

CITY OF WILMINGTON, NC BID INVITATION

BIDS ARE DUE: MAY 3, 2022 AT 3:00 PM

PRE-BID MEETING: APRIL 5, 2022 AT 3:00 PM

PROJECT NAME: HOLLY TREE SIDEWALK IMPROVEMENTS

PROJECT NUMBER: CITY OF WILMINGTON 2TRST1590
NCDOT U-5534Q

PROJECT DIRECTOR: Mike Kozlosky

PROJECT ENGINEER: Jason Pace, P.E.

SUBMIT BIDS TO: PURCHASING MANAGER
P. O. BOX 1810
305 CHESTNUT ST., 5th FLOOR
WILMINGTON, N. C. 28401
(910)341-7830

BIDDERS NAME: _____

ADDRESS: _____

TELEPHONE: _____

FAX: _____

EMAIL: _____

PRE-BID MEETING LOCATION: 305 Chestnut Street
1st Floor Annex Training Room

ADVERTISEMENT FOR BIDS
CITY OF WILMINGTON, NC
HOLLY TREE SIDEWALK IMPROVEMENTS
CONTRACT NUMBER: U-5534Q

Pursuant to North Carolina General Statute 143-129, sealed proposals addressed to the Purchasing Manager, P. O. Box 1810, 305 Chestnut Street, 5th Floor, Wilmington, NC 28402, and marked "HOLLY TREE SIDEWALK IMPROVEMENTS" will be received until 3:00 p.m., Tuesday, May 3, 2022 at which time they will be publicly opened and read at the Purchasing Division, 305 Chestnut Street, 1st Floor Annex, Wilmington, NC. The City will receive SINGLE PRIME BIDS ONLY for this project.

Project Description: This project will be the construction of an 87 linear foot(LF) 5' wide sidewalk and 175 LF of 8' wide multi-use path constructed within the right-of-way of Holly Tree Road east of College Road. The work shall include, but is not limited to excavation, grading, asphalt paving, drainage, curb ramps, erosion control, and other incidentals.

All firms submitting bids for the proposed work must be properly licensed under Chapter 87, N. C. General Statutes. The bidder's license number must appear on the outside of the envelope. Bidders are required to be prequalified with NCDOT for their specific discipline in order to be considered for this work. Please refer to Section 102-2 of the NCDOT 2018 Standard Specifications. Contractors wishing to become prequalified may obtain information through the NCDOT webs <http://www.ncdot.gov/business/>.

In accordance with the City of Wilmington's Minority/Disadvantaged Business Policy, the bidder shall make good faith efforts, as defined by the Bid Specifications, to subcontract 14% of the dollar value of the prime contract to businesses which are at least 51% owned and controlled by minority, socially, women owned, and/or economically disadvantaged individuals (MBE/DBE's/WBE's). A complete copy of the City of Wilmington's MBE/DBE policy is available for inspection at the Purchasing Manager's Office.

Potential Subcontract opportunities which may exist on this project include, but may not be limited to Asphalt Paving, Pavement Markings, Concrete, Curb & Gutter, Hauling, Grading, Erosion Control, Landscape, Traffic Control, Electrical, Drainage, Suppliers and other items not specifically referenced herein.

If the bidder fails to achieve the contract goal stated herein, it is required to provide documentation demonstrating that it made a good faith effort in attempting to meet the established goals. A bid which fails to meet these requirements will be considered non-responsive and will be rejected.

A Pre-Bid Conference will be held at 3:00 p.m., Tuesday, APRIL 5, 2022 at 305 Chestnut Street, 1st Floor Annex, Wilmington, NC. All parties interested in the project are invited to attend.

Plans, Specifications and Bid Documents are available for review at the Office of the Purchasing Manager, 305 Chestnut Street, 5th Floor, Wilmington, NC., or contact Christine Karem at christine.karem@wilmingtonnc.gov for an electronic version.

. Potential subcontractors may secure a list of potential prime contractors from the City's website, www.wilmingtonnc.gov.

The City of Wilmington does not discriminate on the basis of race, sex, color, age, national origin, religion or disability in its employment opportunities, programs, services, or activities.

Bids for this project shall be guaranteed by all bidders for a period of 90 calendar days following the bid opening. **The City of Wilmington Reserves the Right to Reject any and all Bids.**

Daryle L. Parker
Purchasing Manager
March 25, 2022



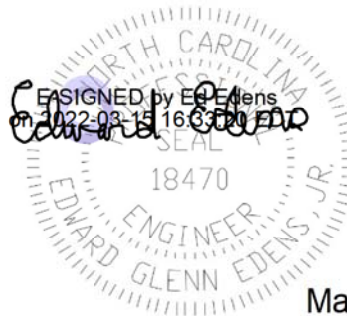
**TECHNICAL SPECIFICATIONS, STANDARD PROVISIONS,
SPECIAL CONDITIONS AND SPECIAL PROVISIONS**

HOLLY TREE SIDEWALK IMPROVEMENTS

CITY OF WILMINGTON, N.C.

NCDOT U-5534Q

PREPARED BY:



March 15, 2022

EDWARD G. EDENS, JR., PE

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
5438 WADE PARK BLVD, SUITE 200, RALEIGH, NC 27607

HOLLY TREE SIDEWALK IMPROVEMENTS
NCDOT PROJECT NO. U-5534Q

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	PERSONNEL PARKING:	1
	DELIVERY AND ACCEPTANCE OF MATERIALS:	1
	REQUEST FOR INFORMATION (RFI) PROCEDURES:	1
	COORDINATION WITH UTILITY COMPANIES:	1
	ROADWAY	2
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NCDOT STANDARD NOTES (Federal Aid)

- A. NCDOT Standard Specifications – The 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures, herein referred to as the ‘Standard Specifications’, and the 2018 Roadway Standard Drawings, shall apply to all portions of this project except as may be modified by this document.
- B. Bidder Prequalification - Bidders are required to be prequalified with NCDOT for their specific discipline. Contractors wishing to become prequalified may obtain information through the NCDOT website at: <https://connect.ncdot.gov/business/Pages/default.aspx>
- C. Disadvantaged Business Enterprise References - Since this is a Federal-aid project with DBE participation, only those requirements and goals set forth by NCDOT Goal Setting Committee are applicable. References to any other requirements or to N.C. General Statute 143-128.2 shall not apply to this project. Refer to Special Provision SP1 G63.
- D. Award of Contract - The contract will be awarded to the lowest responsible, responsive bidder. Alternate items will not be considered in determining the low bidder and will only be evaluated after the award of the contract is made.
- E. Contractor Licensing – On all Federal-aid contracts, non-licensed contractors are permitted to submit bids, however they must be licensed prior to performing any work. Bidders are permitted 60 days, after bid opening, to become licensed by the North Carolina Licensing Board. If they fail to do so within 60 days, their bid will be considered non-responsive and will be rejected. 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).
- F. Bonds - Please note that all Bid Bonds, Payment Bonds, and Performance Bonds required for this project, shall be those found on the NCDOT website. The bonds are located at:

Bid Bonds (M-5):
<https://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/04%20Bid%20Bonds.doc>

Payment Bonds (M-6):
<https://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/05%20Payment%20Bonds.doc>

Performance Bonds (M-7):
<https://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/06%20Performance%20Bonds.doc>
- G. Liability Insurance – In addition to any insurance requirements as may be required by the LGA, the Contractor is obligated to comply with Article 107-15 of the Standard Specifications including the dollar limits set forth.
- H. Buy America – This project shall be governed by the Buy America requirements, for the use of domestic steel and iron products, as outlined in the Standard Specifications.
- I. Proprietary Items - When a proprietary (brand name) product, whether material, equipment or procedure, are specified in the plans or specifications, they are used only to denote the style, type, character, and quality desired of the product. They do not restrict the bidder from proposing other brands, makes, or manufacturers, which are determined to be of equal quality. The approval, or disapproval of those products, will be made by the Engineer prior to allowing those product(s) or material(s) to be incorporated into the work.

- J. Retainage by LGAs – The LGA for this contract will not retain any amount or percentage from progress payments or final estimates due the contractor. Retainage by Contractors – Contractors are NOT permitted to retain any amount or percentage from monies due their subcontractors or material suppliers on federally funded projects except as permitted by Subarticle 109-4(B) of the Standard Specifications.
- K. Traffic Control –The requirements of the Manual on Uniform Traffic Control Devices (MUTCD) – FHWA, as amended by the NCDOT Supplement to MUTCD, shall apply. Traffic Control, both vehicular and pedestrian, shall be maintained throughout the project as required by these specifications as modified by the project plans or special provisions.

ALLOWABLE CHANGES TO THE NCDOT 2018 STANDARD SPECIFICATIONS:

1. *Article 102-1 Invitation to Bid, page 1-9*, delete this section in its entirety.
2. *Subarticle 102-8(B) Electronic Bids, page 1-15*, delete this section in its entirety.
3. *Subarticle 102-9(C)2 Electronic Bids, page 1-17*, delete this section in its entirety.
4. *Article 102-10 Bid Bond or Bid Deposit, page 1-17, line 38*, “60” days shall be modified to “no modification” days.
5. *Subarticle 102-10 Bid Bond or Bid Deposit, page 1-18*, delete lines 16-27.
6. *Subarticle 102-11 Delivery of Bids, pages 1-18-19*, delete lines 31-32.
7. *Subarticle 102-12(A) Paper Bid, page 1-18, line 37*, the reference to “Contract Officer” shall be changed to “Purchasing Manager”.
8. *Subarticle 102-12(B) Electronic Bid, pages 1-18 and 19*, delete this section in its entirety.
9. *Subarticle 102-13(B)2 Electronic Bids, page 1-19*, delete this section in its entirety.
10. *Subarticle 103-2(B) Electronic Bids, page 1-22*, delete this section in its entirety.
11. *Subarticle 103-3(A) Criteria for Withdrawal of Bid, page 1-22*, modify the reference “G.S.136-28.1” to “G.S.143-129.1”. On page 1-23, in that same subarticle under (5), line 11, modify “State Contract Officer” to “Purchasing Manager”.
12. *Article 103-7 Contract Bonds, page 1-30, line 5*, modify “14” calendar days to “10” calendar days per G.S.143-129.
13. *Article 103-9, Failure to Furnish Contract Bonds, page 1-30, line 15*, modify “14” calendar days to “10” calendar days per G.S.143-129.
14. *Article 105-9 Construction Stakes, Lines and Grades, page 1-48*, delete this section in its entirety and substitute the following: “The Municipality will not set the stakes, lines or grades for this project.”
15. *Article 108-2, Progress Schedule, page 1-68*, add the following requirement as subarticle (D) on page 1-69: “The municipality may add additional requirements as noted in the bid proposal”.
16. *Article 108-3, Preconstruction Conference, page 1-69, line 20*, change “Division Engineer” to “Project Engineer”.
17. *Article 108-4, Construction Conferences, page 1-69, line 28*, change “Resident Engineer” to “Project Engineer”.
18. *Article 109-8, Fuel Price Adjustments, page 1-87*, delete this article in its entirety and substitute the following: “Fuel Price Adjustments will not apply to this project.”
19. *Article-620-4, Measurement and Payment, page 6-33*, delete lines 38 through line 20 on page 6-34 and substitute the following: “Asphalt Price Adjustments will not apply to this project.”

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

CONTRACT:	NAME OF BIDDER:
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The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Local Public Agency as:

Name of MBE/WBE/DBE Subcontractor _____

Address _____

City _____ State _____ Zip _____

Please check all that apply:

Minority Business Enterprise (MBE) _____

Women Business Enterprise (WBE) _____

Disadvantaged Business Enterprise (DBE) _____

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

Commitment Total based on estimated Unit Prices and Quantities on the “attached” MBE/WBE/DBE Commitment Items sheet:

Amount \$ _____

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

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

Affirmation

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

Name of MBE/ WBE/ DBE Subcontractor

Signature / Title

Date

Name of Bidder

Signature / Title

Date

Form DBE-18

**State of North Carolina
Department of Transportation
Subcontractor Payment Information**

Submit with Invoice To: Invoice Coordinator
North Carolina Department of Transportation
Division / Branch
Address
Raleigh, NC XXXXX-XXXX

Firm Invoice No. Reference _____
NCDOT PO / Contract Number _____
WBS No. (State Project No.) _____
Date of Invoice _____ Signed _____

Invoice Line Item Reference	Payer Name	Payer Federal Tax Id	Subcontractor / Subconsultant/ Material Supplier Name	Subcontractor / Subconsultant / Material Supplier Federal Tax Id	Amount Paid To Subcontractor / Subconsultant / Material Supplier This Invoice	Date Paid To Subcontractor / Subconsultant / Material Supplier This Invoice
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
Total Amount Paid to Subcontractor Firms					\$ _____	

NOTE: - These documents are scanned into our Fiscal program. Please do not highlight or shade the figures.

I certify that this information accurately reflects actual payments made and the dates the payments were made to Subcontractors/
Subconsultants/Material Suppliers on the above referenced project.

Signature _____

Title _____

EXECUTION OF BID**NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION****CORPORATION**

The prequalified bidder being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. §133-24* within the last three years, and that the prequalified bidder intends to do the work with his own bona fide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting 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 PREQUALIFIED BIDDER

 Full name of Corporation

 Address as Prequalified

Attest _____
 Secretary/Assistant Secretary
(Select appropriate title)

By _____
 President/Vice President/Assistant Vice President
(Select appropriate title)

 Print or type Signer's name

 Print or type Signer's name
CORPORATE SEAL

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**PARTNERSHIP**

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bona fide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting 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 PREQUALIFIED BIDDER

Full Name of Partnership

Address as Prequalified

Signature of Witness

Signature of Partner

Print or Type Signer's Name

Print or Type Signer's Name

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**LIMITED LIABILITY COMPANY**

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bona fide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting 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 PREQUALIFIED BIDDER

Full Name of Firm

Address as Prequalified

Signature of Witness

Signature of Member/Manager/Authorized Agent
(Select appropriate Title)

Print or Type Signer's Name

Print or Type Signer's Name

NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION**JOINT VENTURE (2) or (3)**

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bona fide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting 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 PREQUALIFIED BIDDER

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

(1) _____
Name of Joint Venture

(2) _____
Name of Contractor

_____ Address as Prequalified		
_____ Signature of Witness or Attest	BY	_____ Signature of Contractor
_____ Print or Type Signer's Name		_____ Print or Type Signer's Name
<i>If Corporation, affix Corporate Seal</i>	AND	

(3) _____
Name of Contractor

_____ Address as Prequalified		
_____ Signature of Witness or Attest	BY	_____ Signature of Contractor
_____ Print or Type Signer's Name		_____ Print or Type Signer's Name
<i>If Corporation, affix Corporate Seal</i>	AND	

(4) _____
Name of Contractor

_____ Address as Prequalified		
_____ Signature of Witness or Attest	BY	_____ Signature of Contractor
_____ Print or Type Signer's Name		_____ Print or Type Signer's Name
<i>If Corporation, affix Corporate Seal</i>		

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME**

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bona fide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting 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 PREQUALIFIED BIDDER

Name of Prequalified Bidder

Individual Name

Trading and Doing Business As

Full name of Firm_____
Address as Prequalified_____
Signature of Witness_____
Signature of Prequalified Bidder, Individual_____
Print or Type Signer's Name_____
Print or Type Signer's Name

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**INDIVIDUAL DOING BUSINESS IN HIS OWN NAME**

The prequalified bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the prequalified bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the prequalified bidder intends to do the work with its own bona fide employees or subcontractors and will not bid for the benefit of another contractor.

By submitting this non-collusion, debarment and gift ban certification, the Contractor is attesting 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 PREQUALIFIED BIDDER

Name of Prequalified Bidder _____

Print or Type Name

Address as Prequalified_____
Signature of Prequalified Bidder, Individually_____
Print or type Signer's Name_____
Signature of Witness_____
Print or type Signer's name

DEBARMENT CERTIFICATION OF PREQUALIFIED BIDDER

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation that is file with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction*, *debarred*, *suspended*, *ineligible*, *lower tier covered transaction*, *participant*, *person*, *primary covered transaction*, *principal*, *proposal*, and *voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐

Check here if an explanation is attached to this certification.

LISTING OF DBE SUBCONTRACTORS			Sheet _____	of _____
Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				

* The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

** Dollar Volume of DBE Subcontractor Percentage of Total Contract Bid Price:

If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.

If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

LISTING OF DBE SUBCONTRACTORS			Sheet _____	of _____
Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				

* The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

** Dollar Volume of DBE Subcontractor \$ _____

Percentage of Total Contract Bid Price _____%

** Dollar Volume of DBE Subcontractor Percentage of Total Contract Bid Price:

If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.

If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

HOLLY TREE ROAD SIDEWALK IMPROVEMENTS

City of Wilmington

Bid Form

TIP No. **U-5534Q**
 Route Holly Tree Road

County: **NEW HANOVER**
 Date: _____

Line Item	Sec No.	Description	Quantity	Unit	Price	Amount
1	800	Mobilization	1	LS		
2	SP	Grading	1	LS		
3	200	Supplementary Clearing and Grubbing	1	Acre		
4	SP	Construction Surveying	1	LS		
5	300	Foundation Conditioning Material, Minor Structures	10	TON		
6	300	Foundation Conditioning Geotextile	30	SY		
7	310	15" RC PIPE CULVERTS, CLASS IV	4	LF		
8	310	18" RC PIPE CULVERTS, CLASS V	64	LF		
9	SP	Precast T.B. J.B. with 4' Diameter MH	1	EA		
10	840	Masonry Drainage Structures (up to 5' depth)	4	EA		
11	840	Frame with Two Grates Std. 840.24	2	EA		
12	840	G.D.I. Type B Std. 840.18	2	EA		
13	840	Manhole Frame and Cover, Std. 840.54	2	EA		
14	840	Concrete Catch Basin, Std. 840.02	1	EA		
15	840	Frame with Grate & Hood, Std. 840.03, Type G	1	EA		
16	SP	Convert Existing Curb Inlet to J.B. with MH	1	EA		
17	607	Incidental Milling	120	SY		
18	610	Asphalt Conc Base Course, Type, B25.0C	60	Tons		
19	610	Asphalt Conc Intermediate Course, Type, I19.0C	30	Tons		
20	610	Asphalt Conc Surface Course, Type, S9.5C	70	Tons		
21	610	Asphalt Binder for Plant Mix	10	Tons		
22	CoW 3-11	2'-0" Curb and Gutter	464	LF		
23	848	4" Concrete Sidewalk	411	SY		
24	848	Concrete Curb Ramp	4	Each		
25	862	Steel Beam Guardrail	150	LF		
26	862	Steel Beam Guardrail, Shop Curved	13	LF		
27	SP	Guardrail End Units, Type TL-2	2	Each		
28	862	Additional Guardrail Posts	5	Each		
29	SP	Handrail	175	LF		
30	863	Remove Existing Guardrail	130	LF		

31	SP	Traffic Control	1	LS		
32	1205	Thermoplastic Pavement Marking Lines (24", 90 MILS)	574	LF		
33	1205	Thermoplastic Pavement Marking Lines (4", 90 MILS)	1,140	LF		
34	1205	Thermoplastic Pavement Marking Symbols (90 MILS)	6	EA		
35	1205	Removal of Pavement Marking Lines (4")	175	LF		
36	1205	Removal of Pavement Marking Symbols & Characters	5	EA		
37	1251	Permanent Raised Pavement Markers	15	EA		
38	876	Geotextile for Drainage	28	SY		
39	1605	Temporary Silt Fence	590	LF		
40	1610	Erosion Control Stone, Class A	55	Ton		
41	SP	Permanent Soil Reinforcement Matting (PSRM)	57	SY		
42	1615	Temporary Mulching	0.50	Acres		
43	1620	Seed for Temporary Seeding	100	LB		
44	1620	Fertilizer for Temporary Seeding	0.50	Ton		
45	1622	Temporary Slope Drain	200	LF		
46	SP	Safety Fence	60	LF		
47	1630	Silt Excavation	30	CY		
48	1631	Matting for Erosion Control	1,125	SY		
49	SP	Wattle	40	LF		
50	1660	Seeding and Mulching	0.50	Acres		
51	1660	Mowing	0.50	Acres		
52	1661	Seed for Repair Seeding	50.0	LB		
53	1661	Fertilizer for Repair Seeding	0.25	Ton		
54	1662	Seed for Supplemental Seeding	50.0	LB		
55	1665	Fertilizer Top Dressing	0.25	Ton		
56	1667	Specialized Hand Mowing	10	HR		
57	SP	Response for Erosion Control	7	EA		
58	SP	Concrete Washout Structure	1	EA		
59	SP	Generic Erosion Control Item - Fabric Insert Inlet Protection Device	2	EA		
60	SP	Generic Erosion Control Item - Fabric Insert Inlet Protection Cleanout	4	EA		
61	1705	PEDESTRIAN SIGNAL HEAD (16", 1 SECTION WITH COUNTDOWN)	6	EA		
62	1705	SIGNAL CABLE	3,060	LF		
63	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	8	EA		
64	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	1	EA		
65	SP	RELOCATE EXISTING VEHICLE SIGNAL HEAD	1	EA		
66	1715	TRACER WIRE	30	LF		

67	1715	UNPAVED TRENCHING (1 conduit, 2 inch)	180	LF		
68	1715	UNPAVED TRENCHING (2 conduits, 2 inch)	60	LF		
69	1715	UNPAVED TRENCHING (3 conduits, 2 inch)	15	LF		
70	1716	JUNCTION BOX (STANDARD SIZE)	1	EA		
71	1716	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	2	EA		
72	1722	2" RISER WITH WEATHERHEAD	4	EA		
73	1722	HEAT SHRINK TUBING RETROFIT KIT	1	EA		
74	1726	LEAD-IN CABLE (14-2)	1,380	LF		
75	1731	MODIFY SPLICE ENCLOSURE	1	EA		
76	1732	FIBER-OPTIC TRANSCEIVER, SELF-HEALING RING	1	EA		
77	1745	SIGN FOR SIGNALS	4	EA		
78	1743	TYPE II PEDESTAL WITH FOUNDATION	6	EA		
79	1750	SIGNAL CABINET FOUNDATION	1	EA		
80	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	1	EA		
81	1751	DETECTOR CARD (TYPE 2070L)	10	EA		
82	1753	CABINET BASE EXTENDER	1	EA		
83	SP	BACK PULL FIBER OPTIC CABLE	300	LF		
84	858	Adjust Water Valve	2	EA		
		TOTAL BID AMOUNT				

In
Words:

_____ (\$ _____)

CONTRACT NO: _____

STATE OF NORTH CAROLINA

NEW HANOVER COUNTY

CONTRACT FOR CONSTRUCTION SERVICES

THIS CONTRACT, made this the ____ day of _____, 2022 by and between the CITY OF WILMINGTON, NORTH CAROLINA, a Municipal Corporation located in New Hanover County (hereinafter called "CITY"); and 1. a corporation organized under the laws of the State of _____; 2. a non-profit corporation organized under the laws of the State of _____; 3. an unincorporated association having its principal place of business in _____; 4. a resident of _____; or 5. owner of a partnership organized under the laws of the State of _____, with its principal offices in _____ (hereinafter called "CONTRACTOR").

W I T N E S S E T H

1. Purpose

The CITY hereby employs the CONTRACTOR to furnish all labor, materials and equipment to perform all work in manner and form as specified by the attached plans, specifications and documents consisting of, but not limited to: Advertisement, Instructions to Bidders, NCDOT 2018 Standard Specifications, Proposal and Affidavit, Contract and Performance and Payment Bonds, which are incorporated as if fully set out, for the following:

HOLLY TREE SIDEWALK IMPROVEMENTS Project as specified herein and on the plans, specifications, contract documents, drawings, addenda and change orders (if any).

2. Term of Contract/Liquidated Damages

The CONTRACTOR shall commence the work to be performed under this contract within ten (10) days of receipt of a written order from the Purchasing Manager, and shall complete all work hereunder within **120 calendar days** of the beginning date. The CONTRACTOR further agrees to pay, as liquidated damages, the sum of \$600.00 for each consecutive calendar day thereafter.

3. Payment

- 3.1 The CITY agrees to pay to the CONTRACTOR for the faithful performance of this contract, subject to any additions or deductions as provided for in the Specifications or Proposal, and in accordance with the prices as set forth, the estimated total cost of _____, (\$_____)

- 3.2 Not later than 30 work days after receipt of a City approved invoice the City will make partial payment to the Contractor on the basis of a duly certified approved estimate by the City Engineer.
 - 3.3 Final payment of this contract shall be made in accordance with Section 109-9 of the 2018 NCDOT Standard Specification and within thirty (30) days after completion by the CONTRACTOR of all work covered by this agreement and the acceptance of such work by the CITY.
4. Performance Bond See Section 107 of the 2018 NCDOT Standard Specifications
5. Insurance; Proof of Coverage

The CONTRACTOR shall take out and maintain, during the life of this contract, all insurance required under 107-15 NCDOT Standard Specifications, and shall, at execution of this contract, attach to each of the counterparts thereof documentary proof of compliance in the form of a Certificate from his insurer, stating the amount, policy numbers, and kinds of insurance carried. This certificate shall also contain a statement by the insurer that he will notify the City of Wilmington by Registered Mail twenty (20) days prior to any cancellation or lapse of the insurance shown on this certificate. It is further agreed that the CONTRACTOR shall furnish the CITY with one memorandum copy of the policy, or policies, shown on this certificate at the time of the signing of this contract.
6. Guarantee See Sections 105-17, of the 2018 NCDOT Standard Specifications
7. Release and Indemnity

To the fullest extent permitted by law, the CONTRACTOR shall release, indemnify, keep and save harmless the CITY, NCDOT, its agents, officials and employees, from any and all responsibility or liability for any and all damage or injury of any kind or nature whatever (including death resulting therefrom) to all persons, whether agents, officials or employees of the CITY, NCDOT or third persons, and to all property proximately caused by, incident to, resulting from, arising out of, or occurring in connection with, directly or indirectly, the performance or nonperformance by CONTRACTOR (or by any person acting for the CONTRACTOR or for whom the CONTRACTOR is or is alleged to be in any way responsible), whether such claim may be based in whole or in part upon contract, tort (including alleged active or passive negligence or participation in the wrong), or upon any alleged breach of any duty or obligation on the part of the CONTRACTOR, its agents, officials and employees or otherwise. The provisions of this Section shall include any claims for equitable relief or for damages (compensatory or punitive) against the CITY, NCDOT, its agents, officials, and employees including alleged injury to the business of any claimant and shall include any and all losses, damages, injuries, settlements, judgments, decrees, awards, fines, penalties, claims, costs and expenses. Expenses as used herein shall include without limitation the costs incurred by the CITY, NCDOT, its agents, officials and employees, in connection with investigating any claim or defending any action, and shall also include reasonable attorneys' fees by reason of the assertion of any such claim against the CITY, NCDOT, its agents, officials or employees. The CONTRACTOR expressly understands and agrees that any performance bond or insurance protection required by this agreement, or otherwise provided by the CONTRACTOR, shall in no way limit the CONTRACTOR'S responsibility to release, indemnify, keep and save harmless and defend the CITY and NCDOT as herein provided. The intention of the parties is to apply and construe broadly in favor of the CITY and NCDOT the foregoing provisions subject to the limitations, if any, set forth in N.C.G.S. § 22B-1.
8. Personnel

It is mutually agreed that CONTRACTOR is an independent contractor and not an agent of the CITY, and as such the CONTRACTOR shall not be entitled to any CITY employment benefits, such

as, but not limited to, vacation, sick leave, insurance, workmen's compensation, or pension and retirement benefits.

9. Conflict of Interest

No paid employee of the CITY shall have a personal or financial interest, direct or indirect, as a contracting party or otherwise, in the performance of this agreement.

10. Non-Waiver of Rights

It is agreed that the CITY'S failure to insist upon the strict performance of any provision of this agreement, or to exercise any right based upon a breach thereof, or the acceptance of any performance during such breach, shall not constitute a waiver of any rights under this agreement.

11. Suspension or Termination of Agreement See Sections 104-4, 108-7, 108-13, of the 2018 NCDOT Standard Specifications

12. Contract Disputes See Section 104 of the 2018 NCDOT Standard Specifications

13. Assignment of Agreement

It is mutually agreed by the parties hereto that this agreement is not transferable by either party to this agreement without the consent of the other party to this agreement.

14. Subcontracts See Section 108-6 of the 2018 NCDOT Standard Specifications

15. Other Laws and Regulations See Section 107-1 of the 2018 Standard Specifications

16. Amendments

This agreement shall not be modified or otherwise amended except in writing signed by the parties.

17. Non-Discrimination

CONTRACTOR will take affirmative action not to discriminate against any employee or applicant for employment or otherwise illegally deny any person participation in or the benefits of the program which is the subject of this agreement because of race, creed, color, sex, age, disability or national origin. To the extent applicable, CONTRACTOR will comply with all provisions of Executive Order No. 11246, the Civil Rights Act of 1964, (P.L. 88-352) and 1968 (P.L. 90-284), and all applicable federal, state and local laws, ordinances, rules, regulations, orders, instructions, designations and other directives promulgated to prohibit discrimination. Violation of this provision, after notice, shall be a material breach of this agreement and may result, at CITY'S option, in a termination or suspension of this agreement in whole or in part.

18. Authority to Act / IDA Certification

Each of the persons executing this Agreement on behalf of CONTRACTOR does hereby covenant, warrant and represent that the CONTRACTOR is a duly organized and validly existing legal entity authorized to transact business within the State of North Carolina, that the CONTRACTOR has full right and authority to enter into this Agreement, and that each and all persons signing on behalf of the CONTRACTOR were authorized to do so. The undersigned certifies that CONTRACTOR is not listed on the Final Divestment List created by the N.C. State Treasurer pursuant to Chapter 147 (the Iran Divestment Act) of the North Carolina General Statutes. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 147, CONTRACTOR

shall not utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List.

19. Counterparts

This Agreement may be executed in several counterparts, including separate counterparts. Each shall be an original, but all of them together constitute the same instrument.

20. No Publicity

No advertising, sales promotion or other materials of the CONTRACTOR or its agents or representations may identify or reference this Contract or the CITY in any manner absent the written consent of the CITY. Notwithstanding the forgoing, the parties agree that the CONTRACTOR may list the CITY as a reference in responses to requests for proposals, and may identify the CITY as a customer in presentations to potential customers.

21. CITY Not Liable For Special or Consequential Damages

The CITY shall not be liable to the CONTRACTOR, its agents or representatives or any subcontractor for or on account of any stoppages or delay in the performance of any obligations of the CITY, or any other consequential, indirect or special damages or lost profits related to this Contract.

22. Public Records

CONTRACTOR acknowledges that the CITY is a public entity, subject to North Carolina's public records laws (N.C.G.S. § 132) and that any documents related to this Agreement may be subject to disclosure pursuant to state law in response to a public records request or to subpoena or other judicial process.

If CONTRACTOR believes documents related to the Agreement contain trade secrets or other proprietary data, CONTRACTOR must notify the CITY and include with the notification a statement that explains and supports CONTRACTOR'S claim. CONTRACTOR also must specifically identify the trade secrets or other proprietary data that CONTRACTOR believes should remain confidential.

In the event the CITY determines it is legally required to disclose pursuant to law any documents or information CONTRACTOR deems confidential trade secrets or proprietary data, the CITY, to the extent possible, will provide CONTRACTOR with prompt written notice by certified mail, fax, email, or other method that tracks delivery status of the requirement to disclose the information so CONTRACTOR may seek a protective order from a court having jurisdiction over the matter or obtain other appropriate remedies. The notice will include a time period for CONTRACTOR to seek court ordered protection or other legal remedies as deemed appropriate by CONTRACTOR. If CONTRACTOR does not obtain such court ordered protection by the expiration of said time period, the CITY may release the information without further notice to CONTRACTOR.

IN WITNESS WHEREOF, the CITY has caused this agreement to be duly executed in its name and behalf and the CONTRACTOR has caused this agreement to be duly executed in its name and behalf and its corporate seal to be hereunto affixed, and attested to.

CITY OF WILMINGTON, NORTH CAROLINA

By: _____
Anthony Caudle, City Manager

Date: _____

WITNESS:

Daryle L. Parker, Purchasing Manager

APPROVED AS TO FORM:

Melissa I. Huffman, Assistant City Attorney

FINANCE OFFICER'S CERTIFICATION STATEMENT

This instrument has been preaudited in the manner required by The Local Government Budget and Fiscal Control Act.

This ____ day of _____, 2022.

Jennifer R. Maready, Finance Director

Project String _____

Org _____ Obj _____ Project _____

Amount \$_____

Requisition/PO Number: _____

Federal ID Number: 56-6000239

[Company]

By: _____
[Manager], [Title]

ATTEST:

Secretary, Assist. Secretary, Trust Officer

[CORPORATE SEAL]

STATE OF _____

COUNTY OF _____

I, _____, a Notary Public, certify that the corporation's Secretary, Assist.
Secretary or Trust Officer, Mr./Mrs./Ms. _____ personally came before
me this day and acknowledged that he (she) is the _____ of [Company], a Corporation,
and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in
its name by its President, Vice President, or Assist. Vice President, Mr./Mrs./Ms.

_____, sealed with its Corporate Seal, and attested by himself (herself) as its
Secretary, Assist. Secretary or Trust Officer.

WITNESS my hand and official seal this the _____ day of _____, 2022.

Notary Public

My Commission Expires: _____ [SEAL]

PAYMENT & PERFORMANCE BONDS
(C-7, C-7.1, et. seq. to be inserted with Bid Award)

Contract No. U-5534Q
 County New Hanover

Rev. 7-25-17

**STATE OF NORTH CAROLINA
 WILMINGTON, NC**

BID BOND

Principal: _____
 Name of Principal Contractor

Surety: _____
 Name of Surety

Contract Number: _____ County: _____

Date of Bid: _____

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the **WILMINGTON** in the full and just sum of five (5) percent of the total amount bid by the Principal for the project 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.

NOW, THEREFORE, the condition of this obligation is: the Principal shall not withdraw its bid within sixty (60) days after the opening of the bids, or within such other time period as may be provided in the proposal, and if the **WILMINGTON** shall award a contract to the Principal, the Principal shall, within ten (10) calendar days after written notice of award is received by him, provide bonds with good and sufficient surety, as required for the faithful performance of the contract and for the protection of all persons supplying labor, material, and equipment for the prosecution of the work. In the event the Principal requests permission to withdraw his bid due to mistake in accordance with the provisions of Article 103-3 of the *Standard Specifications for Roads and Structures*, the conditions and obligations of this Bid Bond shall remain in full force and effect until the **WILMINGTON** makes a final determination to either allow the bid to be withdrawn or to proceed with award of the contract. In the event a determination is made to award the contract, the Principal shall have ten (10) calendar days to comply with the requirements set forth above. In the event the Principal withdraws its bid after bids are opened except as provided in Article 103-3, or after award of the contract has been made fails to execute such additional documents as may be required and to provide the required bonds within the time period specified above, then the amount of the bid bond shall be immediately paid to the **WILMINGTON** as liquidated damages.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed.

This the _____ day of _____, 20____

 Surety

By _____
 General Agent or Attorney-in-Fact Signature

Seal of Surety

 Print or type Signer's Name

Contract No. U-5534Q
County New Hanover

Rev. 7-25-17

BID BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

Full name of Corporation

Address as prequalified

By _____
Signature of **President, Vice President, Assistant Vice President**
Select appropriate title

Print or type Signer's name

Affix Corporate Seal

Attest _____
Signature of **Secretary, Assistant Secretary**
Select appropriate title

Print or type Signer's name

Contract No. U-5534Q
County New Hanover

Rev. 7-25-17

BID BOND

LIMITED LIABILITY COMPANY

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

Full name of Firm

Address as prequalified

**Signature of Member/
Manager/Authorized Agent**

Individually

Print or type Signer's name

Contract No. U-5534Q
County New Hanover

Rev. 7-25-17

BID BOND

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

Individual Name

Trading and doing business as

Full name of Firm

Address as prequalified

Signature of Contractor

Individually

Print or type Signer's name

Signature of Witness

Print or type Signer's name

Contract No. U-5534Q
County New Hanover

Rev. 7-25-17

BID BOND

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor

Individual Name

Trading and doing business as

Full name of Firm

Address as prequalified

Signature of Contractor

Individually

Print or type Signer's name

Signature of Witness

Print or type Signer's name

Contract No. U-5534Q
County New Hanover

Rev. 7-25-17

BID BOND

PARTNERSHIP

SIGNATURE OF CONTRACTOR (Principal)

Full name of Partnership

Address as prequalified

By

Signature of Partner

Print or type Signer's name

Signature of Witness

Print or type Signer's name

Contract No. U-5534Q
 County New Hanover

Rev. 7-25-17

BID BOND
JOINT VENTURE (2 or 3)
 SIGNATURE OF CONTRACTORS (Principal)

Instructions to Bidders: **2 Joint Ventures**, Fill in lines (1), (2) and (3) and execute. **3 Joint Ventures** Fill in lines (1), (2), (3), (4) and execute. Line (1), print or type the name of Joint Venture. On line (2), print or type the name of one of the joint venturers and execute below in the appropriate manner required by Article 102-8 of the *Specifications*. On Line (3), print or type the name of second joint venturer and execute below in the appropriate manner required by said article of the Specifications. On Line (4), print or type the name of the third joint venturer, if applicable and execute below in the appropriate manner required by said article of the Specifications. This form of execution must be strictly followed.

(1) _____
 Name of Joint Venture

(2) _____
 Name of Contractor

 Address as prequalified

 Signature of Witness or Attest By _____
 Signature of Contractor

 Print or type Signer's name _____
 Print or type Signer's name

If Corporation, affix Corporate Seal

 and

(3) _____
 Name of Contractor

 Address as prequalified

 Signature of Witness or Attest By _____
 Signature of Contractor

 Print or type Signer's name _____
 Print or type Signer's name

(4) _____
 Name of Contractor (for 3 Joint Venture only)

 Address as prequalified

 Signature of Witness or Attest By _____
 Signature of Contractor

 Print or type Signer's name _____
 Print or type Signer's name

If Corporation, affix Corporate Seal

POWER OF ATTORNEY

DOCUMENTS

(Attached hereto original or validated documents which give to individual who signed Contract Bond Power of Attorney for Surety)

INSURANCE CERTIFICATES

(Staple Insurance Certificates to this sheet, as required in section 107-15 NCDOT Standard SPECIFICATIONS)

NCDOT STANDARD PROVISIONS**CONTRACT TIME AND LIQUIDATED DAMAGES (NO PERMITS):**

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

108

SP1 G05 B

The date of availability for this contract is the date the Contractor begins work but not before **Issuance of Notice to Proceed (date to be determined)** or later than **10 days following the Issuance of the Notice to Proceed**.

The completion date for this contract is the date that is **two hundred and ten (210)** consecutive calendar days after and including the date of availability.

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

The liquidated damages for this contract are **two hundred Dollars (\$200.00)** per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

INTERMEDIATE CONTRACT TIME NUMBER 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 **The Date of Availability for this Contract.**

The completion date for this intermediate contract time is **one hundred and twenty (120) calendar days after the Date of Availability.**

The liquidated damages for this intermediate contract time are **Six Hundred Dollars (\$ 600.00)** 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.

