EC051821 1 FEDERAL



CITY OF ELIZABETH CITY

PUBLIC UTILITIES

CONTRACT PROPOSAL

CONTRACT ID: EC051821

WBS ELEMENT NO.: 48754.3.1

FEDERAL AID NO.: STBG-0111(026)

TIP NUMBER: B-6053

COUNTY: PASQUOTANK

DESCRIPTION: REPLACE BRIDGE #34 ON PROVIDENCE ROAD OVER KNOBBS

CREEK TRIBUTARY

DATE OF ADVERTISEMENT: APRIL 16, 2021

MANDATORY PRE-BID MEETING: APRIL 27, 2021

BID OPENING: 2:00 PM MAY 18, 2021

*** NOTICE ***

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. FOR CONTRACTS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD, BIDDERS ARE REQUIRESD TO BECOME LICENSED BY THE NC LICENSING BOARD. NON-LICENSED BIDDERS ARE PERMITED 60 DAYS AFTER BID OPENING TO OBTAIN PROPER LICENSING FOR THE TYPE OF PROJECT BEING LET. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA.

NAME OF BIDDER

ADDRESS OF BIDDER

RETURN BIDS TO: City of Elizabeth City, Council Chambers (2nd Floor)

Attention: Brian D. Peeler

Person's Title: Proposals Engineer

Physical Address: 306 East Colonial Avenue (2nd Floor), Elizabeth City, NC 27907

ALL BIDS MUST BE RECEIVED AT THE DATE AND TIME LISTED ABOVE.

INSTRUCTIONS TO BIDDERS

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

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

- 1. The bid form furnished by the **City of Elizabeth City** with the proposal shall be used and shall not be altered in any manner. **DO NOT SEPARATE THE BID FORM FROM THE PROPOSAL!**
- 2. All entries on the bid form, including signatures, shall be written in ink.
- 3. The Bidder shall submit a unit price for every item on the bid form. The unit prices for the various contract items shall be written in figures. ***Unit prices must be limited to TWO decimal places.***
- **4.** An amount bid shall be entered on the bid form for every item. The amount bid for each item shall be determined by multiplying each unit bid by the quantity for that item, and shall be written in figures in the "Amount Bid" column of the form.
- 5. The total amount bid shall be written in figures in the proper place on the bid form. The total amount shall be determined by adding the amounts bid for each item.
- **6.** Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Bidder shall initial the change in ink. Do not use "White Out" or similar product to make corrections.
- **7.** The bid shall be properly executed. All bids shall show the following information:
 - a. Name of individual, firm, corporation, partnership, or joint venture submitting bid.
 - b. Name of individual or representative submitting bid and position or title.
 - c. Name, signature, and position or title of witness.
 - d. Federal Identification Number
 - e. Contractor's License Number (If available)
- **8.** Bids submitted by corporations shall bear the seal of the corporation.
- 9. The bid shall not contain any unauthorized additions, deletions, or conditional bids.
- 10. The bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
- 11. THE PROPOSAL WITH THE BID FORM STILL ATTACHED SHALL BE PLACED IN A SEALED ENVELOPE AND SHALL HAVE BEEN DELIVERED TO AND RECEIVED IN THE City Hall Council Chambers, second floor, located at 306 East Colonial Avenue, Elizabeth City, NC, BY 2:00 PM LOCAL TIME ON, MAY 18, 2021.
- 12. The sealed bid must display the following statement on the front of the sealed envelope:
 - "QUOTATION FOR: EC051821 PROVIDENCE ROAD BRIDGE REPLACEMENT (B-6053)"
- 13. Sealed bids shall not be delivered by mail.

