (12", 3 SECTION) | 6.000 EA | 850.00000 | | 5,100.00 | |
| 0138 | 7264000000-E MESSENGER CABLE (3/8") | 300.000 LF | 3.50000 | | 1,050.00 | |
| 0139 | 7300000000-E UNPAVED TRENCHING (**********) (1, 2") | 750.000 LF | 8.50000 | | 6,375.00 | |
| 0140 | 7300000000-E UNPAVED TRENCHING (**********) (3, 2") | 10.000 LF | 11.50000 | | 115.00 | |

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0141 | 7301000000-E DIRECTIONAL DRILL (**********) (1, 2") | 120.000 LF | 15.75000 | | 1,890.00 | |
| 0142 | 7324000000-N JUNCTION BOX (STANDARD SIZE) | 9.000 EA | 250.00000 | | 2,250.00 | |
| 0143 | 7360000000-N WOOD POLE | 5.000 EA | 925.00000 | | 4,625.00 | |
| 0144 | 7372000000-N GUY ASSEMBLY | 6.000 EA | 250.00000 | | 1,500.00 | |
| 0145 | 7408000000-E 1" RISER WITH WEATHERHEAD | 1.000 EA | 425.00000 | | 425.00 | |
| 0146 | 7420000000-E 2" RISER WITH WEATHERHEAD | 4.000 EA | 525.00000 | | 2,100.00 | |
| 0147 | 7444000000-E INDUCTIVE LOOP SAWCUT | 220.000 LF | 8.00000 | | 1,760.00 | |
| 0148 | 7456000000-E LEAD-IN CABLE (**********) (14-2) | 1,250.000 LF | 1.95000 | | 2,437.50 | |
| 0149 | 7636000000-N SIGN FOR SIGNALS | 2.000 EA | 425.00000 | | 850.00 | |
| 0150 | 7684000000-N SIGNAL CABINET FOUNDATION | 1.000 EA | 1,200.00000 | | 1,200.00 | |
| 0151 | 7756000000-N CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED) | 1.000 EA | 13,325.00000 | | 13,325.00 | |
| 0152 | 7780000000-N DETECTOR CARD (TYPE 2070L) | 3.000 EA | 110.00000 | | 330.00 | |

Contract ID: C203845 Project(s): STATE FUNDED
Letting Date: 01-16-18 Call Order: 010
Bidder: 3317 - The Lane Construction Corporation

| Line No. | Item Description | Approx. Quantity and Units | Unit Price Dollars | Unit Price Cts | Bid Amount Dollars | Bid Amount Ct |
|---|---|---|---|---|---|---|
| 0153 | 7901000000-N CABINET BASE EXTENDER | 1.000 EA | 450.00000 | | 450.00 | |
| 0154 | 7980000000-N GENERIC SIGNAL ITEM MICROWAVE VEHICLE DETECTOR - SINGLE ZONE | 1.000 EA | 900.00000 | | 900.00 | |
| 0155 | 0022000000-E UNCLASSIFIED EXCAVATION | 1,000.000 CY | 10.50000 | | 10,500.00 | |
| 0156 | 1011000000-N FINE GRADING | LUMP | LUMP | | 775,000.00 | |
| 0157 | 1231000000-E SHOULDER BORROW | 10,000.000 CY | 0.01000 | | 100.00 | |
| | Section 0001 Total | | | | 16,056,942.24 | |
| | Bid Total | | | | 16,056,942.24 | |

# 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 acknowleges 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 | |
| NOT ANSWERED | |
| NOT ANSWERED | |
| NOT ANSWERED | |
| NOT ANSWERED | |
| 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.

PROPOSAL: C203845
LETTING: L180116 CALL: 010
VENDOR: 3317 The Lane Construction Corporation

| LINE NO. | ITEM NO. | ITEM DESC. | UNIT TYPE | SUBCONTRACTOR QUANTITY | SUBCONTRACTOR UNIT PRICE | EXTENDED AMOUNT |
|---|---|---|---|---|---|---|
| MBE SUBCONTRACTOR: 7334 RRC CONCRETE INC | | | | | | |
| Will Use Quote: Yes | | | | | | |
| 0032 | 2577000000-E | CONC EXPRESS | LF | 10500.000 | 26.00000 | 273000.00 |
| 0033 | 2647000000-E | 5" MONO CONC | SY | 3400.000 | 45.35000 | 154190.00 |
| 0030 | 2549000000-E | 2'-6" CONC C | LF | 4900.000 | 18.38000 | 90062.00 |
| 0031 | 2556000000-E | SHOULDER BER | LF | 1750.000 | 14.95000 | 26162.50 |
| | | MBE COMMITMENT TOTAL FOR SUBCONTRACTOR: | | | | 543,414.50 |

TOTAL MBE COMMITMENT FOR VENDOR: Entered: 3.38% or 543414.50
Required: 3.00% or 481708.27
<GOAL MET>

PROPOSAL: C203845
LETTING: L180116 CALL: 010
VENDOR: 3317 The Lane Construction Corporation