NO MAJOR CONTRACT ITEMS:

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

104

SP1 G31

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

NO SPECIALTY ITEMS:

(7-1-95)

108-6

SP1 G34

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

DISADVANTAGED BUSINESS ENTERPRISE (LOCAL GOVERNMENT AGENCIES):

(10-16-07)(Rev. 8-17-21)

102-15(J)

SP1 G63

Description

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

Definitions

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

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

Contract Goal Requirement - The approved DBE participation at time of award, but not greater than the advertised contract goal.

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

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

Goal Confirmation Letter - Written documentation from **CITY OF WILMINGTON** to the bidder confirming the Contractor's approved, committed DBE participation along with a listing of the committed DBE firms.

Local Government Agencies (LGA) - The entity letting the contract.

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

Regular Dealer - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are 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.

Replacement / Substitution – A full or partial reduction in the amount of work subcontracted to a committed (or an approved substitute) DBE firm.

North Carolina Unified Certification Program (NCUCP) - A program that provides comprehensive services and information to applicants for DBE certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients of USDOT funds in the state and not limited to the Department of Transportation only. The Certification Program is in accordance with 49 CFR Part 26.

Standard Specifications - The general term comprising all directions, provisions, and requirements contained or referred to in the *North Carolina Department of Transportation Standard Specifications for Roads and Structures* and any subsequent revisions or additions to such book.

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

Forms and Websites Referenced in this Provision

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

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

RF-1 DBE Replacement Request Form - Form for replacing a committed DBE. <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 DBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed DBE for the estimated amount (based on quantities and unit prices) listed at the time of bid. <http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

Listing of DBE Subcontractors Form - Form for entering DBE subcontractors on a project that will meet this DBE goal. This form is for paper bids only. [http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20\(Federal\).docx](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20(Federal).docx)

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where DBEs quoted on the project. This sheet is submitted with good faith effort packages. <http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%2>

[0Example.xls](#)

DBE Goal

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

Disadvantaged Business Enterprises **[14.0] %**

- (A) *If the DBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that DBEs participate in at least the percent of the contract as set forth above as the DBE goal.
- (B) *If the DBE goal is zero*, the Contractor shall make an effort to recruit and use DBEs during the performance of the contract. Any DBE participation obtained shall be reported to **CITY OF WILMINGTON**.

Directory of Transportation Firms (Directory)

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

At the time of bid, bidders shall submit all DBE participation that they anticipate to use during the life of the contract. Only those identified to meet the DBE goal will be considered committed, even though the listing shall include both committed DBE subcontractors and additional DBE subcontractors. Additional DBE subcontractor participation submitted at the time of bid will be used toward the overall race-neutral goal. Only those firms with current DBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of DBE participation. The Contractor shall indicate the following required information:

- (A) *If the DBE goal is more than zero*,
 - (1) Bidders, at the time the bid proposal is submitted, shall submit a listing of DBE participation, including the names and addresses on *Listing of DBE 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 DBE participation for the contract.
 - (2) If bidders have no DBE participation, they shall indicate this on the *Listing of DBE 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 DBE participation indicated on the appropriate form will not be read publicly during the opening of bids. **CITY OF WILMINGTON** will not consider these bids for award and the proposal will be rejected.
 - (3) The bidder shall be responsible for ensuring that the DBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that DBE's participation will not count towards achieving the DBE goal.
- (B) *If the DBE goal is zero*, entries on the *Listing of DBE Subcontractors* are not required, however any DBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

DBE Prime Contractor

When a certified DBE firm bids on a contract that contains a DBE goal, the DBE firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other bidder. In most cases, a DBE bidder on a contract

will meet the DBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the DBE bidder and any other DBE subcontractors will count toward the DBE goal. The DBE bidder shall list itself along with any DBE subcontractors, if any, in order to receive credit toward the DBE goal.

For example, if the DBE goal is 45% and the DBE bidder will only perform 40% of the contract work, the prime will list itself at 40%, and the additional 5% shall be obtained through additional DBE participation with DBE subcontractors or documented through a good faith effort.

DBE prime contractors shall also follow Sections A or B listed under *Listing of DBE Subcontractor* just as a non-DBE bidder would.

Written Documentation – Letter of Intent

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

The documentation shall be received in the office of the **CITY OF WILMINGTON** no later than 2:00 p.m. of the fifth calendar day following opening of bids, unless the fifth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the **Engineer for the City of Wilmington** 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 DBE to be used toward the DBE goal, or if the form is incomplete (i.e. both signatures are not present), the DBE participation will not count toward meeting the DBE goal. If the lack of this participation drops the commitment below the DBE goal, the Contractor shall submit evidence of good faith efforts, completed in its entirety, to the **Engineer for the City of Wilmington** no later than 2:00 p.m. on the eighth calendar day following opening of bids, unless the eighth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the **Engineer for the City of Wilmington** no later than 10:00 a.m. on the next official state business day.

Submission of Good Faith Effort

If the bidder fails to meet or exceed the DBE goal, the apparent lowest responsive bidder shall submit to **CITY OF WILMINGTON** documentation of adequate good faith efforts made to reach the DBE goal.

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

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of DBE 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 DBE 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 DBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought DBE participation. Mere *pro forma* efforts are not considered good faith efforts.

CITY OF WILMINGTON 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 goal 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 DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the DBEs to respond to the solicitation. Solicitation shall provide the opportunity to DBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

- (B) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved.
 - (1) Where appropriate, break out contract work items into economically feasible units to facilitate DBE 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 DBE goal when the work to be sublet includes potential for DBE participation (2nd and 3rd tier subcontractors).
- (C) Providing interested DBEs 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 DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs 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 DBEs to perform the work.
 - (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE 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 DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting DBEs 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 DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested DBEs 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 DBEs. Contact within 7 days from the bid opening NCDOT's Business Opportunity and Work Force Development Unit at BOWD@ncdot.gov to give notification of the bidder's inability to get DBE quotes.
- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the DBE goal.

In addition, **CITY OF WILMINGTON** may take into account the following:

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

If **CITY OF WILMINGTON** does not award the contract to the apparent lowest responsive bidder, **CITY OF WILMINGTON** reserves the right to award the contract to the next lowest responsive bidder that can satisfy to **CITY OF WILMINGTON** that the DBE goal can be met or that an adequate good faith effort has been made to meet the DBE goal.

Non-Good Faith Appeal

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

Counting DBE Participation Toward Meeting DBE Goal

(A) Participation

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

(B) Joint Checks

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

(C) Subcontracts (Non-Trucking)

A DBE may enter into subcontracts. Work that a DBE subcontracts to another DBE firm may be counted toward the contract goal requirement. Work that a DBE subcontracts to a non-DBE firm does not count toward the contract goal requirement. If a DBE 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 DBE is not performing a commercially useful function. The DBE may present evidence to rebut this presumption to **CITY OF WILMINGTON**. **CITY OF WILMINGTON's** decision on the rebuttal of this presumption is subject to review by the Federal Highway Administration but is not administratively appealable to USDOT.

(D) Joint Venture

When a DBE 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 DBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the DBE performs with its forces.

(E) Suppliers

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

(F) Manufacturers and Regular Dealers

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

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

Commercially Useful Function

(A) DBE Utilization

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

(B) DBE Utilization in Trucking

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

- (1) The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting DBE goals.
- (2) The DBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The DBE may subcontract the work to another DBE firm, including an owner-operator who is certified as a DBE. The DBE who subcontracts work to another DBE receives credit for the total value of the transportation services the subcontracted DBE provides on the contract.

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

DBE Replacement

When a Contractor has relied on a commitment to a DBE subcontractor (or an approved substitute DBE subcontractor) to meet all or part of a contract goal requirement, the contractor shall not terminate the DBE subcontractor 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 DBE subcontractor, a non-DBE subcontractor, or with the Contractor's own forces or those of an affiliate.

The Contractor must give notice in writing both by certified mail and email to the DBE subcontractor, with a copy to the **Engineer for the City of Wilmington** of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor must give the DBE subcontractor five (5) business days to respond to the Contractor's Notice of Intent to Request Termination and/or Substitution. If the DBE subcontractor objects to the intended termination/substitution, the DBE, within five (5) business days must advise the Contractor and the **CITY OF WILMINGTON** of the reasons why the action should not be approved. The five-day notice period shall begin on the next business day after written notice is provided to the DBE subcontractor.

A committed DBE subcontractor may only be terminated after receiving the **CITY OF WILMINGTON's** written approval based upon a finding of good cause for the proposed termination and/or substitution. For purposes of this section, good cause shall include the following circumstances:

- (a) The listed DBE subcontractor fails or refuses to execute a written contract;
- (b) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (c) The listed DBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements;
- (d) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (e) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR Parts 180, 215 and 1,200 or applicable state law;
- (f) The listed DBE subcontractor is not a responsible contractor;
- (g) The listed DBE voluntarily withdraws from the project and provides written notice of withdrawal;
- (h) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (i) A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract;
- (j) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime contractor seeks to terminate a DBE it relied upon to obtain the contract so

that the prime contractor can self-perform the work for which the DBE contractor was engaged or so that the prime contractor can substitute another DBE or non-DBE contractor after contract award.

The Contractor shall comply with the following for replacement of a committed DBE:

(A) Performance Related Replacement

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

If a replacement DBE is not found that can perform at least the same amount of work as the terminated DBE, 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 DBEs that their interest is solicited in contracting the work defaulted by the previous DBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with DBEs for specific subbids including, at a minimum:
 - (a) The names, addresses, and telephone numbers of DBEs who were contacted.
 - (b) A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed.
- (3) A list of reasons why DBE quotes were not accepted.
- (4) Efforts made to assist the DBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

- (1) When a committed DBE is decertified by the NCDOT after the SAF (*Subcontract Approval Form*) has been received by the **CITY OF WILMINGTON**, the **CITY OF WILMINGTON** will not require the Contractor to solicit replacement DBE 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 DBE is decertified prior to the **CITY OF WILMINGTON** receiving the SAF (*Subcontract Approval Form*) for the named DBE firm, the Contractor shall take all necessary and reasonable steps to replace the DBE subcontractor with another DBE subcontractor to perform at least the same amount of work to meet the DBE goal requirement. If a DBE firm is not found to do the same amount of work, a good faith effort must be submitted to **Engineer for the City of Wilmington** (see A herein for required documentation).
- (3) Exception: If the DBE's ineligibility is caused solely by its having exceeded the size standard during the performance of the contract, the **CITY OF WILMINGTON** will not require the Contractor to solicit replacement DBE 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 and overall goal.

All requests for replacement of a committed DBE firm shall be submitted to the **Engineer for the City of Wilmington** for approval on Form RF-1 (*DBE 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

Changes in the Work

When the **Engineer for the City of Wilmington** makes changes that result in the reduction or elimination of work to

be performed by a committed DBE, the Contractor will not be required to seek additional participation. When the **Engineer for the City of Wilmington** makes changes that result in additional work to be performed by a DBE based upon the Contractor's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original contract work.

When the **Engineer for the City of Wilmington** 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 DBEs unless otherwise approved by the **Engineer for the City of Wilmington**.

When the **Engineer for the City of Wilmington** 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 DBE, the Contractor shall seek participation by DBEs unless otherwise approved by the **Engineer for the City of Wilmington**.

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 DBE, the Contractor shall seek additional participation by DBEs equal to the reduced DBE 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 DBE subcontractor. **CITY OF WILMINGTON** reserves the right to require copies of actual subcontract agreements involving DBE 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 DBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall furnish the **Engineer for the City of Wilmington** a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for DBE credit.

Reporting Disadvantaged Business Enterprise Participation

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

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

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

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

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

Contractors reporting transportation services provided by non-DBE lessees shall evaluate the value of services

provided during the month of the reporting period only.

At any time, the **Engineer for the City of Wilmington** can request written verification of subcontractor payments.

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

Failure to Meet Contract Requirements

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

CERTIFICATION FOR FEDERAL-AID CONTRACTS:

(3-21-90)

SP1 G85

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

- (A) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (B) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, *Disclosure Form to Report Lobbying*, in accordance with its instructions.

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

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

CONTRACTOR'S LICENSE REQUIREMENTS:

(7-1-95)

102-14

SP1 G88

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

RESTRICTIONS ON ITS EQUIPMENT AND SERVICES:

(11-17-20)

SP01 G090

All telecommunications, video or other ITS equipment or services installed or utilized on this project must be in conformance with UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS FOR FEDERAL AWARDS 2 CFR, § 200.216 **Prohibition on certain telecommunications and video surveillance services or equipment.**

USE OF UNMANNED AIRCRAFT SYSTEM (UAS):

(8-20-19)

SP01 G092

The Contractor shall adhere to all Federal, State and Local regulations and guidelines for the use of Unmanned Aircraft Systems (UAS). This includes but is not limited to US 14 CFR Part 107 *Small UAS Rule*, NC GS 15A-300.2 *Regulation of launch and recovery sites*, NC GS 63-95 *Training required for the operation of unmanned aircraft systems*, NC GS 63-96 *Permit required for commercial operation of unmanned aircraft system*, and NCDOT UAS Policy. The required operator certifications include possessing a current Federal Aviation Administration (FAA) Remote Pilot Certificate, a NC UAS Operator Permit as well as operating a UAS registered with the FAA.

Prior to beginning operations, the Contractor shall complete the NCDOT UAS – Flight Operation Approval Form and submit it to the Engineer for approval. All UAS operations shall be approved by the Engineer prior to beginning the operations.

All contractors or subcontractors operating UAS shall have UAS specific general liability insurance to cover all operations under this contract.

The use of UAS is at the Contractor's discretion. No measurement or payment will be made for the use of UAS. In the event that the Department directs the Contractor to utilize UAS, payment will be in accordance with Article 104-7 Extra Work.

EQUIPMENT IDLING GUIDELINES:

(1-19-21)

107

SP1 G096

Exercise reduced fuel consumption and reduced equipment emissions during the construction of all work associated with this contract. Employees engaged in the construction of this project should turn off vehicles when stopped for more than thirty (30) minutes and off-highway

equipment should idle no longer than fifteen (15) consecutive minutes.

These guidelines for turning off vehicles and equipment when idling do not apply to:

1. Idling when queuing.
2. Idling to verify the vehicle is in safe operating condition.
3. Idling for testing, servicing, repairing or diagnostic purposes.
4. Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane, mixing concrete, etc.).
5. Idling required to bring the machine system to operating temperature.
6. Emergency vehicles, utility company, construction, and maintenance vehicles where the engines must run to perform needed work.
7. Idling to ensure safe operation of the vehicle.
8. Idling when the propulsion engine is providing auxiliary power for other than heating or air conditioning. (such as hydraulic systems for pavers)
9. When specific traffic, safety, or emergency situations arise.
10. If the ambient temperature is less than 32 degrees Fahrenheit. Limited idling to provide for the safety of vehicle occupants (e.g. to run the heater).
11. If the ambient temperature is greater than 90 degrees Fahrenheit. Limited idling to provide for the safety of vehicle occupants of off-highway equipment (e.g. to run the air conditioning) no more than 30 minutes.
12. Diesel powered vehicles may idle for up to 30 minutes to minimize restart problems.

Any vehicle, truck, or equipment in which the primary source of fuel is natural gas or electricity is exempt from the idling limitations set forth in this special provision.

U.S. DEPARTMENT OF TRANSPORTATION HOTLINE:

(11-22-94)

108-5

SP1 G100

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

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

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

CARGO PREFERENCE ACT:

(2-16-16)

Privately owned United States-flag commercial vessels transporting cargoes are subject to the Cargo Preference Act (CPA) of 1954 requirements and regulations found in 46 CFR 381.7. Contractors are directed to clause (b) of 46 CFR 381.7 as follows:

(b) Contractor and Subcontractor Clauses. "Use of United States-flag vessels: The contractor agrees-

“(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

SUBSURFACE INFORMATION:

(7-1-95)

450

SP1 G112 B

Subsurface information is available on the roadway portion of this project only.

TWELVE MONTH GUARANTEE – LGA Projects

(10-7-13)

108

SP1 G146

- (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 City of Wilmington. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of City of Wilmington, 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. City of Wilmington'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. **City of Wilmington** 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 City of Wilmington 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.

EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:

(1-16-07) (Rev 12-15-20)

105-16, 225-2, 16

SP1 G180

General

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

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

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

Roles and Responsibilities

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

- (h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
 - (i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
 - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
 - (k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.
- (2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:
- (a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
 - (b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days and within 24 hours after a rainfall event equal to or greater than 1.0 inch that occurs within a 24 hour period. Additional monitoring may be required at the discretion of Division of Water Resources personnel if the receiving stream is 303(d) listed for turbidity and the project has had documented problems managing turbidity.
 - (c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
 - (d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
 - (e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
 - (f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
 - (g) Provide secondary containment for bulk storage of liquid materials.
 - (h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
 - (i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.
- (3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:
- (a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
 - (b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
 - (c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
 - (d) Conduct the inspections required by the NPDES permit.
 - (e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.

- (f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.
- (g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
- (h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
- (i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
- (j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.

(B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:

- (1) Foreman in charge of grading activities
- (2) Foreman in charge of bridge or culvert construction over jurisdictional areas
- (3) Foreman in charge of utility activities

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

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

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

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

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

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

Preconstruction Meeting

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

Ethical Responsibility

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

Revocation or Suspension of Certification

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

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

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

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

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

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

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

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

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

Measurement and Payment

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

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:

(2-20-07) (Rev. 4-5-19)

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 <https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/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.

ASPHALT CONCRETE PLANT MIX PAVEMENTS:

(2-20-18) (Rev.1-15-19)

610, 1012

SP6 R65

Revise the 2018 *Standard Specifications* as follows:

Page 6-14, Table 609-3, LIMITS OF PRECISION FOR TEST RESULTS, replace with the following:

TABLE 609-3	
LIMITS OF PRECISION FOR TEST RESULTS	
Mix Property	Limits of Precision
25.0 mm sieve (Base Mix)	± 10.0%
19.0 mm sieve (Base Mix)	± 10.0%
12.5 mm sieve (Intermediate & Type P-57)	± 6.0%
9.5 mm sieve (Surface Mix)	± 5.0%
4.75 mm sieve (Surface Mix)	± 5.0%
2.36 mm sieve (All Mixes, except S4.75A)	± 5.0%
1.18 mm sieve (S4.75A)	± 5.0%
0.075 mm sieve (All Mixes)	± 2.0%
Asphalt Binder Content	± 0.5%
Maximum Specific Gravity (G_{mm})	± 0.020
Bulk Specific Gravity (G_{mb})	± 0.030
TSR	± 15.0%
QA retest of prepared QC Gyratory Compacted Volumetric Specimens	± 0.015
Retest of QC Core Sample	± 1.2% (% Compaction)
Comparison QA Core Sample	± 2.0% (% Compaction)
QA Verification Core Sample	± 2.0% (% Compaction)
Density Gauge Comparison of QC Test	± 2.0% (% Compaction)
QA Density Gauge Verification Test	± 2.0% (% Compaction)

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

TABLE 610-1	
MIXING TEMPERATURE AT THE ASPHALT PLANT	
Binder Grade	JMF Temperature
PG 58-28; PG 64-22	250 - 290°F
PG 76-22	300 - 325°F

Page 6-17, Subarticle 610-3(C), Job Mix Formula (JMF), lines 38-39, delete the fourth paragraph.

Page 6-18, Subarticle 610-3(C), Job Mix Formula (JMF), line 12, replace “SF9.5A” with “S9.5B”.

Page 6-18, Table 610-3, MIX DESIGN CRITERIA, replace with the following:

TABLE 610-3 MIX DESIGN CRITERIA									
Mix Type	Design ESALs millions ^A	Binder PG Grade	Compaction Levels		Max. Rut Depth (mm)	Volumetric Properties ^B			
			G _{mm} @			VMA	VTM	VFA	%G _{mm}
			N _{ini}	N _{des}		% Min.	%	Min.-Max.	@ N _{ini}
S4.75A	< 1	64 - 22	6	50	11.5	16.0	4.0 - 6.0	65 - 80	≤ 91.5
S9.5B	0 - 3	64 - 22	6	50	9.5	16.0	3.0 - 5.0	70 - 80	≤ 91.5
S9.5C	3 - 30	64 - 22	7	65	6.5	15.5	3.0 - 5.0	65 - 78	≤ 90.5
S9.5D	> 30	76 - 22	8	100	4.5	15.5	3.0 - 5.0	65 - 78	≤ 90.0
I19.0C	ALL	64 - 22	7	65	-	13.5	3.0 - 5.0	65 - 78	≤ 90.5
B25.0C	ALL	64 - 22	7	65	-	12.5	3.0 - 5.0	65 - 78	≤ 90.5
	Design Parameter					Design Criteria			
All Mix Types	Dust to Binder Ratio (P _{0.075} / P _{be})					0.6 - 1.4 ^C			
	Tensile Strength Ratio (TSR) ^D					85% Min. ^E			

A. Based on 20 year design traffic.

B. Volumetric Properties based on specimens compacted to N_{des} as modified by the Department.

C. Dust to Binder Ratio (P_{0.075} / P_{be}) for Type S4.75A is 1.0 - 2.0.

D. NCDOT-T-283 (No Freeze-Thaw cycle required).

E. TSR for Type S4.75A & B25.0C mixes is 80% minimum.

Page 6-19, Table 610-5, BINDER GRADE REQUIREMENTS (BASED ON RBR%), replace with the following:

TABLE 610-5 BINDER GRADE REQUIREMENTS (BASED ON RBR%)			
Mix Type	%RBR ≤ 20%	21% ≤ %RBR ≤ 30%	%RBR ≥ 30%
S4.75A, S9.5B, S9.5C, I19.0C, B25.0C	PG 64-22	PG 64-22 ^A	PG-58-28
S9.5D, OGFC	PG 76-22 ^B	n/a	n/a

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

B. Maximum Recycled Binder Replacement (%RBR) is 18% for mixes using PG 76-22 binder.

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

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

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

Page 6-21, Article 610-8, SPREADING AND FINISHING, lines 34-35, delete the second sentence and replace with the following:

Use an MTV for all surface mix regardless of binder grade on Interstate, US Routes, and NC Routes (primary routes) that have 4 or more lanes and median divided.

Page 6-21, Article 610-8, SPREADING AND FINISHING, lines 36-38, delete the fourth sentence and replace with the following:

Use MTV for all ramps, loops, Y-line that have 4 or more lanes and are median divided, full width acceleration lanes, full width deceleration lanes, and full width turn lanes that are greater than 1000 feet in length.

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

TABLE 610-7 DENSITY REQUIREMENTS	
Mix Type	Minimum % G_{mm} (Maximum Specific Gravity)
S4.75A	85.0 ^A
S9.5B	90.0
S9.5C, S9.5D, I19.0C, B25.0C	92.0

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

Page 6-24, Article 610-13, FINAL SURFACE TESTING, lines 35-36, delete the second sentence and replace with the following:

Final surface testing is not required on ramps, loops and turn lanes.

Page 6-26, Subarticle 610-13(A)(1), Acceptance for New Construction, lines 29-30, delete the second sentence and replace with the following:

Areas excluded from testing by the profiler may be tested using a 10-foot straightedge in accordance with Article 610-12.

Page 6-27, Subarticle 610-13(B), Option 2- North Carolina Hearne Straightedge, lines 41-46, delete the eighth and ninth sentence of this paragraph and replace with the following:

Take profiles over the entire length of the final surface travel lane pavement exclusive of structures, approach slabs, paved shoulders, tapers, or other irregular shaped areas of pavement, unless otherwise approved by the Engineer. Test in accordance with this provision all mainline travel lanes, full width acceleration or deceleration lanes and collector lanes.

Page 6-28, Subarticle 610-13(B), Option 2- North Carolina Hearne Straightedge, lines 1-2, delete these two lines.

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

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

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

**TABLE 1012-1
AGGREGATE CONSENSUS PROPERTIES^A**

Mix Type	Coarse Aggregate Angularity^B	Fine Aggregate Angularity % Minimum	Sand Equivalent % Minimum	Flat and Elongated 5 : 1 Ratio % Maximum
<i>Test Method</i>	<i>ASTM D5821</i>	<i>AASHTO T 304</i>	<i>AASHTO T 176</i>	<i>ASTM D4791</i>
S4.75A; S9.5B	75 / -	40	40	-
S9.5C; I19.0C; B25.0C	95 / 90	45	45	10
S9.5D	100 / 100	45	50	10
OGFC	100 / 100	45	45	10
UBWC	100 / 85	45	45	10

A. Requirements apply to the design aggregate blend.

B. 95 / 90 denotes that 95% of the coarse aggregate has one fractured face and 90% has 2 or more fractured faces.

STANDARD SPECIAL PROVISION
AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08)

Z-2

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

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

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

STANDARD SPECIAL PROVISION
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, Sickledpod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

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

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

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

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

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

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

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

Sericea Lespedeza
Oats (seeds)

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

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

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

Common or Sweet Sundangrass

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

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

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

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

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

(10-16-18) (Rev.1-18-22)

Z-4

Revise the 2018 *Standard Specifications* as follows:

Division 6

Page 6-7, Article 609-1 DESCRIPTION, line 29, replace article number “609-10” with “609-9”.

Division 7

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

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

Division 10

Page 10-78, Article 1056-4 GEOTEXTILES, TABLE 1056-1, Permittivity, Type 2, replace “Table 6^D” with “Table 7^D” and **Permittivity, Type 3^B,** replace “Table 7^D” with “Table 8^D”.

Page 10-121, Article 1076-7, REPAIR OF GALVANIZING, line 8, replace article number “1080-9” with “1080-7”.

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

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

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

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

Division 17

Page 17-15, Article 1715-4 MEASUREMENT AND PAYMENT, lines 42-44, replace the second sentence with the following:

An example is an installation of a single 1.25 inch HDPE conduit would be paid as:

Directional Drill (1)(1.25”) Linear Foot

Page 17-15, Subarticle 1715-3(E) Bore and Jack, line 5, replace article number “1540-4” with “1550-4”.

Page 17-15, Subarticle 1715-3(E) Bore and Jack, lines 10 & 11, replace “*NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way*” with “*NCDOT Utilities Accommodations Manual*”.

STANDARD SPECIAL PROVISION
PLANT AND PEST QUARANTINES

(Imported Fire Ant, Gypsy Moth, Witchweed, Emerald Ash Borer, Guava Root Knot Nematode, And Other Noxious Weeds)

(3-18-03) (Rev. 5-21-19)

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 <https://www.ncagr.gov/plantindustry/Plant/quaran/table2.htm> 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, guava root knot nematode, or other noxious weeds.

STANDARD SPECIAL PROVISION
TITLE VI AND NONDISCRIMINATION:

(6-28-77)(Rev 6/19/2018)

Z-6

Revise the *2018 Standard Specifications* as follows:

Replace Article 103-4(B) with the following:

The North Carolina Department of Transportation is committed to carrying out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts.

The provisions of this section related to United States Department of Transportation (US DOT) Order 1050.2A, Title 49 Code of Federal Regulations (CFR) part 21, 23 United States Code (U.S.C.) 140 and 23 CFR part 200 (or 49 CFR 303, 49 U.S.C. 5332 or 49 U.S.C. 47123) are applicable to all North Carolina Department of Transportation (NCDOT) contracts and to all related subcontracts, material supply, engineering, architectural and other service contracts, regardless of dollar amount. Any Federal provision that is specifically required not specifically set forth is hereby incorporated by reference.

(1) Title VI Assurances (USDOT Order 1050.2A, Appendix A)

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(a) Compliance with Regulations

The contractor (hereinafter includes consultants) shall comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(b) Nondiscrimination

The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(c) Solicitations for Subcontractors, Including Procurements of Materials and Equipment

In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(d) Information and Reports

The contractor shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor shall so certify to the Recipient or the FHWA, as appropriate, and shall set forth what efforts it has made to obtain the information.

(e) Sanctions for Noncompliance:

In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it and/or the FHWA may determine to be appropriate, including, but not limited to:

- (i) Withholding payments to the contractor under the contract until the contractor complies; and/or
- (ii) Cancelling, terminating, or suspending a contract, in whole or in part.

(f) Incorporation of Provisions

The contractor shall include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor shall take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

(2) Title VI Nondiscrimination Program (23 CFR 200.5(p))

The North Carolina Department of Transportation (NCDOT) has assured the USDOT that, as a condition to receiving federal financial assistance, NCDOT will comply with Title VI of the Civil Rights Act of 1964 and all requirements imposed by Title 49 CFR part 21 and related nondiscrimination authorities to ensure that no person shall, on the ground of race, color, national origin, limited English proficiency, sex, age, or disability (including religion/creed or income-level, where applicable), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs, activities, or services conducted or funded by NCDOT. Contractors and other organizations under contract or agreement with NCDOT must also comply with Title VI and related authorities, therefore:

- (a) During the performance of this contract or agreement, contractors (e.g., subcontractors, consultants, vendors, prime contractors) are responsible for complying with NCDOT's Title VI Program. Contractors are not required to prepare or submit Title VI Programs. To comply with this section, the prime contractor shall:
 - 1. Post NCDOT's Notice of Nondiscrimination and the Contractor's own Equal Employment Opportunity (EEO) Policy in conspicuous locations accessible to all employees, applicants and subcontractors on the jobsite.

2. Physically incorporate the required Title VI clauses into all subcontracts on federally-assisted and state-funded NCDOT projects, and ensure inclusion by subcontractors into all lower-tier subcontracts.
 3. Required Solicitation Language. The Contractor shall include the following notification in all solicitations for bids and requests for work or material, regardless of funding source:

“The North Carolina Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. In accordance with other related nondiscrimination authorities, bidders and contractors will also not be discriminated against on the grounds of sex, age, disability, low-income level, creed/religion, or limited English proficiency in consideration for an award.”
 4. Physically incorporate the FHWA-1273, in its entirety, into all subcontracts and subsequent lower tier subcontracts on Federal-aid highway construction contracts only.
 5. Provide language assistance services (i.e., written translation and oral interpretation), free of charge, to LEP employees and applicants. Contact NCDOT OCR for further assistance, if needed.
 6. For assistance with these Title VI requirements, contact the NCDOT Title VI Nondiscrimination Program at 1-800-522-0453.
- (b) Subrecipients (e.g. cities, counties, LGAs, planning organizations) may be required to prepare and submit a Title VI Plan to NCDOT, including Title VI Assurances and/or agreements. Subrecipients must also ensure compliance by their contractors and subrecipients with Title VI. (23 CFR 200.9(b)(7))
 - (c) If reviewed or investigated by NCDOT, the contractor or subrecipient agrees to take affirmative action to correct any deficiencies found within a reasonable time period, not to exceed 90 calendar days, unless additional time is granted by NCDOT. (23 CFR 200.9(b)(15))
 - (d) The Contractor is responsible for notifying subcontractors of NCDOT’s External Discrimination Complaints Process.
 1. Applicability

Title VI and related laws protect participants and beneficiaries (e.g., members of the public and contractors) from discrimination by NCDOT employees, subrecipients and contractors, regardless of funding source.

2. Eligibility

Any person—or class of persons—who believes he/she has been subjected to discrimination based on race, color, national origin, Limited English Proficiency (LEP), sex, age, or disability (and religion in the context of employment, aviation, or transit) may file a written complaint. The law also prohibits intimidation or retaliation of any sort.

3. Time Limits and Filing Options

Complaints may be filed by the affected individual(s) or a representative and must be filed no later than 180 calendar days after the following:

- (i) The date of the alleged act of discrimination; or
- (ii) The date when the person(s) became aware of the alleged discrimination; or
- (iii) Where there has been a continuing course of conduct, the date on which that conduct was discontinued or the latest instance of the conduct.

Title VI and related discrimination complaints may be submitted to the following entities:

- North Carolina Department of Transportation, Office of Civil Rights, Title VI Program, 1511 Mail Service Center, Raleigh, NC 27699-1511; toll free 1-800-522-0453
- Federal Highway Administration, North Carolina Division Office, 310 New Bern Avenue, Suite 410, Raleigh, NC 27601, 919-747-7010
- US Department of Transportation, Departmental Office of Civil Rights, External Civil Rights Programs Division, 1200 New Jersey Avenue, SE, Washington, DC 20590; 202-366-4070

4. Format for Complaints

Complaints must be in writing and signed by the complainant(s) or a representative, and include the complainant's name, address, and telephone number. Complaints received by fax or e-mail will be acknowledged and processed. Allegations received by telephone will be reduced to writing and provided to the complainant for confirmation or revision before processing. Complaints will be accepted in other languages, including Braille.

5. Discrimination Complaint Form

Contact NCDOT Civil Rights to receive a full copy of the Discrimination Complaint Form and procedures.

6. Complaint Basis

Allegations must be based on issues involving race, color, national origin (LEP), sex, age, disability, or religion (in the context of employment, aviation or transit). "Basis" refers to the complainant's membership in a protected group category.

**TABLE 103-1
COMPLAINT BASIS**

Protected Categories	Definition	Examples	Applicable Nondiscrimination Authorities
Race and Ethnicity	An individual belonging to one of the accepted racial groups; or the perception, based usually on physical characteristics that a person is a member of a racial group	Black/African American, Hispanic/Latino, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, White	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; 23 CFR 200; 49 U.S.C. 5332(b); 49 U.S.C. 47123. (<i>Executive Order 13166</i>)
Color	Color of skin, including shade of skin within a racial group	Black, White, brown, yellow, etc.	
National Origin (<i>Limited English Proficiency</i>)	Place of birth. Citizenship is not a factor. (<i>Discrimination based on language or a person's accent is also covered</i>)	Mexican, Cuban, Japanese, Vietnamese, Chinese	
Sex	Gender. The sex of an individual. <i>Note: Sex under this program does not include sexual orientation.</i>	Women and Men	1973 Federal-Aid Highway Act; 49 U.S.C. 5332(b); 49 U.S.C. 47123.
Age	Persons of any age	21-year-old person	Age Discrimination Act of 1975 49 U.S.C. 5332(b); 49 U.S.C. 47123.
Disability	Physical or mental impairment, permanent or temporary, or perceived.	Blind, alcoholic, para-amputee, epileptic, diabetic, arthritic	Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990
Religion (in the context of employment) (<i>Religion/ Creed in all aspects of any aviation or transit-related construction</i>)	An individual belonging to a religious group; or the perception, based on distinguishable characteristics that a person is a member of a religious group. In practice, actions taken as a result of the moral and ethical beliefs as to what is right and wrong, which are sincerely held with the strength of traditional religious views. Note: Does not have to be associated with a recognized religious group or church; if an individual sincerely holds to the belief, it is a protected religious practice.	Muslim, Christian, Sikh, Hindu, etc.	Title VII of the Civil Rights Act of 1964; 23 CFR 230; FHWA-1273 Required Contract Provisions. (<i>49 U.S.C. 5332(b); 49 U.S.C. 47123</i>)

(3) Pertinent Nondiscrimination Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

- (a) Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.

- (b) The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- (c) Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- (d) Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability) and 49 CFR Part 27;
- (e) The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- (f) Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- (g) The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- (h) Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- (i) The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- (j) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- (k) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- (l) Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).
- (m) Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e et seq., Pub. L. 88-352), (prohibits employment discrimination on the basis of race, color, religion, sex, or national origin).

(4) Additional Title VI Assurances

***The following Title VI Assurances (Appendices B, C and D) shall apply, as applicable*

- (a) Clauses for Deeds Transferring United States Property (1050.2A, Appendix B)

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4.

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the North Carolina Department of Transportation (NCDOT) will accept title to the lands and maintain the project constructed thereon in accordance with the North Carolina General Assembly, the Regulations for the Administration of the Federal-Aid Highway Program, and the policies and procedures prescribed by the Federal Highway Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the NCDOT all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto the North Carolina Department of Transportation (NCDOT) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the NCDOT, its successors and assigns.

The NCDOT, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the NCDOT will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended [, and (3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

(b) Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program (1050.2A, Appendix C)

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(a):

1. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:
 - (i.) In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
2. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued. *
3. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

(c) Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program (1050.2A, Appendix D)

The following clauses will be included in deeds, licenses, permits, or similar instruments/ agreements entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(b):

1. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.
2. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Non-discrimination covenants, the NCDOT will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued. *
3. With respect to deeds, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

STANDARD SPECIAL PROVISION
MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS

Z-7

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (*EXECUTIVE NUMBER 11246*)

1. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, see as shown on the attached sheet entitled "Employment Goals for Minority and Female participation".

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in *41 CFR Part 60-4* shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in *41 CFR 60-4.3(a)*, and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the executive Order and the regulations in *41 CFR Part 60-4*. Compliance with the goals will be measured against the total work hours performed.

2. As used in this Notice and in the contract resulting from this solicitation, the "covered area" is the county or counties shown on the cover sheet of the proposal form and contract.

**EMPLOYMENT GOALS FOR MINORITY
AND FEMALE PARTICIPATION**

Economic Areas

Area 023 29.7%

Bertie County
Camden County
Chowan County
Gates County
Hertford County
Pasquotank County
Perquimans County

Area 024 31.7%

Beaufort County
Carteret County
Craven County
Dare County
Edgecombe County
Green County
Halifax County
Hyde County
Jones County
Lenoir County
Martin County
Nash County
Northampton County
Pamlico County
Pitt County
Tyrrell County
Washington County
Wayne County
Wilson County

Area 025 23.5%

Columbus County
Duplin County
Onslow County
Pender County

Area 026 33.5%

Bladen County
Hoke County
Richmond County
Robeson County
Sampson County
Scotland County

Area 027 24.7%

Chatham County
Franklin County
Granville County
Harnett County
Johnston County
Lee County
Person County
Vance County
Warren County

Area 028 15.5%

Alleghany County
Ashe County
Caswell County
Davie County
Montgomery County
Moore County
Rockingham County
Surry County
Watauga County
Wilkes County

Area 029 15.7%

Alexander County
Anson County
Burke County
Cabarrus County
Caldwell County
Catawba County
Cleveland County
Iredell County
Lincoln County
Polk County
Rowan County
Rutherford County
Stanly County

Area 0480 8.5%

Buncombe County
Madison County

Area 030 6.3%

Avery County
Cherokee County
Clay County
Graham County
Haywood County
Henderson County
Jackson County
McDowell County
Macon County
Mitchell County
Swain County
Transylvania County
Yancey County

SMSA AREAS**Area 5720 26.6%**

Currituck County

Area 9200 20.7%

Brunswick County

New Hanover County

Area 2560 24.2%

Cumberland County

Area 6640 22.8%

Durham County

Orange County

Wake County

Area 1300 16.2%

Alamance County

Area 3120 16.4%

Davidson County

Forsyth County

Guilford County

Randolph County

Stokes County

Yadkin County

Area 1520 18.3%

Gaston County

Mecklenburg County

Union County

Goals for Female**Participation in Each Trade**

(Statewide) 6.9%

STANDARD SPECIAL PROVISION
REQUIRED CONTRACT PROVISIONS FEDERAL - AID CONSTRUCTION CONTRACTS

FHWA - 1273 Electronic Version - May 1, 2012

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- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

- A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:
 - a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.
 - b. The contractor will accept as its operating policy the following statement:

- "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
 3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
 - a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
 - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
 - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
 - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
 4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
 - a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
 - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
 - c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
 5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
 - a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
 - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
 - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
 - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.
 6. **Training and Promotion:**
 - a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
 - b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
 - c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
 - d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.
 7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
 - a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
 - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
 - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

- d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
 - a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
 - b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
10. **Assurance Required by 49 CFR 26.13(b):**
 - a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
 - b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
 - a. The records kept by the contractor shall document the following:
 - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
 - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
 - b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

- a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (ii) The classification is utilized in the area by the construction industry; and
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 2010. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
3. **Payrolls and basic records**
 - a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
 - b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.
 - (2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - (i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
 - (ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

- (iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
 - (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.
 - (4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.
- 4. **Apprentices and trainees**
 - a. Apprentices (programs of the USDOL). Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
 - b. Trainees (programs of the USDOL). Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
 - c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
 - d. Apprentices and Trainees (programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.
- 5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
- 6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.
- 7. **Contract termination:** debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- 8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
- 9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
- 10. **Certification of eligibility.**

- a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
 - a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees

from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
 - (2) the prime contractor remains responsible for the quality of the work of the leased employees;
 - (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
 - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
 3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
 4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
 5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if at any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
 - (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
 - (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and
 - (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in

obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
 - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

STANDARD SPECIAL PROVISION
ON-THE-JOB TRAINING

(10-16-07) (Rev. 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.