TABLE OF CONTENTS

| COVER SHEET | 1 |
|---|----------|
| INSTRUCTIONS TO BIDDERS | 2 |
| TABLE OF CONTENTS | 3 |
| NCDOT STANDARD NOTES (Federal Aid) | <u>5</u> |
| PROJECT SPECIAL PROVISIONS - GENERAL | <u>7</u> |
| MANDATORY PRE-BID CONFERENCE (Prequalifying To Bid): | 7 |
| BOND REQUIREMENTS: | 8 |
| CONTRACT TIME AND LIQUIDATED DAMAGES: | 8 |
| INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES: | 8 |
| INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES: | 9 |
| PROSECUTION OF WORK | |
| PERMANENT VEGETATION ESTABLISHMENT | 9 |
| CONSTRUCTION MORATORIUM | 10 |
| POSTED WEIGHT LIMITS | 10 |
| NOTE TO CONTRACTOR | 10 |
| SCOPE OF WORK | |
| MAJOR CONTRACT ITEMS | 12 |
| SPECIALTY ITEMS | 12 |
| FUEL PRICE ADJUSTMENT: | |
| DISADVANTAGED BUSINESS ENTERPRISE (LOCAL GOVERNMENT AGENCIES): | 13 |
| CERTIFICATION FOR FEDERAL-AID CONTRACTS: | 26 |
| RESTRICTIONS ON ITS EQUIPMENT AND SERVICES: | 26 |
| USE OF UNMANNED AIRCRAFT SYSTEM (UAS): | 27 |
| EQUIPMENT IDLING GUIDELINES: | |
| U.S. DEPARTMENT OF TRANSPORTATION HOTLINE: | 29 |
| CARGO PREFERENCE ACT: | 29 |
| SUBSURFACE INFORMATION: | 29 |
| MAINTENANCE OF THE PROJECT: | 30 |
| TWELVE MONTH GUARANTEE – LGA PROJECTS: | 30 |
| EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION: | 31 |
| PROCEDURE FOR MONITORING BORROW PIT DISCHARGE: | 36 |
| PROJECT SPECIAL PROVISIONS - ROADWAY | 38 |
| PROJECT SPECIAL PROVISIONS - ROADWAY CLEARING AND GRUBBING - METHOD II | 38 |
| BRIDGE APPROACH FILLS | |
| SHOULDER WEDGE | 40 |
| PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX | 40 |
| FINAL SURFACE TESTING NOT REQUIRED: | |
| ASPHALT CONCRETE SURFACE COURSE COMPACTION | |
| ASPHALT CONCRETE PLANT MIX PAVEMENTS | 42 |
| MODIFIED CONCRETE FLUME WITH CONCRETE OUTLET | 46 |
| GUARDRAIL END UNITS, TYPE - TL-2 | |
| GUARDRAIL ANCHOR UNITS AND TEMPORARY GUARDRAIL ANCHOR UNITS | 47 |
| | |
| STANDARD SPECIAL PROVISIONS | 48 |
| DIVISION LET CONTRACT PREQUALIFICATION: | |
| SAFETY VESTS | |
| CONTRACTOR CLAIM SUBMITTAL FORM | |
| DRIVEWAYS AND PRIVATE PROPERTY | |
| NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY: | |
| ERRATA | |

| PLANT AND PEST QUARANTINES | 53 | |
|---|-----|----|
| TITLE VI AND NONDISCRIMINATION | 54 | |
| MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS | 63 | |
| REQUIRED CONTRACT PROVISION FEDERAL – AID CONSTRUCTION CONTRACTS | 65 | |
| ON-THE-JOB TRAINING: | 73 | |
| MINIMUM WAGES: GENERAL DECISION NC20210091 01/01/2021 NC91 | | |
| PROJECT SPECIAL PROVISIONS - GEOTECHNICAL (Rock Embankments) | | 80 |
| PROJECT SPECIAL PROVISIONS - UTILITY CONSTRUCTION | | 82 |
| PROJECT SPECIAL PROVISIONS - UTILITY by OTHERS (Utility Owners) | | |
| PROJECT SPECIAL PROVISIONS - EROSION CONTROL | | |
| STABILIZATION REQUIREMENTS | | |
| SEEDING AND MULCHING (East Crimp) | | |
| CRIMPING STRAW MULCH | | |
| TEMPORARY SEEDING. | 88 | |
| FERTILIZER TOPDRESSING | 88 | |
| SUPPLEMENTAL SEEDING | | |
| MOWING | | |
| NATIVE GRASS SEEDING AND MULCHING (East) | 89 | |
| RESPONSE FOR EROSION CONTROL | | |
| MINIMIZE REMOVAL OF VEGETATION | | |
| STOCKPILE AREAS | | |
| ACCESS AND HAUL ROADS | 91 | |
| CONSTRUCTION MATERIALS MANAGEMENT | 91 | |
| SAFETY FENCE AND JURISDICTIONAL FLAGGING | 93 | |
| SILT FENCE COIR FIBER WATTLE BREAK | 95 | |
| COIR FIBER MAT | | |
| FLOATING TURBIDITY CURTAIN | 97 | |
| CONCRETE WASHOUT STRUCTURE | 98 | |
| PROJECT SPECIAL PROVISIONS – STRUCTURES | 10 | 00 |
| THERMAL SPRAYED COATINGS (METALLIZATION) | 102 | |
| FALSEWORK AND FORMWORK | | |
| SUBMITTAL OF WORKING DRAWINGS | 110 | |
| CRANE SAFETY | 116 | |
| GROUT FOR STRUCTURES | 117 | |
| ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES | 118 | |
| GALVANIZED STEEL SHEET PILES (SPECIAL) | 121 | |
| GROUT FOR PILE BLOCKOUTS (SPECIAL) | | |
| PRESTRESSED CORED SLAB BRIDGES (SPECIAL) | | |
| PRECAST CONCRETE BARRIER RAIL (SPECIAL) | | |
| PRECAST PIECE EB110 (SPECIAL), PRECAST PIECE EB120 (SPECIAL) | | |
| PRECAST PIECE EB130 (SPECIAL), PRECAST PIECE EB140 (SPECIAL) | 127 | |
| PRECAST PIECE BW150 (SPECIAL) | 127 | |
| BID FORM | 12 | 28 |
| EXECUTION OF BID | 13 | 31 |
| BID BOND | | |
| Execution of Contract | 14 | 46 |
| IDENTIFICATION OF HUB CERTIFIED/MINORITY BUSINESS PARTICIPATION. | 14 | 47 |
| ATTACHMENT "A" – GEOTECHNICAL SUBSURFACE INFORMATION ROADWA | | |
| ATTACHMENT "R" - CEOTECHNICAL SUBSURFACE INFORMATION STRUCTI | | |