| LINE NO. | ITEM NO. | ITEM DESC. | UNIT TYPE | SUBCONTRACTOR QUANTITY | SUBCONTRACTOR UNIT PRICE | EXTENDED AMOUNT |
|---|---|---|---|---|---|---|
| WBE SUBCONTRACTOR: 4898 BULLINGTON CONSTRUCTION INC<br>Will Use Quote: Yes | | | | | | |
| 0039 | 3030000000-E | STL BEAM GUA | LF | 21800.000 | 15.25000 | 332450.00 |
| 0040 | 3150000000-N | ADDIT GUARDR | EA | 10.000 | 45.00000 | 450.00 |
| 0041 | 3210000000-N | GR END TYPE | EA | 18.000 | 500.00000 | 9000.00 |
| 0042 | 3287000000-N | GR END TYPE | EA | 26.000 | 3000.00000 | 78000.00 |
| 0043 | 3317000000-N | GR ANCHOR TY | EA | 34.000 | 1500.00000 | 51000.00 |
| 0044 | 3345000000-E | REMOVE & RES | LF | 75.000 | 12.00000 | 900.00 |
| 0046 | 3389400000-E | DBL FACED CA | LF | 26500.000 | 6.75000 | 178875.00 |
| 0047 | 3389500000-N | ADDITIONAL G | EA | 10.000 | 85.00000 | 850.00 |
| 0048 | 3389600000-N | CBL GUIDERAI | EA | 39.000 | 1500.00000 | 58500.00 |
| 0045 | 3360000000-E | REMOVE EXIST | LF | 50.000 | 2.00000 | 100.00 |
| | | WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: | | | | 710,125.00 |
| WBE SUBCONTRACTOR: 5796 A1 PAVEMENT MARKING LLC<br>Will Use Quote: Yes | | | | | | |
| 0088 | 4650000000-N | TEMP RAISED | EA | 87.000 | 15.00000 | 1305.00 |
| 0089 | 4685000000-E | THERMO PVT M | LF | 10423.000 | 0.92000 | 9589.16 |
| 0090 | 4686000000-E | THERMO PVT M | LF | 3592.000 | 1.10000 | 3951.20 |
| 0091 | 4695000000-E | THERMO PVT M | LF | 336.000 | 2.00000 | 672.00 |
| 0092 | 4700000000-E | 12"WIDE THER | LF | 490.000 | 4.00000 | 1960.00 |
| 0093 | 4710000000-E | 24"WIDE THER | LF | 217.000 | 15.00000 | 3255.00 |
| 0094 | 4725000000-E | THERMO PVT S | EA | 62.000 | 225.00000 | 13950.00 |
| 0095 | 4770000000-E | 4" COLD APPL | LF | 988.000 | 8.00000 | 7904.00 |
| 0096 | 4770000000-E | 4" COLD APPL | LF | 491.000 | 5.50000 | 2700.50 |
| 0097 | 4780000000-E | 8" COLD APPL | LF | 125.000 | 16.00000 | 2000.00 |
| 0098 | 4810000000-E | PAINT PVMT M | LF | 13282.000 | 0.30000 | 3984.60 |
| 0099 | 4815000000-E | PAINT PVMT M | LF | 3888.000 | 0.45000 | 1749.60 |
| 0100 | 4820000000-E | PAINT PVMT M | LF | 212.000 | 1.00000 | 212.00 |
| 0101 | 4825000000-E | PAINT PVMT M | LF | 566.000 | 1.50000 | 849.00 |
| 0102 | 4847030000-E | POLYUREA LIN | LF | 144444.000 | 0.92000 | 132888.48 |
| 0103 | 4847070000-E | POLYUREA LIN | LF | 4717.000 | 1.75000 | 8254.75 |
| 0104 | 4850000000-E | LINE REMOVAL | LF | 6796.000 | 1.00000 | 6796.00 |
| 0105 | 4855000000-E | LINE REMOVAL | LF | 3145.000 | 1.25000 | 3931.25 |
| 0106 | 4860000000-E | LINE REMOVAL | LF | 400.000 | 2.00000 | 800.00 |
| 0107 | 4865000000-E | LINE REMOVAL | LF | 1950.000 | 4.00000 | 7800.00 |
| 0108 | 4900000000-N | PERM RAISED | EA | 61.000 | 9.00000 | 549.00 |
| 0109 | 4905000000-N | SNOWPLB PVMT | EA | 1493.000 | 35.00000 | 52255.00 |
| | | WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: | | | | 267,356.54 |

TOTAL WBE COMMITMENT FOR VENDOR: Entered: 6.09% or 977481.54
Required: 6.00% or 963416.53
<GOAL MET>

THIS PROPOSAL CONTAINS THE FOLLOWING ERRORS/WARNINGS (IF ANY)

This Bid contains 1 amendment files

00001 01-08-18 DELETE & ADD ITEMS

Electronic Bid Submission

By submitting this bid electronically, I hereby acknowledge that all requirements included in the hard copy proposal, addendum, amendments, plans, standard specifications, supplemental specifications and special provisions are part of the bid and contract. Further, I acknowledge that I have read, understand, accept, acknowledge and agree to comply with all statements in this electronic bid.

I Hereby certify that I have the authority to submit this bid.