STANDARD SPECIAL PROVISION
MINIMUM WAGES
GENERAL DECISION NC20210090 01/07/2022 NC90

Z-090

Date: January 7, 2022

General Decision Number: NC20220090 01/07/2022 NC90

Superseded General Decision Numbers: NC20210090

State: North Carolina

Construction Type: HIGHWAY

COUNTIES:

Brunswick	Greene	Onslow
Cumberland	Hoke	Pender
Currituck	Johnston	Pitt
Edgecombe	Nash	Wake
Franklin	New Hanover	Wayne

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022, Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022, Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at www.dol.gov/whd/govcontracts.

Modification Number
0

Publication Date
01/07/2022

SUNC2014-005 11/17/2014

	Rates	Fringes
BLASTER	21.04	
CARPENTER	13.72	
CEMENT MASON/CONCRETE FINISHER	14.48	
ELECTRICIAN		
Electrician	17.97	
Telecommunications Technician	16.79	.63
IRONWORKER	16.02	
LABORER		
Asphalt Raker and Spreader	12.46	
Asphalt Screed/Jackman	14.33	
Carpenter Tender	12.88	
Cement Mason/Concrete Finisher Tender	12.54	
Common or General	10.20	
Guardrail/Fence Installer	12.87	
Pipelayer	12.17	
Traffic Signal/Lighting Installer	14.89	
PAINTER		
Bridge	24.57	
POWER EQUIPMENT OPERATORS		
Asphalt Broom Tractor	11.85	
Bulldozer Fine	17.04	
Bulldozer Rough	14.34	
Concrete Grinder/Groover	20.34	2.30
Crane Boom Trucks	20.54	
Crane Other	20.08	
Crane Rough/All-Terrain	20.67	
Drill Operator Rock	14.38	
Drill Operator Structure	21.14	
Excavator Fine	16.60	
Excavator Rough	14.00	
Grader/Blade Fine	18.47	
Grader/Blade Rough	14.62	
Loader 2 Cubic Yards or Less	13.76	
Loader Greater Than 2 Cubic Yards	14.14	
Material Transfer Vehicle (Shuttle Buggy)	15.18	
Mechanic	17.55	
Milling Machine	15.36	
Off-Road Hauler/Water Tanker	11.36	
Oiler/Greaser	13.55	
Pavement Marking Equipment	12.11	
Paver Asphalt	15.59	
Paver Concrete	18.20	
Roller Asphalt Breakdown	12.45	
Roller Asphalt Finish	13.85	
Roller Other	11.36	
Scraper Finish	12.71	
Scraper Rough	11.35	

	Rates	Fringes
Slip Form Machine	16.50	
Tack Truck/Distributor Operator	14.52	
TRUCK DRIVER		
GVWR of 26,000 Lbs or Less	11.12	
GVWR of 26,001 Lbs or Greater	12.37	

Welders – Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example:

SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Division National Office Branch of Wage Surveys. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by

any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

- 3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

- 4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

STANDARD SPECIAL PROVISION
GREENWAYS AND MULTI-USE PATHS:

(2-18-14)

Description

This special provision provides for revisions to the *2018 Standard Specifications* for work on a greenway or multi-use path not designed or intended to carry highway traffic.

Materials

Refer to the *2018 Standard Specifications* except as noted in these Special Provisions. Use materials on the NCDOT Approved Products List (APL) where applicable.

Construction Methods

Construct Greenway in accordance with the contract plans, *2018 Standard Specifications* except as noted below:

SECTION	ARTICLE	PAGE	REVISION
235: Embankments	235-3(C): Embankment Compaction	2-24	Delete first sentence and replace with the following: Compact each layer for its full width to a density equal to at least 90% of that obtained by compacting a sample of the material in accordance with AASHTO T 99 as modified by the Department.
500: Fine Grading Subgrade	500-2(C): Compaction of Subgrade	5-1	Delete first sentence and replace with the following: Compact all material to a depth of up to 8 inches below the finished surface of the subgrade to a density equal to at least 92% of that obtained by compacting a sample of the material in accordance with AASHTO T 99 as modified by the Department.
500: Fine Grading Subgrade	500-3: Tolerances	5-2	Delete Article 500-3 and replace with the following: A tolerance of plus or minus one inch from the established greenway grade will be permitted after the subgrade has been graded to a uniform surface.
505: Aggregate Subgrade	505-3: Construction Methods	5-8	Delete first paragraph and replace with the following: Perform shallow undercut up to 12 inches as necessary to remove unsuitable material. If necessary, install geotextile for soil stabilization in accordance with Article 270-3. Place Class III select material or Class IV subgrade stabilization (standard size no. ABC) by end dumping on geotextiles. Do not operate heavy equipment on geotextiles until geotextiles are covered with Class III or ABC. Compact ABC to 92% or to the highest density that can be reasonably attained.

SECTION	ARTICLE	PAGE	REVISION
520: Aggregate Base Course	520-7: Shaping and Compaction	5-11	Delete first sentence in second paragraph and replace with the following: For both nuclear and ring tests, compact each layer of the base to a density equal to at least 92% of that obtained by compacting a sample of the material in accordance with AASHTO T 180 as modified by the Department. Delete the third paragraph.
610: Asphalt Concrete Plant Mix Pavements	610-10: Density Requirements	6-23	Delete Article 610-10 and replace with the following: Compact the asphalt plant mix to at least 85% of the maximum specific gravity.
610: Asphalt Concrete Plant Mix Pavements	610-13: Final Surface Testing and Acceptance	6-24	Delete Article 610-13.
848: Concrete Sidewalks	848-3: Construction Methods	8-31	Delete second paragraph and replace with the following: Construct concrete greenway based on the typical sections in the plans. Place groove joints at a spacing equal to the width of the greenway. Transverse Expansion Joints are required every 40 feet.

CITY OF WILMINGTON SPECIAL CONDITIONS FOR THIS CONTRACT**SECTION TS-15: SPECIAL CONDITIONS****GENERAL**

This section of specifications describes provisions unique to this project. The specifications, the plans, the special and general provisions, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. In case of discrepancy or conflict, annotated dimensions shall govern over scaled dimensions; plans shall govern over technical specifications except for Section 15 of the Technical Specifications (Special Conditions) and the Project Special Provisions. Section 15 of the Technical Specifications (Special Conditions) and the Project Special Provisions always take precedence over plans and all other technical specifications. Technical specifications take precedence over general provisions.

In strict accordance with and as shown in the specifications, schedules, drawings and other documents set forth herein or incorporated by reference as follows:

NCDOT Standards and Specifications for Roads and Structures (2018 Edition), NCDOT Roadway Standard Drawings (2018 Edition), City of Wilmington Technical Standards, and City of Wilmington Standard Details.

NCDOT Standards and Specification and NCDOT Standard Drawings may be purchased from the North Carolina Department of Transportation (or viewed online) and are not provided by the City of Wilmington or the Engineer. City of Wilmington specifications, schedules, drawings and other documents are on file at the City of Wilmington. The Contractor shall further perform in accordance with the directions (not inconsistent therewith) given from time to time during the construction by the City of Wilmington or such other official, employee, or other agent of the City as the City may designate.

TS-15.01 PROJECT DESCRIPTION:

This project will be the construction of a 87 LF 5' wide sidewalk and 175 LF of 8' wide multi-use path constructed within the right-of-way of Holly Tree Road east of College Road. The work shall include, but is not limited to: excavation, grading, stone base course, asphalt paving, drainage, curb ramps, erosion control, grassing, and other incidentals.

TS-15.02 TECHNICAL SPECIFICATIONS:

All work within the scope of this project shall be performed according to the most recent version of the North Carolina Department of Transportation Standard Specifications for Roads and Structures with the following exceptions:

- A. Any special instructions shall be spelled out in Section 15 of the Technical Specifications (Special Conditions) and the Project Special Provisions and shall override any provisions otherwise specified.

TS-15.03 DRAWINGS AND INSTRUCTIONS:

The owner shall provide the Contractor with a PDF of the plans and contract documents after the execution of the contract. The Contractor will be responsible for any hard copies of plans, drawings, and specifications. The Engineer shall provide the Contractor with such revised plans, drawings and specifications as may be required to show any authorized changes or extra work. These plans, drawings, and specifications are the property of the City of Wilmington, North Carolina, and are furnished to the Contractor for the construction of the project under this contract only.

TS-15.04 PROJECT TIMEFRAME:

All work included under this contract is to be completed within the time limit as set forth in the proposal. The expected time to complete construction is **4 months**; therefore, the project has been given a timeframe of **120 days** from the beginning date of the construction period as per G-1.47 General Provisions.

Extensions to the contract may change for various reasons, such as changes in scope, unknowns or inclement weather (see “Weather Delays”) and can be brought forward by either the Project Manager or the Contractor. The Contractor shall have 30 days from the time of occurrence to submit written requests for consideration of time extensions. The guidelines are defined in the Project Proposal and General Provisions, most specifically in Sections G-1.46 and G-1.47.

TS-15.05 PROJECT TIME DEFINED:

Project time shall consist of all calendar days, including weekends and holidays, from the contract notice to proceed date through the specified number of days allowed for the completion of the project in the contract document.

TS-15.06 WEATHER DELAYS:

The determination of weather delays shall be as follows: Using NOAA historical climate data for Wilmington, NC, the contractor shall be awarded a weather day for each day with rainfall > 0.10” exceeding the historical number of days with rainfall > 0.10”. Additionally, for days with rainfall > 1.0”, one additional day shall be granted to allow the water to disperse / site cleanup.

Also, when determining the number of weather days with >0.10” of rainfall to be added to the contract time, this value is rounded up or down. For example, if the data shows that the difference between the “OBSERVED VALUE” and the “NORMAL VALUE” for the number of days with rainfall >0.10” in a given month results in a “DEPART FROM NORMAL” value of 1.5, the contractor would be awarded 2 days. For reference, example weather day determinations are included as Attachment 3.

The NOAA Month Weather Summary (Climatological Report) can be found at <https://w2.weather.gov/climate/index.php?wfo=ilm>

TS-15.07 PROJECT WORK TIMES:

Contractor shall review NCDOT Encroachment Agreement work hours on any closures along **Holly Tree Road and College Street**. Any work requiring lane closures shall be restricted to the times and dates stipulated in the Transportation Operation Plans General Notes unless written approval from NCDOT and City.

The contractor is responsible for all local traffic control required for lane closures and shall coordinate the closures with both the City of Wilmington and NCDOT Division 3.

Further restrictions may apply due to traffic conditions; however, Contractor may submit written request regarding work hours and traffic control plan to the Project Manager for consideration by the City.

No lane closures or impediment to traffic shall be allowed on weekends without prior written approval from City Engineering. No lane closures shall be allowed on City Holidays and local events.

The Contractor shall not work on Holidays or weekends without prior notification and approval of the City Quality Control Technician/ Construction Inspector.

TS-15.08 PRE-CONSTRUCTION MEETING, PROGRESS SCHEDULE, PROGRESS MEETINGS AND REPORTS:

The Contractor shall submit to the Project Engineer a graphic progress schedule of the proposed construction operations at least two (2) days prior to the scheduled preconstruction conference. The progress schedule shall indicate the sequence of the work including the time of starting and the completion of each major task. The schedule should conform to the traffic control plan and address any priorities (if needed) of the City.

Monthly progress meetings are expected throughout the duration of the project and shall include:

- A. Contractor's Project Manager
- B. Contractor's Project Superintendent
- C. City's designated Representatives(s)
- D. Engineer's designated Representative(s)
- E. Corresponding Subcontractors
- F. NCDOT designated Representative(s)

The Engineer shall schedule monthly meetings at a minimum, for the most convenient time frame. The Engineer shall take meeting minutes, review previous minutes with participants at the meeting, and submit copies of meeting minutes to participants within 7 days. The Engineer shall have available at each meeting full chronological file of all previous meeting minutes.

The contractor shall provide and present monthly progress reports. Each progress report shall include:

- A. Narrative that is sufficient to describe current and anticipated delaying factors, their effect on the progress schedule, and proposed corrective actions.
- B. A copy of the accepted graphic schedule marked to indicate actual progress.

Any work reported complete, but which is not readily apparent to the Engineer, must be substantiated with satisfactory evidence. The Contractor may be requested to provide and present construction plan mark-ups for discussion. If the work falls behind schedule, the Contractor shall submit additional progress reports at such intervals as the Engineer may request.

TS-15.09 SHOP DRAWINGS

TS-15.09.1 GENERAL:

Engineering data covering all fabricated material that will become a permanent part of the work under this Contract shall be submitted to the Engineer for review. The data shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement, and operation of component materials and devices; the external connections, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials.

All submittals, regardless of origin, shall be stamped with the approval of the Contractor and identified with the name and number of this contract, Contractor's name, and references to applicable specification paragraphs and Contract Drawings. Each submittal shall indicate the intended use of the item in the work. When catalog pages are submitted, applicable items shall be clearly identified and inapplicable data crossed out. The current revision, issue number, and date shall be indicated on all drawings and other descriptive data.

Contractor's stamp of approval is a representation to the City and Engineer that Contractor accepts full responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that he has reviewed and coordinated each submittal with the requirements of the work and the contract documents.

Contractor shall accept full responsibility for the completeness of each submission. When an item consists of components from several sources, Contractor shall submit a complete initial submittal including all components.

All deviations from the Contract Documents shall be identified on each submittal and shall be tabulated in Contractor's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by the Contractor (including modifications to other facilities that may be a result of the deviation).

Electronic, portable document format (PDF), submittals of the shop drawings and engineering data shall be submitted to Engineer for review and distribution. Engineer will not accept submittals from anyone but the Contractor. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades.

TS-15.09.2 ENGINEER'S REVIEW OF DRAWINGS AND DATA:

Engineer's review of drawings and data submitted by the Contractor will cover only general conformity to the Drawings and Specifications, external connections, and dimensions, which affect the layout. Engineer's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown. Engineer's review of submittals shall not relieve the Contractor from responsibility for errors, omissions, or deviations, nor responsibility for compliance with the Contract Documents.

Engineer's submittal review period shall be 21 consecutive calendar days in length and shall commence on the first calendar day immediately following the date of arrival of the submittal or re-submittal in the Engineer's office. The time required to transmit the submittal or re-submittal back to the Contractor shall not be considered a part of the submittal review period.

When the drawings and data are returned marked "REJECTED" or "REVISE AND RESUBMIT", the corrections shall be made as noted thereon and as instructed by the Engineer and a revised PDF resubmitted.

When the drawings and data are returned marked "NO EXCEPTIONS TAKEN EXCEPT AS NOTED" or "NO EXCEPTIONS TAKEN", no additional copies need be furnished unless requested by the Engineer at time of review.

TS-15.09.3 RE-SUBMITTAL OF DRAWINGS AND DATA:

The Contractor shall accept full responsibility for the completeness of each re-submittal. The Contractor shall verify that all corrected data and additional information previously requested by the Engineer are provided on the re-submittal.

When corrected copies are re-submitted, the Contractor shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by the Engineer on previous submissions.

Requirements specified for initial submittals shall also apply to re-submittals. Re-submittals shall bear the number of the first submittal followed by a letter (A, B, etc.) to indicate the sequence of the re-submittal.

Re-submittals shall be made within 30 days of the date of the letter returning the material to be modified or corrected, unless within 14 days the Contractor submits an acceptable request for an extension of the stipulated time period, listing the reasons the re-submittal cannot be complete within that time.

Any need for more than one re-submission, or any other delay in obtaining the Engineer's review of submittals, will not entitle the Contractor or an extension of the Contract Times unless delay of the work is directly caused by a change in the work authorized by a change order or by failure of the Engineer to review any submittal within the submittal review period specified herein and to return the submittal to the Contractor.

TS-15.10 CONSTRUCTION VIDEO:

The Contractor shall video the project site in its entirety prior to construction, with emphasis on the adjoining properties, drives, trees, drainage, ditches, driveway pipes, cross pipes, shoulders, condition of roadway, and other distinguishing features. Appropriate narration will include location and description of property and physical features.

The Contractor shall provide one (1) copy of the project video to the City at the preconstruction conference on a flash drive or other approved method. No separate payment will be made for this work, and all associated cost will be considered incidental to other items in the contract.

TS-15.11 CONSTRUCTION ADMINISTRATION AND INSPECTIONS:

The Engineer shall provide construction administration services for the duration of the project. Inspection services will be provided by the City Quality Control Technician, City Construction Inspector or assigned representative in conjunction with the Engineer. Contractor shall coordinate through Project Engineer and Inspector as required to facilitate the project. Contractor shall not interfere, hinder or misrepresent construction details or events.

The key functions to be provided by the City Construction Inspector and/or Engineer include, but are not limited to, the following:

- A. Conduct weekly site inspections
- B. Conduct monthly progress meetings
- C. Direct communications with Contractor(s)
- D. Provide lead role in communications between all parties
- E. Review and approve shop drawings
- F. Administer and develop change orders
- G. Review and certify pay applications
- H. Conduct substantial and final inspection walk-throughs and develop and track punch list items
- I. Assist and certify construction as-builts.

TS-15.12 MONTHLY QUANTITIES AND PAY REQUESTS:

No pay request (progress payments including mobilization) shall be processed by the City for payment to the Contractor until a corresponding progress meeting has occurred and sufficient documentation has been provided for the schedule and quantities of work completed for the preceding month and is reviewed by the Inspector(s), Engineer, and approved by the City.

The following items are required for monthly payment requests on contracts:

- **One (1) Original of Estimate/Invoice**
- **One (1) copy of Sales Tax Report**
- **One (1) copy of Material Inventory Statement, when applicable**
- **One (1) copy of Paid Invoices for all materials for which payment is being requested**
- **One (1) Original Certified Payrolls (when federal monies are involved); one for each company on site**

- **Two (2) copies of MBE/DBE Certification for each MBE/DBE Subcontractor on project; Final payment to the prime contractor requires payment in full to the MBE/DBE firms and suppliers.**
- **One copy of the City DBE-IS form.**
- **One (1) Original copy of Truck tickets (when federal monies are involved)**
- **A valid Insurance / Builders Risk Certificate on file for the duration of the project**
- **One (1) copy of Consent of Surety to Reduction in or Partial Release of Retainage**
- **Two (2) copies of the State DBE-IS form (when state or federal monies are involved);**
- **The following items are required prior to a project close out and requirements of NCGS.***
- **One (1) copy of Contractor's Affidavit of Payment of Debts and Claims and release or Waiver of liens form**
- **One (1) copy of Subcontractors' Release or Waiver of Liens form**
- **One copy of Contractor's Assignment of all Warranties and Guarantees form**
- **One (1) copy of Consent of Surety Company to Final Payment form**
- **As-Built Plans / Record Drawings**

* The Project Director, Project Engineer, and Consultant may require additional items to be submitted and finalized prior to release of final payment.

No separate measurement or payment will be made for this item.

TS-15.13 MEASUREMENT OF QUANTITIES:

The quantities of work will be computed by the Contractor and supplied to the City or Authorized Representative. The quantities of work performed, supplied by the Contractor, will be verified by the City or Authorized Representative on the basis of measurements taken by him or his assistants, and these measurements shall be final and binding. The specifications shall designate the manner in which the measurements of the various types of work shall be measured.

The quantities of work performed shall be recorded each day and provided to the City or Authorized Representative upon request. Contractor shall maintain detailed reports throughout the project and be able to supply the reports, upon request by the City or the City's representatives.

TS-15.14 MATERIALS TESTING AND QUALITY CONTROL:

The City reserves the right to require certification or test any materials used, installed or stored on the project. The contractor is required to utilize approved materials and suppliers and shall facilitate the testing needs of the project through communication, coordination, and control of sub-contractors, during installation or delivery. Such efforts to provide assistance shall be deemed incidental to the project at no cost to the City.

Materials Testing, Inspection, and Quality Control protocol for the project will conform to the applicable NCDOT Standard Specifications and guidelines. This plan shall be made available to personnel, sub-contractors, inspectors and technicians

prior to construction.

As needed, the City will engage the necessary resources to conduct on-site observation, record keeping, testing, sampling and laboratory analysis of construction methods and materials. The City will pay for quality control and materials testing services. However, the cost of any retests required because of failing tests will be the responsibility of the Contractor.

Sampling and Testing:

Materials testing will be conducted in accordance with the latest applicable methods and procedures such as ASTM, ACI, NCDOT, etc in accordance with NCDOT Standard Specifications. **The Contractor shall provide at least 24 hours' notice to the City Quality Control Technician/Construction Inspector prior to the commencement of any concrete pouring or removal.** Typical material testing procedures expected in this project testing plan are:

Asphalt – cores for thickness, asphalt content and density (compaction), QC reports.

Concrete – cylinder molds with compressive strength breaks in 7 days, 14, or 28 days.

Soil – observation, proof roll, proctor tests and density tests for undercut, sub-base, trench, embankment, etc.

Stone – gradation, thickness, density testing for base.

Contractor is responsible to provide a “hot box” for on-site curing of concrete cylinders in a suitable and safe location.

Any materials or installations found out of compliance with the project specifications will require immediate suspension of construction and require contractor to submit and/or perform corrective action through repair, rework, or pay reduction factors using industry standards City specifications and NCDOT Standard Specifications.

Concrete Testing:

A certified ACI Concrete Field-Testing Technician, Grade I, shall perform all concrete testing for this project. The City will provide quality control testing of the concrete for this project. The Contractor or his designee may provide comparison concrete testing at no cost to the City. The costs of any re-tests required because of failing tests will be the responsibility of the Contractor.

Compaction and Testing:

The subgrade for curb, gutter, sidewalks and driveways shall be graded and prepared as set forth in the latest NCDOT Standards and Specifications within NCDOT and CITY right-of-way.

The City shall perform all compaction testing as needed. After testing is completed and reports are provided, all subgrade below the concrete placement will be examined by the City's Quality Control Technician/ Construction Inspector before any concrete placement is authorized.

Materials Certification and Delivery:

Upon request of the Engineer the contractor shall make available to the City all documentation pertaining to the origin, manufacturing, job mix formula or delivery of materials to the job-site. All necessary documentation, whether original or signed must be provided in a legible and thorough manner to complete quantity verification and may include but not limited to shipping receipts, trucking delivery tickets, plant or quarry tickets, manufacturers certification, Buy America, shop drawings, etc. This may pertain to deliveries of asphalt (surface, intermediate, base, binder), cement, stone (ABC, #57, riprap), soils, mulch, castings (steel), pipe (RCP, PVC, ductile), fixtures, landscaping, seed, etc.

TS-15.15 ENCROACHMENTS:

Where existing fences, posts, walls, etc., are encroached on the City right-of-way and are to be removed, the contractor shall be required to coordinate the removal of said encroachments with the City and the affected property owners. The contractor shall remove the encroachments and place them on the property of the affected owner if the owner desires. If the owner has no preference, the contractor shall remove and dispose of such item. The cost of relocating or removing encroachment items will be considered incidental to the project and no additional payment will be allowed.

TS-15.16 DRAWINGS SHOWING CHANGES DURING CONSTRUCTION:

The Contractor shall maintain a set of plans and specifications marked "Construction Record Drawings". The Contractor shall keep a complete and up-to-date record in red pencil of any and all changes made during construction. This set of contract documents shall be submitted to the Engineer and approved by him prior to the Engineer recommending final payment.

TS-15.17 REGULATIONS:

The Contractor will comply with all City, State and Federal regulations as per G-1.29 REGULATIONS. **A City Ordinance requires construction workers in the public right of way to wear approved safety vests.**

TS-15.18 SAFETY:

The Contractor shall comply with all City, State and Federal Regulations as per G-1.61 SAFETY. The Contractor and sub-contractors shall comply at all times with the latest revisions of all OSHA regulations and all applicable labor laws and regulations of the state of North Carolina from 29 Code of Federal Regulations (CFR) Part 1910.

The Contractor and subcontractor shall submit if required, the following documents to the City (at the Pre-construction meeting) prior to commencement of work:

1. OSHA – 200 LOG
2. Training records (Excavations, Trenching, and Shoring, etc)
3. Certification (Flagger certifications, competent employee, equipment, etc.)

TS-15.19 SANITARY FACILITIES:

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and City of Wilmington. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

TS-15.20 PUBLIC TRAFFIC:

Contractor shall notify property owners 72 hours in advance of the need to close a driveway during construction. Access to all properties shall be maintained throughout the project.

TS-15.21 NOTIFYING UTILITY COMPANIES:

The contractor's attention is hereby called to **Section G-1.52** of these specifications and **North Carolina's Underground Utility Damage Prevention Act 87-100** and the **City of Wilmington Municipal Code, Chapter 11, Article V**. Notification of the utility companies and departments shall be made prior to any excavation under this project. The Contractor is reminded that utility companies usually require a 72-hour notice. All services need to be located.

The following numbers are an aid to the contractor:

NC ONE CALL CENTER 1-800-632-4949 (requires 72 hour notice).

****See Project Utility Contacts in Plans****

Prior to road closures, call 910-343-4255. This is the 911 Center.

TS-15.22 PROTECTION OF EXISTING UTILITIES:

The Contractor shall use the necessary precautions to protect existing water, sewer, gas, telephone, and storm drainage lines, etc. and service lateral during the course of construction. The cost of protecting such lines and services shall be considered incidental to the project and no additional payment will be allowed.

TS-15.23 NON-CITY UTILITIES:

The removal, repair or relocation of electric, cable TV, telephone, communications, and gas utilities will be performed by others. However, the Contractor is responsible for coordination of such relocation or removal, schedule his work to coincide with such, and pay any associated cost. No extra payment will be made to the Contractor for this work.

NOTE: Utilities as shown on the plans are based on best available information and exact locations shall be the responsibility of the Contractor.

TS-15.24 CLEAN-UP AND RESTORATION:

The safety and preservation of adequate access for residents is a critical aspect of this project. The Contractor, during the course of this work shall maintain and clean up the streets, side yards, walks, pavements, drainage structures, etc and shall

schedule at the end of each day of work the removal of debris, grading of all disturbed areas and restoration to a usable state all driveways and other means of access for the public and private property owners. Grassing and stabilization of yards shall be required on a weekly basis as the work progresses.

TS-15.25 USE OF A PORTION OF THE WORK:

Whenever, in the opinion of the Engineer, any portion of the work is completed, or is in an acceptable condition for use, it shall be used for the purpose intended. Such use shall not be held in any way as an acceptance of that portion of the work used, or as a waiver of any of the provisions of these specifications. Necessary repairs or renewals in any section of the work due to defective materials, defective workmanship, or natural causes, under the instructions of the Engineer shall be performed by the Contractor at no additional cost to the City.

TS-15.26 COMPLAINTS:

The City has a system of recording complaints that may be received from residents. The Engineer's representative and representative of the Contractor will meet with the person registering a complaint within one day after complaints are logged in. During this meeting, a reasonable course of action will be arrived at between the property owner and the City. It is not the intent of the City to require the Contractor accomplish unreasonable tasks. However, if the Contractor has not satisfactorily acted on resolving complaints by the end of the month, that month's payment request will not be processed. The payment request will be processed as soon as corrective action is taken. The City of Wilmington also reserves the right to issue stop work order as stated in paragraph G-1.59 of the General Specifications if the Contractor's actions or non-action so dictates.

TS-15.27 INCIDENTAL RESTORATION:

The Contractor shall visit the project to familiarize himself with site and account for any incidental restoration items.

Any mailboxes that must be disturbed to allow proper completion of the contract work shall be carefully removed and reset within the same day. The Contractor shall coordinate with the U.S. Postal Service and residents to ensure that mail service is not interrupted. This work is considered incidental to construction and no separate payment will be allowed.

At locations shown on the plans or designated by the Engineer, the Contractor shall remove and reset existing signs, fencing, mailboxes, outside lighting, hedges or shrubbery, masonry or wooden flower boxes, and all miscellaneous yard/driveway ornamentation, etc., in accordance with the following provisions.

- A. The existing items will be removed and replaced at the locations indicated on the plans or designated by the Engineer;
- B. After resetting, all items shall be in a condition equal to or better than existed before being removed. The Contractor will be required to replace any components that have been unnecessarily damaged by him.

The quantity of items reset to be paid for shall not be measured separately. All items shall be included in the unit price for items in the proposal. No separate payment will be made unless a specific pay item was created.

TS-15.28 NOTIFICATION OF PROPERTY OWNERS:

The Contractor shall be required to submit a plan for systematic notification of affected property owners. Such notices shall include, but not be limited to, the following items: schedule of work; access to streets during construction; removal of vegetation and above ground items; replacements of streets and driveways; parking; location of services. At least 15 days' notice is required prior to beginning work unless the project has been publicly announced or the property owners consent to waive the notice period. At least 48 hr notice is required to affected residents if water shut-off is necessary. Plan shall be approved by the Engineer and the City. Upon approval, the Contractor shall be required to provide all labor, materials, and other support in order to implement the plan and will be considered incidental to other items in the contract.

TS-15.29 EROSION AND SEDIMENT CONTROL:

The Contractor shall install the devices as required to comply with the erosion and sedimentation control measures shown on the plans and required by the NC D.E.N.R. Division of Land Resources representatives. The devices shall be installed prior to any excavation or land disturbing activity. All measures shall be properly maintained until such time as they can be removed. In the event that the Project Manager or a representative of the NC Division of Land Resources determines that adequate measures have not been provided and or maintained, the Project Manager shall give a stop work order on the project until protective measures have been taken. No additional time will be given the Contractor when the stop work is a result of his failure to comply with the N.C. Sedimentation Control Act.

TS-15.30 DUST CONTROL:

The Contractor shall, as directed by the City Engineer provide adequate equipment and use other available means to control the dust during the term of this contract. Failure on the part of the Contractor to correct dust control problems as directed will result in the City Engineer notifying the Contractor to comply with the contract provisions. In the event that the Contractor fails to begin such remedial action within 24 hours after receipt of such notice, the City Engineer may proceed to have the work performed with other forces. The actual cost of the work so performed along with a 20% administrative fee will be deducted from monies due to the Contractor on his contract. Under adverse conditions, the City Engineer may choose to suspend the Contractor's operations on the project until all dust control problems have been completed to his satisfaction. Such suspension will not justify an extension of contract time.

TS-15.31 FERTILIZING AND PERMANENT SEEDING:

Permanent ground cover is required on all disturbed areas of the contract. Fertilizer and lime tickets shall be submitted with pay request. All seed bag tags shall be submitted with payment request.

In addition to the requirements of NCDOT Division 16 Specifications and what is shown in the plans, the Contractor shall provide the following seed mix at the application rates as follows:

A. Schedule of Seed Mix

<u>Kind of Seed</u>	<u>Percent of Mix</u>
Tall Fescue - Type I	50 lbs./acre
Tall Fescue - Type II	50 lbs./acre
Centipede Grass	5 lbs./acre

May 1 – August 31 – add 10 lbs/acre Kobe or Korean Lespedeza

September 1 – April 30 – add 10 lbs/acre Rye Grain

B. Application

1. Application of Fertilizer: Fertilizer shall be distributed uniformly at the rate of 500 pounds per acre over the areas to be seeded, and shall be incorporated into the soil to a depth of at least 2 inches;
2. Application of lime: Lime shall be distributed uniformly at a rate of 4000 pounds per acre over the areas to be seeded, and incorporate into the soil along with the fertilizer to a depth of 2 inches;
3. Broadcast Seeding: Seed, if broadcast, shall be distributed by use of mechanical hand-operated sowing equipment at the rate of 5 pounds of specified seed mix per 1000 square feet. The seed shall be uniformly distributed over the designated areas. Broadcast seeding shall not be done during windy weather. Seed shall be covered to a depth not to exceed 1/8 inch.

- C. Maintenance and Growth: The Contractor will maintain, repair, replace where washouts occur, and water until a uniform growth of 2 inches or higher is generally uniform on planted areas.

TS-15.32 TREE REMOVAL AND PROTECTION:

Prior to clearing of any area, the Contractor shall provide 5 days notice to the City so that the City's representative can meet with the contractor on site to determine and mark trees to be protected. Tree protection per the standard City detail shall be installed and will be paid at the unit price in the contract. No work shall begin in any area until the City has completed its marking or determined that construction in that area will not jeopardize trees. Damaged to marked trees may result in a penalty of up to \$1,000.00 per tree and removal at the Contractor's expense. Any trees required to be cleared for the work will be paid for under Lump Sum Grading or Clearing and Grubbing (whichever is provided in the Contract).

TS-15.33 EXISTING TREE ROOT SYSTEMS TO BE PROTECTED:

Existing tree root systems shall be protected and undisturbed on all trees that are to be retained. Tree roots shall be cut with a chain saw or sharp ax or bush-ax when directed. Tree roots shall not be removed by a backhoe bucket or torn from the ground. No extra payment for removal of tree roots will be allowed. The cost of tree root removal shall be included in each item bid in the proposal. In no instances shall roots with a diameter greater than or equal to two (2) inches be cut.

T-15.34 MOBILIZATION:

The Contractor shall be paid a mobilization cost as bid in the proposal. The mobilization item shall include, but not be limited to, the Contractor's startup expenses, cost of insurance, permits, bonds, etc. and will be paid per the lump sum bid price. Partial payment for the item of "Mobilization" will be made in the first and second partial pay estimates paid on the contract, and will be made at the rate of 50 percent of the lump sum price for mobilization on each of these partial pay estimates, provided the amount bid for mobilization does not exceed 5 percent of the total amount bid for the contract.

When the amount bid for mobilization exceeds 5 percent of the total amount of the contract, 2 1/2 percent of the total amount bid will be paid on each of the first two partial payment estimates and that portion exceeding 5 percent will be paid on the final pay estimate.

When there is more than one section with payment for mobilization, the term payment for mobilization shall be figured based on each individual section rather than the total contract amount.

T-15.35 GRADING:

The Contractors shall note that the Grading Lump Sum bid item, (Section 226 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures), of the proposal shall include work covered by Section 200 Clearing and Grubbing, Section 225 Roadway Excavation, Section 210 Borrow Excavation, Section 235 Embankments, Section 250 Removal of Existing Pavements, Section 500 Fine Grading Subgrade, Shoulders and Ditches, and Section 560 Shoulder Construction. Measurement and Payment shall be as set out in Section 226-3.

TS-15.36 DISPOSAL OF GOOD EXCAVATED SOIL MATERIAL:

Any excess good soil material excavated shall be the property of the Contractor. The contractor is cautioned that good excavated material needed as borrow (backfill and/or fill) shall remain the property of the City and that the contractor shall schedule his work such that excess good material is available at the project until all underground work and grading is complete. No additional payment will be allowed for haul or disposal of good material.

TS-15.37 DISPOSAL OF OBJECTIONABLE MATERIAL:

The Contractor is hereby notified that the disposal of objectionable common excavation material such as existing concrete curbing, asphalt, timber, concrete, tree limbs, brush, roots, stumps, and muck, etc. shall be the responsibility of the Contractor. The Contractor will be required to obtain his own (State approved) disposal site for this material. No extra payment for this disposal will be allowed. The Contractor should include all costs incurred for this item in the unit price bid for each item in the proposal.

TS-15.38 SAWING EXISTING SIDEWALKS, CURBS, AND DRIVEWAYS:

Where it is necessary to remove existing sidewalks, curbs, or driveways the Contractor will be required to furnish a neat, straight, uniform edge along the adjacent pavement retained by sawing a neat, straight, uniform line with a concrete saw, before breaking the adjacent surface away. The Contractor shall be responsible for ensuring that the saw cut is of enough depth to prevent damage beyond the limits of the saw cut.

No direct payment will be made for the sawing as such work will be considered incidental to other work being paid for by the various items in the contract.

TS-15.39 EXPANSION JOINT FILLER (FOR CONCRETE CONSTRUCTION):

Expansion joint filler for concrete construction shall be bituminous, non-extruding joint filler, as specified in AASHTO M-33-48 T-1-7

Expansion joint filler for concrete curb construction shall be bituminous, pre-formed non-extruding joint filler, as specified in AASHTO M-33-48 T-1-7

Expansion joint filler shall separate all 4" and 6" concrete except in curb ramps and installed between all rehabilitated concrete and walls, back of curbs, houses, house foundations, brick pavers, trees/ tree roots, etc. The Contractor at no additional cost to the City shall supply all expansion material for the project as such material will be considered incidental to other work being paid for by the various items in the contract.

TS-15.40 TYPICAL CURB RAMP TYPES:

The Contractor shall install curb ramps in accordance with the project plans and specifications. The proposed curb ramp layouts and details are general in their design; each intersection and or curb ramp may require altering the case or combination of cases that apply.

TS-15.41 NOISE CONTROL:

The Contractor shall conduct all his work and use appropriate construction methods and equipment to prevent exceeding legal noise levels. The Contractor shall comply with Section 13.09, 13.09.1 and Section 6-9, "Noises" of the Wilmington City Code. In addition, the Contractor shall provide baffles and/or enclosures on any dewatering pumps, by-pass pumps, or generators that must be operated after normal working hours. The Contractor should also consider noise reduction when placing such equipment in the project work areas.

TS-15.42 EMERGENCY SERVICES NOTIFICATION:

Prior to any street being closed to traffic, the Contractor shall notify the Emergency Services Dispatchers. The Contractor may call the 911 system at (910) 341-4247 and request that the Police and EMT personnel be notified, or the Contractor may call each service individually **24 Hours** in advance.

The Contractor will make provisions for access to all parts of the work for emergency vehicles (police, rescue, fire) and will assist in providing personnel to deliver sanitary pickup cans and other materials as required to a point where the City crew or City's Contractor can load their carrier. The Contractor should include all cost incurred for this item in the unit price bid for each item in the proposal.

TS-15.43 SUPERINTENDENT AND EMERGENCY CONTACTS:

The Contractor shall have a Superintendent present on the job site at all times. Upon start of construction, the Contractor shall provide the Engineer with names, e-mail addresses, and telephone numbers of Superintendent(s) and two other representatives to be contacted after hours in case of emergency.

TS-15.44 EMERGENCY WORK CREW:

The Contractor and/or the Contractor's subcontractors shall provide an emergency repair crew with adequate trucks and other equipment available when needed to make repairs, clean-up, signing and other work required in connection with this contract. This repair crew shall be on call during non-working hours and during weekends and holidays. The name, address and phone number of at least two responsible members of this crew shall be provided the City or Authorized Representative or his representatives prior to beginning any work. The members of this crew shall be based, reside, live within 1 hour of the project during the periods that they are on call. Should this "emergency" crew be unavailable for any reason when needed, the City shall have the right to have the required work performed by the quickest means available and the Contractor shall be back-charged at a rate of two (2) times the total cost to the City.