NCDOT STANDARD NOTES (Federal Aid)

- A. <u>NCDOT Standard Specifications</u> 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. <u>Bidder Prequalification</u> 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. <u>Disadvantaged Business Enterprise References</u> 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 <u>not</u> apply to this project. Refer to Special Provision SP1 G63.
- D. <u>Award of Contract</u> 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. <u>Contractor Licensing</u> 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. <u>Bonds</u> Please note that all, 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):

 $\frac{https://connect.ncdot.gov/municipalities/Bid\%20Proposals\%20for\%20LGA\%20Content/05\%20Payment\%20Bonds.doc}{20Payment\%20Bonds.doc}$

Performance Bonds (M-7):

 $\frac{https://connect.ncdot.gov/municipalities/Bid\%20Proposals\%20for\%20LGA\%20Content/06\%20Proposals\%20Bonds.doc}{20Performance\%20Bonds.doc}$

G. <u>Liability Insurance</u> – 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. <u>Buy America</u> 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. <u>Proprietary Items</u> 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. <u>Retainage by LGAs</u> The LGA for this contract will not retain any amount or percentage from progress payments or final estimates due the contractor.
 - <u>Retainage by Contractors</u> 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. <u>Traffic Control</u> –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.

PROJECT SPECIAL PROVISIONS - GENERAL

MANDATORY PRE-BID CONFERENCE (Prequalifying To Bid):

In order for all prospective bidders to have an extensive knowledge of the project, all prospective bidders shall attend a mandatory (*virtual*) pre-bid conference at **2:00 PM on Tuesday, April 27, 2021**. Please contact Brian D. Peeler at (919) 653-7351 or *bpeeler@rkk.com* for inquiries.

Please RSVP to Brian D. Peeler by email to *bpeeler@rkk.com* to receive an electronic invitation to the virtual meeting.

Questions concerning the proposed Bid documents shall be sent in writing to Brian D. Peeler, Proposals Engineer, RK&K, LLP by email at *bpeeler@rkk.com*, or by mail to 8601 Six Forks Road, Forum 1 Suite 700, Raleigh, NC 27615. The last date for submitting questions is **2:00 pm EST on May 4, 2021**. All responses to the questions pertaining to this project will be answered by Addendum and posted on the City's News & Announcements website and the NCDOT Division 1 Letting website.

The pre-bid conference will include a thorough discussion of the plans, contract pay items, special provisions, etc.

Only bidders who have attended and properly registered at the above scheduled pre-bid conference and who have met all other prequalification requirements will be considered prequalified to bid on this project. A bid received from a bidder who has not attended and properly registered at the above scheduled pre-bid conference will not be accepted and considered for award.