| Signature | Agency | Date |
| --- | --- | --- |
| | | |
| | | |
| | | |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| | | | **ROADWAY ITEMS** | | | |
| 0001 | 0000100000-N | 800 | MOBILIZATION | Lump Sum LS | 800,000.00 | 800,000.00 |
| 0002 | 0000400000-N | 801 | CONSTRUCTION SURVEYING | Lump Sum LS | 130,000.00 | 130,000.00 |
| 0003 | 0000700000-N | SP | FIELD OFFICE | Lump Sum LS | 58,000.00 | 58,000.00 |
| 0005 | 0050000000-E | 226 | SUPPLEMENTARY CLEARING & GRUBBING | 1 ACR | 4,000.00 | 4,000.00 |
| 0006 | 0192000000-N | 260 | PROOF ROLLING | 60 HR | 175.00 | 10,500.00 |
| 0007 | 1044000000-E | 501 | LIME TREATED SOIL (SLURRY METHOD) | 95,520 SY | 3.10 | 296,112.00 |
| 0008 | 1066000000-E | 501 | LIME FOR LIME TREATED SOIL | 960 TON | 185.48 | 178,060.80 |
| 0009 | 1110000000-E | 510 | STABILIZER AGGREGATE | 765 TON | 23.00 | 17,595.00 |
| 0010 | 1115000000-E | SP | GEOTEXTILE FOR PAVEMENT STABILIZATION | 87,700 SY | 2.00 | 175,400.00 |
| 0011 | 1121000000-E | 520 | AGGREGATE BASE COURSE | 144,200 TON | 22.00 | 3,172,400.00 |
| 0012 | 1176000000-E | 542 | SOIL CEMENT BASE | 143,280 SY | 1.58 | 226,382.40 |
| 0013 | 1187000000-E | 542 | PORTLAND CEMENT FOR SOIL CEMENT BASE | 3,950 TON | 170.14 | 672,053.00 |
| 0014 | 1209000000-E | 543 | ASPHALT CURING SEAL | 35,820 GAL | 2.30 | 82,386.00 |
| 0015 | 1220000000-E | 545 | INCIDENTAL STONE BASE | 500 TON | 23.00 | 11,500.00 |
| 0016 | 1275000000-E | 600 | PRIME COAT | 96,600 GAL | 2.50 | 241,500.00 |
| 0017 | 1498000000-E | 610 | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B | 7,200 TON | 50.00 | 360,000.00 |
| 0018 | 1503000000-E | 610 | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C | 43,700 TON | 44.00 | 1,922,800.00 |
| 0019 | 1519000000-E | 610 | ASPHALT CONC SURFACE COURSE, TYPE S9.5B | 8,350 TON | 59.50 | 496,825.00 |
| 0020 | 1523000000-E | 610 | ASPHALT CONC SURFACE COURSE, TYPE S9.5C | 36,600 TON | 44.00 | 1,610,400.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0021 | 1575000000-E | 620 | ASPHALT BINDER FOR PLANT MIX | 5,104 TON | 415.00 | 2,118,160.00 |
| 0022 | 1840000000-E | 665 | MILLED RUMBLE STRIPS (ASPHALT CONCRETE) | 111,500 LF | 0.17 | 18,955.00 |
| 0023 | 2143000000-E | 818 | BLOTTING SAND | 31 TON | 75.00 | 2,325.00 |
| 0024 | 2364200000-N | 840 | FRAME WITH TWO GRATES, STD 840.20 | 1 EA | 1,000.00 | 1,000.00 |
| 0025 | 2374000000-N | 840 | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) | 1 EA | 1,000.00 | 1,000.00 |
| 0026 | 2374000000-N | 840 | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) | 1 EA | 1,000.00 | 1,000.00 |
| 0027 | 2396000000-N | 840 | FRAME WITH COVER, STD 840.54 | 2 EA | 1,000.00 | 2,000.00 |
| 0028 | 2451000000-N | 852 | CONCRETE TRANSITIONAL SECTION FOR DROP INLET | 11 EA | 885.00 | 9,735.00 |
| 0029 | 2473000000-N | SP | GENERIC DRAINAGE ITEM ADJUSTMENT OF JUNCTION BOXES | 2 EA | 2,000.00 | 4,000.00 |
| 0030 | 2549000000-E | 846 | 2'-6" CONCRETE CURB & GUTTER | 4,900 LF | 18.38 | 90,062.00 |
| 0031 | 2556000000-E | 846 | SHOULDER BERM GUTTER | 1,750 LF | 14.95 | 26,162.50 |
| 0032 | 2577000000-E | 846 | CONCRETE EXPRESSWAY GUTTER | 10,500 LF | 26.00 | 273,000.00 |
| 0033 | 2647000000-E | 852 | 5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED) | 3,400 SY | 45.35 | 154,190.00 |
| 0034 | 2724000000-E | 857 | PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED | 650 LF | 95.00 | 61,750.00 |
| 0035 | 2800000000-N | 858 | ADJUSTMENT OF CATCH BASINS | 2 EA | 1,000.00 | 2,000.00 |