TS-15.45 PROJECT SIGNAGE INSTALLATIONS:

Signage notifying affected property owners, residents, business owners, pedestrians, and motorists of the impacts of the project may be deemed necessary by the City. Such signage may provide those affected with the project name, information for alternate routes, confirm adjacent businesses are open, etc. The City will provide the signage materials for installation by the Contractor in locations near the project site, as determined by the City. The cost of these sign installations shall be considered incidental to the project and no additional payment will be allowed.

TS-15.46 CHANGES IN WORK:

The City, without invalidating the contract, may delete items from the contract, order extra work, or make changes by altering, adding or deducting from the work, with the contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract by a change order, agreed and concurred with NCDOT, and must be approved by the City Council. In the event of a proposed change in the contract or any extra work, the Contractor shall notify the City Engineer in writing within 10 days from the occurrence stating what effect, if any, such change is claimed to have on the official project schedule. Any claims for extension of time caused by the changes shall be addressed and adjusted at the time ordering such changes.

The value of any such extra work or change shall be determined in one or more of the following ways:

- (a) By estimate and acceptance of a lump sum.
- (b) By unit prices named in the contract or subsequently agreed upon.
- (c) By cost and percentage or by cost and a fixed fee.

All change orders must be submitted by the Contractor to the City using the latest

EJCDC Change Order form or City approved alternative.

TS-15.47 **CONFORMITY WITH PLANS AND SPECIFICATIONS:**

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans, or indicated in the specifications.

In the event the City Engineer finds the materials or the finished product in which the materials are used not within reasonably close conformity with the plans and specifications but that reasonably acceptable work has been produced, he will then make a determination if the work is to be accepted and remain in place. If the City Engineer agrees that the work is to be accepted, he will have the authority to make such adjustment in contract price as he deems warranted based upon sound engineering judgment and the final estimate will be paid accordingly.

In the event the City Engineer finds the materials or the finished product in which the materials are used or the work performed are not in reasonably close conformity with the plans and specifications and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by the Contractor at no cost to the City.

TS-15.48 **USE OF PREMISES:**

- a. The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the Drawings or if no contract limits are shown, to the right-of-way shown and as prescribed by ordinances or permits or as may be directed by the City of Wilmington and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.
- b. The Contractor shall comply with all reasonable instructions of the City of Wilmington and the ordinances and codes of the City of Wilmington, regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

TS-15.49 **LANDS FOR WORK:**

The City shall provide the lands upon which the work under this contract is to be done, except that the Contractor shall provide land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.

If the City has not secured right-of-way entry for one of the properties at the time of construction, the City may eliminate applicable work from contract until the right-of-way has been obtained. This will not affect the date of availability, nor will an increase or decrease in the quantity of any item or elimination of any item will not be regarded as sufficient ground for an increase or decrease in any unit prices, nor in the time allowed for completion of the work, except as provided for in the contract.

TS-15.50 **SEPARATE CONTRACTS:**

The City reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly

connect and coordinate his work with others.

TS-15.51 STATUS OF CITY ENGINEER:

The City Engineer shall have general supervision and direction of the work. He has authority to stop the work wherever such stoppage may be necessary to insure proper execution of the contract. He shall also have authority to reject all work and materials which do not conform to the contract, to direct the application of force to any portion of the work, as in his judgment is required, and to order the force increased or diminished, and to decide questions which arise in the execution of the work.

TS-15.52 CITY ENGINEER'S DECISION:

The City Engineer shall, within a reasonable time after their presentation to him, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents. All such decisions of the City Engineer shall be final.

TS-15.53 FINAL CLEANUP:

The Contractor shall clear all streets, curbs, gutters, pipes, drainage structures, driveways and other contract items of all dirt and debris before final inspection will be made. The City will not inspect the improved areas until they are cleaned. Failure by the City to perform final inspection if the areas are not cleaned shall not relieve the Contractor of any liquidated damages. No extra payment will be allowed for this cleaning. The cost of the cleaning shall be included in each item bid in the proposal.

TS-15.54 CITY'S RIGHT TO DO WORK:

If the Contractor should neglect to prosecute the work promptly or fail to perform any provisions of the contract, the City, after 24 hours written notice to the Contractor, may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

TS-15.55 CORRECTION OF WORK BEFORE FINAL PAYMENT:

Before issuing final payment, the Contractor shall promptly remove from the premises all materials condemned by the City Engineer as failing to conform with the contract, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the contract and without expense to the City and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

TS-15.56 FINAL INSPECTION, CLEAN UP AND PROJECT FINAL ACCEPTANCE:

Final Inspection

- a. When the improvements contained in this contract are substantially completed, the Contractor shall notify the City Engineer in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice shall be given at least ten (10) days prior to the date stated for final inspection and bear the signed concurrence of the representative of the City Engineer having charge of the inspection. If the City Engineer determines that the status of the improvements are accurately represented, the City Engineer will

make the arrangements necessary to have the final inspection on the date stated in the notice, or soon thereafter as is practicable. The Final Inspection Team will include the City Engineer's representatives and the Contractor. The Final Inspection Team may also include representatives of each department of the City of Wilmington as well as a representative of the North Carolina Department of Transportation.

- b. The Final Inspection Team, on the date agreed upon in 21.01(a), shall make a thorough visual inspection to insure that the project is satisfactorily completed according to the plans and specifications of the contract and that all clean up work is complete.
- c. The Final Inspection Team, following the final inspection, shall prepare a written list of the deficient items and clean up work that needs to be corrected before the issuance of the Final Acceptance Document. The list shall include a reasonable period of time, agreed upon with the Contractor, allowing for the completion of the deficient items and clean up work. A copy of the list shall be mailed to the Contractor.

Clean up Work

Clean up work shall include clean up of trash in the medians and rights-of-way. It shall also include a final mowing of the grass in medians and rights-of-way. Grass in the median and on the rights-of-way shall not exceed 8 inches in height at the time of final acceptance. Clean up and mowing along slopes may be required as directed by the City Engineer.

Project Final Acceptance

The Contractor, after finishing all clean up work and correction of all deficient items, shall notify the appropriate party to make a final inspection of the project. If the Final Inspection Team, during its inspection finds that the deficient items and clean up work have been satisfactorily completed according to the terms of this Article and the contract specifications, then the Final Inspection Team recommends to the City to issue the Final Acceptance Document.

TS-15.57 RELEASE OF PERFORMANCE AND PAYMENT BOND:

The Contractor's performance and payment bond shall not be released until NCDOT agrees that the work performed under this contract and under NCDOT's permit meets or exceeds NCDOT's Standard Specifications.

TS-15.58 VALUE ENGINEERING:

Value engineering is a concept that encourages the Contractor to look for ways to save money on the project without sacrificing quality and / or long-term cost. With Value Engineering, if the Contractor provides the City with a means to save construction cost without hindering the quality of the final product, and the City accepts the idea on this project, the City will share 50% of the cost savings with the Contractor. The value of any cost savings and its acceptability shall be determined by the City.

TS-15.59 SPECIAL AREAS:

Special areas to construction other than existing easements or rights-of-ways shall be the responsibility of the Contractor and he shall be liable for all special agreements. The Contractor shall provide the City with copies of all special agreements. The agreements shall state that the City and NCDOT shall be held harmless from such agreements and must be signed by all parties and must be notarized.

PROJECT SPECIAL PROVISIONS

SUBSURFACE INVESTIGATION:

The Contractor shall make his/her own subsurface investigations. Any information obtained by the City as a result of its own subsurface investigations will be made available within the plans. This information is provided for informational purposes only and shall not relieve the Contractor of responsibility for making his own investigations.

There will be no direct payment for the work covered by this provision. Payment at the contract unit prices for the various items in the contract will be full compensation for all work covered by this provision.

PERSONNEL PARKING:

All personnel involved with construction operations shall not park their personal vehicles within the right of way of the project limits for the duration of the construction project. The Contractor shall furnish a parking area that is located off the project limits. The Contractor shall be responsible for daily transportation of all employees to and from the provided parking area and the project site.

DELIVERY AND ACCEPTANCE OF MATERIALS:

The project inspector shall be on site to verify and accept materials delivered to the project. The Contractor will be required to coordinate with the inspector and schedule delivery times of materials so the inspector may witness and accept delivery of project items. If the project inspector is not on site at time of delivery of materials, the City reserves the right to refuse payment of all associated materials delivered to the project.

Acceptance of materials to the project site does not guarantee acceptance or approval of use of materials on and/or within the project. Acceptance of use of materials shall follow guidelines as noted within the "Shop Drawings" Technical Specification in Section 15 within these contract documents.

REQUEST FOR INFORMATION (RFI) PROCEDURES:

All requests for information need to be sent to the City or duly authorized agent in writing.

COORDINATION WITH UTILITY COMPANIES:

Utilities as shown on the plans are intended to represent general locations only. It shall be the responsibility of the Contractor, prior to construction, to contact appropriate utility owners and precisely locate utilities that could be affected by the proposed construction. The Contractor shall dig sample holes to uncover the utility. The digging of sample holes shall be coordinated with the Engineer who will determine the number of such holes and the Contractor shall coordinate and schedule the utility owner(s) to locate the utility vertical and/or horizontal to avoid conflicts. There is no line item to pay for digging work. Work is considered incidental to other pay items.

The Contractor shall be responsible for repair of any damage to the utility as well as any other damage may be caused due to the disturbance of the Utility. The Contractor will not be permitted to submit any claims for delays caused by utility relocation and proposed utility construction.

The Contractor shall be responsible for coordinating concurrent construction directly with utility owner representatives. Coordination efforts and concurrent construction conflicts will be addressed and discussed during the pre-construction meeting. The City at the time of pre-construction conference will provide names, addresses and telephone numbers of public and private utility owner representatives.

All underground utilities may have not been identified. The Contractor has to call NC One Call to identify underground utilities before starting any digging and/or excavation operation.

Where changes to utility facilities are to be made solely for the convenience of the Contractor, it shall be the Contractor's responsibility to arrange for such changes and the Contractor shall bear all costs of such changes.

Existing fire hydrants shall be kept accessible to fire department personnel at all times unless otherwise noted in writing by the local utility owner.

Prior to submitting his bid, the Contractor shall make his own determination as to the nature and extent of the utility facilities, including proposed adjustments, new facilities, or temporary work to be performed by the utility owner or his representative; and as to whether or not any utility work is planned by the owner in conjunction with the project construction. The Contractor shall consider in his bid all of the permanent and temporary utility facilities in their present or relocated positions, whether or not specifically shown on the plans or covered in the project special provisions. It will be the Contractor's responsibility to anticipate any additional costs to him resulting from such utility work and to reflect these costs in his bid for the various items in the contract.

The Contractor shall be responsible for field verifying heights and locations of power lines and will be required to maintain the distance from the power lines in accordance with local, State and Federal Safety regulations.

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*.

CONSTRUCTION SURVEYING:

SP (City of Wilmington)

Description

When required by the Contract, provide all construction layout, surveying, stakeout, supplemental surveying, field and office calculations, supplemental surveying and engineering necessary for the proper control of construction operations in accordance with this section and the NCDOT "Manual on Construction Layout", or unless otherwise specified herein. The NCDOT Manual for Uniform Construction may be obtained from the NCDOT Construction Unit or at the following web links:

<https://connect.ncdot.gov/projects/construction/Construction%20%20Stakeout%20Manual/Construction%20Stakeout%20Manual.pdf> and

<https://connect.ncdot.gov/projects/construction/Construction%20Manual/Construction%20Manual%20Engineering%20Control%202013.pdf>

General

- i. The Contractor shall be responsible for the preservation of centerline or baseline control and benchmarks. The Contractor shall establish and identify clearing limits. The Contractor shall provide all additional stakes including but not limited to centerline, Y-Line, connections, ramps, loops, slope stakes, right of way

markers, fine grade stakes, construction benchmarks, and other reference marks or points that may be necessary to provide alignments and grades for construction of all roadway, structure, and miscellaneous items.

- ii. Perform any staking or re-staking as deemed necessary by the Engineer to ensure all project improvements and miscellaneous items are constructed in accordance with the established lines and grades. It shall be the responsibility of the Contractor to advise the Engineer of horizontal or vertical alignment revisions or plan revisions necessary needed to establish smooth transitions to existing facilities. Payment for such additional surveying or re-staking, field and office calculations shall be at no cost to the City of Wilmington.
- iii. The benchmarks furnished by the Contractor's Surveyor and established by the Contractor's Surveyor shall be preserved and protected. Any benchmarks conflicting with the construction of the project will be relocated by the Contractor's Surveyor, at no additional expense to the Owner. Any temporary benchmarks which are needed for construction shall be established by the Contractor at no additional expense to the Owner.
- iv. Set stakes to establish lines and grades for subgrade, base, curb, and related items at intervals along the line of work not greater than 50 feet. When the Engineer determines that horizontal or vertical alignments require the spacing of the stakes to be closer than 50 feet, the stakes shall be set accordingly at no additional expense to the Owner.
- v. Fine grade or other intermediate grade stakes required for the construction of the project shall be set as the work progresses. Fine grade hubs (blue tops) shall be set on both sides of each roadbed with distances and grades referenced to either the finished centerline or edge of pavement grade, as appropriate in accordance with the NCDOT Manual of Uniform Construction Layout.
- vi. Grade stakes shall be set at intervals specified herein but at offsets determined by the Contractor to facilitate checking of all subgrade, base, curb, and pavement elevations including those in ramps, streets, driveways, crossovers, intersections, and irregular shaped areas. The Contractor shall set slope stakes at all stations and half stations in accordance with the procedures established in the NCDOT "Manual on Construction Layout".

Construction Methods

- i. Furnish personnel who are under the direct supervision of an engineer or land surveyor licensed by the State of North Carolina NCGS §89C and in good standing with the North Carolina Board of Engineers and Land Surveyors.
- ii. Furnish personnel who are experienced in highway and bridge construction surveying and are capable of accurately establishing all line and grade points necessary to complete the work in accordance with the plan dimensions with the precision established in the NCDOT Manual for Construction Layout. Consult the Engineer for clarification of the plans.
- iii. The Contractor shall not engage the services of any person or persons with the City of Wilmington or NCDOT nor make use of City of Wilmington or NCDOT for the performance of any work covered by this item. All surveying equipment, stakes, and any material and equipment necessary to perform the work shall be furnished by the Contractor as part of the established line item unit bid price for "Construction Surveying" as indicated in the Itemized Proposal.
- iv. Perform all contract surveying work in a safe manner and confirm to Subarticle 107-21 "Safety and Accident Protection" of the latest version of the NCDOT Standard Specifications, at no additional expense to the Owner.
- v. Perform any flagging operations or other traffic control in accordance with the most recent copy of the MUTCD and Section 1150 of the latest version of the NCDOT Standard Specifications at no additional cost to the Owner.

- vi. Perform surveying along all portions of ramps, bridges, roadways, sidewalks, and all other roadways in accordance with the traffic control requirements provided in the NCDOT Encroachment Agreement in Section 22000-Appendix at no additional cost to the Owner.
- vii. The Contractor may elect to use global positioning system (GPS) surveying, either static or kinematic. Perform GPS surveys with same or higher order of accuracy as conventional surveys detailed in the NCDOT *Manual for Construction Layout*.
- viii. This project's localized coordinate system developed by Engineer of Record is referenced from the State Plane Coordinate System as shown on the projects' Survey Control Plan Sheet. Obtain the survey control information the Engineer of Record used in establishing the localized coordinate system from the Engineer, specifically the rotation, scaling, translation and coordinates for the azimuth pairs. Newly developed GPS procedures and techniques that do not conform with this section may be used, if approved by the Engineer.
- ix. Investigate the plan horizontal alignment, vertical profile and super elevation of existing facilities that tie to proposed roadways. Investigate 100 ft beyond all paving limits and revise grades as needed to establish smooth transitions to the existing facilities at no additional expense to the Owner.
- x. Tie existing driveways and sidewalks to proposed facilities within the limits detailed in the plans and within the gradients detailed in the NCDOT *Roadway Standard Drawings or as shown on the plans*. Contact the Engineer to obtain approval from the Owner all final driveway gradients prior to construction at no additional expense to the Owner.
- xi. The Engineer reserves the right to check, correct where necessary or require any layout work to be revised. The Contractor will perform checks to ensure the roadway, bridge, structures and incidental items are surveyed in accordance with the plans and the NCDOT *Manual for Construction Layout*. at no additional expense to the Owner.
- xii. The Owner's review of the Contractor's work in no way relieves the Contractor of responsibility for conformance with the contract. Failure by the Engineer or inspector to point out unsatisfactory work, from lack of discovery or for any other reason, in no way prevents later rejection or corrections to the unsatisfactory work, when discovered. No claims for compensation or time will be allowed for losses suffered due to any necessary removals or repairs resulting from the unsatisfactory work.
- xiii. When requested by the Engineer or as noted in the plans, check the accuracy of the stakeout including an independent bridge stakeout/layout. Notify the Engineer of any inaccuracies and take action to correct all inaccuracies in the construction stakeout before performing the affected work at no additional expense to the Owner.
- xiv. When the Contractor proposes an alteration to the plans to rectify a construction stakeout error, submit alterations to the Engineer for review and approval. Include design calculations and drawings sealed by an engineer licensed by the State of North Carolina along with a narrative describing justification for the alteration at no additional expense to the Owner.

Surveying Records

- i. Submit proposed method for setting up survey books or electronic data files to the Engineer before beginning work to assure clarity and adequacy.
- ii. Promptly make available to the Engineer all requested survey records.
- iii. Provide updates to the Engineer monthly of the electronic and/or manuscript survey records. Submit remaining records upon completion of the work. Attest the work was performed in accordance with the contract by providing all receivable information signed by an engineer or land surveyor licensed by the State of North Carolina and in responsible charge.

Horizontal and Vertical Control

- i. The Contractor is responsible to furnish horizontal and set horizontal baseline control on approximate 1,000 ft intervals and vertical control on approximate 2,500 ft intervals within the project limits. The Contractor may adjust these parameters dependent on the nature and size of the project.
- ii. Obtain a copy of the electronic survey control files from the Engineer. Clearing limits may be established during original traverse of baseline control provided the accuracy ratio does not exceed 1 ft per 5,000 ft of perimeter and all Contractor established baseline control is protected and preserved during clearing operations.
- iii. Before performing any additional construction layout, verify the horizontal baseline control by a closed traverse survey or alternate approved method. The accuracy ratio shall not exceed an error of closure of 1 ft per 20,000 ft of perimeter.
- iv. Verify the vertical control by performing a closed loop survey using differential leveling. For the error of closure, do not exceed 0.05 ft times the square root of the miles:

$$\text{Error of Closure} \leq 0.05\text{ft}\sqrt{(x)\text{miles}}$$
- v. Notify the Engineer of any discrepancies in either the horizontal or vertical control. Reference, outside of the proposed construction limits and evenly distributed throughout the project limits, a minimum of 50% of the projects' horizontal and vertical control. Provide reference information to the Engineer.
- vi. If GPS is used, occupy the azimuth pairs with the base station during verification of baseline control, otherwise, occupy baseline. Verify remaining baseline control using a Rover. Submit coordinate data showing differences between supplied baseline coordinates and field obtained GPS coordinates. Include report detailing the use of preliminary input data, specifically rotation, scaling and translation.
- vii. Using the horizontal and vertical control established by the Contractor Surveyor, provide surveying necessary to construct all roadway, structure and miscellaneous items as detailed in the plans. Perform staking in accordance with the NCDOT *Manual for Construction Layout*. Layout the work and provide all measurements that may be required for the execution of the construction in conformity with the contract.

Right of Way, Control of Access and Easements

- i. The Contractor Surveyor will establish the location of all proposed right-of-way markers, construction easements, sidewalk easements, slope easements, control of-access markers and temporary drainage and permanent drainage easements as shown in the plans at no additional expense to the Owner.
- ii. Reference the location of all proposed markers and permanent drainage easements. Restore right-of-way and control-of-access monument positions after completion of construction. Set a right-of-way or control-of-access monument cap on an 18" long 12 #5 reinforcing bar and a "carsonite" NCDOT type witness stake at no additional expense to the Owner; unless concrete right-of-way and control of-access markers are specified in the contract. The Contractor will provide any monument caps. The Contractor shall provide witness stakes. Re-establish location of permanent drainage easements or right-of-way after completion of construction and install an 18" long #5 reinforcing bar for monumentation with a final as-built survey of these points at no additional expense to the Owner.
- iii. Validate the position of the markers and permanent drainage easement locations with those detailed in the plans. Report any discrepancies to the Engineer.

Drainage, Traffic Signals and Utility Construction systems

General

- i. Where underground conflicts are suspected whether shown in the plans or not, contact utility owners and locate all utilities horizontally and vertically at no additional expense to the Owner.

- ii. Consider the utilities' locations and elevations in the layout of the drainage systems and utility construction systems. Utilities may exist that are not depicted in the plans.
- iii. Submit (2) two copies of all layout drawings for traffic signals, drainage systems, underdrain systems, subdrain systems, traffic signal and utility construction systems to the Engineer for his review and approval. The Engineer will note the review and approval by adding an appropriate note to the drawings along with the date and his signature. The Engineer will retain a copy of the drawings and a copy will be returned to the Contractor.

Drainage Systems

- i. Provide construction layout of drainage systems, as depicted in the plans and in accordance with the NCDOT *Guidelines for Drainage Studies and Hydraulic Design* located at:
[https://connect.ncdot.gov/resources/hydro/Guidelines%20for%20Drainage%20Study%20Documents/Guidelines%20for%20Drainage%20Studies%20and%20Hydraulic%20Design%20\(March%201999\).pdf](https://connect.ncdot.gov/resources/hydro/Guidelines%20for%20Drainage%20Study%20Documents/Guidelines%20for%20Drainage%20Studies%20and%20Hydraulic%20Design%20(March%201999).pdf)
- ii. Consider the locations and elevations of all existing and proposed utilities, proposed utility construction and existing and proposed drainage systems, in the layout of the drainage system.
- iii. Modifications of the drainage plan may be necessary to properly collect and transport water. Advise the Engineer if modifications are needed to achieve the original design functionality and the intent of the drainage plans, such as adjusting the location of a drainage structure, adding a drainage structure and increasing or decreasing pipe lengths. The Engineer will review any major modifications .
- iv. Provide layout drawing of the drainage system including calculations of flow line elevations for all drainage structures; pipe invert elevations, both inlet and outlet of the drainage structure; grade of each pipe within the drainage system; elevation of any existing facility connection, such as stream or pipe; if necessary; headwall location, if depicted in the plans; and locations and elevations of any existing or proposed utilities to the Engineer for review and approval at least 7 days before beginning work on the drainage system.
- v. Modification of the submitted drainage layout drawing by the Engineer will not eliminate the Contractor's liability for the accuracy of the information submitted. Any re-staking or additional staking required to conform with the approved drainage layout drawing is incidental to the work of "Construction Surveying" and no direct compensation will be made.

Traffic Signal and Utility Construction

- i. Provide traffic signal and utility construction layout as detailed in the contract. Consider the locations and elevations of all existing and proposed utilities and traffic signal improvements, proposed utility construction and existing and proposed drainage systems in the layout of the utility and traffic signal construction.
- ii. Advise the Engineer if modifications to the utility construction or traffic signal plans are necessary. The Engineer will review any major modifications.
- iii. Provide layout drawing of the traffic signal improvements, utility construction system including elevations of any existing utilities, drainage systems and/or proposed drainage systems to the Engineer for review and approval at least 7 days before beginning work on the utility construction system. Layout drawings are incidental to the work of "Construction Surveying" and no direct compensation will be made.
- iv. Modification of the submitted traffic signal or utility construction layout drawing by the Engineer will not eliminate the Contractor's liability for the accuracy of the information submitted. Any restaking or additional staking required to conform with the approved utility layout drawing is incidental to the work. Modifications to construction layout and drawings, additional staking or restaking is considered incidental to the work of "Construction Surveying" and no direct compensation will be made.

Structures

- i. Provide surveying and calculations necessary to construct structures in accordance with the plans. Provide staking in accordance with the NCDOT *Manual for Construction Layout*.
- ii. Establish horizontal alignment of entire structure, culvert or structure improvements as shown on the plans. Set at least one benchmark adjacent to the structure site that will be retained throughout the structure construction. Contractor shall preserve this benchmark and provide witness staking and protection to a degree necessary as he determines necessary for the satisfactory completion of the project.
- iii. The Contractor shall provide his methods of stakeout of the bridge structure including his step-by-step method for checking for surveying and construction layout consistency to the Engineer or his representative prior to stakeout. No additional compensation will be made for this work as it will be considered incidental to the unit bid price indicated in the Itemized Proposal for "Construction Surveying".
- iv. Structure construction stakes and other reference control marks or points shall be set at sufficiently and at frequent project schedule intervals to assure that all components of the structure are constructed in accordance with the lines and grades shown in the plans. The Contractor will be responsible for all structure alignment control, grade control, and all necessary calculations to establish and set these controls. The Contractor will furnish the finished construction elevations for his use in determining the required construction elevations for bridges.
- v. The Contractor Surveyor is required to calculate and furnish the finished construction elevations for use in determining the required construction elevations for bridges. Provide method for computing buildups over beams, screed grades and overhang form elevations to the Engineer for review before staking these items to assure clarity and adequacy. No additional compensation will be made for this work as it will be considered incidental to the unit bid price indicated in the Itemized Proposal for "Construction Surveying".
- vi. The Contractor Surveyor shall perform an independent investigation to check structure stakeout/layout against office structure plans and have an independent field check made by a separate survey crew at no additional cost to the Owner. Such work will be considered incidental to the unit bid price indicated in the Itemized Proposal for "Construction Surveying".
- vii. Submit 2 copies of structure layout drawings to the Engineer for his review and approval. The Contractor shall demonstrate to the Engineer or his representative that the Contractor Surveyor has independently verified the structure layout, validates the stakeout and layout is correct and within construction tolerances and provides a certified PE sealed letter with drawings and calculations before the structure construction may begin.
- viii. If structure phasing or damaged stakes require significant resurveying during the life of the structure or project, provide revised layout drawing, restaking, new layout for the Engineer's verification and acceptance at no additional cost to the Owner.

Signs and Streetlights

- i. Contractor Surveyor shall stake horizontal locations of all ground mounted, overhead and Type A and B ground-mounted signs and streetlights pole locations for Engineer's verification before obtaining S-dimensions or installation of streetlight conduit.
- ii. Measure or calculate overhead and ground-mounted sign S-dimensions in accordance with the plans and the NCDOT *Manual for Construction Layout*.
- iii. Stakeout streetlight stub locations for Duke Progress Energy streetlight pole installations according to the NCDOT Encroachment Agreement noted in Section 22000-Appendix and as required by Duke Progress Energy. Provide the Engineer any discrepancies of plan locations versus Encroachment Agreement prior to installation of streetlight conduit.

- iv. Perform investigation of all proposed sign locations, streetlight locations and notify the Engineer of any obstructions, either existing or proposed, that may interfere with the proposed sign installation or streetlight installation by Duke Progress Energy.
- v. For overhead and Type A & B signs, provide an 11" x 17" drawing depicting the theoretical finished section at each proposed overhead sign assembly location. Include within the submittal the roadway, shoulder and slope gradients. Include the proposed finish elevations of the edges of pavement, each lane line and the ground at each proposed sign footing location. Set a slope stake at each proposed overhead sign location to ensure the slopes are constructed as calculated and detailed in the above submittal.
- vi. Submit sign information to the Engineer. Stake horizontal locations of all ground mounted and barrier mounted signs as part of the unit bid line item lump sum price established in the Itemized Proposal for "Construction Surveying".

As-Built Survey

- i. Conduct a field record survey of as-built project improvements by an NC Registered Professional Land Surveyor and provide resulting data to the project Engineer in print and digital formats. Maintain as-built plans daily to the satisfaction of NCDOT and City of Wilmington and Owner's Representative.
- ii. Upon substantial completion of all work, the Contractor shall provide submittal of two (2) sets of as-built plans to the Owner. As-Built set plans shall conform to the City's Standard Specifications.
- iii. Contractor shall coordinate with the Engineer and his representative during the life of the project in the production and data/recording of as-built plans that are acceptable to NCDOT. This will be considered a requirement for acceptance of the project for maintenance by NCDOT. This work shall be included in unit bid price for "Construction Surveying" as indicated in the Bid Proposal. The Contractor shall provide this final deliverable prior substantial completion.
- iv. All mapped improvements shall be on an accurate graphical representation, neatly lettered, properly dimensioned and identified on a mylar reproducible tracing 22" x 34" in size at scale that matches the construction plans.
- v. Identification and location of site improvements shall conform to the recommended standards of the North Carolina Licensing Board for Professional Engineers and Land Surveyors. Record Survey is to be provided by the Contractor.
 - a. Limits: The subject property as defined by the Contract Documents.
 - b. Control: Vertical control shall be based on the benchmarks on the site. Baselines shall be established in such a manner as to accurately locate spot elevations in a 50 foot minimum grid pattern. All top and toe slopes with centerline of draws and ditches shall be located.
 - c. Improvements: All planimetric information shall be tied to the established grid. Contours shall be drawn at a 1 foot interval with spot elevations at high and low points. Within the area to be surveyed, locate all improvements and identify the following:
 - Finished grades.
 - Any water and sewer utility work installed
 - Revised roadway or bridge surveys or elevations different from plans.
 - Curbing, walks and paving.
 - Curb cuts and access drives.
 - Storm drainage improvements (with invert elevations, rim elevations and pipe lengths).
 - Curb ramps.
 - All bridge data, vertical clearance data and other data required by NCDOT for acceptance of maintenance.
- vi. Upon completion of record survey, submit in print and digital format to the Engineer for the Owner's record.

- vii. No additional compensation will be provided for As-Built Surveys as these costs associated with this work will be considered incidental to "Construction Surveying" at the established line item unit price per lump sum identified in the Itemized Proposal.

Measurement and Payment

- i. Payment at the contract lump sum price for "Construction Surveying" will be made for providing all construction layout, surveying, stakeout, and engineering as noted within this section as necessary for the proper construction operations to construct the project in accordance with the lines, grades, and dimensions detailed in the plans and provisions.
- ii. The Contractor shall submit a certified statement each month indicating the percentage of "*Construction Surveying*" work completed. The Engineer will determine if the amount indicated is reasonably correct and the Engineer will pay accordingly on the next partial pay estimate.
- iii. Establishment of baseline alignments or cross sectioning for borrow or grading along the project and any surveying within each borrow pit is incidental to "*Construction Surveying*" and no direct payment will be made.
- iv. Such price and payment will be full compensation for construction surveying for all project improvements, coordination with Engineer of Record, stakeout, As-Built Plans, construction layout, furnishing competent surveying personnel, vehicles, mobilization, incidentals, record keeping, traffic control for surveying, surveying equipment, stakes, markings, reference points, dimensional sketches, surveying sketches, submittals, clearing limit delineations, independent surveying, surveying for relocation of utility conflicts, surveying for streetlight, layout for guardrail improvements, traffic control baseline layout and stakeout, locations, surveying calculations, stakeout records, certifying as-builts, electronic files, manuscripts, records, materials, staking and establishing of right-of-way and easements, and all incidentals necessary to satisfactorily perform "Construction Surveying".
- v. Such price and payment at the lump sum unit price as established in the Itemized Proposal for "Construction Surveying" will be full compensation for any independent, supplemental surveying or investigative surveying and shall include but not be limited to furnishing personnel; all surveying equipment, stakes, sketches, calculations, stakeout records and as-builts; and any materials, staking of easements and rights of way and equipment necessary to perform the supplement surveying or investigative surveying.
- vi. Partial payments for the item of "Construction Surveying" will be made on each particular payment estimate based upon the percentage complete of the item of "Construction Surveying" as determined by the Engineer.
- vii. Compensation for "Construction Surveying" will also be full and completion compensation for the stakeout of the roadway survey alignments for intermediate cross sections when deemed necessary by the Engineer or Contractor.
- viii. If the Engineer determines intermediate cross sections are not necessary for computing partial payments (i.e., lump sum comprehensive grading), the intermediate stakeout of the survey line is incidental to the work and no additional compensation will be made.
- ix. Payment will be made under: "Construction Surveying" at the established line item unit price bid Lump Sum as indicated in the Itemized Proposal.

GUARDRAIL END UNITS, TYPE - TL-2:

(10-21-08) (Rev. 7-1-17)

862

SP8 R64

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](https://apps.dot.state.nc.us/vendor/approvedproducts/) 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 2 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

Guardrail End Units, Type TL-2

Pay Unit

Each

ADJUSTMENT OF MANHOLES, METER BOXES, AND VALVE BOXES:

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

858

SP8 R97R

The Contractor's attention is directed to Article 858-3 of the *2018 Standard Specifications*. Cast iron or steel fittings will not be permitted for the adjustment of manholes, meter boxes, and valve boxes on this project.

PORTLAND CEMENT CONCRETE PRODUCTION AND DELIVERY:

(9-15-20)

1000, 1014, 1024

SP10 R01

Revise the *2018 Standard Specifications* as follows:

Page 10-6, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1 REQUIREMENTS FOR CONCRETE							
Class of Concrete	Min. Compressive	Maximum Water-Cement Ratio		Consistency Maximum Slump		Cement Content	
		Air-Entrained Concrete	Non-Air-Entrained Concrete	Vibrated	Non-Vibrated	Vibrated	Non-Vibrated

		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate						
								Min.	Max.	Min.	Max.
<i>Units</i>	<i>psi</i>					<i>inch</i>	<i>inch</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>
AA	4500	0.381	0.426	---	---	3.5 ^A	---	639	715	---	---
AA Slip Form	4500	0.381	0.426	---	---	1.5	---	639	715	---	---
Drilled Pier	4500	---	---	0.450	0.450	---	5 – 7 dry 7 - 9 wet	---	---	640	800
A	3000	0.488	0.532	0.550	0.594	3.5 ^A	4.0	564	---	602	---
B	2500	0.488	0.567	0.559	0.630	1.5 machine placed 2.5 ^A hand placed	4.0	508	---	545	---
Sand Light- weight	4500	---	0.420	---	---	4.0 ^A	---	715	---	---	---
Latex Modified	3000 (at 7 days)	0.400	0.400	---	---	6.0	---	658	---	---	---
Flowable Fill excavatable	150 max. (at 56 days)	as needed	as needed	as needed	as needed	---	Flowable	---	---	40	100
Flowable Fill non- excavatable	125	as needed	as needed	as needed	as needed	---	Flowable	---	---	100	as needed
Pavement	4500 Design, field 650 flexural, design only	0.559	0.559	---	---	1.5 slip form 3.0 hand placed	---	526	---	---	---
Precast	See Table 1077-1	as needed	as needed	---	---	6.0	as needed	as needed	as needed	as needed	as needed
Prestressed	per contract	See Table 1078-1	See Table 1078-1	---	---	8.0	---	564	as needed	---	---

- A. The slump may be increased to 6 inches, provided the increase in slump is achieved by adding a chemical admixture conforming to Section 1024-3. In no case shall the water-cement ratio on the approved design be exceeded. Concrete exhibiting segregation and/or excessive bleeding will be rejected. Utilizing an Admixture to modify slump does not relinquish the contractor's responsibility to ensure the final product quality and overall configuration meets design specifications. Caution should be taken when placing these modified mixes on steep grades to prevent unintended changes to the set slope.

THERMOPLASTIC PAVEMENT MARKING MATERIAL – COLOR TESTING:

3-19-19

1087

SP10 R05

Revise the *2018 Standard Specifications* as follows:

Pages 10-183 and 10-184, Subarticle 1087-7(D)(1)(b) Yellow, lines 9-11, delete and replace with the following:

Obtain Color Values Y,x,y per ASTM E1349 using C/2° illuminant/observer.
Results shall be $Y \geq 45\%$, and x,y shall fall within PR#1 chart chromaticity limits.

MATERIALS FOR PORTLAND CEMENT CONCRETE:

(9-15-20)

1000, 1024

SP10 R24

Revise the *2018 Standard Specifications* as follows:

Page 10-52, Article 1024-4, WATER, lines 3-6, delete and replace with the following:

Test water from wells at all locations. Test public water supplies from all out of state locations and in the following counties: Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrell and Washington unless the Engineer waives the testing requirements.

Page 10-52, Table 1024-2, PHYSICAL PROPERTIES OF WATER, replace with the following:

TABLE 1024-2 PHYSICAL PROPERTIES OF WATER		
Property	Requirement	Test Method
Compression Strength, minimum percent of control at 3 and 7 days	90%	ASTM C1602
Time of set, deviation from control	From 1:00 hr. earlier to 1:30 hr. later	ASTM C1602
pH	4.5 to 8.5	ASTM D1293 *
Chloride Ion Content, Max.	250 ppm	ASTM D512 *
Total Solids Content (Residue), Max.	1,000 ppm	SM 2540B *
Resistivity, Min.	0.500 kohm-cm	ASTM D1125 *

*Denotes an alternate method is acceptable. Test method used shall be referenced in the test report.

MATERIAL AND EQUIPMENT STORAGE & PARKING OF PERSONAL VEHICLES:

(12-21-21)

1101

SP11 R03

Revise the *Standard Specifications* as follows:

Page 11-2, Article 1101-8 MATERIAL AND EQUIPMENT STORAGE, line 35-38, delete and replace with the following:

When work is not in progress, keep all personnel, equipment, machinery, tools, construction debris, materials and supplies away from active travel lanes that meets Table 1101-1.

TABLE 1101-1 MATERIAL AND EQUIPMENT STORAGE FROM ACTIVE TRAVEL LANES	
Posted Speed Limit (mph)	Distance (ft)
40 or less	≥ 18
45-50	≥ 28
55	≥ 32
60 or higher	≥ 40

When vehicles, equipment and materials are protected by concrete barrier or guardrail, they shall be offset at least 5 feet from the barrier or guardrail.

Page 11-2, Article 1101-9 PARKING OF PERSONAL VEHICLES, line 40-41, delete and replace with the following:

Provide staging areas for personal vehicle parking in accordance with section 1101-8 or as directed by the Engineer before use.

WORK ZONE INSTALLER:

(7-20-21)

1101, 1150

SP11 R04

Provide the service of at least one qualified work zone installer during the setup, installation, and removal of temporary traffic control within the highway right of way. The qualified work zone installer shall serve as crew leader and shall be on site and directing the installation and removal of temporary traffic control. If multiple temporary traffic control installations or removals are occurring simultaneously, then each shall have a qualified work zone installer.

The work zone installer shall be qualified by an NCDOT approved training agency in the safe and competent set up of temporary traffic control. For a complete listing of approved training agencies, see the Work Zone Safety Training webpage.

A work zone supervisor, in accordance with Article 1101-13 of the *Standard Specifications*, may fulfill the role of the work zone installer during the setup, installation, and removal of temporary traffic control within the highway right of way provided they are on site and directing the installation and removal of temporary traffic control.

All other individuals participating in the setup, installation, and removal of temporary traffic control within the highway right of way shall be certified as a qualified flagger in accordance with Article 1150-3 of the *Standard Specifications*, even if flagging is not being performed as part of

the traffic control.

Provide the name and contact information of all qualified work zone installers to the Engineer prior to or at the preconstruction conference. Additionally, provide a qualification statement that all other individuals participating in the setup, installation, and removal of temporary traffic control are qualified flaggers that have been properly trained through an NCDOT approved training agency.