Attendance at the pre-bid conference will not meet the requirements of proper registration unless the individual attending has registered at the pre-bid conference in accordance with the following:

- (A) The individual types his/her name in the *virtual meeting chat window* at the beginning of the conference.
- (B) The individual types in the name and address of the company he/she represents in the *virtual meeting chat window*.
- (C) Only one company has been shown as being represented by the individual attending.
- (D) The individual attending is an officer or permanent employee of the company they are representing.

Attendance at any prior pre-bid conference will not meet the requirement of this provision.

BOND REQUIREMENTS:

(06-01-16) 102-8, 102-10 SPD 01-420A

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

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

CONTRACT TIME AND LIQUIDATED DAMAGES:

(12-20-16) 108 SPI G07 D

The date of availability for this contract is the date the Contractor begins work but not before **June 21**, **2021** or later than **August 20**, **2021**.

The completion date for this contract is the date that is **One Hundred Eighty (180)** consecutive calendar days after completion of Intermediate Contract Time Number 1.

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

The liquidated damages for this contract are **Two Hundred Dollars (\$ 200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1. 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 SPI 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 not before **June 21, 2021** or later than **August 20, 2021**.

Note that only minor construction work (i.e. fill, riprap for the utility bore temp workpads) and other utility work may begin prior to June 30^{th} , and prior to the 90 calendar day time period begins. Other construction work may begin after the end of the moratorium (June 30^{th}).

The completion date for this intermediate contract time is **Ninety (90)** consecutive calendar days after the date of availability.

The liquidated damages for this intermediate contract time are **Five Hundred Dollars** (\$500.00) per calendar day.

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

INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES: SP1 G14 H

(2-20-07) (Rev. 6-18-13)

The Contractor shall complete the work required of **PHASE II** as shown on Sheet(s) **TMP-2** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is Fourteen [14] consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **Five Thousand Dollars** (\$ 5,000.00) per calendar day.

PROSECUTION OF WORK:

(7-1-95) (Rev. 8-21-12) 108 SP1 G15R

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

In the event that the Contractor's operations are suspended in violation of the above provisions, the sum of \$ 250.00 will be charged the Contractor for each and every calendar day that such suspension takes place. The said amount is hereby agreed upon as liquidated damages due to extra engineering and maintenance costs and due to increased public hazard resulting from a suspension of the work. Liquidated damages chargeable due to suspension of the work will be additional to any liquidated damages that may become chargeable due to failure to complete the work on time.

PERMANENT VEGETATION ESTABLISHMENT:

(2-16-12) (Rev. 10-15-13) 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.

CONSTRUCTION MORATORIUM:

(7-15-14) SP1 G18B

No in-water work will be allowed from **February 15** through **June 30** of any year.

POSTED WEIGHT LIMITS:

(7-1-95) (Rev.9-15-15) 105 SP1 G24R

The Contractor's attention is directed to Article 105-15 of the 2018 Standard Specifications and to the fact that various Primary and Secondary Roads and bridges may be posted with weight limits less than the legal limit. Do not exceed the posted weight limits in transporting materials and/or equipment to the projects. Make a thorough examination of all projects and haul routes and be prepared to discuss them at the Preconstruction Conference.

NOTE TO CONTRACTOR:

The Contractor must cooperate with State forces working within the limits of this project as directed by the Engineer. The Department reserves the right to make, at any time during the progress of the work, such alterations in plans or the details of construction as may be found necessary or desirable by the Engineer to complete the project. The Contractor shall maintain access to driveways for all residents and property owners throughout the life of the project. The Contractor shall be responsible for maintaining the project as directed by Section 104-10 in the 2018 Standard Specifications.

The Contractor shall be responsible for returning any disturbed areas back to its original condition. This work may include, but will not be limited to, grading, seeding and mulching, etc. All materials and labor necessary to perform the above mentioned work will be considered incidental to the various contract items and no direct payment will be made for these activities.

The quantities shown in the itemized proposal for the project are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the quantity of any item or portion of the work as may be deemed necessary or expedient. An increase or decrease in the quantity of any item will not be regarded as sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for the contract.

Apply an approved epoxy protective coating to the tops of all caps and to the exterior faces of all exterior core slab units. Payment for this work shall be incidental to other pay items in contract and no separate payment will be made for this work.