| 0036 | 2815000000-N | 858 | ADJUSTMENT OF DROP INLETS | 12 EA | 1,000.00 | 12,000.00 |
| 0037 | 2830000000-N | 858 | ADJUSTMENT OF MANHOLES | 2 EA | 1,500.00 | 3,000.00 |
| 0038 | 3000000000-N | SP | IMPACT ATTENUATOR UNIT, TYPE 350 | 12 EA | 25,000.00 | 300,000.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0039 | 3030000000-E | 862 | STEEL BEAM GUARDRAIL | 21,800 LF | 15.25 | 332,450.00 |
| 0040 | 3150000000-N | 862 | ADDITIONAL GUARDRAIL POSTS | 10 EA | 45.00 | 450.00 |
| 0041 | 3210000000-N | 862 | GUARDRAIL END UNITS, TYPE CAT-1 | 18 EA | 500.00 | 9,000.00 |
| 0042 | 3287000000-N | SP | GUARDRAIL END UNITS, TYPE TL-3 | 26 EA | 3,000.00 | 78,000.00 |
| 0043 | 3317000000-N | SP | GUARDRAIL ANCHOR UNITS, TYPE B-77 | 34 EA | 1,500.00 | 51,000.00 |
| 0044 | 3345000000-E | 864 | REMOVE & RESET EXISTING GUARD-RAIL | 75 LF | 12.00 | 900.00 |
| 0045 | 3360000000-E | 863 | REMOVE EXISTING GUARDRAIL | 50 LF | 2.00 | 100.00 |
| 0046 | 3389400000-E | 865 | DOUBLE FACED CABLE GUIDERAIL | 26,500 LF | 6.75 | 178,875.00 |
| 0047 | 3389500000-N | 865 | ADDITIONAL GUIDERAIL POSTS | 10 EA | 85.00 | 850.00 |
| 0048 | 3389600000-N | 865 | CABLE GUIDERAIL ANCHOR UNITS | 39 EA | 1,500.00 | 58,500.00 |
| 0049 | 3656000000-E | 876 | GEOTEXTILE FOR DRAINAGE | 750 SY | 4.65 | 3,487.50 |
| 0050 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (A) | 3,156 SF | 17.00 | 53,652.00 |
| 0051 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (B) | 419 SF | 17.00 | 7,123.00 |
| 0052 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (D) | 169 SF | 17.00 | 2,873.00 |
| 0053 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (E) | 1,040 SF | 17.00 | 17,680.00 |
| 0054 | 4025000000-E | 901 | CONTRACTOR FURNISHED, TYPE *** SIGN (F) | 61 SF | 17.00 | 1,037.00 |
| 0055 | 4048000000-E | 902 | REINFORCED CONCRETE SIGN FOUN-DATIONS | 22 CY | 950.00 | 20,900.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0056 | 4054000000-E | 902 | PLAIN CONCRETE SIGN FOUNDATIONS | 2 CY | 400.00 | 800.00 |
| 0057 | 4060000000-E | 903 | SUPPORTS, BREAKAWAY STEEL BEAM | 11,855 LB | 5.50 | 65,202.50 |
| 0058 | 4066000000-E | 903 | SUPPORTS, SIMPLE STEEL BEAM | 9,349 LB | 5.50 | 51,419.50 |
| 0059 | 4072000000-E | 903 | SUPPORTS, 3-LB STEEL U-CHANNEL | 3,365 LF | 7.00 | 23,555.00 |
| 0060 | 4078000000-E | 903 | SUPPORTS, 2-LB STEEL U-CHANNEL | 12 EA | 55.00 | 660.00 |
| 0061 | 4096000000-N | 904 | SIGN ERECTION, TYPE D | 19 EA | 150.00 | 2,850.00 |
| 0062 | 4102000000-N | 904 | SIGN ERECTION, TYPE E | 105 EA | 75.00 | 7,875.00 |
| 0063 | 4108000000-N | 904 | SIGN ERECTION, TYPE F | 7 EA | 150.00 | 1,050.00 |
| 0064 | 4109000000-N | 904 | SIGN ERECTION, TYPE *** (OVERHEAD) (A) | 8 EA | 950.00 | 7,600.00 |
| 0065 | 4109000000-N | 904 | SIGN ERECTION, TYPE *** (OVERHEAD) (B) | 2 EA | 450.00 | 900.00 |
| 0066 | 4110000000-N | 904 | SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A) | 23 EA | 650.00 | 14,950.00 |
| 0067 | 4110000000-N | 904 | SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B) | 15 EA | 275.00 | 4,125.00 |
| 0068 | 4114000000-N | 904 | SIGN ERECTION, MILEMARKERS | 12 EA | 100.00 | 1,200.00 |
| 0069 | 4116100000-N | 904 | SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (F) | 1 EA | 250.00 | 250.00 |
| 0070 | 4116100000-N | 904 | SIGN ERECTION, RELOCATE TYPE **** (GROUND MOUNTED) (MILEMARKER) | 2 EA | 100.00 | 200.00 |
| 0071 | 4155000000-N | 907 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL | 3 EA | 1.50 | 4.50 |
| 0072 | 4192000000-N | 907 | DISPOSAL OF SUPPORT, U-CHANNEL | 3 EA | 1.50 | 4.50 |