EXTRUDED THERMOPLASTIC PAVEMENT MARKING THICKNESS:

3-19-19

1205

SP12 R05

Revise the *2018 Standard Specifications* as follows:

Page 12-6, Subarticle 1205-4(A)(1) General, lines 5-8, delete the second sentence and replace with the following:

Use application equipment that provides multiple width settings ranging from 4 inches to 12 inches and multiple thickness settings to achieve a minimum pavement marking thickness of 0.090 inch above the surface of the pavement.

Page 12-7, Table 1205-3, THICKNESS REQUIREMENTS FOR THERMOPLASTIC, replace with the following:

TABLE 1205-3 MINIMUM THICKNESS REQUIREMENTS FOR THERMOPLASTIC	
Thickness	Location
240 mils	In-lane and shoulder-transverse pavement markings (rumble strips). May be placed in 2 passes.
90 mils	Center lines, skip lines, transverse bands, mini-skip lines, characters, bike lane symbols, crosswalk lines, edge lines, gore lines, diagonals, and arrow symbols

HANDRAIL

Description

This work shall consist of erecting a pedestrian hand railing at the locations shown in the Plans.

Materials

Fence materials provided shall be 4' Aluminum Ornamental Fence, manufactured by one of the manufacturers listed below or approved equal. Panels shall be two rail and all posts shall be 3" square. The fence shall be provided in the standard black color. An example picture of the color and style of fence required is shown in the appendix. Color, dimensions, and style of the fence will be considered in the Engineer's decision as to whether a proposed system is an "approved equal."

Non-shrink, non-metallic grout used to anchor fence posts shall conform to Section 1054-6 of the Standard Specifications. Concrete fill shall conform to Section 1000 of the Standard Specifications and shall be Class A minimum.

For further information, contact:

Carolina Custom Fence
109 Balsam Drive
Wilmington, NC 28409
910-520-2588

www.carolina-customfence.com

Durable Fence Company
5202 Carolina Beach Road, Unit 13A
Wilmington, NC 28412
910-232-1664
www.durablefencecompany.com

Seegars Fence Company
2954 Orville Wright Way
Wilmington, NC 28405
910-343-8246
www.seegarsfence.com

Construction Requirements

Embedment of fence posts shall conform to manufacturer recommendations.

The Contractor shall be responsible for protecting the fence components from damage during storage, handling, installation, and subsequent construction operations. Damage to fence components shall be grounds for rejection of the work. The Contractor shall clean the installed fencing, prior to final acceptance, in accordance with manufacturer specifications.

Method of Measurement and Basis of Payment

The quantity of handrail shall be measured on the number of linear feet of fencing installed complete and accepted. The quantity of pedestrian railing shall be paid for at the contract unit price per linear feet for "Handrail". The contract unit price shall be full compensation for all time, labor, concrete fill, and materials needed to complete the work covered in this section. Payment will be made under:

Pay Item Pay Unit

Handrail Linear Feet

TRAFFIC CONTROL

The Contractor shall provide all traffic control devices and signs to warn the traveling public in accordance with the latest Traffic Control Manual for Construction and Maintenance. Two-way traffic shall be maintained at all times, unless otherwise required by the traffic control plan.

The Contractor shall indemnify and save harmless the City of Wilmington and all its officials, agents and employees from all suits, actions or claims of any character, name or description brought for or on account of any injuries or damages received or sustained on the project.

TRANSPORTATION MANAGEMENT PLAN:

Description

Furnish, install, maintain, relocate and remove temporary traffic control and pedestrian management devices as required by the plans or as directed by the Engineer. Install and maintain all temporary pavement markings and markers as shown on the plans or as directed by the Engineer. Remove all conflicting pavement markings and markers as directed in the project phasing notes or as directed by the Engineer.

All temporary traffic control devices and pedestrian control devices furnished by the Contractor shall remain the property of the Contractor, unless otherwise specified in the contract.

Materials

Refer to Division 10.

Item	Section
Temporary Pavement Markings (Paint)	1087
Traffic Control Devices	1089

Provide temporary traffic control devices that are listed on the NCDOT Approved Product List.

Construction Methods

Ensure all temporary traffic control devices and pedestrian management devices are inspected and approved before using them on the project. Install temporary traffic control devices, pedestrian management devices, and temporary pavement markings and remove conflicting pavement markings before construction operations begin and during the proper phase of construction. Maintain and relocate temporary traffic control devices and pedestrian management devices during the time they are in use as shown in the plans. Maintain all temporary markings during the time that they are in use. Keep all devices and markings in place as long as they are needed and immediately remove thereafter. When operations are performed in stages, install only those devices and markings that apply to the present conditions.

Maintenance and Inspection

Submit a proposed traffic control device and pedestrian management device maintenance schedule and checklist for approval before construction. Perform continuous maintenance and daily scheduled inspections of all traffic control and pedestrian management devices in use. Review and maintain all traffic handling measures and pedestrian management measures to ensure that adequate provisions are in place for public and workers' safety.

Maintenance activities include cleaning, repair, or replacement, and prompt disposal of temporary traffic control or pedestrian management devices that are damaged, torn, crushed, discolored, displaced or deteriorated beyond effectiveness.

Replace work zone traffic control devices deemed unacceptable according to the guidelines set forth in the American Traffic Safety Service Association's (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices.

If the name and telephone number of the agency, Contractor or supplier is shown on the non-retroreflective surface of all channelizing devices, use letters and numbers that are non-reflective and not over 2 inches in height.

Failure to Maintain Traffic Control

Failure to maintain acceptable traffic control measures, temporary traffic control devices, pedestrian management measures, pedestrian management devices and temporary pavement markings may result in formal notification of noncompliance. Implement remedial action immediately for imminent danger situations as directed by the Engineer. Implement remedial action within 48 hours after notification of a safety issue that is not an imminent danger. See Articles 107- 21 and 108-7 of the *2018 Standard Specifications*.

Failure to comply may result in having the work performed with available forces and equipment. In cases of willful disregard for the safety of the public, the Engineer may proceed immediately to implement the measures necessary to provide the appropriate level of traffic control to ensure that the safety of all concerned parties is maintained.

Measurement and Payment

Payment at the contract lump sum price for the various items in the contract will be full compensation for all work covered by this specification.

Partial payments will be made on each payment estimate based on the following: 50% of the contract lump sum price bid will be paid on the first monthly estimate and the remaining 50% of the contract lump sum price bid will be paid on each subsequent estimate based on the percent of the project completed.

If the Contractor fails to maintain acceptable traffic control measures or temporary traffic control devices and the Engineer implements measures necessary to provide the appropriate level of traffic control, the actual cost of performing said work will be deducted from the monies due the Contractor on the contract.

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*.

Potentially, a contractor could be working on the extension of the Cross City Trail which connects to the end 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.

EROSION CONTROL

CONCRETE WASHOUT STRUCTURE

(12-10-20)

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 wash water.

Materials

Item

Temporary Silt Fence

Section

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 thick 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. Install safety fence as directed for visibility to construction traffic.

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

<https://connect.ncdot.gov/resources/roadside/SoilWaterDocuments/ConcreteWashoutStructuredetail.pdf>

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 or commercially available devices are approved, then those devices 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*.

Safety Fence shall be measured and paid for as provided elsewhere in this contract.

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

CRIMPING STRAW MULCH

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

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.

WATTLE

(10-19-10) (Rev. 1-17-12)

1060,1630,1631

T1

Description

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

Materials

Wattle shall meet the following specifications:

100% Curled Wood(Excelsior) Fibers	
Minimum Diameter	12 in.
Minimum Density	2.5 lb/ft 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

Stakes shall be used as anchors.

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

Matting shall meet the requirements of Article 1060-8 of the *2012 Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

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

Construction Methods

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

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

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *2012 Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

The Contractor shall maintain the wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *2012 Standard Specifications*.

Measurement and Payment

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

Matting will be measured and paid for in accordance with Article 1631-4 of the *2012 Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Payment will be made under:

Pay Item
Wattle

Pay Unit
Linear Foot

COIR FIBER MAT

Description

Furnish material, install and maintain coir fiber mat in locations shown on the plans or in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat with stakes, steel reinforcement bars or staples as directed.

Materials

Item
Coir Fiber Mat

Section
1060-14

Anchors: Stakes, reinforcement bars, or staples shall be used as anchors.

Wooden Stakes:

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

Steel Reinforcement Bars:

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

Staples:

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

Construction Methods

Place the coir fiber mat immediately upon final grading. Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the mat with the soil. Unroll the mat and apply without stretching such that it will lie smoothly but loosely on the soil surface.

For stream relocation applications, take care to preserve the required line, grade, and cross section of the area covered. Bury the top slope end of each piece of mat in a narrow trench at least 6 in. deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6 in. overlap. Construct check trenches at least 12 in. deep every 50 ft. longitudinally along the edges of the mat or as directed. Fold over and bury mat to the full depth of the trench, close and tamp firmly. Overlap mat at least 6 in. where 2 or more widths of mat are installed side by side.

Place anchors across the mat at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the mat 3 ft. apart.

Adjustments in the trenching or anchoring requirements to fit individual site conditions may be required.

Measurement and Payment

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

No measurement will be made for anchor items.

Payment will be made under:

Pay Item
Coir Fiber Mat

Pay Unit
Square Yard

PERMANENT SOIL REINFORCEMENT MAT:**Description**

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

Materials

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

Property	Test Method	Value	Unit
Light Penetration	ASTM D6567	9	%
Thickness	ASTM D6525	0.40	in
Mass Per Unit Area	ASTM D6566	0.55	lb/sy
Tensile Strength	ASTM D6818	385	lb/ft
Elongation (Maximum)	ASTM D6818	49	%
Resiliency	ASTM D1777	>70	%
UV Stability *	ASTM D4355	≥80	%
Porosity (Permanent Net)	ECTC Guidelines	≥85	%
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0	lb/ft ²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0	ft/s

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

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

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

Construction Methods

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

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

Measurement and Payment

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

Payment will be made under:

Pay Item

Pay Unit

Permanent Soil Reinforcement Mat

Square Yard

SAFETY FENCE

Description

Safety Fence (also referenced as Tree Protection Fencing in TS 15-32) shall consist of furnishing materials, installing and maintaining polyethylene or polypropylene fence along the outside riparian buffer, wetland, or water boundary, or other boundaries located within the construction corridor to mark the areas that have been approved to infringe within the buffer, wetland, endangered vegetation, culturally sensitive areas or water. The fence shall be installed prior to any land disturbing activities.

Materials

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating.

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length.

Construction Methods

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position and hand set or set with a post driver. Posts shall be installed a minimum of 2 ft. into the ground. If hand point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

The Contractor shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.

Measurement and Payment

Safety Fence will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing

fence geotextile with necessary post and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay Item
Safety Fence

Pay Unit
Linear Foot

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:

<https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/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.

RESPONSE FOR EROSION CONTROL:

Description

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

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

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

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

Pay Item

Response for Erosion Control

Pay Unit

Each

FABRIC INSERT INLET PROTECTION DEVICE (HIGH FLOW)

(6-29-17)

Description

This work shall consist of installing, maintaining, and removing *Fabric Insert Inlet Protection Device*, of the type specified, in inlet structures (catch basins, drop inlets, etc) in areas where asphalt or concrete may prevent the proper installation of a Rock Inlet Sediment Traps Type C, or as directed.

Materials

The product shall be a fabric inlet protection device composed of a fitted woven polypropylene geotextile double sewn with nylon thread suspended sack. The *Fabric Insert Inlet Protection Device* shall be manufactured to fit the opening of the catch basin or drop inlet or shall have a deflector to direct runoff from the curb opening into the fabric sack. The *Fabric Insert Inlet Protection Device* shall have a rigid frame or support system to support the loaded weight of the product. The product shall have lifting loops for removing the device from the basin and will have dump straps attached at the bottom to facilitate the emptying of the device. The *Fabric Insert Inlet Protection Device* shall have an overflow system to allow stormwater to enter the inlet structure and avoid ponding on the roadway when the device reaches capacity.

The stitching shall meet the following physical properties:

Physical	Test Method	English
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Average Wide Width Strength	ASTM D-4884	165 lb/in
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The fitted filter assembly shall have the following physical properties:

Physical	Test Method	English
Grab Tensile	ASTM D-4632	255 x 275 lbs
Minimum Puncture Strength	ASTM D-4833	125 lbs
Mullen Burst	ASTM D-3786	420 PSI
Minimum UV Resistance	ASTM D-4355	70 %.
Flow Rate	ASTM D-4491	200 gal/min/ft ²
Apparent Opening	ASTM D-4751	20 US Sieve
Permittivity	ASTM D-4491	1.5 sec ⁻¹

Construction Methods

Strictly comply with manufacturer's installation instructions and recommendations. Maintenance shall include regular daily inspections and after each qualifying rain event. The *Fabric Insert Inlet Protection Device* shall be emptied, cleaned and placed back into the basin when it reaches 50% capacity or as directed.

Measurement and Payment

This work will be paid for at the contract unit price per *Fabric Insert Inlet Protection Device* of the type specified, complete in place and accepted. Such payment shall be full compensation for furnishing and installing the *Fabric Insert Inlet Protection Device* in accordance with this specification and for all required maintenance.

Maintenance of the device, cleanout and disposal of accumulated sediments shall be paid for by *Fabric Insert Inlet Protection Device Cleanout*.

Payment will be made under:

Pay Item

Fabric Insert Inlet Protection Device
Fabric Insert Inlet Protection Device Cleanout

Pay Unit

Each
Each

Precast T.B. J.B with 4' Diameter MH:

Description

Furnish the labor, materials, tools and equipment necessary to construct a traffic bearing junction box with 4' diameter manhole as shown on Sheet 3B-2 of the plans.

Construction Methods

All work shall be installed in a manner consistent with NCDOT Standard Specifications Section 840 as applicable.

Measurement and Payment

Precast T.B. J.B. with 4' Diameter MH will be measured and paid for at the contract unit price per *Precast T.B. J.B. with 4' Diameter MH* as specified, complete in place and accepted. Such payment shall be full compensation for furnishing and installing the *Precast T.B. J.B. with 4' Diameter MH* in accordance with this specification and for all required maintenance.

Payment will be made under:

Pay Item

Precast T.B. J.B. with 4' Diameter MH

Pay Unit

Each

CONVERT EXISTING CURB INLET TO J.B. WITH MH**Description**

Furnish the labor, materials, tools and equipment necessary to convert an existing City of Wilmington curb inlet to a junction box with manhole.

Construction Methods

All work shall be installed in a manner consistent with NCDOT Standard Specifications Section 859 as applicable.

Measurement and Payment

Convert Existing Curb Inlet to J.B. with MH will be measured and paid for at the contract unit price per *Convert Existing Curb Inlet to J.B. with MH* as specified, complete in place and accepted. Such payment shall be full compensation for furnishing and installing the *Convert Existing Curb Inlet to J.B. with MH* in accordance with this specification and for all required maintenance.

Payment will be made under:

Pay Item**Pay Unit**

Convert Existing Curb Inlet to J.B. with MH

Each

STREET SIGNS AND MARKERS AND ROUTE MARKERS

(7-1-95)

900

SP9 R02

Move any existing street signs, markers, and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

Near the completion of the project and when so directed by the Engineer, move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Stockpile any signs or markers that cannot be relocated due to lack of right of way, or any signs and markers that will no longer be applicable after the construction of the project, at locations directed by the Engineer for removal by others.

The Contractor shall be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

No direct payment will be made for relocating, reinstalling, and/or stockpiling the street signs and markers and route markers as such work shall be considered incidental to other work being paid for by the various items in the contract.

UTILITIES

WORK ASSOCIATED WITH CFPUA WATER AND SANITARY SEWER UTILITIES

All water and sanitary sewer utilities and appurtenances are owned and maintained by the Cape Fear Public Utility Authority (CFPUA). All work associated with water and sanitary sewer utilities shall be in compliance with the latest revision of all applicable CFPUA requirements and specification sections which are available on the CFPUA website (<https://www.cfpua.org/763/CFPUA-Technical-Standards>). The following is anticipated to cover the majority of the water and sanitary sewer work associated with this project:

Technical Specifications:

33 01 30.86 Manhole Rim Adjustment

33 14 13 Water Distribution Piping, Valves, Hydrants and Appurtenances

Details:

WS-5 Valve Detail

S-15 Manhole Rim Adjustments

SECTION 33 01 30.86

MANHOLE RIM ADJUSTMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Raising manhole frames and covers.
2. Replacing manhole frames and covers.

B. Related Requirements:

1. Section 33 05 13 – Precast Concrete Manholes and Utility Structures

1.2 REFERENCES

- A. CFPUA Material Specification Manual (MSM)

1.3 SUBMITTALS

- A. Product Data: Manufacturer information for manhole covers and riser rings construction, features, configuration, and dimensions.
- B. Manufacturer's Certificate: Products meet or exceed specified requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials according to manufacturer instructions.

B. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.5 FIELD CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 MATERIAL SPECIFICATION MANUAL

- A. Refer to CFPUA Material Specification Manual (MSM) for the following products:

MSM No.	Product
I	Manhole Casting/ Standard Ring and Cover
K	Manhole Casting Adjustment Rings/ HDPE
N	Concrete/ Non-Shrink Grout, Type S Mortar

2.2 RISER RINGS

A. Clay Brick Units:

1. Description:

- a. Solid units.
- b. Comply with ASTM C32 or AASHTO M91.

B. Precast circular rings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify and locate manholes requiring grade adjustment.

3.2 INSTALLATION

A. Raising Manhole Frames and Covers:

1. Locate and raise manholes to grade as indicated.
 - a. Cone Sections:
 - 1) Do not adjust elevation greater than 8 inches without addition of a new manhole section.
 - 2) Use no more than three courses (8 inches) of brick or precast concrete riser rings to achieve indicated elevation for frame and cover.
 - b. Flat Top Manholes:
 - 1) Shall not be adjusted more than a single course of brick (4 inches).

B. Replacing Manhole Frames and Covers:

1. Locate manholes for replacement of frames and covers as indicated.
2. Deliver removed manhole frames and covers to Owner as maintenance materials.
3. Install new frames and covers for manholes as indicated.
4. Adjust new frames and covers to match finished grade as indicated.

5. Seal joints between manholes and manhole frames.

C. Paving Restoration:

1. Restore bituminous paving areas as specified.

D. Landscaping Restoration:

1. Restore grassed areas as specified.

END OF SECTION

SECTION 33 14 13

WATER DISTRIBUTION PIPING, VALVES, HYDRANTS AND APPURTENANCES

PART 1 GENERAL

1.1 DESCRIPTION

A. Section Includes Installation of:

1. Pipe and fittings for public water mains and service connections.
2. Valves, fire hydrants, blow offs, sampling stations, air release assemblies, and other water distributions appurtenances.

B. Related Requirements:

1. CFPUA Material Specification Manual (MSM).
2. Section 03 05 00, Concrete.
3. Section 09 91 00, Painting and Protective Coatings.
4. Section 31 23 34, Excavating, Trenching, Dewatering and Backfilling.
5. Section 33 01 12, Identification for Utilities Piping.
6. Section 33 05 05.31, Hydrostatic Testing.
7. Section 33 05 09.33, Thrust Restraint for Utility Piping.
8. Section 33 05 13, Precast Concrete Manholes and Utility Structures.
9. Section 33 14 14, Public Water Service Connections.
10. Section 33 14 20, Disinfection of Water Pipelines, Facilities and Appurtenances.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 – Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. American Society of Mechanical Engineers:

1. ASME B16.1 – Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

C. ASTM International:

1. ASTM A307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

2. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³).
3. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
4. ASTM D1785 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
5. ASTM D2241 – Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
6. ASTM D3035 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
7. ASTM D3139 – Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
8. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
9. ASTM F477 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

D. American Water Works Association:

1. AWWA C104 – Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 – Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 – Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C115 – Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. AWWA C116 – Protective Fusion-Bonded Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray Iron Fittings.
7. AWWA C151 – Ductile-Iron Pipe, Centrifugally Cast.
8. AWWA C153 – Ductile-Iron Compact Fittings.
9. AWWA C500 – Metal-Seated Gate Valves for Water Supply Service.
10. AWWA C502 – Dry-Barrel Fire Hydrants.
11. AWWA C509 – Resilient-Seated Gate Valves for Water Supply Service.
12. AWWA C512 – Air-Release, Air/Vacuum, and Combination Air Valves for Water and Wastewater Service.
13. AWWA C550 – Protective Interior Coatings for Valves and Hydrants.
14. AWWA C600 – Installation of Ductile-Iron Mains and Their Appurtenances.
15. AWWA C605 – Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings.
16. AWWA C900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm), for Water Transmission and Distribution.
17. AWWA C901 – Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.
18. AWWA C906 – Polyethylene Pressure Pipe and Fittings, 4-In. Through 65-In. for Waterworks.

E. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 – Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

F. National Fire Protection Association:

1. NFPA 24 – Standard for the Installation of Private Fire Service Mains and Their Appurtenances.
2. NFPA 291 – Recommended Practice for Fire Flow Testing and Marking of Hydrants.

G. NSF International:

1. NSF 61 – Drinking Water System Components - Health Effects.
2. NSF 372 – Drinking Water System Components - Lead Content.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Section 01 30 00, Administrative Requirements

B. Coordination:

1. Coordinate Work of this Section with termination of water main connection at Site boundary, connection to CFPWA, and trenching.
2. The existing system must be kept in operation at all times. Where connections are made to existing mains or other shutdowns are necessary, permission must be obtained and arrangements must be made with the CFPWA Distribution ORC, Utility Services Division for removing from service those mains that will be affected.
3. No valves are to be operated unless a CFPWA representative is present. Any valves operated without a CFPWA representative present or a directive may be subject of penalties in accordance with CFPWA's ordinance.
4. Notify CFPWA no less than two business days prior to an event requiring a CFPWA representative to be present.
5. The Contractor shall, at least two business days in advance, notify citizens subject to interruption of service by means of door hangers or any other approved method of the starting time and duration of such interruption.

1.4 SUBMITTALS

A. Section 01 33 00, Submittals: Requirements for submittals.

B. Product Data/Source Quality:

1. Manufacturer information regarding pipe, pipe fittings, valves, hydrants and appurtenances including component material, assembly and parts diagrams.
2. Shop test results and inspection data, certified by manufacturer.

C. Testing Procedures:

1. Submit proposed testing procedures, methods, apparatus, and sequencing. Obtain ENGINEER and CFPWA approval prior to commencing testing.

D. Manufacturer Instructions:

1. Detailed instructions on installation requirements, including storage and handling procedures.

E. Manufacturer's Certificate:

1. Certify that products meet or exceed specified requirements.

F. Field Quality-Control Submittals:

1. Results of Contractor-furnished laboratory testing and field test results.

1.5 CLOSEOUT SUBMITTALS:

A. Section 01 70 00, Execution and Closeout Requirements.

B. Project Record Documents:

1. Maintain accurate and up-to-date record documents showing modifications made in the field, in accordance with approved submittals, and other Contract modifications relative to buried piping Work.
 2. Record actual locations of piping mains, valves, hydrants, connections, thrust restraints, elevations, and other utilities found and not indicated on design plans.
- C. Operations and Maintenance Data:
1. Furnish in operations and maintenance manuals complete data for materials in accordance with Section 01 60 00, Product Requirements.

1.6 QUALITY ASSURANCE

- A. Qualifications: Company specializing in manufacturing products specified in the CFPUA Materials Specification Manual.
1. Cast manufacturer's name, pressure rating, and year of fabrication into valve body.
- B. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372.
- C. Perform Work according to AWWA and PVC Pipe Association standards.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00, Product Requirements.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
1. Store materials according to manufacturer instructions.
 2. Block individual and stockpiled pipe lengths to prevent moving.
 3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
 4. Store PE and PVC materials out of sunlight.
- D. Protection:
1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 2. Provide additional protection according to manufacturer instructions.

1.8 SITE CONDITIONS

- A. Field Measurements:
1. Verify field measurements prior to fabrication.
 2. Indicate field measurements on Shop Drawings.

1.9 WARRANTY

- A. Section 01 70 00, Execution and Closeout Requirements.
- B. Furnish 10-year manufacturer's warranty for valves.

PART 2 PRODUCTS

2.1 CFPUA MATERIAL SPECIFICATION MANUAL

- A. Refer to CFPUA Material Specification Manual (MSM) for the following products:

MSM Section	Material
A	Pipe
B	Fittings and Accessories
C	Joint Restraints
D	Valves and Accessories
E	Fire Hydrants
F	Service Saddles and Tapping Devices
I	Castings & Aluminum Access Covers
K	Miscellaneous
L	Electrical
M	Coatings and Sealants

2.2 MATERIALS & ACCESSORIES

- A. Bedding, Cover, and Backfill:
 - 1. As specified in Section 31 23 34, Excavating, Trenching, Dewatering and Backfill-ing.
- B. Pipe Location Wire: As specified in Section 33 01 12, Identification for Utilities Piping.
- C. Thrust Restraints: As specified in Section 33 05 09.33, Thrust Restraint for Utility Piping.
- D. Service Connections: As specified in Section 33 14 14, Public Water Service Connections.
- E. Vaults and Utility Boxes: As specified in Section 33 05 13, Precast Concrete Manholes and Utility Structures.
- F. Fire Hydrant Drainage Gravel: Provide #57 Stone.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00, Execution and Closeout Requirements.
- B. Identify project horizontal and vertical control points, establish easement and right-of-way lines, stakeout construction points for work and pipeline alignments, establish limits of disturbance.
- C. Determine exact location and size of water mains, valves, hydrants, and appurtenances from Drawings
- D. Verify location and elevation of existing facilities prior to excavation and installation of proposed interconnecting water mains, valves, and hydrants.

3.2 PREPARATION

- A. Section 01 35 00, Special Procedures.
 - 1. Pre-construction Site Audio/Video Inspections and Photography:
 - 2. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing Site features.
- B. Section 01 70 00, Execution and Closeout Requirements.

- C. All materials, unless otherwise directed, shall be unloaded as nearby as possible to the location of installation by the Contractor. Materials shall be handled with care to avoid damage.
- D. All materials found during the progress of work to have flaws, cracks, or other defects will be rejected by the Engineer regardless of whether or not it has been installed and shall be replaced by and at the expense of the Contractor.
- E. All PVC pressure pipe, upon delivery to the site and until such time as it is placed in the trench, shall be shielded from the weather and direct sunlight to prevent pipe deterioration.
- F. Slings, hooks, or tongs used for lifting shall be padded in such a manner as to prevent damage to exterior surfaces, interior linings and components. If any part of the coating, lining or components is damaged, the repairs or replacement shall be made by the Contractor at his expense and in a manner satisfactory to the Engineer prior to attempting installation.
- G. Pipe Cutting:
 - 1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
 - 2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
 - 3. Grind edges smooth with beveled end for push-on connections.
- H. Remove scale and dirt on inside and outside before assembly.
- I. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

- A. Placement: As specified in Section 31 23 34, Trenching, Excavation, Dewatering and Backfilling.
 - 1. All mains shall be laid and maintained at the required lines and grades with fittings, valves and appurtenances at the described locations. All pipe shall be laid to the depth as shown on the drawings, or when a depth is not indicated, with a minimum cover of thirty-six (36) inches and a maximum of (60) inches below finished grade. Grade lines shall be set by the Contractor. Realignment must be approved by the Engineer. The Contractor shall have suitable survey equipment on the site at all times.
 - 2. After placement in the trench the spigot end of the pipe shall be centered in the bell and the pipe shall be driven home and then brought to the proper line and grade by tamping approved backfill material under it, except for the bell. Joint deflection shall not exceed manufacturer's limit.
 - 3. The Work shall at all times progress with caution so as to prevent damage to underground obstructions both known and unknown. Should an obstruction not shown on the drawings be encountered, the Engineer shall be immediately notified and he shall be responsible for alteration to the design should realignment be necessary. Notify the Engineer far enough in advance to allow the realignment to be accomplished by deflection in the pipe joints.
- B. Pipe and Fittings:
 - 1. Handle and assemble pipe according to manufacturer instructions.
 - 2. Install pipe and fittings in strict conformance with AWWA C600.
 - 3. Install plastic pipe in conformance with ASTM D2774 and recommended practices of the UNI-BELL Plastic Pipe Association.

4. Joint Deflection: Maximum joint deflection shall meet requirements of AWWA C600 or AWWA Manual of Practice M23.
5. Prevent foreign material from entering pipe during placement. Seal pipe openings with watertight plugs during Work stoppages using plugs designed for that purpose. If trench contains standing water in joining zone, plug shall remain in place until the trench has been pumped dry before proceeding pipe laying.
6. Allow for expansion and contraction without stressing pipe or joints.
7. Install access fittings to permit disinfection of water system performed under Section 33 14 20 – Disinfection of Water Distribution Mains.
 - a. Blowoffs shall be installed for pipe flushing, disinfection, and test sampling.
 - b. Blowoffs shall be located as follows:
 - 1) Dead ends.
 - 2) Stub-outs greater than one pipe section in length for future interconnecting mains.
 - 3) Valves closed against disinfection, flushing, and sampling.
 - c. Blowoff should be installed as follows:
 - 1) Opening pointing downward.
 - 2) Minimum 24-inches clearance between opening and ground for proper sampling.
8. Cover: Measure depth of cover from final surface grade to top of pipe barrel and record.
9. Jointing:
 - a. Fused HDPE:
 - 1) HDPE Pipe shall be joined by the butt-fusion process in accordance with pipe manufacturer's directions.
 - 2) Contractor shall provide butt-fusion technicians who are trained and certified by the HDPE pipe manufacturer to complete the project. The date of technician certification shall not exceed 12 months before commencing construction.
 - 3) Butt-fusion means the butt-joining of the pipe by softening the aligned faces of the pipe ends in a suitable apparatus and pressing them together under controlled pressure.
 - 4) The internal and external beads resulting from the butt-fusion process shall be visible and examined for penetration 360 degrees around the pipe diameter.
 - 5) DI/HDPE Mechanical Joint Adaptors shall be ductile iron mechanical joint fittings per CFPUA Material Specification Manual and shall be joined to the HDPE pipe by a heat-fused joint on one end, and connected to a ductile iron pipe valve, or fitting with a mechanical joint on the other end.
 - 6) Solvent epoxy cementing, electro-fusion couplings and mechanical joining with bolt on wrap around clamps or mechanical joints without an adapter shall not be used for connections.
 - b. Push-On Joints:
 - 1) The inside of the bell and the outside of the spigot end shall be thoroughly cleaned to remove dirt, grit, oil or excess coatings and other foreign matter. For ductile iron pipe, the gasket shall be flexed inward and inserted in the gasket recess of the bell socket.
 - 2) A thin film of gasket lubricant shall be applied to either the inside surface of the gasket or the spigot ends, care will be taken to avoid contact with the ground.
 - 3) The joint shall be completed by forcing the plain end to the bottom of the socket with a forked tool or jacking device or other approved method. All pipe

shall have depth mark prior to insertion. Pipe cut in the field shall be filed to resemble the spigot end of manufactured pipe.

- 4) When deflection is required the joint shall be completed prior to setting the deflection. The deflection shall conform to applicable AWWA Standards or manufacturer's recommendation.

c. Mechanical Joints:

- 1) The inside of the socket, the outside of the spigot end and the gland shall be thoroughly cleaned and or washed with an approved solution to remove dirt, grit, oil or excess coatings and foreign matter to improve gasket seating.
- 2) The gland shall then be placed on the plain end of the pipe with the lip extension toward the plain end, followed by the gasket with the narrow edge of the gasket toward the plain end of the pipe.
- 3) The pipe shall be inserted into the socket and the gasket pressed firmly and evenly into the gasket recess. The joint shall be kept straight during the assembly and any deflection required shall be done after the joint has been assembled but prior to tightening the bolts.

C. Valves:

1. Valves shall be set and joined to the pipe and each type of joint as specified for pipe.
2. Cast iron valve boxes shall be firmly supported, maintained centered and plumb over the operating nut of the valve. Outside of paved areas, valve boxes shall be set in a 2' diameter x 6" thick concrete collar. The box cover shall be flush with the surface of the finished pavement. All water main valve box lids shall have the word "WATER" cast in the lid.
3. All reasonable effort must be made to locate valves/valve boxes, back of curb, in grass areas and at street corners, whenever possible.
4. Valve boxes in areas that will require sod at a later date must be left one to two inches above existing grade (to allow for sod thickness).
5. All valves must be centered over the operating nut/wheel and all valves, after being fully opened, will be backed off one-quarter turn to prevent them from being jammed open. This procedure should take place only after the main has passed pressure testing and has been certified by the Engineer.
6. Should the operating nut be more than three feet below the final grade, an extension shall be supplied and installed by the Contractor. The extension shall bring the nut to within twelve (12) inches of final grade.

D. Installing Valves on Existing Mains

1. When installing valves in existing mains (cutting-in), the Contractor shall insure that the pipe is kept clean at all times and no debris, ground water, mud, oil, etc., will make their way into the pipe.

E. Installation of Tapping Sleeves and Valves

1. Install the tapping sleeve and valve and pressure test prior to making the tap.
2. If leaks are present, the Contractor shall repair them to the satisfaction of the Engineer or Resident Project Representative.
3. Complete the tapping operation and close tapping valve.
4. Tapping valve shall not be opened until new main has been tested and certified for operation.

F. Hydrants

1. Each hydrant shall be connected to the main with a 6-inch branch line.
2. Hydrants shall be set with the pumper nozzle facing the roadway and with the center of the lowest outlet not less than 18 inches above the finished surrounding grade and the operating nut not more than 48 inches above the finished surrounding grade.

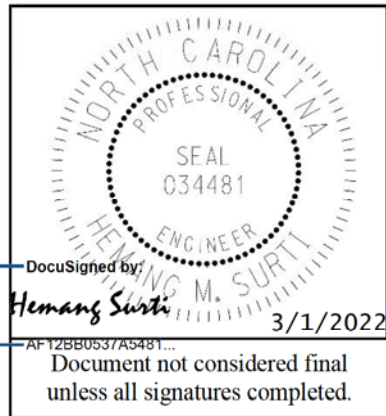
3. Set fire hydrants with safety flange not more than 6 inches and not less than 2 inches above grade.
 4. The hydrant shall be set in a bed of # 57 stone which shall surround the barrel at least 12 inches in all directions.
 5. Hydrants and tees (runs and branches) shall be restrained using field-applied restraint system per CFPWA MSM.
 6. Provide support blocking and drainage gravel while installing fire hydrants; do not block drain hole.
 7. After main-line pressure testing, flush fire hydrants and check for proper drainage.
- G. Thrust Restraints: As specified in Section 33 05 09.33, Thrust Restraint for Utility Piping.
1. New main construction shall be restrained by means of field or factory applied systems as shown on the Engineer drawings.
 2. Thrust blocks in new mains is prohibited except when directed by the Engineer.
 3. Where a fitting or device is to be inserted into an existing main, thrust blocking shall be installed as directed by the Engineer or CFPWA.
- H. Polyethylene (PE) encasement when indicated for ductile iron pipe and fittings:
1. Encase piping in PE as indicated on Drawings to prevent contact with surrounding soil material or insulation from adjacent cathodic protection system.
 2. Comply with AWWA C105.
 3. Where pipe exits ground, terminate encasement 3 to 6 inches above surface.
- I. Pipe Locator Wire: Install per Section 33 01 12, Identification for Utilities Piping.
- J. Service Connections: As specified in Section 33 14 14, Public Water Service Connections.
- K. Disinfection of Potable Water Piping Systems: As specified in Section 33 14 20, Disinfection of Water Distribution Mains.
- L. Pipe Markers: According to CFPWA Details and Material Specification Manual.

3.4 FIELD QUALITY CONTROL

- A. Section 01 70 00, Execution and Closeout Requirements.
- B. Section 33 05 05.31, Hydrostatic Testing.
1. Pressure test piping system according to AWWA C600.
- C. Section 33 14 20, Disinfection of Water Pipelines, Facilities, and Appurtenances.
- D. Pigging – Flushing and Cleaning Alternative for Large Mains
1. For mains where flowrates cannot be achieved to create minimum cleaning velocities of 2 feet per second or greater, cleaning of the new piping system by pigging methods shall be established for the project by the Engineer. Pigging includes the following measures:
 - a. Pig launching and retrieval equipment to minimize additional valves, fittings and auxiliary water supplies.
 - b. Valves and blowoff assemblies, which are installed as part of the project, shall be used as much as possible to minimize the number of temporary ports required for pigging.
 - c. Pig materials used shall be specifically manufactured for flushing and cleaning pressure pipes, bends and valves. The pigs shall be able to go through bends, open valves and fittings, and provide adequate cleaning of the pipe.

- d. Pigging shall be accomplished by the controlled and pressurized passage of a series of hydraulic or pneumatic polyurethane plugs of varying dimensions, coatings, and densities.
- e. Pigs shall be selected by the Contractor and approved by the Engineer.
- f. The Contractor shall provide means to enter the pig into the system, control and regulate flow, monitor flows and pressures, and to remove the pig from the system.
- g. The Contractor shall maintain constant surveillance of the pig while active in the pipe system and immediately report problems encountered or any malfunctions discovered in the piping system.

END OF SECTION



SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS Project Special Provisions (Version 18.5)

*Prepared By: HMS
1-Mar-22*

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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. GENERAL REQUIREMENTS – Construction Methods (1700-3(M))

Page 17-4, Replace the sentence beginning on line 41 with “Prior to placing signal in the steady (stop-and-go) mode, the signal should be placed in the flashing mode for up to 7 days or as directed by the Engineer. The signal should not be placed in the steady (stop-and-go) mode on a Saturday or Sunday without prior approval from the Engineer. Do not place the signal in steady (stop-and-go) mode until inspected and without the prior approval of the Engineer.”

1.3. 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 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel.

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 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.

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. 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
12-inch green circular	15	15

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

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

C. Pedestrian Signal Heads:

Provide pedestrian signal heads with international symbols that meet the MUTCD. Do not provide letter indications.

Comply with the ITE standard for “Pedestrian Traffic Control Signal Indications” and the following sections of the ITE standard for “Vehicle Traffic Control Signal Heads” in effect on the date of advertisement:

- Section 3.00 - “Physical and Mechanical Requirements”
- Section 4.01 - “Housing, Door, and Visor: General”
- Section 4.04 - “Housing, Door, and Visor: Materials and Fabrication”
- Section 7.00 - “Exterior Finish”

Provide a double-row termination block with three empty terminals and number 10 screws for field wiring. Provide barriers between the terminals that accommodate a spade lug sized for number 10 terminal screws. Mount the termination block in the hand section. Wire all signal sections to the terminal block.

Where required by the plans, provide 16-inch pedestrian signal heads with traditional three-sided, rectangular visors, 6 inches long.

Provide 2-inch diameter pedestrian push-buttons with weather-tight housings fabricated from die-cast aluminum and threading in compliance with the NEC for rigid metal conduit. Provide a weep hole in the housing bottom and

ensure that the unit is vandal resistant.

Provide push-button housings that are suitable for mounting on flat or curved surfaces and that will accept 1/2-inch conduit installed in the top. Provide units that have a heavy duty push-button assembly with a sturdy, momentary, normally-open switch. Have contacts that are electrically insulated from the housing and push-button. Ensure that the push-buttons are rated for a minimum of 5 mA at 24 volts DC and 250 mA at 12 volts AC.

Provide standard R10-3 signs with mounting hardware that comply with the MUTCD in effect on the date of advertisement. Provide R10-3E signs for countdown pedestrian heads and R10-3B for non-countdown pedestrian heads.

Design the LED pedestrian traffic signal modules (hereafter referred to as modules) for installation into standard pedestrian traffic signal sections that do not contain the incandescent signal section reflector, lens, eggcrate visor, gasket, or socket. Provide modules that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp. Use LEDs that are of the latest aluminum indium gallium phosphorus (AlInGaP) technology for the Portland Orange hand and countdown displays. Use LEDs that are of the latest indium gallium nitride (InGaN) technology for the Lunar White walking man displays. 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.

Design all modules to operate using a standard 3 - wire field installation. Provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard pedestrian signal housing. 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.

Provide modules in the following configuration: 16-inch displays which have the solid hand/walking man overlay on the left and the countdown on the right, and 12-inch displays which have the solid hand/walking man module as an overlay. 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 "Pedestrian Traffic Control Signal Indicators - Light Emitting Diode (LED) Signal Modules" dated August 04, 2010 (hereafter referred to as PTCSI Pedestrian Standard) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the PTCSI Pedestrian Standard:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
Hand Indication	16	13
Walking Man Indication	12	9
Countdown Indication	16	13

Note: Use a wattmeter having an accuracy of $\pm 1\%$ 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.

Provide module lens that is hard coated or otherwise made to comply with the material exposure and weathering effects requirements of the Society of Automotive Engineers (SAE) J576. Ensure all exposed components of the module are suitable for prolonged exposure to the environment, without appreciable degradation that would interfere with

function or appearance.

Ensure the countdown display continuously monitors the traffic controller to automatically learn the pedestrian phase time and update for subsequent changes to the pedestrian phase time.

Ensure the countdown display begins normal operation upon the completion of the preemption sequence and no more than one pedestrian clearance cycle.

D. Relocate Existing Vehicle Signal Heads

Relocate existing vehicle signal heads by placing an existing vehicle signal head at a different location, and running and attaching new signal cable to the vehicle signal head at the new location. Complete signal cable runs before disconnecting service to the existing vehicle signal heads. Do not disconnect existing vehicle signal heads until the new signal cable runs are wired into the controller cabinet and ready to be connected for immediate reactivation of vehicle signal heads. Disconnect, immediately relocate, and reactivate the existing vehicle signal heads. Instead of relocating existing vehicle signal heads and at the Contractor's option, install new vehicle signal heads of the same arrangement, display, and size at no additional cost to the Department.

Measurement and payment will be based on Actual number of existing vehicle signal heads of each type relocated, rewired, and accepted.

Payment will be made under:

Relocate Existing Vehicle Signal Head.....Each

E. 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. CONTROLLERS WITH CABINETS**3.1. 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.

3.2. 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) 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

3.3. 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 332 base mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. When overlaps are required, provide auxiliary output files for the overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details.

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

B. Type 170 E Cabinet Electrical Requirements:

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

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

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

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

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

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

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

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

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

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

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

Peak Surge Current (Single pulse, 8x20 μ s).....10,000A
 Occurrences (8x20 μ s waveform).....100 @ 2,000A
 Maximum Clamp Voltage30V
 Response Time.....< 1 nanosecond

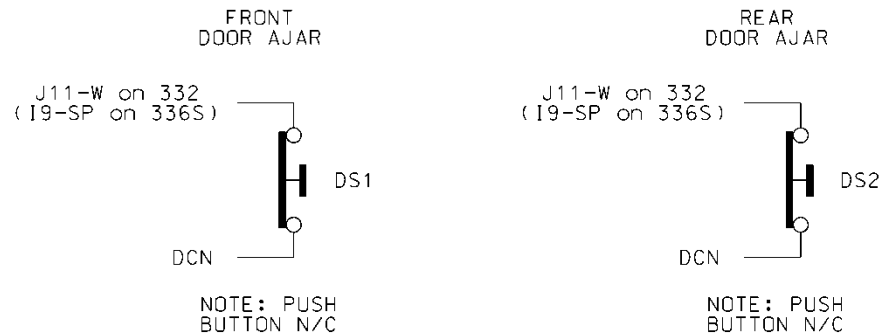
Provide a 120 VAC signal surge suppressor for each AC+ interconnect signal input. Ensure the device meets the following specifications:

Peak Surge Current (Single pulse, 8x20 μ s).....20,000A
 Maximum Clamp Voltage350VAC
 Response Time.....< 200 nanoseconds
 Discharge Voltage<200 Volts @ 1,000A
 Insulation Resistance..... \geq 100 M Ω

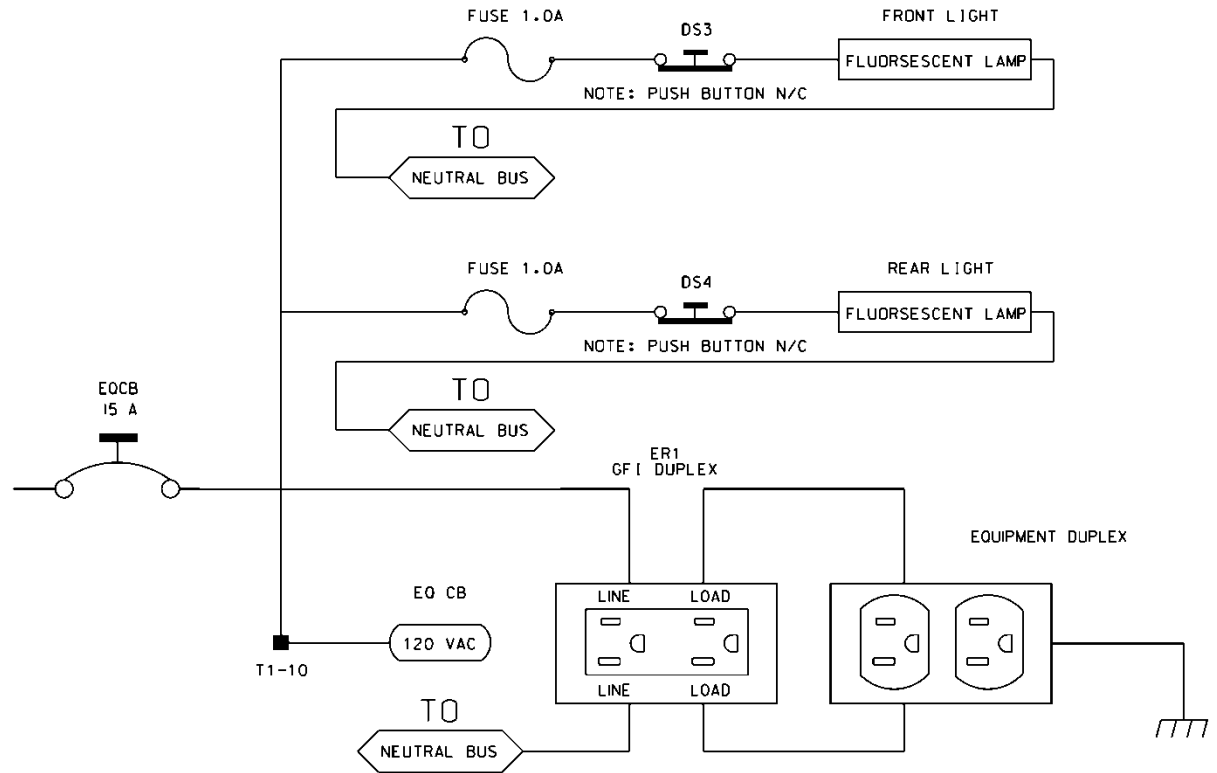
Provide conductors for surge protection wiring that are of sufficient size (ampacity) to withstand maximum overcurrents which could occur before protective device thresholds are attained and current flow is interrupted.

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

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



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



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

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

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

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

Connect detector test switches for cabinets as follows:

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

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

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

	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.

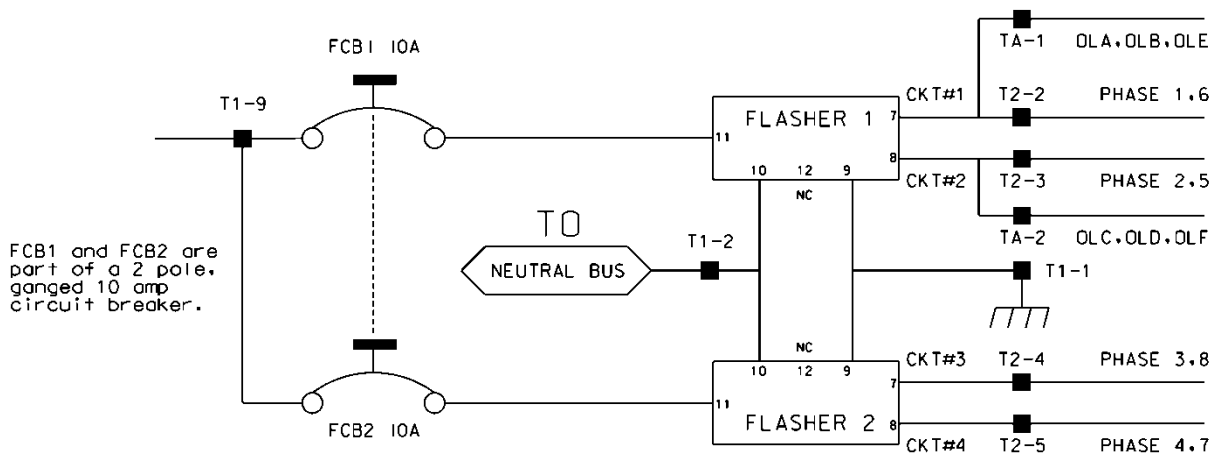
P20 Connector					
PIN	FUNCTION	CONN TO	PIN	FUNCTION	CONN TO
1	Channel 15 Red	119	2	Channel 16 Red	110
3	Channel 14 Red	104	4	Chassis GND	01-9
5	Channel 13 Red	113	6	N/C	
7	Channel 12 Red	AUX 101	8	Spec Function 1	
9	Channel 10 Red	AUX 124	10	Channel 11 Red	AUX 114
11	Channel 9 Red	AUX 121	12	Channel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

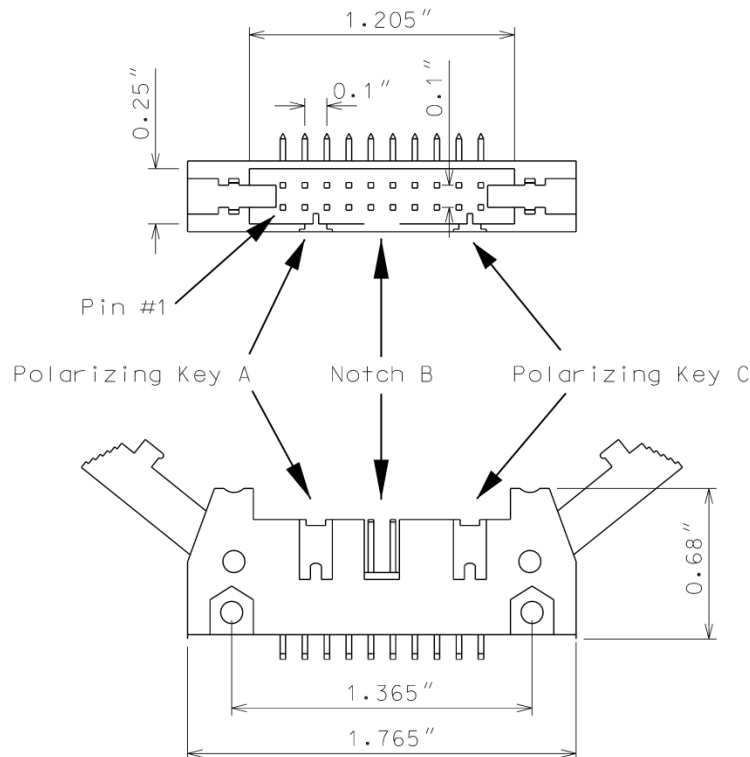
Provide a switch to set the Watchdog fault timing. Ensure that when the switch is in the ON position the Watchdog fault timing value is set to 1.0 +/- 0.1 s (2018 mode). Ensure that when the switch is in the OFF position the Watchdog fault timing value is set to 1.5 +/- 0.1 s (210 mode).

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

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

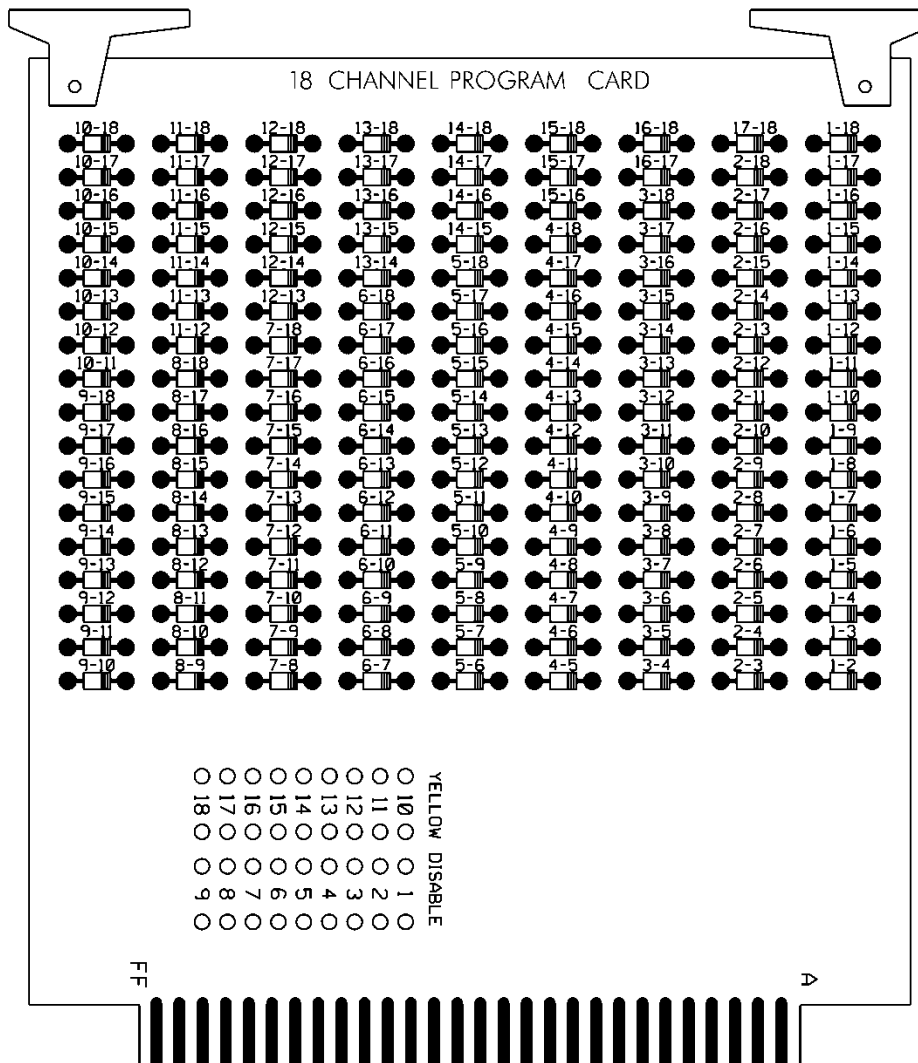
Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 2 Yellow
2	Channel 13 Green	B	Channel 6 Green
3	Channel 6 Yellow	C	Channel 15 Green
4	Channel 4 Green	D	Channel 4 Yellow
5	Channel 14 Green	E	Channel 8 Green
6	Channel 8 Yellow	F	Channel 16 Green
7	Channel 5 Green	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



3.4. 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.

4. Back pull fiber optic cable

4.1. DESCRIPTION

Back pull and store or back pull and reinstall existing communications cable.

4.1. CONSTRUCTION

During project construction where instructed to back pull existing aerial sections of fiber optic communications cable, de-lash the cable from the messenger cable and back pull the cable to a point where it can be stored or re-routed as shown on the plans. If instructed, remove and discard the existing messenger cable and pole mounting hardware once the

cable is safely out of harm's way.

During project construction where instructed to back pull existing underground sections of fiber optic communications cable, back pull the cable to a point where it can be stored or re-routed as shown on the plans. If instructed, remove abandoned junction boxes and backfill with a suitable material to match the existing grade. Leave abandoned conduits in place unless otherwise noted.

Where instructed, re-pull the fiber optic cable back along messenger cable or through conduit systems.

4.2. MEASUREMENT AND PAYMENT

Back Pull Fiber Optic Cable will be paid for as the actual linear feet of fiber optic cable back pulled and either stored or back pulled and rerouted. Payment is for the actual linear feet of cable back pulled.

No payment will be made for removing messenger cable and pole mounting hardware or removing junction boxes and back filling to match the surrounding grade as these items of work will be considered incidental to back pulling the fiber optic cable.

Payment will be made under:

Back Pull Fiber Optic Cable Linear Feet

APPENDIX A

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action Id. SAW-2017-01828County: New HanoverU.S.G.S. Quad: NC- Wilmington

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner: Don Bennett
City of Wilmington
265 Operations Center Drive
Wilmington, North Carolina 28412

Agent: Paul Masten
AECOM
201 North Front Street, Suite 509
Wilmington, North Carolina 28401

Size (acres) Approximately 1 acre
 Nearest Waterway Hewletts Creek
 USGS HUC 03020302

Nearest Town Wilmington
 River Basin White Oak
 Coordinates Latitude: 34.1947 N
 Longitude: -77.888507 W

Location description: The review area is located within the NCDOT Right of Way along College Road and Holly Tree Road, in the City of Wilmington, New Hanover County, North Carolina. The attached map titled "Jurisdictional Features Map; Sidewalk Extension along Holly Tree Road" dated August 2017, depicts the review area associated with this determination

Indicate Which of the Following Apply:

A. Preliminary Determination

- There appear to be waters, including wetlands, on the above described property, as depicted on the attached exhibit, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344). This preliminary jurisdictional determination may be used in the permit evaluation process, including determining compensatory mitigation. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction

B. Approved Determination

- There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- There are wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
 - We strongly suggest you have the waters of the U.S. including wetlands on your project area delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.
 - The wetlands on your property have been delineated and the delineation has been verified by the Corps. If you wish to have the delineation surveyed, the Corps can review and verify the survey upon completion. Once verified, this survey will provide an accurate depiction of all areas subject to CWA and/or RHA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat identified below. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- ☒ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☒ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Wilmington, NC, at (910) 796-7215 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact Kyle Dahl at 910-251-4469 or Kyle.J.Dahl@usace.army.mil.

C. Basis For Determination: Please see the attached Approved Jurisdictional Determination Form.

D. Remarks:

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by October 29, 2017

****It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.****

Corps Regulatory Official: _____

Date: August 29, 2017

Expiration Date: August 29, 2022

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: <u>Don Bennett, City of Wilmington</u>	File Number: <u>SAW-2017-01828</u>	Date: <u>August 29, 2017</u>
Attached is:		See Section below
<input type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)		B
<input type="checkbox"/> PERMIT DENIAL		C
<input checked="" type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION		D
<input type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

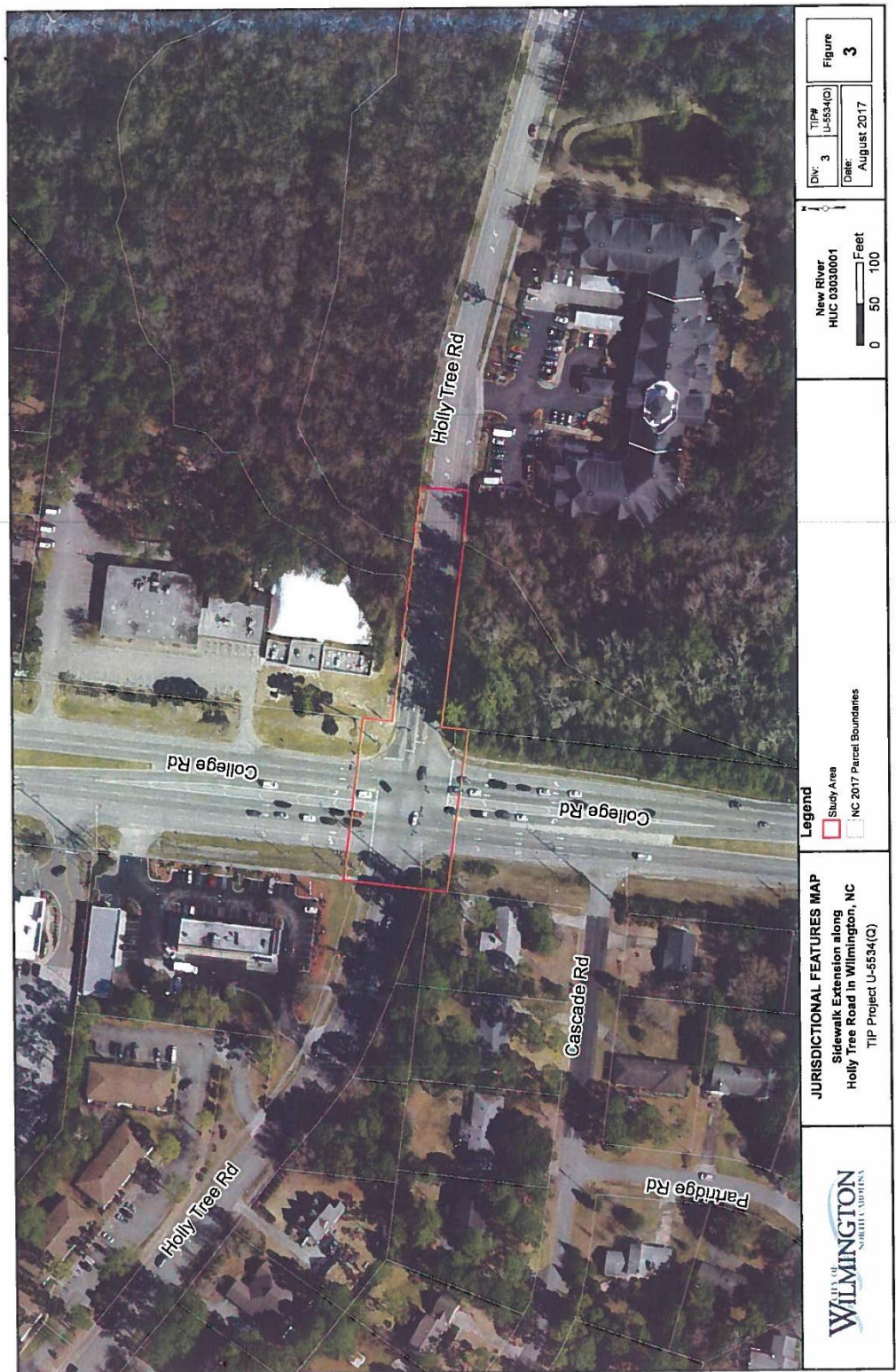
<p>E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.</p>		
<p>SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT</p>		
<p>REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)</p>		
<p>ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.</p>		
<p>POINT OF CONTACT FOR QUESTIONS OR INFORMATION:</p>		
<p>If you have questions regarding this decision and/or the appeal process you may contact:</p> <p>District Engineer, Wilmington Regulatory Division, Attn: Kyle Dahl (910) 251-4469 Kyle.J.Dahl@usace.army.mil</p>	<p>If you only have questions regarding the appeal process you may also contact:</p> <p>Mr. Jason Steele, Administrative Appeal Review Officer CESAD-PDO U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 10M15 Atlanta, Georgia 30303-8801 Phone: (404) 562-5137</p>	
<p>RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.</p>		
<p>Signature of appellant or agent.</p>	<p>Date:</p>	<p>Telephone number:</p>

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Kyle Dahl, 69 Darlington Ave., Wilmington, NC 28403

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele,
Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137



APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 8/29/2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: SAW-2017-01828

C. PROJECT LOCATION AND BACKGROUND INFORMATION: Holly Tree Sidewalk Extension
County/parish/borough: New Hanover City: Wilmington
Center coordinates of site (lat/long in degree decimal format): Lat. 34.1947° N, Long. 77.8885° W.
Universal Transverse Mercator:
Name of nearest waterbody: Hewletts Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Hewletts Creek
Name of watershed or Hydrologic Unit Code (HUC): Cape Fear 03020302
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☒ Office (Desk) Determination. Date: 8/29/2017
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- ☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply): ¹

- ☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres. Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual Elevation of established OHWM (if known): .

2. Non-regulated waters/wetlands (check if applicable): ³

- ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: .

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months)

³ Supporting documentation is presented in Section III.F.

Identify flow route to TNW⁵:

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural ☐
 Artificial (man-made). Explain:
 Manipulated ☐ (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet

Average depth: feet

Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

Silts ☐ Sands ☐ Concrete ☐
☐ Cobbles ☐ Gravel ☐ Muck ☐
 Bedrock ☐ Vegetation. ☐ Type/% cover:
 Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:Tributary provides for: **Pick List**Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List.** Characteristics: Subsurface flow: **Pick List.** Explain findings: ☐ Dye (or other) test performed:

Tributary has (check all that apply):

☐ Bed and banks
☐ OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line ☐ sorting leaf
 vegetation matted down, bent, or absent sediment ☐ sediment deposition multiple
 litter disturbed or washed away scour ☐ abrupt change in plant community
 observed or predicted flow events water staining ☐
 other (list):
☐ Discontinuous OHWM.⁷ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum; fine shell or debris deposits
 (foreshore) physical markings; physical markings characteristics vegetation lines/changes in
 vegetation types. ☐ tidal gauges other (list): ☐

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.⁶ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.⁷ 71bid

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

- ☐ TNWs: linear feet width (ft), Or, acres.
☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
 Identify type(s) of waters:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
☐ Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: . Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☐ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report. Data

sheets prepared by the Corps: .

Corps navigable waters' study: .

U.S. Geological Survey Hydrologic Atlas: .

USGS NHD data.

USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Carolina Beach 1:24k.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of New Hanover County . National

☐ wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): Google Earth, ESRI, NC One Map.

or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: . Review Area is entirely comprised on uplands

Typical Handrail Example

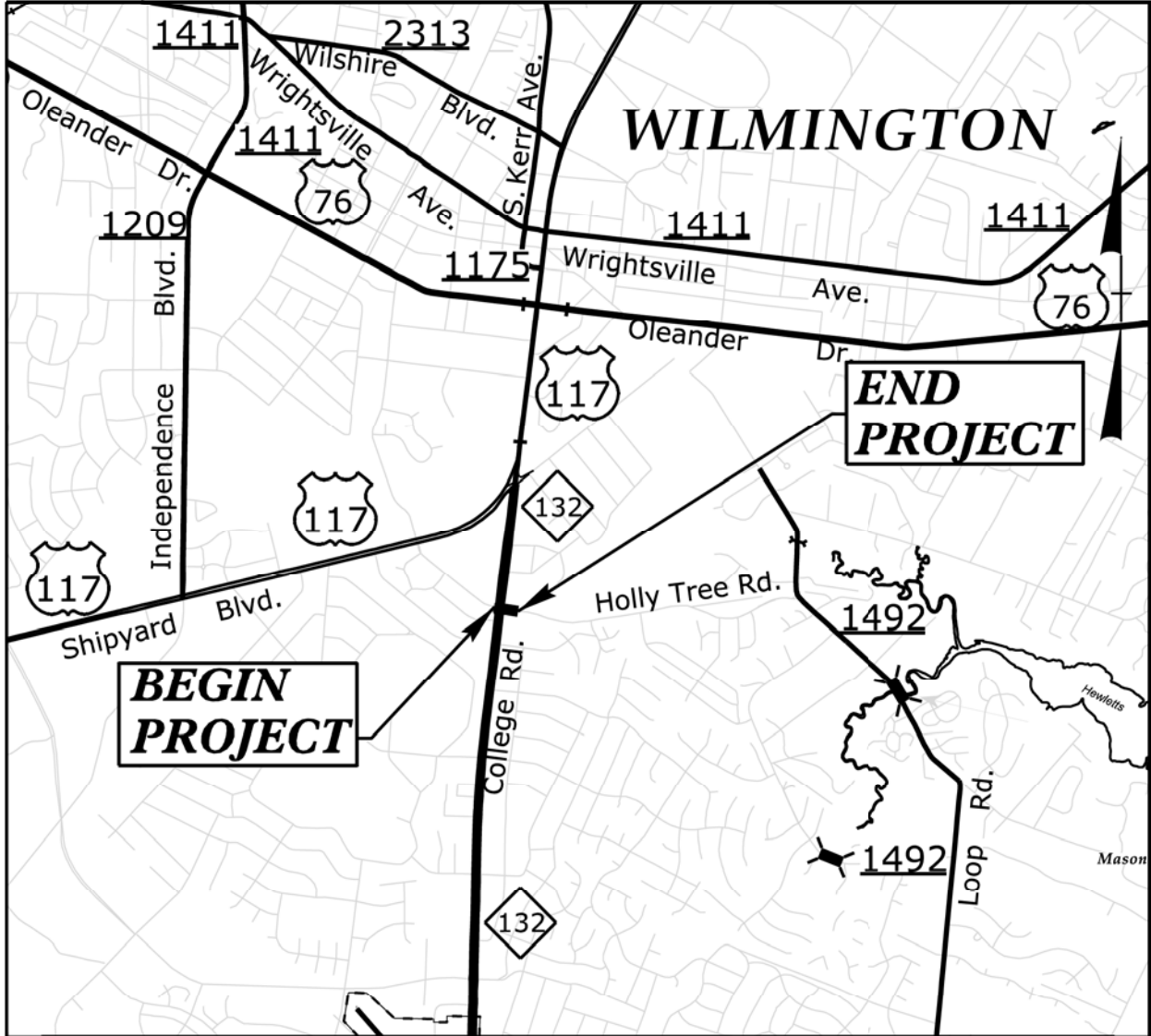


As denoted in Project Special Provisions

CONTRACT: **TIP PROJECT: U-5534Q**

CONTRACT: **TIP PROJECT: U-5534Q**

See Sheet 1A For Index of Sheets



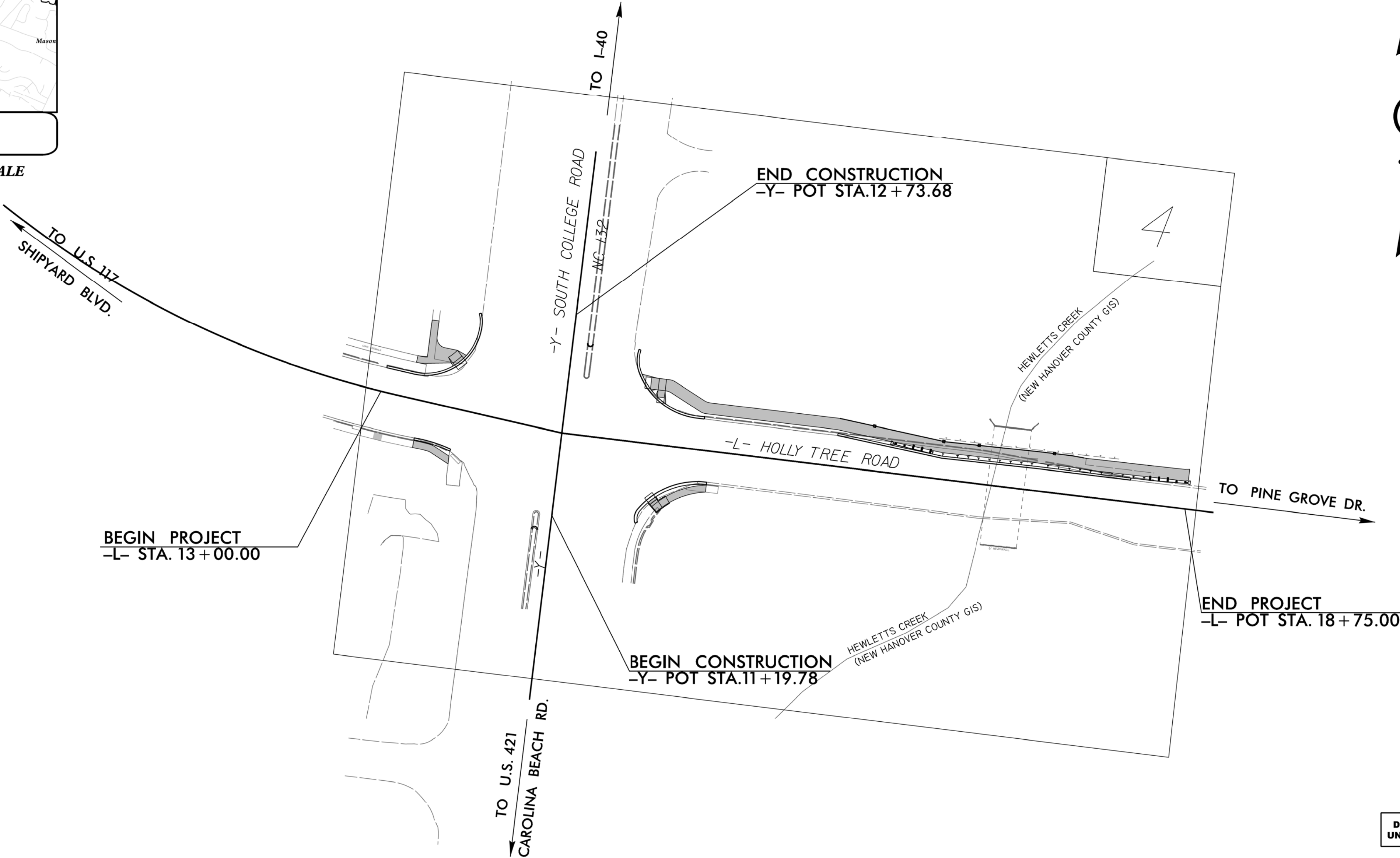
VICINITY MAP

NOT TO SCALE

CITY OF WILMINGTON

LOCATION: HOLLY TREE ROAD AT SOUTH COLLEGE ROAD

TYPE OF WORK: GRADING, DRAINAGE, PAVING,
SIGNALS



Project Surveyed by:
Peter J. Brennan, PLS
City of Wilmington
910.341.7807

Project Manager
Jason Pace, PE
City of Wilmington
910.341.7808

CLEARING ON THIS PROJECT WILL BE PERFORMED
TO THE LIMITS ESTABLISHED BY NCDOT METHOD II.
THIS IS WITHIN THE CITY LIMITS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

V = 40 MPH
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5534Q= 0.097 MI
LENGTH STRUCTURE TIP PROJECT U-5534Q= 0.000 MI
TOTAL LENGTH TIP PROJECT U-5534Q= 0.097 MI

AECOM

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 2021

LETTING DATE:
FEBRUARY 2022

Prepared in the Office of:

NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd, Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

EDWARD G. EDENS, JR., PE
PROJECT ENGINEER

MORGAN K. NELSON, EI
PROJECT DESIGN ENGINEER

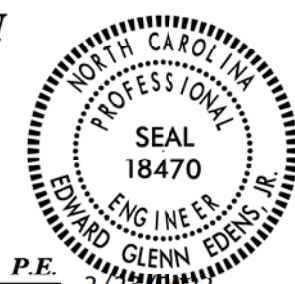
HYDRAULICS ENGINEER

DocuSigned by:
Memo D. Buscemi
SIGNATURE



ROADWAY DESIGN ENGINEER

DocuSigned by:
Edward Glenn Edens, Jr.
SIGNATURE



12/2/2016

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-55340	1A

INDEX OF SHEETS, GENERAL NOTES AND 2018 ROADWAY ENGLISH STANDARD DRAWINGS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROADWAY DETAILS
2C-1	ROADWAY DETAILS
3A-1	ROADWAY DETAILS
3B-1	DRAINAGE SUMMARY
4	PLAN SHEETS
5	PROFILE SHEETS
TMP-01 THRU TMP-03	TRANSPORTATION MANAGEMENT PLANS
PMP-01 THRU PMP-02	PAVEMENT MARKING PLANS
EC-1 THRU EC-2	EROSION CONTROL PLANS
SIG-1.0 THRU SIG-1.8	SIGNAL PLANS
SCP 1 THRU SCP 3	SIGNAL PLANS
X-1 THRU X-2	CROSS SECTIONS

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method II
225.03	Deceleration and Acceleration Lanes
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
275.01	Rock Paving
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and
840.20	Frames and Wide Slot Flat Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

EFF. 01-16-2018
REV.