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0073 | 4234000000-N | 907 | DISPOSAL OF SIGN, A OR B (OVERHEAD) | 1 EA | 1.50 | 1.50 |
| 0074 | 4400000000-E | 1110 | WORK ZONE SIGNS (STATIONARY) | 320 SF | 13.50 | 4,320.00 |
| 0075 | 4405000000-E | 1110 | WORK ZONE SIGNS (PORTABLE) | 192 SF | 9.25 | 1,776.00 |
| 0076 | 4410000000-E | 1110 | WORK ZONE SIGNS (BARRICADE MOUNTED) | 210 SF | 9.50 | 1,995.00 |
| 0077 | 4415000000-N | 1115 | FLASHING ARROW BOARD | 1 EA | 2,100.00 | 2,100.00 |
| 0078 | 4422000000-N | 1120 | PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM) | 76 DAY | 60.00 | 4,560.00 |
| 0079 | 4430000000-N | 1130 | DRUMS | 92 EA | 41.50 | 3,818.00 |
| 0080 | 4435000000-N | 1135 | CONES | 25 EA | 17.00 | 425.00 |
| 0081 | 4445000000-E | 1145 | BARRICADES (TYPE III) | 336 LF | 25.00 | 8,400.00 |
| 0082 | 4455000000-N | 1150 | FLAGGER | 105 DAY | 50.00 | 5,250.00 |
| 0083 | 4480000000-N | 1165 | TMA | 1 EA | 29,400.00 | 29,400.00 |
| 0084 | 4508000000-E | SP | REMOVE & RESET WATER FILLED BA RRIER | 820 LF | 50.00 | 41,000.00 |
| 0085 | 4510000000-N | 1190 | LAW ENFORCEMENT | 16 HR | 60.00 | 960.00 |
| 0086 | 4516000000-N | 1180 | SKINNY DRUM | 58 EA | 28.50 | 1,653.00 |
| 0087 | 4520000000-N | 1266 | TUBULAR MARKERS (FIXED) | 15 EA | 65.00 | 975.00 |
| 0088 | 4650000000-N | 1251 | TEMPORARY RAISED PAVEMENT MARKERS | 87 EA | 15.00 | 1,305.00 |
| 0089 | 4685000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) | 10,423 LF | 0.92 | 9,589.16 |
| 0090 | 4686000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) | 3,592 LF | 1.10 | 3,951.20 |
| 0091 | 4695000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) | 336 LF | 2.00 | 672.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0092 | 4700000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS) | 490 LF | 4.00 | 1,960.00 |
| 0093 | 4710000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS) | 217 LF | 15.00 | 3,255.00 |
| 0094 | 4725000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) | 62 EA | 225.00 | 13,950.00 |
| 0095 | 4770000000-E | 1205 | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III) | 988 LF | 8.00 | 7,904.00 |
| 0096 | 4770000000-E | 1205 | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV) | 491 LF | 5.50 | 2,700.50 |
| 0097 | 4780000000-E | 1205 | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III) | 125 LF | 16.00 | 2,000.00 |
| 0098 | 4810000000-E | 1205 | PAINT PAVEMENT MARKING LINES (4") | 13,282 LF | 0.30 | 3,984.60 |
| 0099 | 4815000000-E | 1205 | PAINT PAVEMENT MARKING LINES (6") | 3,888 LF | 0.45 | 1,749.60 |
| 0100 | 4820000000-E | 1205 | PAINT PAVEMENT MARKING LINES (8") | 212 LF | 1.00 | 212.00 |
| 0101 | 4825000000-E | 1205 | PAINT PAVEMENT MARKING LINES (12") | 566 LF | 1.50 | 849.00 |
| 0102 | 4847030000-E | 1205 | POLYUREA PAVEMENT MARKING LINES (6", 20 MILS) | 144,444 LF | 0.92 | 132,888.48 |
| 0103 | 4847070000-E | 1205 | POLYUREA PAVEMENT MARKING LINES (12", 20 MILS) | 4,717 LF | 1.75 | 8,254.75 |
| 0104 | 4850000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (4") | 6,796 LF | 1.00 | 6,796.00 |
| 0105 | 4855000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (6") | 3,145 LF | 1.25 | 3,931.25 |
| 0106 | 4860000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (8") | 400 LF | 2.00 | 800.00 |
| 0107 | 4865000000-E | 1205 | REMOVAL OF PAVEMENT MARKING LINES (12") | 1,950 LF | 4.00 | 7,800.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0108 | 4900000000-N | 1251 | PERMANENT RAISED PAVEMENT MARKERS | 61 EA | 9.00 | 549.00 |
| 0109 | 4905000000-N | 1253 | SNOWPLOWABLE PAVEMENT MARKERS | 1,493 EA | 35.00 | 52,255.00 |
| 0110 | 4935000000-N | 1267 | FLEXIBLE DELINEATORS (CRYSTAL) | 154 EA | 55.00 | 8,470.00 |
| 0111 | 4940000000-N | 1267 | FLEXIBLE DELINEATORS (YELLOW) | 134 EA | 55.00 | 7,370.00 |
| 0112 | 4945000000-N | 1267 | FLEXIBLE DELINEATORS (CRYSTAL & RED) | 15 EA | 55.00 | 825.00 |
| 0113 | 4950000000-N | 1267 | FLEXIBLE DELINEATORS (YELLOW & RED) | 15 EA | 55.00 | 825.00 |
| 0114 | 6000000000-E | 1605 | TEMPORARY SILT FENCE | 2,200 LF | 2.35 | 5,170.00 |
| 0115 | 6006000000-E | 1610 | STONE FOR EROSION CONTROL, CLASS A | 440 TON | 55.00 | 24,200.00 |
| 0116 | 6009000000-E | 1610 | STONE FOR EROSION CONTROL, CLASS B | 600 TON | 55.00 | 33,000.00 |
| 0117 | 6012000000-E | 1610 | SEDIMENT CONTROL STONE | 850 TON | 55.00 | 46,750.00 |
| 0118 | 6015000000-E | 1615 | TEMPORARY MULCHING | 3 ACR | 1,000.00 | 3,000.00 |
| 0119 | 6018000000-E | 1620 | SEED FOR TEMPORARY SEEDING | 100 LB | 1.00 | 100.00 |
| 0120 | 6021000000-E | 1620 | FERTILIZER FOR TEMPORARY SEEDING | 0.5 TON | 400.00 | 200.00 |
| 0121 | 6024000000-E | 1622 | TEMPORARY SLOPE DRAINS | 1,100 LF | 20.00 | 22,000.00 |
| 0122 | 6030000000-E | 1630 | SILT EXCAVATION | 1,600 CY | 15.00 | 24,000.00 |
| 0123 | 6036000000-E | 1631 | MATTING FOR EROSION CONTROL | 1,500 SY | 1.75 | 2,625.00 |
| 0124 | 6042000000-E | 1632 | 1/4" HARDWARE CLOTH | 2,250 LF | 5.00 | 11,250.00 |
| 0125 | 6071010000-E | SP | WATTLE | 1,000 LF | 7.50 | 7,500.00 |
| 0126 | 6084000000-E | 1660 | SEEDING & MULCHING | 7 ACR | 1,895.00 | 13,265.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0127 | 6087000000-E | 1660 | MOWING | 12 ACR | 70.00 | 840.00 |
| 0128 | 6090000000-E | 1661 | SEED FOR REPAIR SEEDING | 150 LB | 2.95 | 442.50 |
| 0129 | 6093000000-E | 1661 | FERTILIZER FOR REPAIR SEEDING | 0.25 TON | 1,000.00 | 250.00 |
| 0130 | 6096000000-E | 1662 | SEED FOR SUPPLEMENTAL SEEDING | 175 LB | 4.70 | 822.50 |
| 0131 | 6108000000-E | 1665 | FERTILIZER TOPDRESSING | 5.25 TON | 550.00 | 2,887.50 |
| 0132 | 6114500000-N | 1667 | SPECIALIZED HAND MOWING | 10 MHR | 85.00 | 850.00 |
| 0133 | 6117000000-N | SP | RESPONSE FOR EROSION CONTROL | 13 EA | 100.00 | 1,300.00 |
| 0134 | 6117500000-N | SP | CONCRETE WASHOUT STRUCTURE | 8 EA | 2,500.00 | 20,000.00 |
| 0135 | 6133000000-N | SP | GENERIC EROSION CONTROL ITEM REMOVAL OF EROSION CONTROL DEVICES | Lump Sum LS | 65,000.00 | 65,000.00 |
| 0136 | 7060000000-E | 1705 | SIGNAL CABLE | 600 LF | 3.25 | 1,950.00 |
| 0137 | 7120000000-E | 1705 | VEHICLE SIGNAL HEAD (12", 3 SECTION) | 6 EA | 850.00 | 5,100.00 |
| 0138 | 7264000000-E | 1710 | MESSENGER CABLE (3/8") | 300 LF | 3.50 | 1,050.00 |
| 0139 | 7300000000-E | 1715 | UNPAVED TRENCHING (**********) (1, 2") | 750 LF | 8.50 | 6,375.00 |
| 0140 | 7300000000-E | 1715 | UNPAVED TRENCHING (**********) (3, 2") | 10 LF | 11.50 | 115.00 |
| 0141 | 7301000000-E | 1715 | DIRECTIONAL DRILL (**********) (1, 2") | 120 LF | 15.75 | 1,890.00 |
| 0142 | 7324000000-N | 1716 | JUNCTION BOX (STANDARD SIZE) | 9 EA | 250.00 | 2,250.00 |
| 0143 | 7360000000-N | 1720 | WOOD POLE | 5 EA | 925.00 | 4,625.00 |
| 0144 | 7372000000-N | 1721 | GUY ASSEMBLY | 6 EA | 250.00 | 1,500.00 |
| 0145 | 7408000000-E | 1722 | 1" RISER WITH WEATHERHEAD | 1 EA | 425.00 | 425.00 |