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 AND 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND 560.02

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Cape Fear Public Utility Authority,

Charter Spectrum, Duke Energy, AT&T, Segra

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
U-55340	1B

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

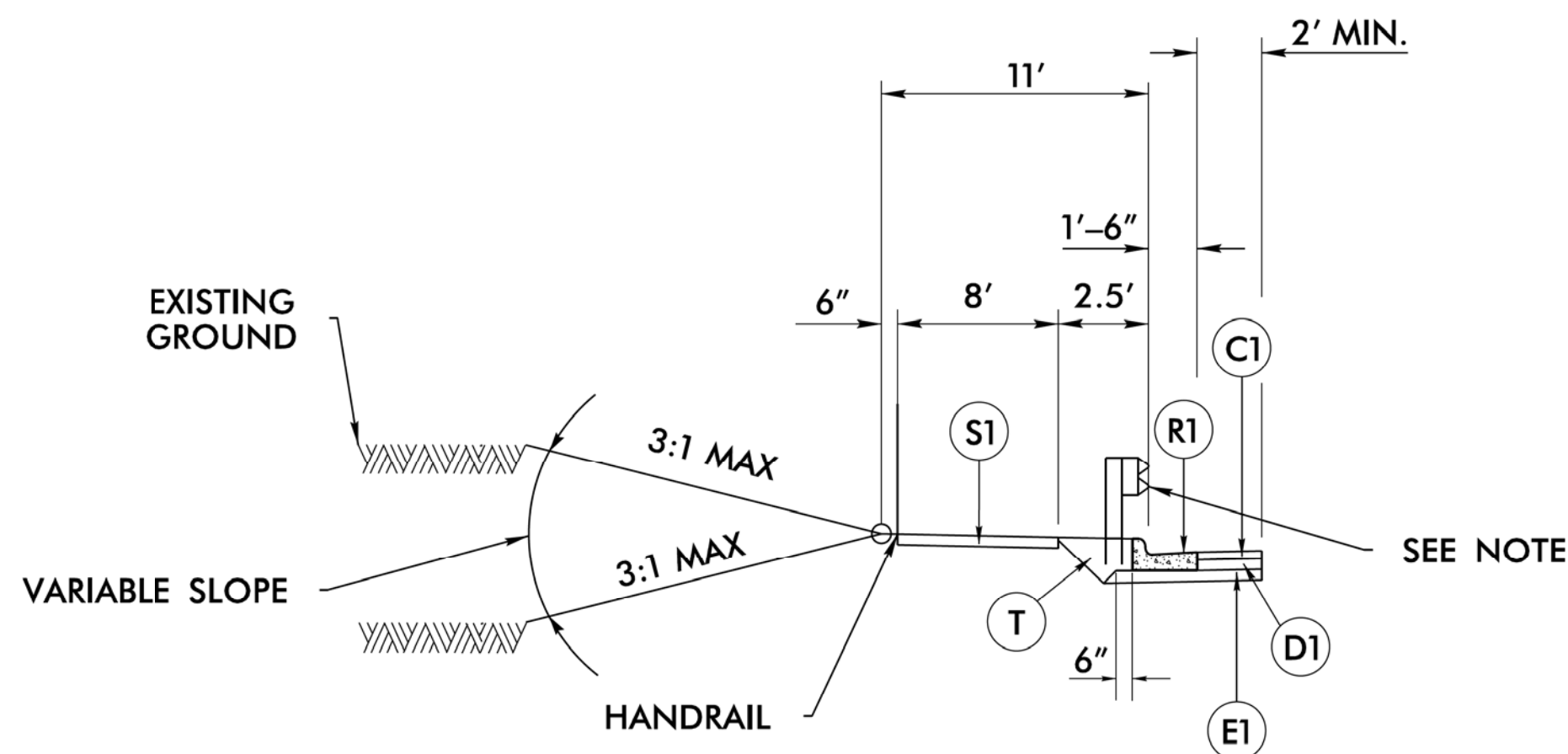
MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned According to Utility Records	
End of Information	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
R1	2'-0" CONCRETE CURB & GUTTER (CITY OF WILMINGTON STD. 3-11)
S1	4"CONCRETE SIDEWALK
T	EARTH MATERIAL
M	VARIABLE DEPTH MILLING
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET)

NOTES:

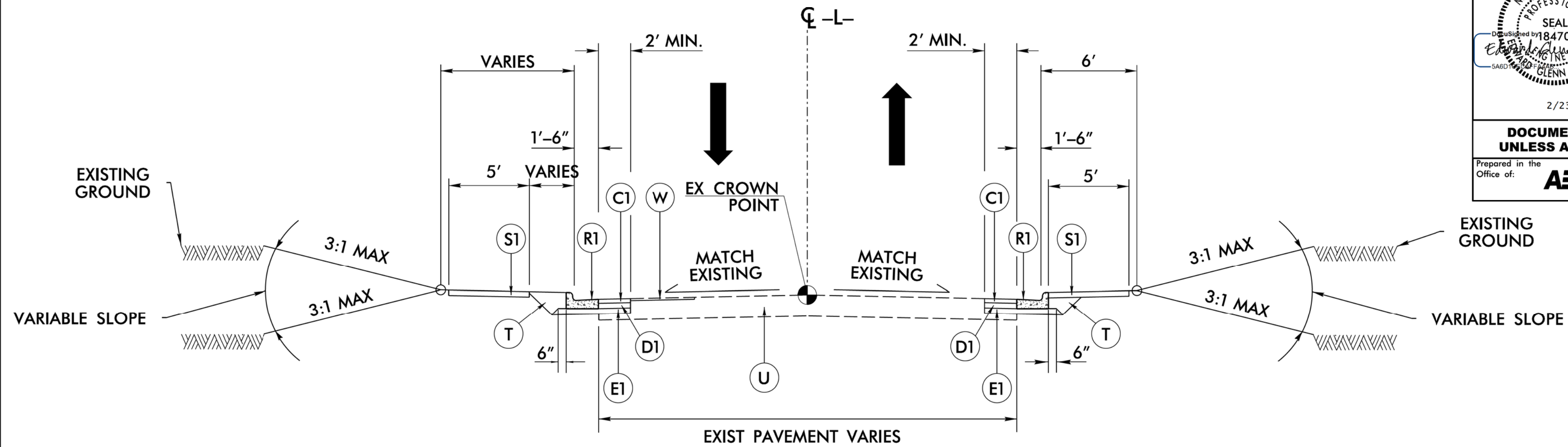
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
2. SEE SHEET 4 FOR LIMITS OF CURB AND GUTTER REPLACEMENT AND SIDEWALK WIDTHS
3. SAWCUT AND REMOVE EXISTING PAVEMENT TO PROVIDE 2' MINIMUM WIDTH OF FULL DEPTH PAVEMENT IN FRONT OF PROPOSED CURB
4. PROVIDE FULL DEPTH PAVEMENT REPAIR FOR UTILITY AND STORM DRAIN INSTALLATIONS (SEE PLANS)
5. SLOPE SHOULDERS FOR POSITIVE DRAINAGE
6. SEE SHEET 2B-1 FOR PROPOSED CURB GRADES



DETAIL NO. 1

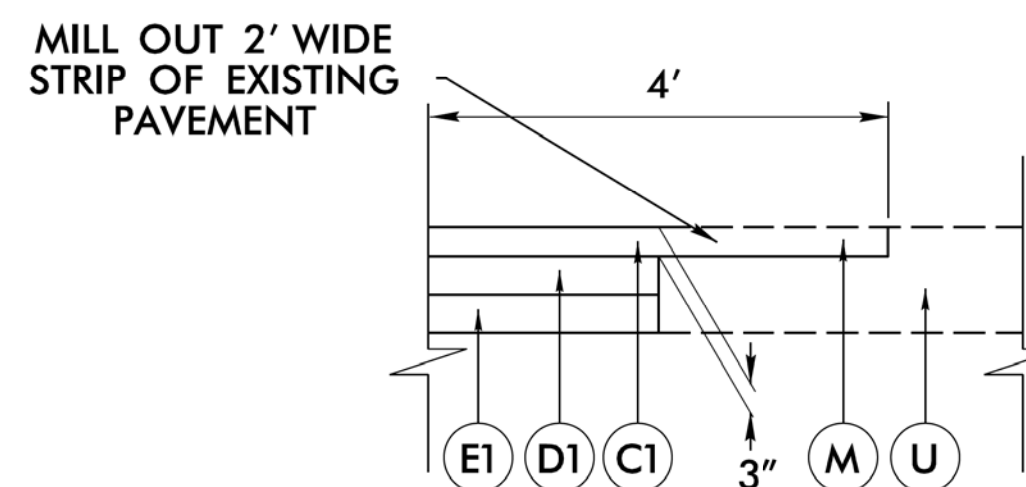
-L- STA. 14+72.03 TO 18+75.00 (LT)

NOTE: INSTALL COMPOSITE WOOD RUB RAIL ON BACKSIDE OF NEW GUARDRAIL
(SEE DETAIL 1 ON SHEET 3A-1)

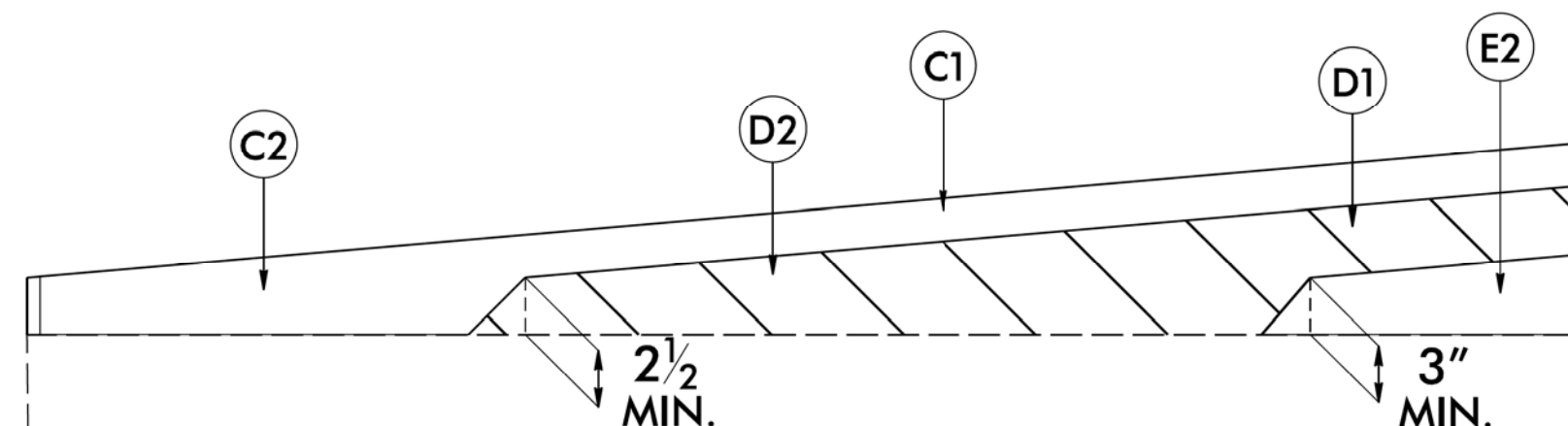


TYPICAL SECTION NO. 1

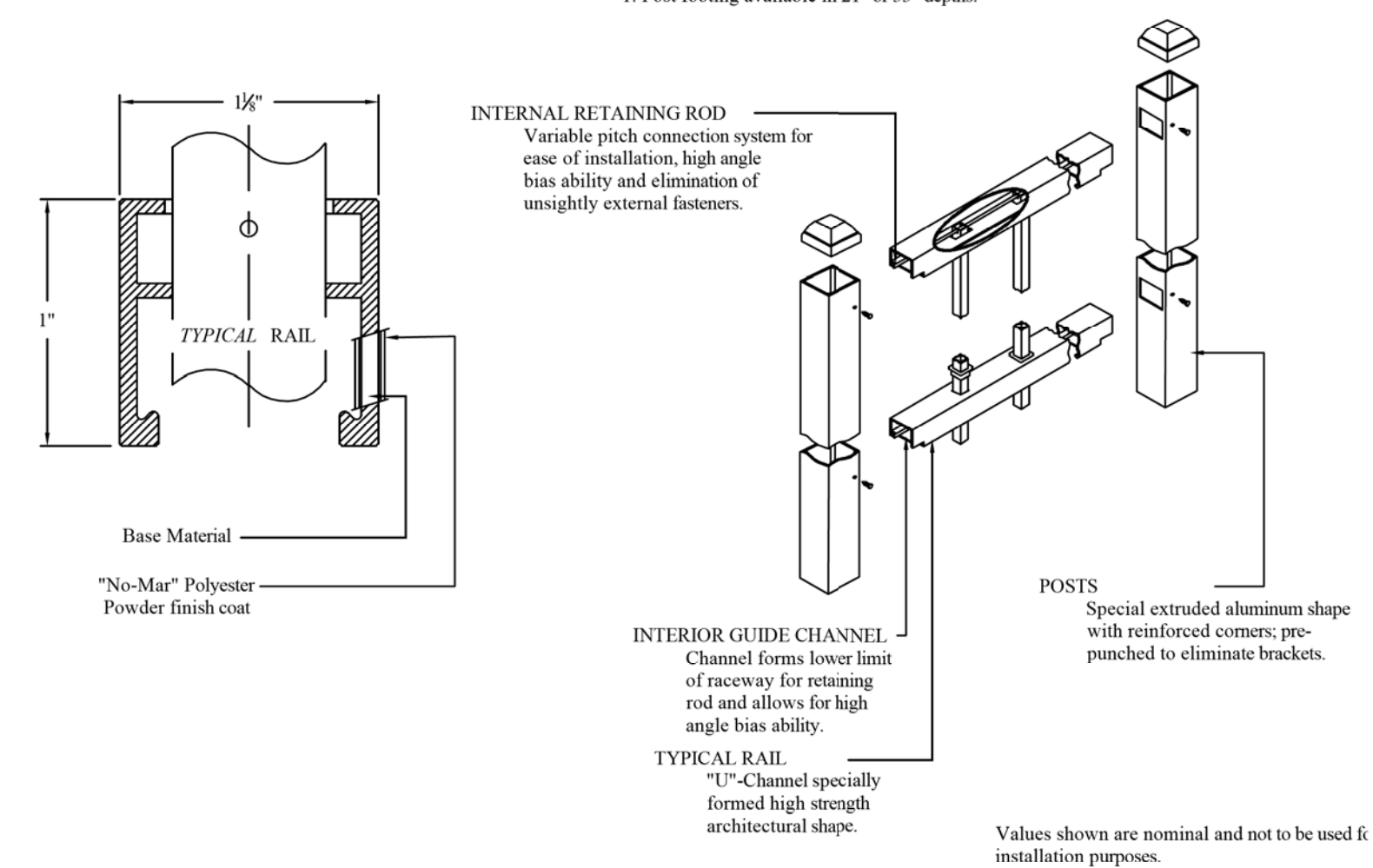
-L- STA. 13+00.00 (CURB BEGINS) TO 13+59.18



LAP JOINT DETAIL

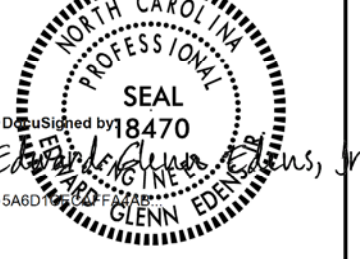
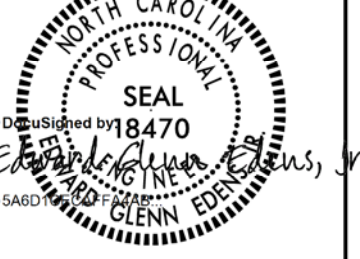
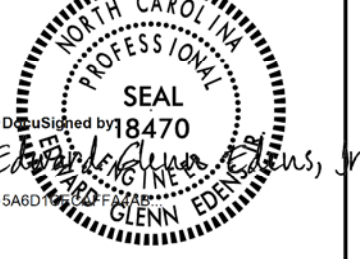



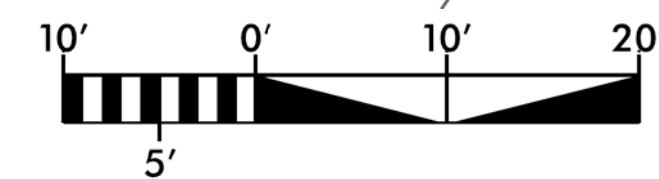
WEDGING DETAIL FOR RESURFACING



TYPICAL HANDRAIL DETAIL

-L- STA. 16+25.00 TO 18+00.00 (LT)

PROJECT REFERENCE NO.		SHEET NO.	
U-55340		2A-1	
ROADWAY DESIGN ENGINEER			
			
			
2/23/2012			
<p align="center">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			
Prepared in the Office of:		NC FIRM LICENSE NO F-0342 5438 Wagle Park Blvd, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259(FAX)	
			



CONC. SIDEWALK

-CPI-

-L- +00.00
-17.03' LT
-CR1- EL 32.85

-L- +11.19
-17.09' LT
-CR1- EL 33.04

$$\begin{array}{r} -L- +26.18 \\ \hline -17.64' \text{ LT} \\ -CR1- \text{ EL } 33.05 \end{array}$$

-L- +40.15
-22.86' LT
-CR1- EL 33.06'

-Y- +30.96 -CR1- EL 33.08
 -75.91' LT
 -CR1- EL 33.07'

$-Y- + 43.52$

 $-67.88' \text{ LT}$
 $-CR1- \text{ EL } 33.08$

$$\begin{array}{r} -Y- + 67.30 \\ \hline -66.63' \text{ LT} \\ -CR1- \text{ EL } 33.40 \end{array}$$

-Y- +58.42
-65.00' LT
-CR1- EL 33.22

CROWN LINE (APPROX.)

CONTRACTOR TO
ADJUST CURB APRON
TO ACHIEVE POSITIVE
DRAINAGE

-L- +30.30
 26.68' RT
 -CR4- EL 32.23
 BEGIN C&G

-L- +45.28
26.98' RT
-CR4- EL 32.23'

-L- +57.15
 28.80' RT
 -CR4- EL 32.12'
 END C&G

Y- COLLEGE RD.

N 6° 55' 04.2" E

 $13+00$

-7-

005

005

-Y- +46.57
62.59' RT
-CR3- EL 31.31

$$\begin{array}{r} -Y- + 40.37 \\ \hline 58.74' \text{ RT} \\ -CR3- \text{ EL } 31.46' \end{array}$$

$-Y- + 32.91$

 59.27' RT
 $-CR3- EL 31.60'$

-Y- + 70.16
47.31' RT
-CR2- EL 34.05

-Y- +55.16
47.31' RT
-CR2- EL 33.67

-Y- +40.31
48.75' RT
-CR2- EL 33.37

-Y- +28.02
56.98' RT
-CR2- EL 33.0

-L- +99.66
-28.82' LT
-CR2- EL 32.26'

-L- +13.55
-23.30' LT
-CR2- EL 31.43'

-L- +30.09
-22.00' LT
-CR2- EL 30.50

-CR3-

$-L- + 37.11$

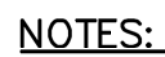
 22.00' RT
 -CR3- EL 30.35'

-L- + 32.06
 22.23' RT
 -CR3- EL 30.45

-L- +17.49
25.62' RT
-CR3- EL 30.74'

★ PROPOSED SIGNAL REVISION
 ■ PROPOSED WEDGING AREA

8/17/99



- DETAIL:

VALVE DETAIL

SCALE: NOT TO SCALE

CFPUA DETAIL DATE:
01/01/2021





CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6560

DETAIL NO:

WS-5

SHEET NO:

1

PROJECT REFERENCE NO.	SHEET NO.
U-55340	2C-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
 <p> NORTH CAROLINA PROFESSIONAL SEAL 18470 Glenn E. Sams, Jr. CIVIL ENGINEER SAMS CIVIL ENGINEERS, INC. </p>	
2/23/2022	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	NC FIRM LICENSE No#F-0342 5438 Wagon Road, Suite 200 Cary, NC 27513 (919) 854-6200 - (919) 854-6259(FAX)
	

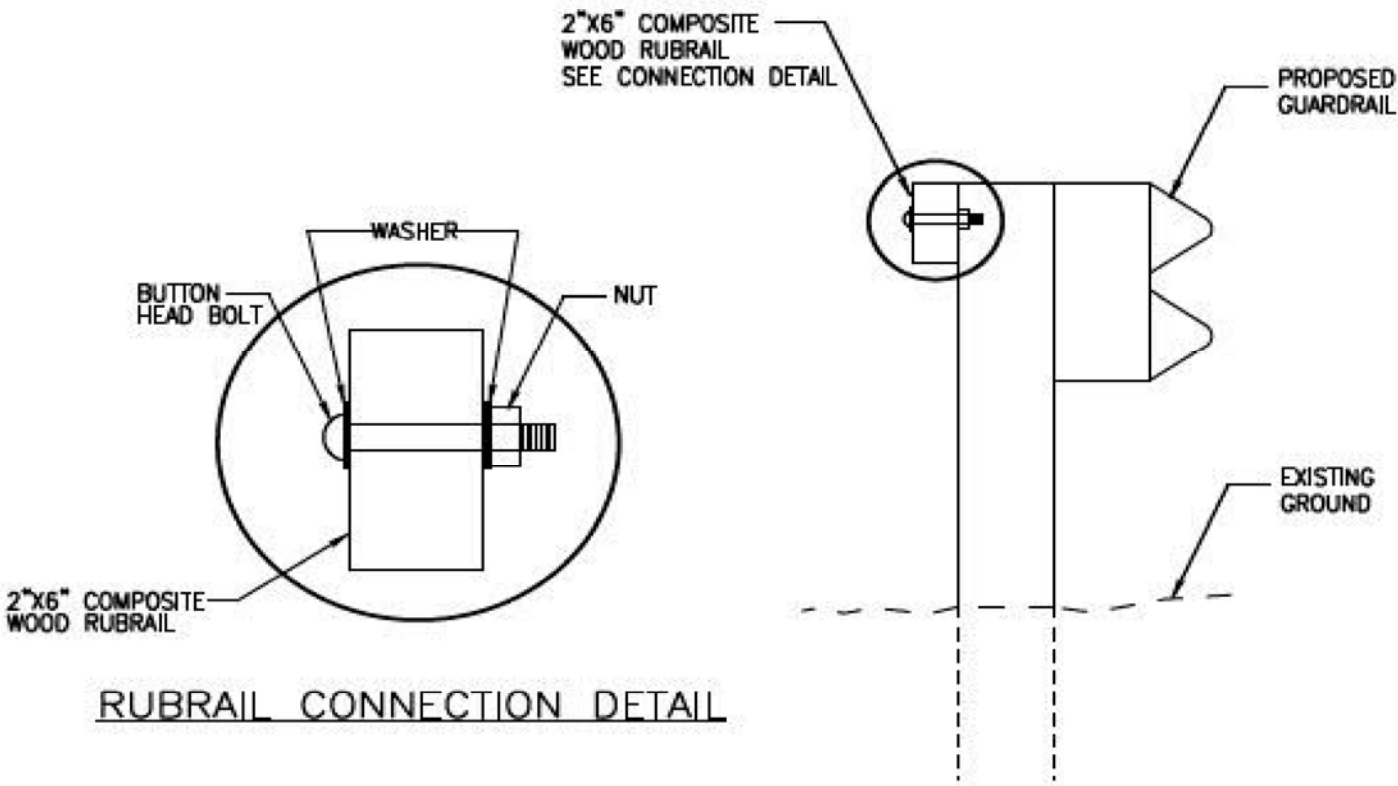
COMPUTED BY: MF
CHECKED BY: PM

PROJECT REFERENCE NO.	SHEET NO.
U-5534Q	3A-1

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

[illegible]

NOTES:

1. RUBRAIL CONNECTION TO EXISTING GUARDRAIL MUST CONFORM TO NCDOT STANDARDS. REFER TO NCDOT STD DWG 862.02 FOR ADDITIONAL INFORMATION.
2. REFER TO PLANS FOR RUBRAIL LOCATIONS.

1 COMPOSITE WOOD RUBRAIL DETAIL
NOT TO SCALE

SUMMARY OF GUARDRAIL

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
NG = NON-GATING IMPACT ATTENUATOR TYPE 350
G = GATING IMPACT ATTENUATOR TYPE 350

[illegible]

(ADDITIONAL POSTS = 5 EACH)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

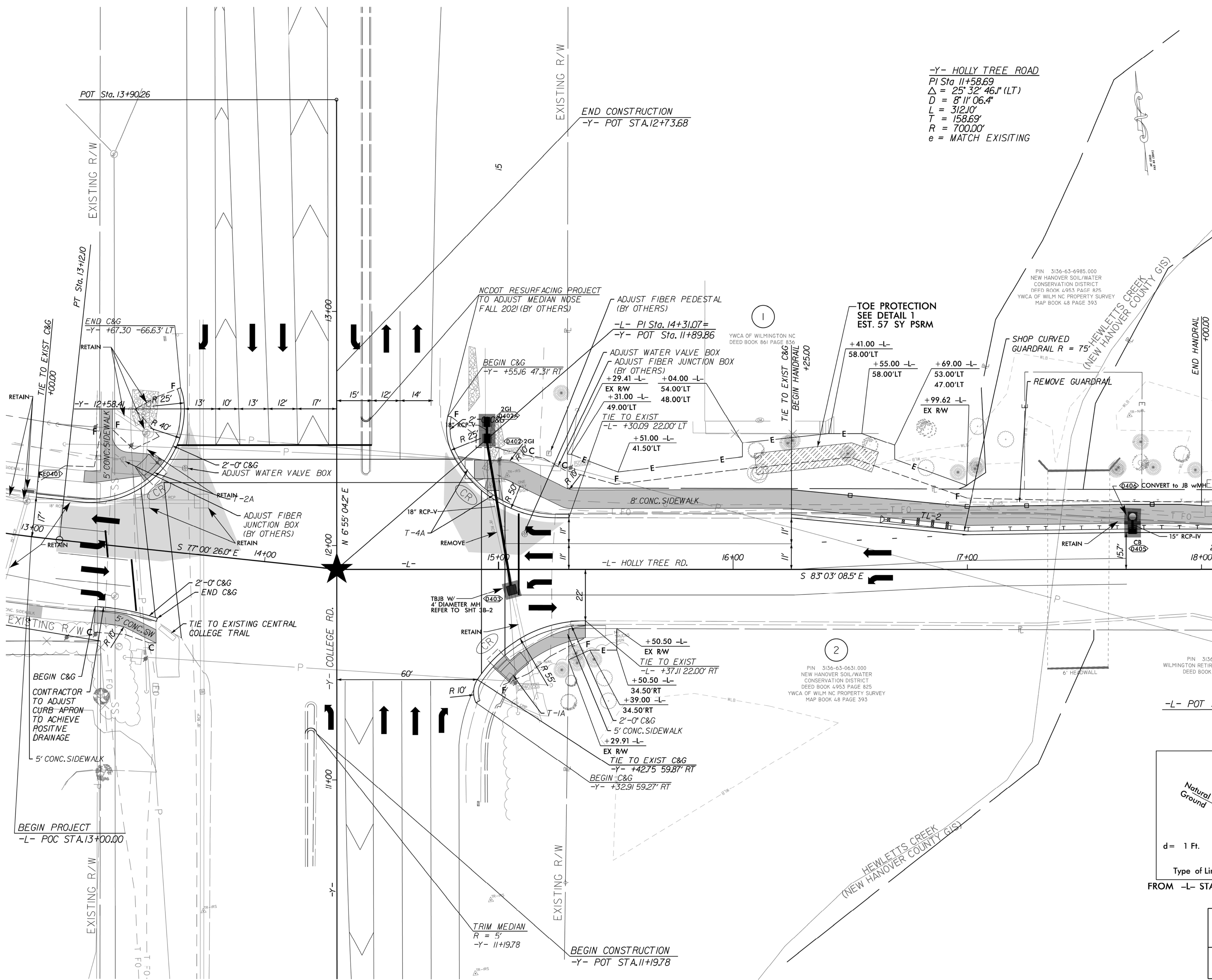
Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

[illegible]


Prepared in the
Office of: **AECOM**

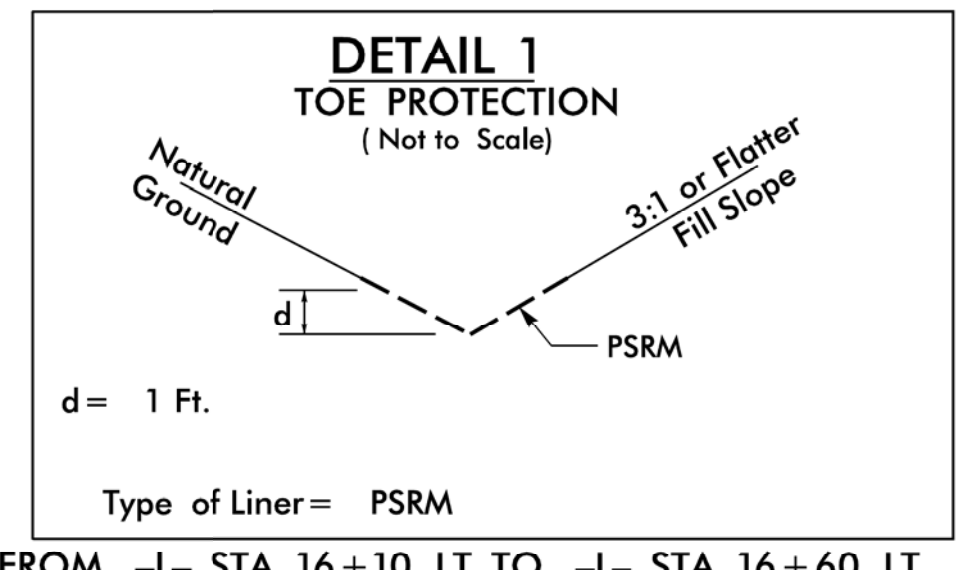
NC FIRM LICENSE No. F-0342
5438 Wode Park Blvd, Suite 200
Raleigh, NC 27607
(919) 854-6200 • (919) 854-6259(FAX)

8/17/199
2/8/2022
243\\com-ne-pw-bentley.com\AECOM_DS21_NA_2020\Documents\50658506-U-55340_Holly Tree Sidewalk\900-CAD GIS\910-CAD\70-NCDOT_TIP\Roadway\Design\U55340_rdy_psh04.dgn
243\\com-ne-pw-bentley.com\AECOM_DS21_NA_2020\Documents\50658506-U-55340_Holly Tree Sidewalk\900-CAD GIS\910-CAD\70-NCDOT_TIP\Roadway\Design\U55340_rdy_psh04.dgn



-Y- HOLLY TREE ROAD
PI Sta 11+58.69
 $\Delta = 25^\circ 32' 46.1''$ (LT)
 $D = 8^\circ 11' 06.4''$
 $L = 312.10'$
 $T = 158.69'$
 $R = 700.00'$
 $e = \text{MATCH EXISTING}$

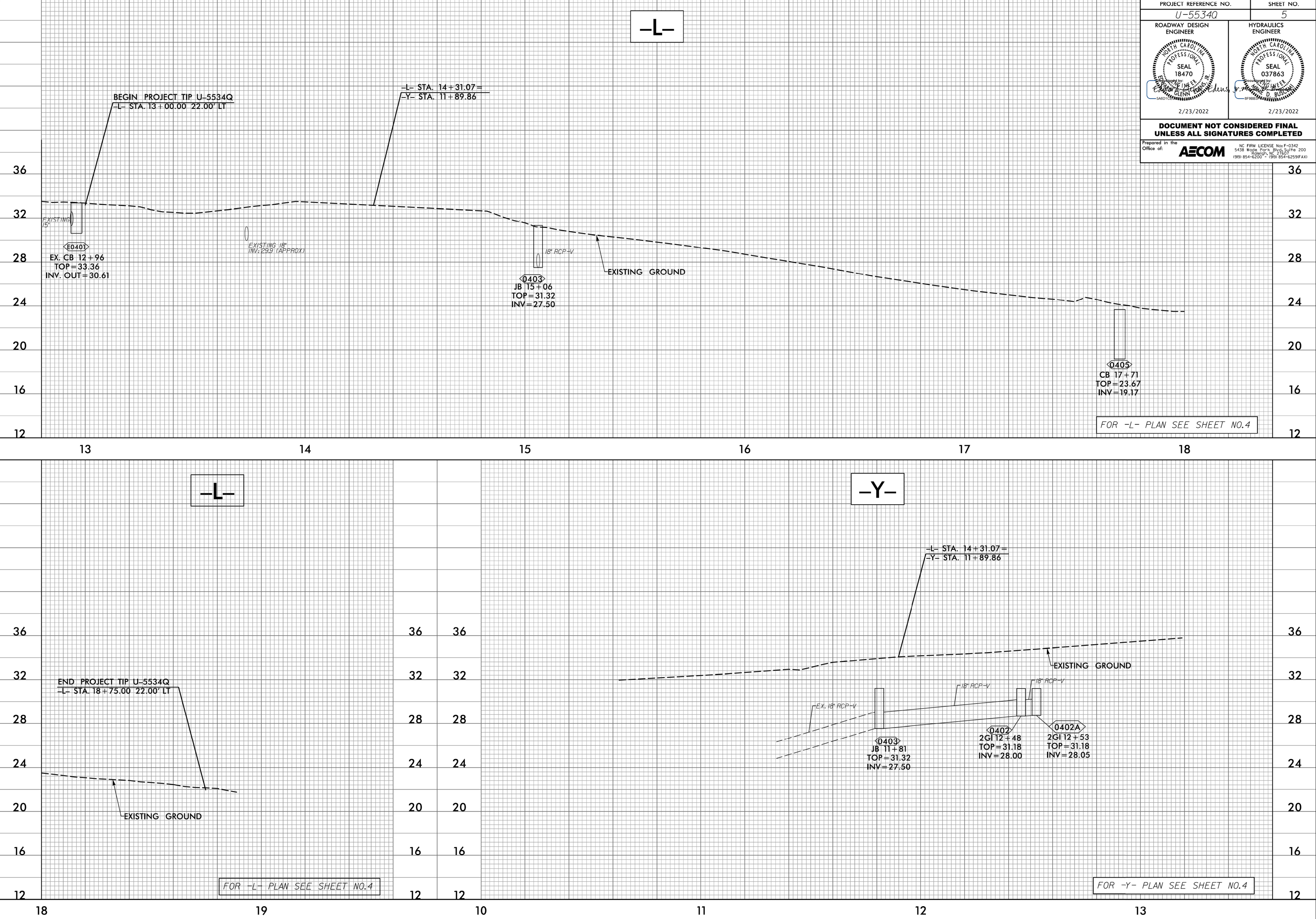
PROJECT REFERENCE NO. U-55340		SHEET NO. 4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 	
2/23/2022		2/23/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Prepared in the Office of: AECOM <small>NC FIRM LICENSE No. F-0342 5438 Ridge Pointe, Suite 200 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (fax)</small>		



FROM -L- STA. 16+10 LT TO -L- STA. 16+60 LT

★ PROPOSED SIGNAL REVISION
■ PROPOSED WEDGING AREA
FOR -L- PROFILE SEE SHEET NO.5
FOR -Y- PROFILE SEE SHEET NO.5

5/28/99
2/8/2022
C:\Users\paw.bentley\Documents\AECOM_DS21_NA_2020\Documents\60658506-U-5534Q_Holly Tree Sidewalk\900-CAD GIS\910-CAD\70-NC001_TIP\Roadway\Design\U5534Q_rdy.pfl05.dgn
paw.bentley

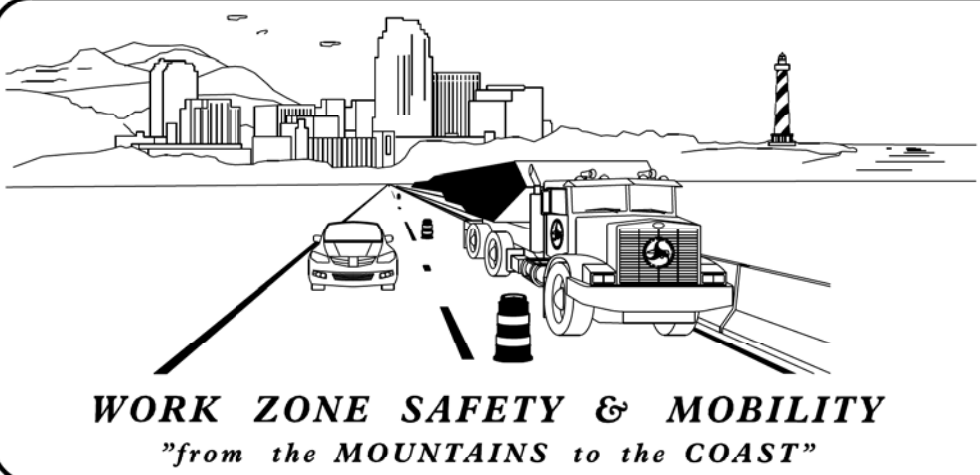
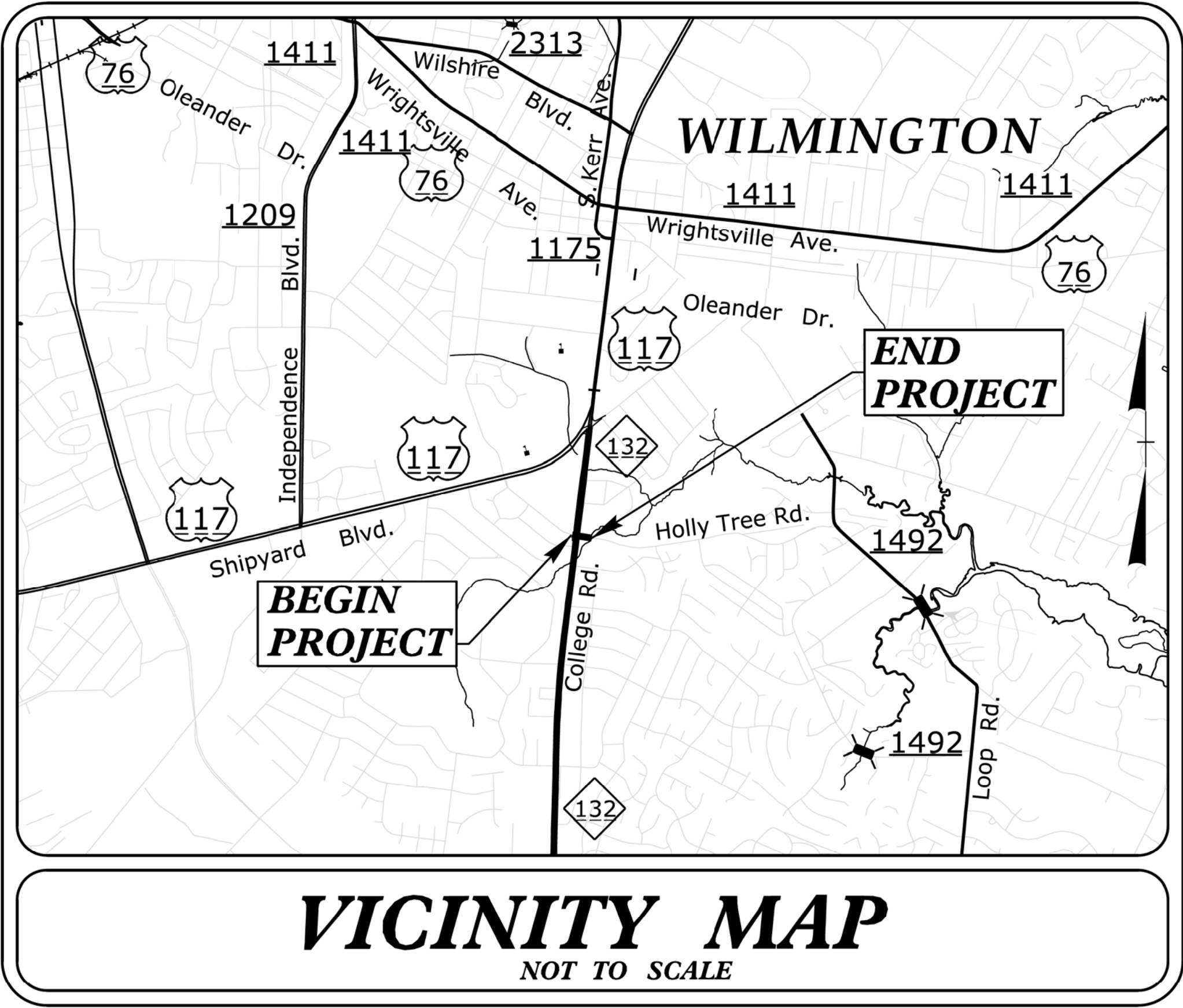


2/23/2022
pw:\aecom-nq-pw-bentley.com\AECOM_DS2\NA_2020\Documents\60658506-U-55340 Holly Tree Sidewalk\900-CAD GIS\910_CAD\70_NCD0T_TIP\Work Zone Traffic Control\U-55340_TC_TMP_tsh.dgn
pattick.mcpheerson

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

NEW HANOVER COUNTY



PLANS PREPARED BY:

KEVIN VAN METRE, PE
TRAFFIC CONTROL PROJECT ENGINEER

PATRICK MCPHERSON, EI
TRAFFIC CONTROL DESIGN ENGINEER

CITY OF WILMINGTON CONTACTS:

JASON PACE, PE
PROJECT ENGINEER



AECOM

NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd, Suite 200
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

APPROVED: _____
DATE: _____



SHEET NO.
TMP-1

U-5534Q

TIP PROJECT:

2/23/2022
pw:\gcom-nq-pw-bentley.com\AECOM_DS2\LA_2020\Document\60658506-U-55340 Holly Tree Sidewalk\900-CAD GIS\910_CAD\70_NCD0T_TIP\Work Zone Traffic Control\U-55340_TC_TMP_notes.dgn
potriek.mcpherson







ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

LEGEND

GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  TEMP. SHORING (LOCATION PURPOSES ONLY)

 WORK AREA

 REMOVAL







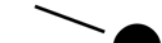




SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS
- 
- 

APPROVED: _____

DATE: _____





ROADWAY STANDARD
DRAWINGS & LEGEND

2/23/2022
pw:\gcom-nq-pw-bentley\com\AECOM_DS2\LA_2020\Documents\60658506-U-55340 Holly Tree Sidewalk\900-CAD GIS\910_CAD\70_NCDOT_TIP\Work Zone Traffic Control\U-55340_TC_TMP_notes.dgn
potriek.mcpherson

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

HOLLY TREE RD
COLLEGE RD

HOLIDAY

1.

FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2.

FOR NEW YEAR’S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st TO 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 TO 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 TO 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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- B)

REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- C)

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D)

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E)

DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F)

BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- G)

DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 150' IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- H)

NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- I)

INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J)

ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- K)

INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 150' IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

- L)

WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- M)

PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- N)

ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.
- O)

CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).
- P)

USE TRUCK MOUNTED IMPACT ATTENUATOR AS NEEDED FOR DRAINAGE INSTALLATION AS DIRECTED BY THE ENGINEER.

LOCAL NOTES

- P)

CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS AT ALL TIMES.
- Q)

CONES OR SKINNY DRUMS MAY BE USED IN LIEU OF DRUMS.
- R)

CONTRACTOR SHALL NOT EXCEED MORE THAN 2,000’ OF LANE CLOSURE AT ONE TIME UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- T)

ONE LANE-TWO WAY OPERATIONS RESTRICTED TO DAYLIGHT HOURS.

PHASING

RSD = NCDOT ROADWAY STANDARD DRAWINGS

PHASE I

- STEP 1)

PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, INSTALL WORK ZONE ADVANCE WARNING SIGNS USING RSD 1101.01, SHEET 3 OF 3 AND RSD 1101.02, SHEET 1 OF 14 AS NEEDED.
- STEP 2)

USING RSD 1101.02, SHEETS 3 AND 7 OF 14, INSTALL PROPOSED 18" RCP ACROSS HOLLY TREE RD. AS SHOWN IN THE ROADWAY PLANS. USE STEEL PLATES AS NEEDED TO MAINTAIN TRAFFIC DURING TIME RESTRICTIONS OF LANE CLOSURES.
- STEP 3)

USING RSD 1101.02 SHEET 3 OF 14, CONSTRUCT THE PROPOSED CURB AND GUTTER ON THE WESTBOUND SIDE OF HOLLY TREE RD. FROM STA. 16+25 TP STA 18+35 AS SHOWN. LEAVE EXISTING GUARDRAIL IN PLACE BEFORE NEW GUARDRAIL CONSTRUCTED. CONSTRUCT THE PROPOSED CURB RAMP AND THE SIDEWALK IN SAME QUADRANT FROM THE INTERSECTION RETURN TO THE LIMITS SHOWN IN THE ROADWAY PLANS ALONG THE WESTBOUND SIDE OF HOLLY TREE ROAD.
- STEP 4)

USING RSD 1102.02 SHEET 3 OF 14 CONSTRUCT THE PROPOSED CURB RAMPS AND CURB AND GUTTER IN THE SOUTHEAST, SOUTHWEST, AND NORTHWEST QUADRANTS AS SHOWN IN THE ROADWAY PLANS.

CLOSE THE ADJACENT LANES IN EACH DIRECTION AS NEEDED AND CLOSE THE APPROACHING THRU LANE ON THE OTHER SIDE OF THE INTERSECTION AS NEEDED AND AS DIRECTED BY THE ENGINEER. ONLY CONSTRUCT ONE QUADRANT AT A TIME WHEN CLOSING MULTIPLE LANES OF TRAFFIC FOR A SINGLE QUADRANT.

- STEP 5)

WORKING IN A CONTINUOUS MANNER IN EACH QUADRANT, MILL AND WEDGE THE PROPOSED NORTHEAST AND NORTHWEST QUADRANTS AS SHOWN IN THE ROADWAY DETAILS. CLOSE THE NECESSARY ADJACENT LANES AS NEEDED AND CLOSE THE APPROACHING THRU LANES ON THE OTHER SIDE OF THE INTERSECTION AS NEEDED. THIS INCLUDES PLACING THE FINAL LAYER OF SURFACE COURSE.

PHASE II

- STEP 1)

USING RSD 1101.02, SHEET 2 OF 14, REMOVE EXISTING PAVEMENT MARKINGS AS NEEDED, PLACE FINAL PAVEMENT MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. COMPLETE PLACEMENT OF FINAL MARKINGS.
- STEP 2)

REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN PROJECT TO FINAL PATTERN.

APPROVED: _____

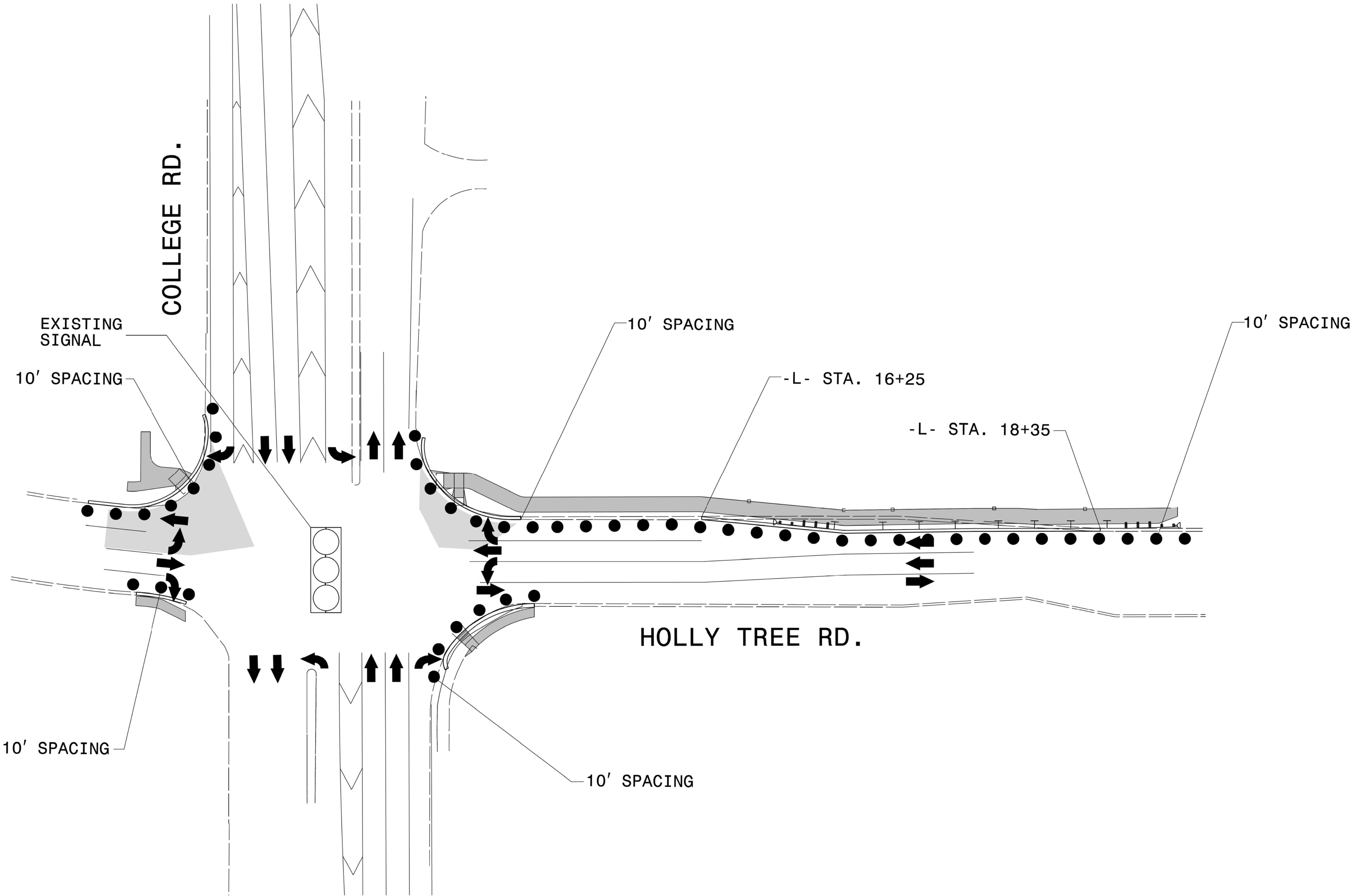
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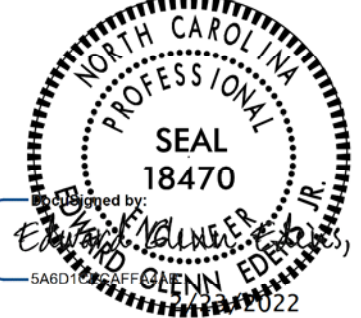



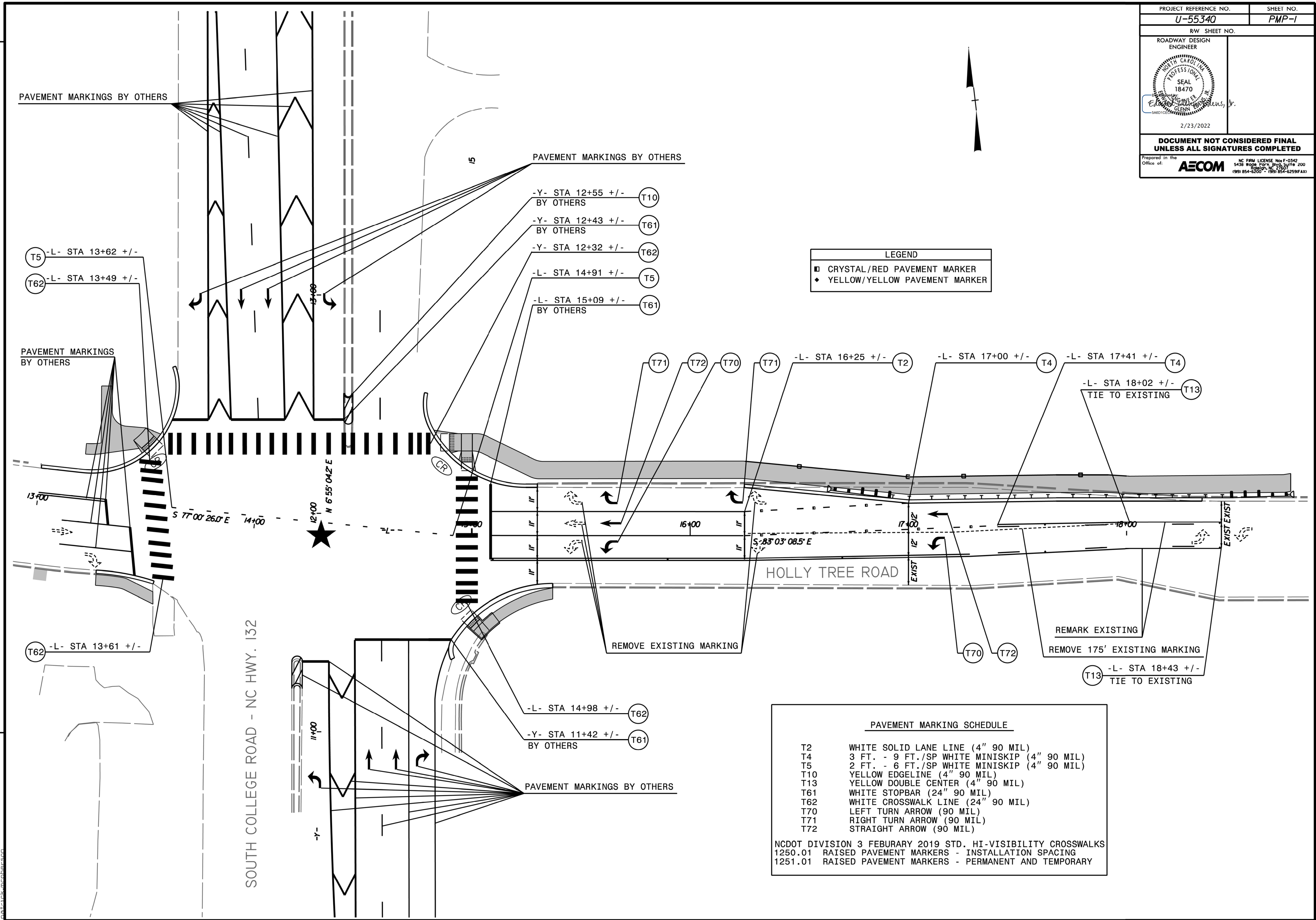
TRANSPORTATION
OPERATIONS
PLAN


PROJ. REFERENCE NO.	SHEET NO.
U-5534Q	TMP-02



2/23/2022
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pattick.mcpherson

APPROVED: _____ DATE: _____ 		PHASE I DETAIL
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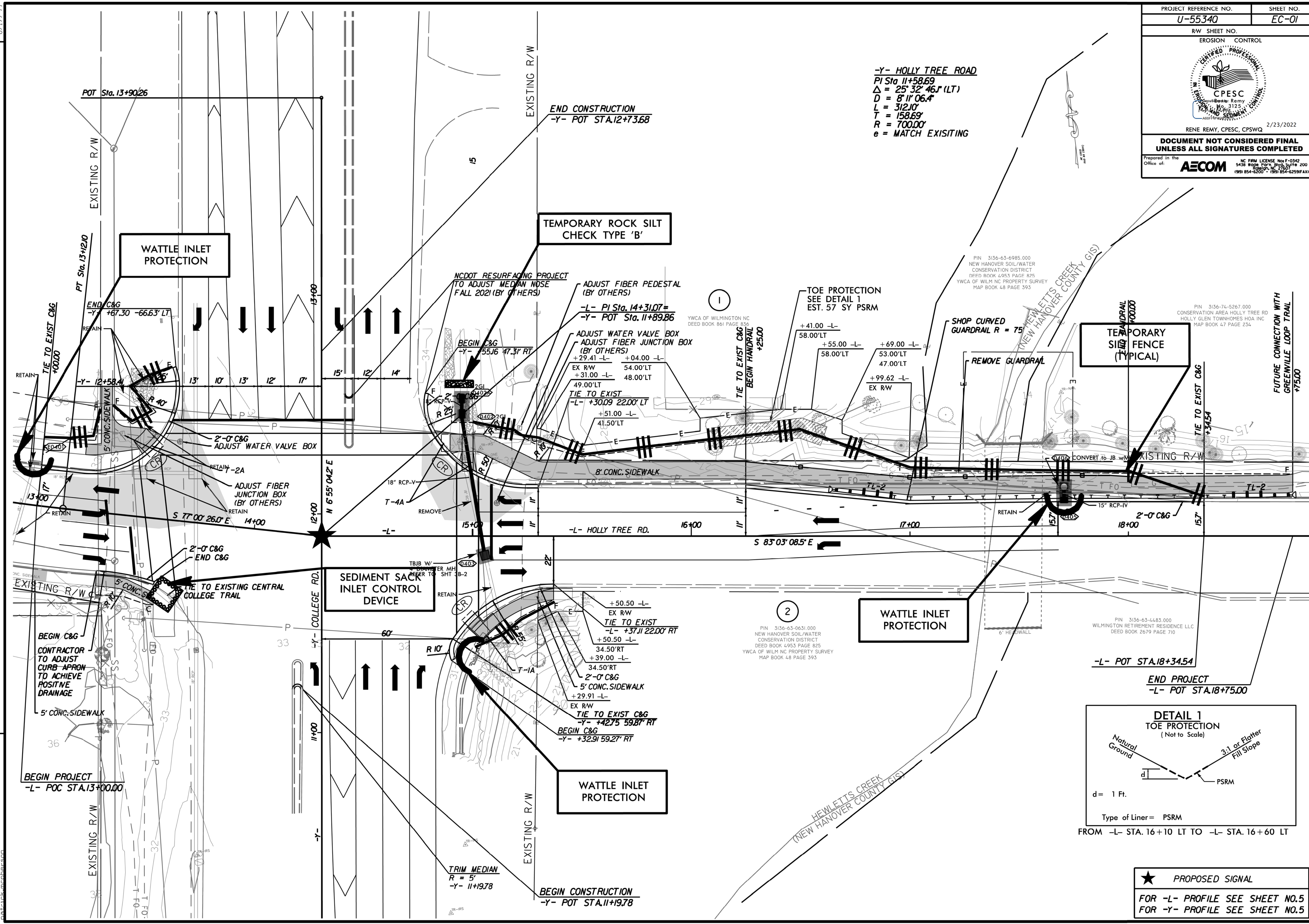



PROJECT REFERENCE NO.		SHEET NO.	
U-55340		PMP-2	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER			
			
2/23/2022			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		NC FIRM LICENSE No# F-0342 5438 Rouse Park Blvd., Suite 200 Fayetteville, NC 28404 (919) 854-6200 • (919) 854-6259(F AX)	

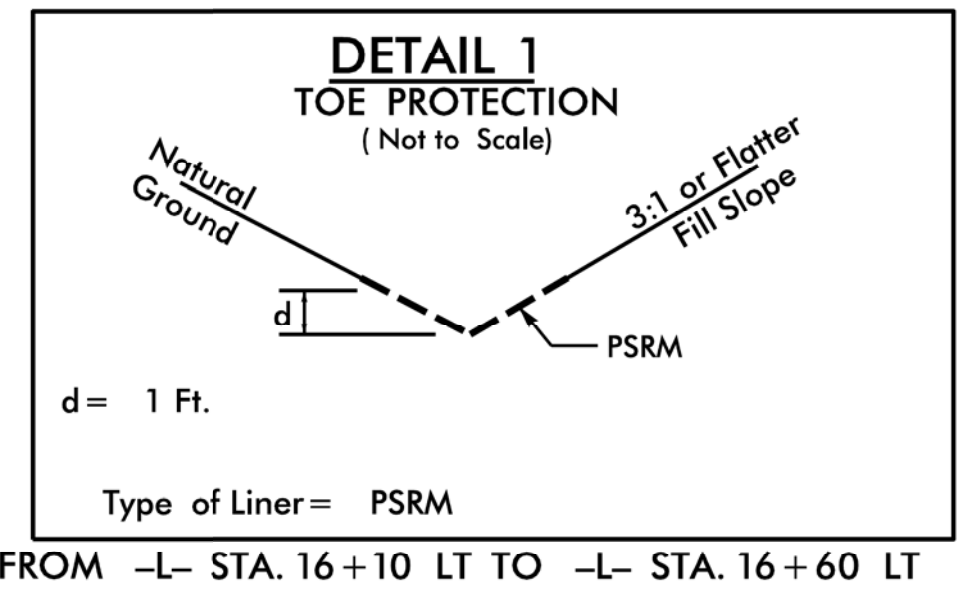
<div style="text-align: right;">STATE OF NORTH CAROLINA</div> <div style="text-align: center;">DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS</div>		<div style="float: left; width: 45%;">CROSSWALK INTERSECTION DETAIL<p>Crosswalk Intersection Detail</p></div> <div style="float: right; width: 45%;">CROSSWALK MARKING DETAIL<p>Crosswalk Marking Detail</p></div> <div style="clear: both;"></div> <div>MID-BLOCK CROSSWALK DETAIL</div>	ENGLISH TYPICAL DRAWING FOR PAVEMENT MARKINGS HI-VISIBILITY CROSSESS NO-TRACK MARKING GUIDANCE
GENERAL NOTES: 1- THE GUIDANCE IN THIS DETAIL IS TO BE USED WHEN NO-TRACK SPACING OF HI-VISIBILITY MARKINGS IS REQUESTED. 2- USE THE GUIDANCE SHOWN ON THE ABOVE DETAILS IN CONJUNCTION WITH PAVEMENT MARKING GUIDANCE SHOWN ON ROADWAY STANDARD DRAWINGS 1205.01 AND 1205.07. 3- PLACE MARKINGS TO AVOID WHEELPATHS OF VEHICLES. MARKINGS TYPICALLY WILL BE LOCATED CENTERED AT THE LANE LINES AND EDGE LINES WITH ONE ADDITIONAL MARKING CENTERED IN THE MIDDLE OF THE LANE. AT WIDE LANE WIDTHS DUE TO TAPERS AND LARGE RADII, LOCATE MARKINGS AT BEST SPACING TO AVOID WHEEL TRACKING. THE SPACE BETWEEN MARKINGS SHALL NOT BE LESS THAN 24 INCHES OR GREATER THAN 60 INCHES.			
4- WHERE THE CROSSESS IS SKEVED TO THE LANE LINES, THE MARKINGS SHOULD BE PARALLEL TO THE LANE LINES. 5- PLACE MARKINGS ON BOTH EDGES OF THE NOSE OF A MEDIAN. FOR NARROW MEDIANS LESS THAN 4 FEET, A SINGLE MARKING MAY BE USED. FOR WIDE MEDIANS, INSTALL ADDITIONAL MARKINGS IN THE MEDIAN AREA. THE SPACE BETWEEN THE MARKINGS SHALL NOT BE LESS THAN 24 INCHES OR GREATER THAN 60 INCHES. 6- LOCATE MARKINGS CENTERED ON BICYCLE LANE LINES. MARKINGS SHALL NOT BE LOCATED IN THE CENTER OF THE BICYCLE PATH. 7- INCLUDE 8" TRANSVERSE LINES WITH 24" LONGITUDINAL MARKINGS AT MID-BLOCK CROSSESS.			
SHEET 1 OF 1			SHEET 1 OF 1

8/17/19
2/8/2022
243\\com-ne-pw-bentley.com\AECOM\DS21_NA_2020\Documents\50658506-U-55340_Holly Tree Sidewalk\900-CAD GIS\910-CAD\70-NCDOT_TIP\Erosion Control\U55340_EC_psh04.dgn

REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
U-55340	EC-01
RW SHEET NO.	
EROSION CONTROL	
	
RENE REMY, CPESC, CPSWQ 2/23/2022	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
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★ **PROPOSED SIGNAL**

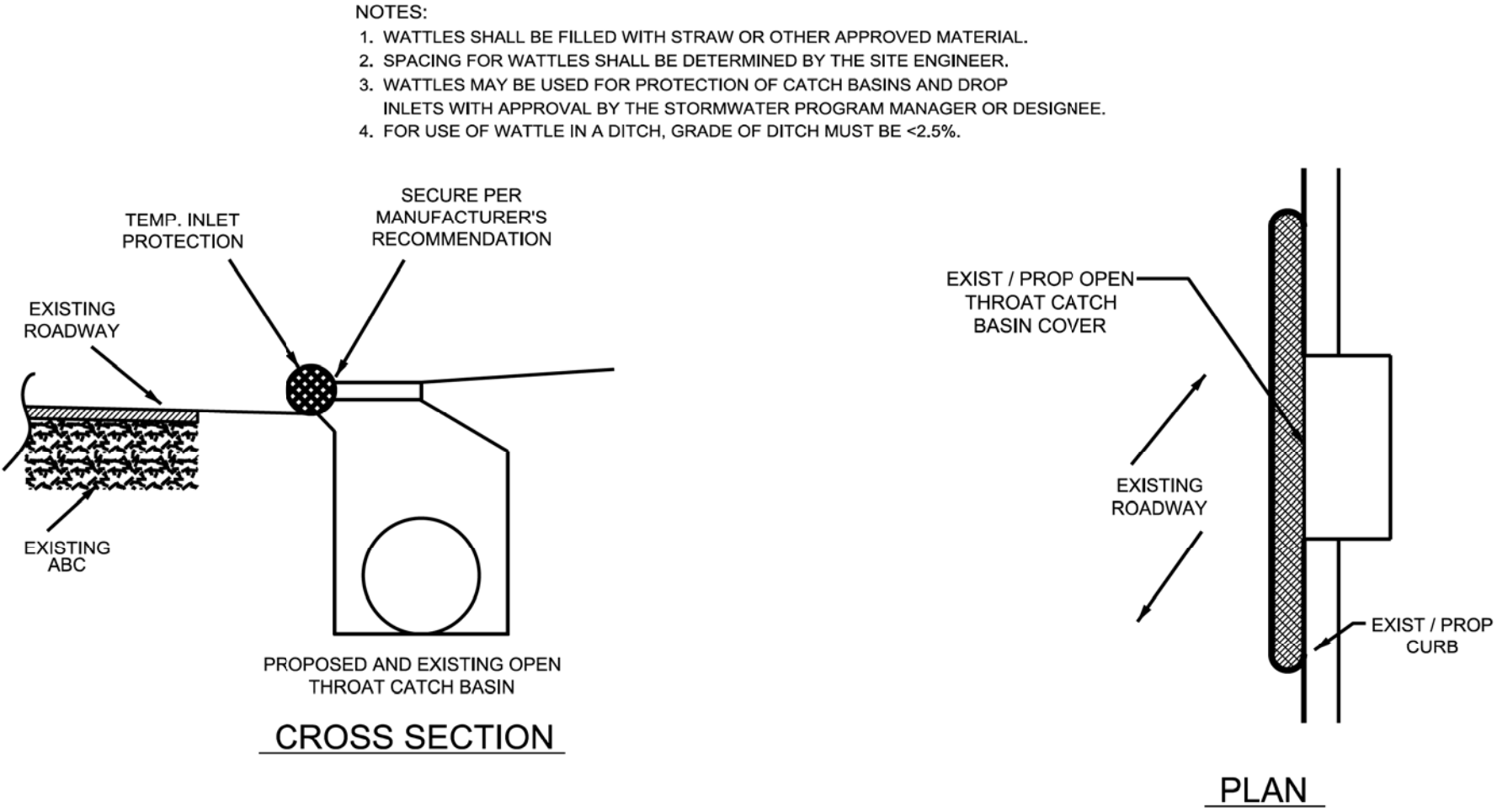
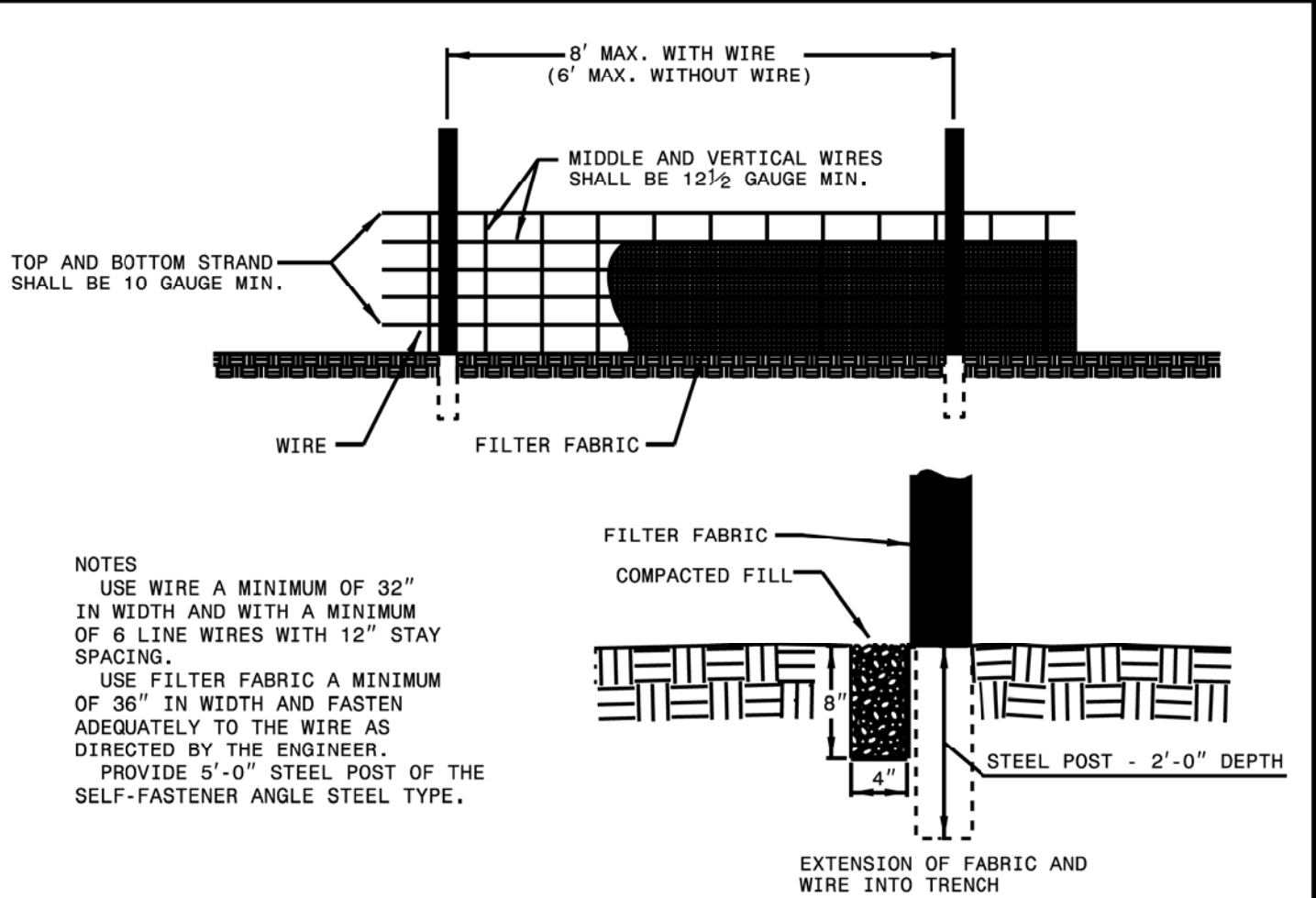
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FOR -Y- PROFILE SEE SHEET NO.5

8/17/99

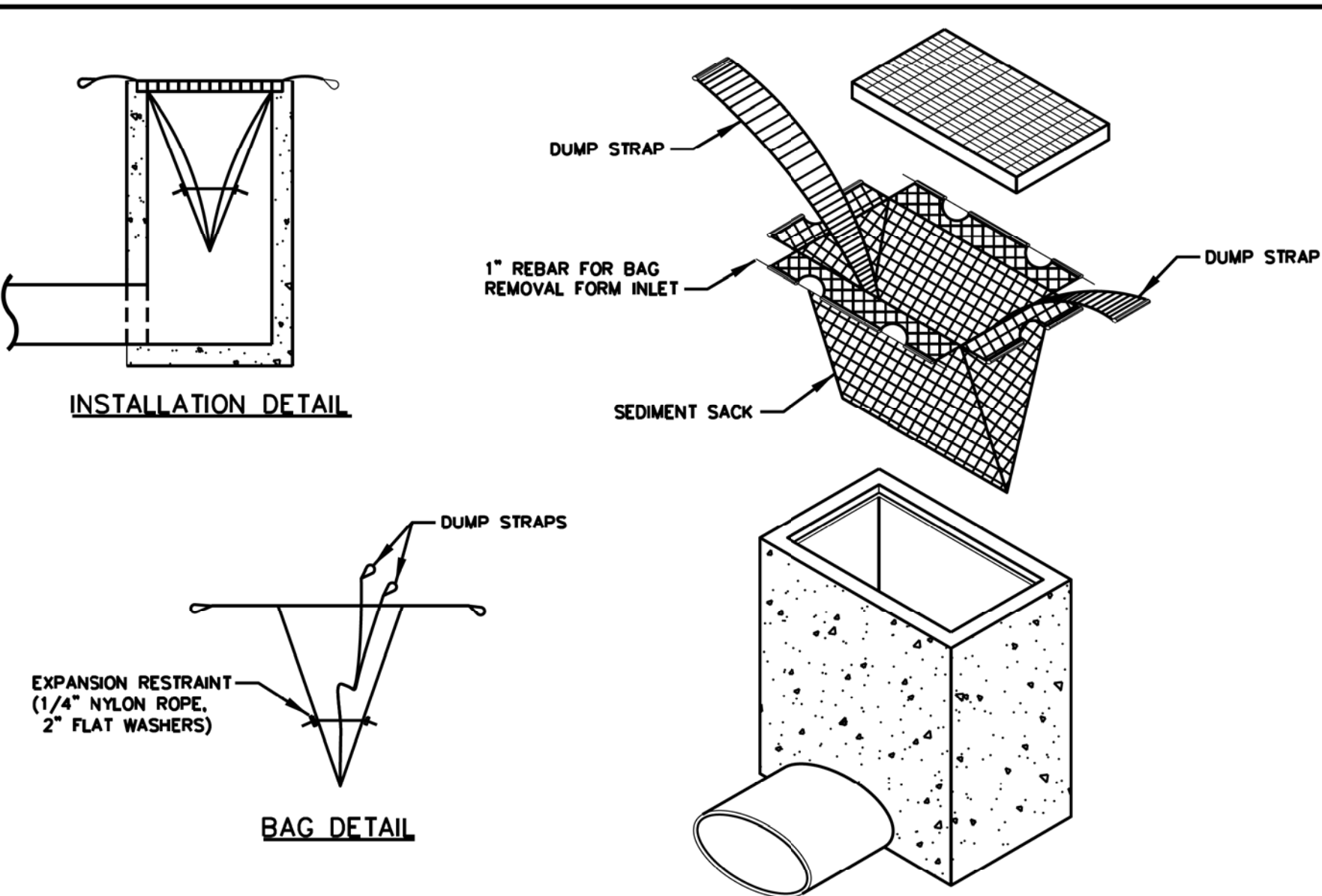
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REVISIONS

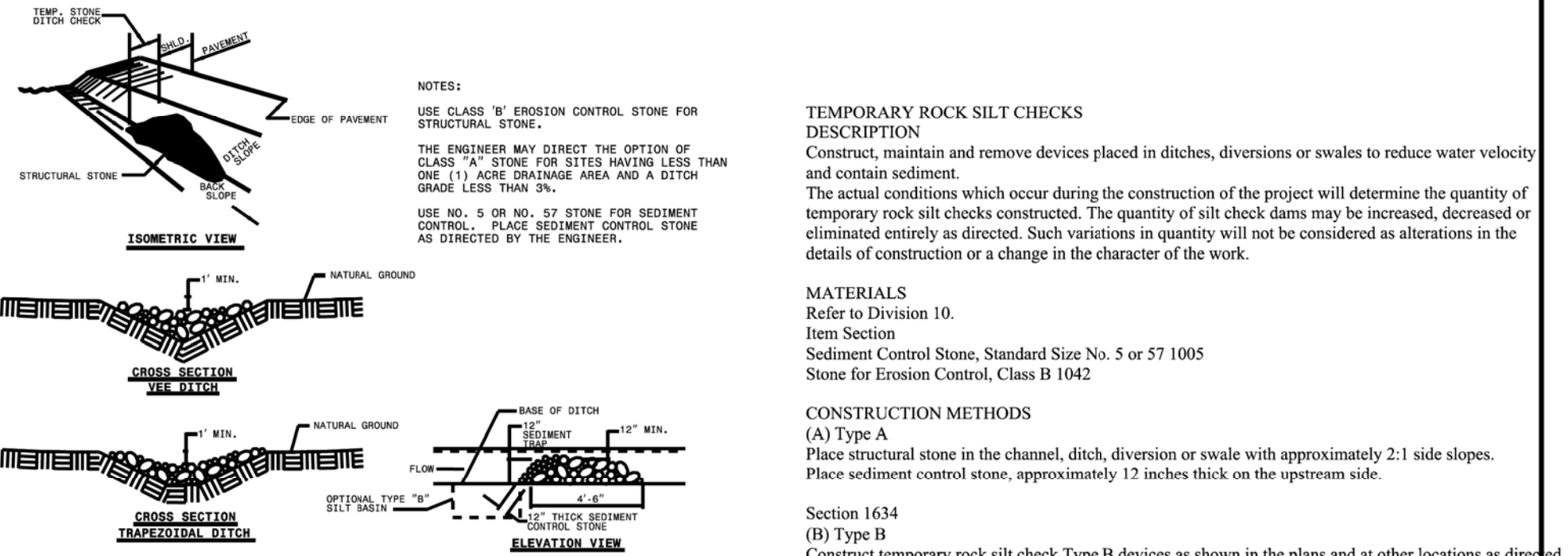
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U-55340	EC-02
RW SHEET NO.	
EROSION CONTROL	
	
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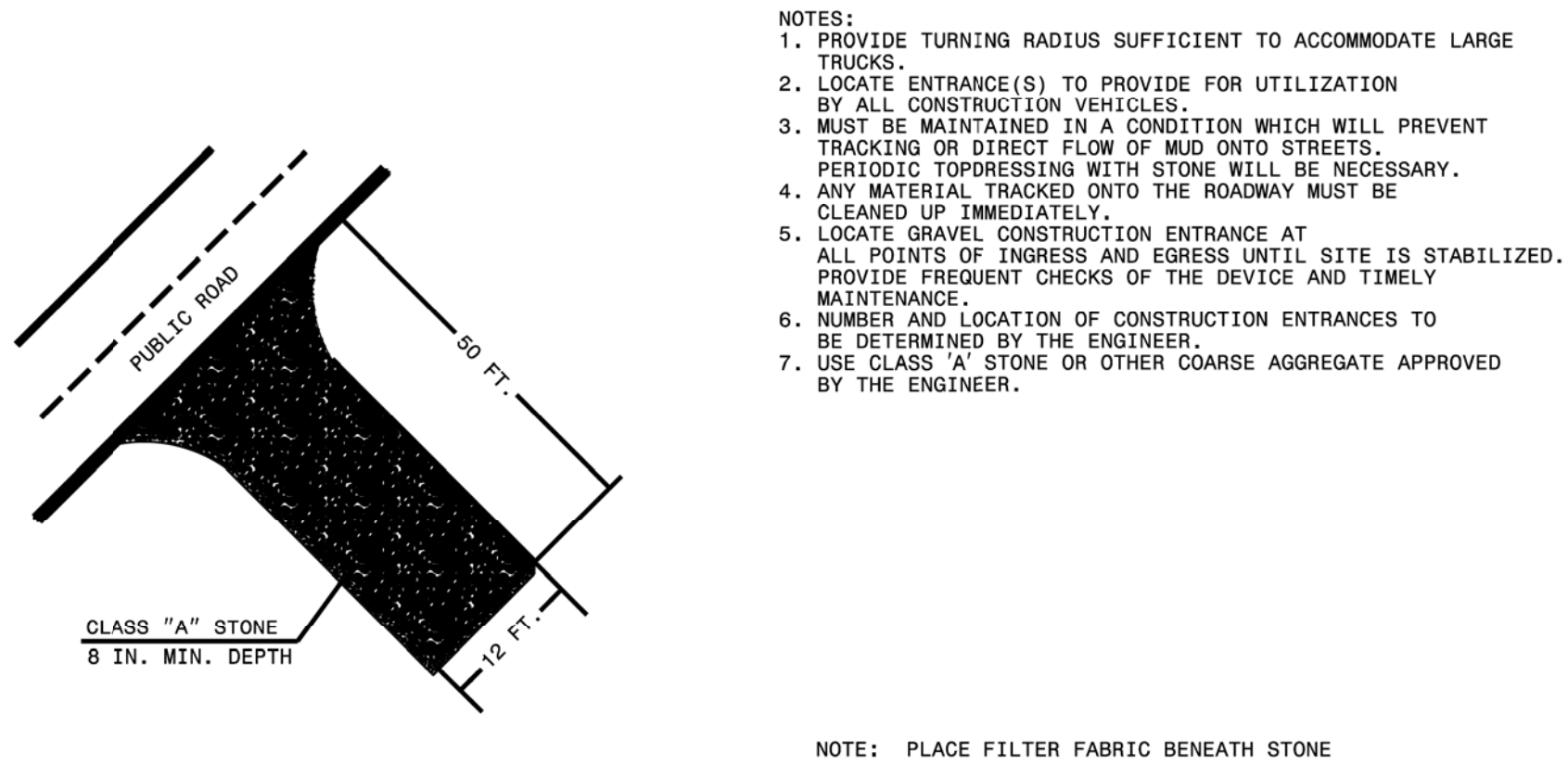
WATTLE INLET PROTECTION
(NOT TO SCALE)



SEDIMENT SACK INLET CONTROL DEVICE
(NOT TO SCALE)



TEMPORARY ROCK SILT CHECK TYPE 'B'
NCDOT STD. 1633.02
(NOT TO SCALE)



GRAVEL CONSTRUCTION ENTRANCE
NCDOT STD. 1607.01
(NOT TO SCALE)