Contract Item Sheets For C203845

| Line # | ItemNumber | Sec # | Description | Quantity Unit | Unit Bid Price | Amount Bid |
|---|---|---|---|---|---|---|
| 0146 | 7420000000-E | 1722 | 2" RISER WITH WEATHERHEAD | 4 EA | 525.00 | 2,100.00 |
| 0147 | 7444000000-E | 1725 | INDUCTIVE LOOP SAWCUT | 220 LF | 8.00 | 1,760.00 |
| 0148 | 7456000000-E | 1726 | LEAD-IN CABLE (**********) (14-2) | 1,250 LF | 1.95 | 2,437.50 |
| 0149 | 7636000000-N | 1745 | SIGN FOR SIGNALS | 2 EA | 425.00 | 850.00 |
| 0150 | 7684000000-N | 1750 | SIGNAL CABINET FOUNDATION | 1 EA | 1,200.00 | 1,200.00 |
| 0151 | 7756000000-N | 1751 | CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED) | 1 EA | 13,325.00 | 13,325.00 |
| 0152 | 7780000000-N | 1751 | DETECTOR CARD (TYPE 2070L) | 3 EA | 110.00 | 330.00 |
| 0153 | 7901000000-N | 1753 | CABINET BASE EXTENDER | 1 EA | 450.00 | 450.00 |
| 0154 | 7980000000-N | SP | GENERIC SIGNAL ITEM MICROWAVE VEHICLE DETECTOR - SINGLE ZONE | 1 EA | 900.00 | 900.00 |
| 0155 | 0022000000-E | 225 | UNCLASSIFIED EXCAVATION | 1,000 CY | 10.50 | 10,500.00 |
| 0156 | 1011000000-N | 500 | FINE GRADING | Lump Sum LS | 775,000.00 | 775,000.00 |
| 0157 | 1231000000-E | 560 | SHOULDER BORROW | 10,000 CY | 0.01 | 100.00 |

**TOTAL AMOUNT OF BID FOR ENTIRE PROJECT** **$16,056,942.24**

**1016/Jan30/Q1148719/D661940210000/E156**

Contract No C203845

County Cleveland

Rev. 1-16-18

## EXECUTION OF CONTRACT
## NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

## CORPORATION

The Contractor declares (or certifies, verifies, or states) under penalty of perjury under the laws of the United States that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion and Debarment Certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

## SIGNATURE OF CONTRACTOR

The Lane Construction Corporation

Full name of Corporation

90 Fieldstone Court, Cheshire CT 06410

Address as Prequalified

Attest Vincent J. Caiola

Secretary ~~/Assistant Secretary~~

*Select appropriate title*

Vincent J. Caiola
Vice President, Treasurer
& Secretary

Print or type Signer's name

By

~~President/Vice President/Assistant~~ Vice President Executive

*Select appropriate title*

Mark J. Tomkalski
Executive Vice President & CFO

Print or type Signer's name

**CORPORATE SEAL**

THE LANE CONSTRUCTION CORPORATION ★ CHESHIRE CT ★ 1902

Contract No C203845
County Cleveland

Rev. 1-16-18

## 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.

Contract No. C203845

County Cleveland

Rev. 1-16-18

## 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 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.** **C203845**

**County (ies):** **Cleveland**

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

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

2/15/2018
Date

Execution of Contract and Bonds
Approved as to Form:

DocuSigned by:
5FBB09F93D07493...
Attorney General

2/15/2018
Date

Contract No C203845
County Cleveland

Rev 5-17-11

Bond No.: 012207256 (Liberty)
47SUR300016010045 (Berkshire)
09254329 (F&D)
860872 (NUFIC)

# CONTRACT PAYMENT BOND

| | |
|---|---|
| Date of Payment Bond Execution | February 12, 2018 |
| Name of Principal Contractor | The Lane Construction Corporation |
| Name of Surety: | Liberty Mutual Insurance Company and Berkshire Hathaway Specialty Insurance Company and Fidelity and Deposit Company of Maryland and National Union Fire Insurance Company of Pittsburgh, PA |
| Name of Contracting Body: | **North Carolina Department of Transportation** |
| | **Raleigh, North Carolina** |
| Amount of Bond: | $16,056,942.24 |
| Contract ID No.: | C203845 |
| County Name: | Cleveland |

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. C203845

County Cleveland

Rev 5-17-11

# CONTRACT PAYMENT BOND

*Affix Seal of Surety Company*

Liberty Mutual Insurance Company and Berkshire Hathaway Specialty Insurance Company and Fidelity and Deposit Company of Maryland and National Union Fire Insurance Company of Pittsburgh, PA

Print or type Surety Company Name

By Theresan E. Rowedder, Attorney-in-Fact

Print, stamp or type name of Attorney-in-Fact

Theresan E. Rowedder

Signature of Attorney-in-Fact

Signature of Witness

Jennifer Overkamp, Witness

Print or type Signer's name

One Federal Street, 20th Floor, Boston, MA 02110

Address of Attorney-in-Fact

Contract No C203845
County Cleveland

Rev 5-17-11

**CONTRACT PAYMENT BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

The Lane Construction Corporation

Full name of Corporation

90 Fieldstone Court, Cheshire CT 06410

Address as prequalified

By _____

Signature of ~~President, Vice President, Assistant~~ Vice President

*Select appropriate title* Executive

Mark J. Tomkalski

Executive Vice President & CFO

Print or type Signer's name

*Affix Corporate Seal*

Attest _____

Signature of ~~Secretary, Assistant Secretary~~

*Select appropriate title*

Vincent J. Caiola

Vice President, Treasurer

& Secretary

Print or type Signer's name

Contract No. C203845
County Cleveland

Rev 5-17-11

Bond No.: 012207256 (Liberty)
47SUR300016010045 (Berkshire)
09254329 (F&D)
860872 (NUFIC)

# CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: February 12, 2018

Name of Principal Contractor: The Lane Construction Corporation

Name of Surety: Liberty Mutual Insurance Company and Berkshire Hathaway Specialty Insurance Company and Fidelity and Deposit Company of Maryland and National Union Fire Insurance Company of Pittsburgh, PA

Name of Contracting Body: **North Carolina Department of Transportation**

**Raleigh, North Carolina**

Amount of Bond: $16,056,942.24

Contract ID No.: C203845

County Name: Cleveland

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. C203845

County Cleveland

Rev 5-17-11

# CONTRACT PERFORMANCE BOND

*Affix Seal of Surety Company*

Liberty Mutual Insurance Company and Berkshire Hathaway Specialty Insurance Company and Fidelity and Deposit Company of Maryland and National Union Fire Insurance Company of Pittsburgh, PA

Print or type Surety Company Name

By Theresan E. Rowedder, Attorney-in-Fact

Print, stamp or type name of Attorney-in-Fact

Theresan E. Rowedder

Signature of Attorney-in-Fact

Signature of Witness

Jennifer Overkamp, Witness

Print or type Signer's name

One Federal Street, 20th Floor, Boston, MA 02110

Address of Attorney-in-Fact

Contract No. C203845
County Cleveland

Rev 5-17-11

**CONTRACT PERFORMANCE BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

The Lane Construction Corporation

Full name of Corporation

90 Fieldstone Court, Cheshire CT 06410

Address as prequalified

By _____

Signature of ~~President, Vice President, Assistant~~ Vice President

*Select appropriate title* Executive

Mark J. Tomkalski

Executive Vice President & CFO

Print or type Signer's name

*Affix Corporate Seal*

Attest _____

Signature of Secretary, ~~Assistant Secretary~~

*Select appropriate title*

Vincent J. Caiola

Vice President, Treasurer

& Secretary

Print or type Signer's name

**THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.**
**This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.**

Certificate No 7856117

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

# POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint,

Bryan Huft; Jane Gilson; Jean Correia; Kevin A. White; Maria Chaves; Mark P. Herendeen; Theresan E. Rowedder

all of the city of Boston, state of MA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 7th day of August, 2017.

The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 7th day of August, 2017 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute 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 have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

**ARTICLE IV – OFFICERS** – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**ARTICLE XIII** – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

**Certificate of Designation** – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by the Companies, 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 12TH day of FEBRUARY, 20 18

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



LMS_12873_022017

**ZURICH AMERICAN INSURANCE COMPANY**
**COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**
**FIDELITY AND DEPOSIT COMPANY OF MARYLAND**
**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Maryland, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Maryland (herein collectively called the "Companies"), by **GERALD F. HALEY, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Kevin A. WHITE, Mark P. HERENDEEN, Jean CORREIA, Maria CHAVES, Theresan E. ROWEDDER, Bryan HUFT and Jane GILSON, all of Boston, Massachusetts, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 10th day of April, A.D. 2017.

**ATTEST:**

**ZURICH AMERICAN INSURANCE COMPANY**
**COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**
**FIDELITY AND DEPOSIT COMPANY OF MARYLAND**

By: _____
*Secretary*
*Michael McKibben*

_____
*Vice President*
*Gerald F. Haley*

**State of** Maryland
County of Baltimore

On this 10th day of April, A.D. 2017, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **GERALD F. HALEY, Vice President, and MICHAEL MCKIBBEN, Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

POA-F 063-0474

## EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

## CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 28th day of FEBRUARY, 2018.

Michael Bond, Vice President

**TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:**

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

Berkshire Hathaway Specialty Insurance

# Power Of Attorney

## BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY
## NATIONAL INDEMNITY COMPANY / NATIONAL LIABILITY & FIRE INSURANCE COMPANY

Know all men by these presents, that **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY**, a corporation existing under and by virtue of the laws of the State of Nebraska and having an office at 100 Federal Street, 20th Floor, Boston, Massachusetts 02110, **NATIONAL INDEMNITY COMPANY**, a corporation existing under and by virtue of the laws of the State of Nebraska and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY**, a corporation existing under and by virtue of the laws of the State of Connecticut (hereinafter collectively the "Companies"), pursuant to and by the authority granted as set forth herein, do hereby name, constitute and appoint: **Maria Chaves, Jean Correia, Theresan E. Rowedder, Jane Gilson, Mark P. Herendeen, One Federal Street, 20th Floor of the city of Boston State of Massachusetts,** their true and lawful attorney(s)-in-fact to make, execute, seal, acknowledge, and deliver, for and on their behalf as surety and as their act and deed, any and all undertakings, bonds, or other such writings obligatory in the nature thereof, in pursuance of these presents, the execution of which shall be as binding upon the Companies as if it has been duly signed and executed by their regularly elected officers in their own proper persons. **This authority for the Attorney-in-Fact shall be limited to the execution of the attached bond(s) or other such writings obligatory in the nature thereof.**

In witness whereof, this Power of Attorney has been subscribed by an authorized officer of the Companies, and the corporate seals of the Companies have been affixed hereto this date of November 2, 2017. This Power of Attorney is made and executed pursuant to and by authority of the Bylaws, Resolutions of the Board of Directors, and other Authorizations of **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY, NATIONAL INDEMNITY COMPANY** and **NATIONAL LIABILITY & FIRE INSURANCE COMPANY**, which are in full force and effect, each reading as appears on the back page of this Power of Attorney, respectively. The following signature by an authorized officer of the Company may be a facsimile, which shall be deemed the equivalent of and constitute the written signature of such officer of the Company for all purposes regarding this Power of Attorney, including satisfaction of any signature requirements on any and all undertakings, bonds, or other such writings obligatory in the nature thereof, to which this Power of Attorney applies.

**BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY,**

By: _____
David Fields, Executive Vice President

**NATIONAL INDEMNITY COMPANY, NATIONAL LIABILITY & FIRE INSURANCE COMPANY,**

By: _____
David Fields, Vice President

NOTARY
State of Massachusetts, County of Suffolk, ss:
On November 2, 2017 before me appeared David Fields, Executive Vice President of BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY and Vice President of NATIONAL INDEMNITY COMPANY and NATIONAL LIABILITY & FIRE INSURANCE COMPANY, who being duly sworn, says that his capacity is as designated above for such Companies; that he knows the corporate seals of the Companies; that the seals affixed to the foregoing instrument are such corporate seals; that they were affixed by order of the board of directors or other governing body of said Companies pursuant to its Bylaws, Resolutions and other Authorizations, and that he signed said instrument in that capacity of said Companies.
[Notary Seal]

_____
Notary Public

I, Ralph Tortorella, the undersigned, Officer of **BERKSHIRE HATHAWAY SPECIALTY INSURANCE COMPANY, NATIONAL INDEMNITY COMPANY** and **NATIONAL LIABILITY & FIRE INSURANCE 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 affixed the seals of said companies this date of February 12, 2018.

_____
Officer

To verify the authenticity of this Power of Attorney please contact us at: BHSI Surety Department, Berkshire Hathaway Specialty Insurance Company, 100 Federal Street. 20th floor, Boston MA 02110 (617) 936-2971 or by email at Courtney.Walker@bhspecialty.com. THIS POWER OF ATTORNEY IS VOID IF ALTERED.
To notify us of claim please contact us on our 24-hour toll free number at (855) 453-9675, via email at claimsnotice@bhspecialty.com, via fax to (617) 507-8529, or via mail 500 Northpark Town Center, 1100 Abernathy Road, N.E., Suite 1200, Atlanta, GA 30328

# POWER OF ATTORNEY

**American Home Assurance Company** **Power No. 2976**
**National Union Fire Insurance Company of Pittsburgh, PA.**
Principal Bond Office: 175 Water Street, New York, NY 10038

No. 01-B-103378

**KNOW ALL MEN BY THESE PRESENTS:**

That American Home Assurance Company, a New York corporation, and National Union Fire Insurance Company of Pittsburgh, PA., a Pennsylvania corporation, does each hereby appoint

—Mark P. Herendeen, Jean Correia, Maria Chaves, Jane Gilson, Theresan E. Rowedder of Boston, Massachusetts—

its true and lawful Attorney(s)-in-Fact, with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business, and to bind the respective company thereby.

**IN WITNESS WHEREOF,** American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, PA. have each executed these presents

this 17th day of July, 2017

Michael Yang, Vice President

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**STATE OF NEW YORK** }
**COUNTY OF NEW YORK** } **ss.**

On this 17th day of July, 2017 before me came the above named officer of American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, PA., to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seals of said corporations thereto by authority of his office.

JULIANA HALLENBECK
Notary Public - State of New York
No. 01HA6125871
Qualified in Bronx County
My Commission Expires April 18, 2021

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## CERTIFICATE

Exerpts of Resolutions adopted by the Boards of Directors of American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, PA. on May 18, 1976:

**"RESOLVED,** that the Chairman of the Board, the President, or any Vice President be, and hereby is, authorized to appoint Attorneys-in-Fact to represent and act for and on behalf of the Company to execute bonds, undertakings, recognizances and other contracts of indemity and writings obligatory in the nature thereof, and to attach thereto the corporate seal of the Company, in the transaction of its surety business;

**"RESOLVED,** that the signatures and attestations of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the Company when so affixed with respect to any bond, undertaking, recognizance and other contract of indemnity and writing obligatory in the nature thereof;

**"RESOLVED,** that any such Attorney-in-Fact delivering a secretarial certification that the foregoing resolutions still be in effect may insert in such certification the date thereof, said date to be not later than the date of delivery thereof by such Attorney-in-Fact."

I, Martin Bogue, Assistant Secretary of American Home Assurance Company and of National Union Fire Insurance Company of Pittsburgh, PA. do hereby certify that the foregoing exerpts of Resolutions adopted by the Boards of Directors of these corporations, and the Powers of Attorney issued pursuant thereto, are true and correct, and that both the Resolutions and the Powers of Attorney are in full force and effect.

**IN WITNESS WHEREOF,** I have hereunto set my hand and affixed the facsimile seal of each corporation

this 13th day of February, 2018

Martin Bogue, Assistant Secretary

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