Use a Type 4A flexible and moisture insensitive epoxy coating in accordance with Section 1081 of the Standard Specifications. Provide a Type 3 material certification in accordance with Article 106-3 showing that the proposed epoxy meets Type 4A requirements.

Pavement along the transverse centerline of all caps shall be saw cut to a depth of ¾"±, cleaned, and filled with an approved asphalt sealant in accordance with Section 1028 of the Standard Specifications. Payment for this work shall be incidental to the contract unit price for various contract items.

A single layer of Type 4 or Type 5 Geotextile shall be installed one foot below the approach slab for the full width of the approach fill. Payment for this work shall be incidental to the contract unit price for various contract items.

SCOPE OF WORK:

Location and Description of Bridge

Bridge No. 34 in Pasquotank County was built in 1957 and is located on Providence Road over Knobbs Creek Tributary in Elizabeth City. The existing bridge consists of 2 spans @ 15'-9" with a clear roadway width of 26' and a 2-1/2" asphalt wearing surface on a timber deck on timber beams, with a substructure consisting of timber caps on timber posts at all the bents.

This bridge shall be replaced by a bridge with approach slabs and consisting of 1 span @ 44'-8" prestressed concrete cored slabs on end bent caps on steel piles on a 90° skew and a 27'-10" clear roadway width and roadway approaches as specified and shown on the plans.

Description of Work

This work shall consist of furnishing and installing a prestressed concrete cored slab structure, removal of the existing structure; clearing and grubbing; grading; installation of guardrail; roadway base course and pavement; placement of substructure and superstructure; grading within limits of the project; placement of rip rap and rock plating; temporary erosion control; seeding and mulching; drainage;

temporary work zone devices; and all other incidental items necessary to complete the project as specified and shown on the plans.

MAJOR CONTRACT ITEMS:

(2-19-02) (Rev. 8-21-07) 104 SPI G31

The following listed items are the major contract items for this contract (see Article 104-5 of the 2018 Standard Specifications):

| Line # | Description |
|--------|--|
| 70 | GENERIC STRUCTURE ITEM (PZ27 GALVANIZED STEEL SHEET PILES) |

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12) 108-6

SP1 G37

Items listed below will be the specialty items for this contract (see Article 108-6 of the 2018 Standard Specifications).

| Line# | Description |
|---------|----------------------|
| 22 - 23 | Guardrail |
| 30 - 37 | Utility Construction |
| 38 - 60 | Erosion Control |

FUEL PRICE ADJUSTMENT:

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

Revise the 2018 Standard Specifications as follows:

Page 1-87, Article 109-8, Fuel Price Adjustments, add the following:

The base index price for DIESEL #2 FUEL is \$ 2.0158 per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

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

| Description | Units | Fuel Usage Factor Diesel |
|--|---------|-----------------------------|
| Unclassified Excavation | Gal/CY | 0.29 |
| Borrow Excavation | Gal/CY | 0.29 |
| Class IV Subgrade Stabilization | Gal/Ton | 0.55 |
| Aggregate Base Course | Gal/Ton | 0.55 |
| Sub-Ballast | Gal/Ton | 0.55 |
| Asphalt Concrete Base Course, Type | Gal/Ton | 2.90 |
| Asphalt Concrete Intermediate Course, Type | Gal/Ton | 2.90 |
| Asphalt Concrete Surface Course, Type | Gal/Ton | 2.90 |
| Open-Graded Asphalt Friction Course | Gal/Ton | 2.90 |
| Permeable Asphalt Drainage Course, Type | Gal/Ton | 2.90 |

| Sand Asphalt Surface Course, Type | Gal/Ton | 2.90 |
|--|---------|-------|
| Aggregate for Cement Treated Base Course | Gal/Ton | 0.55 |
| Portland Cement for Cement Treated Base Course | Gal/Ton | 0.55 |
| " Portland Cement Concrete Pavement | Gal/SY | 0.245 |
| Concrete Shoulders Adjacent to" Pavement | Gal/SY | 0.245 |

DISADVANTAGED BUSINESS ENTERPRISE (LOCAL GOVERNMENT AGENCIES):

(10-16-07)(Rev.1-15-19) 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 <u>not</u> 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 **the Department of Public Utilities** 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%20R eplacement%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% 20 Forms/Joint% 20 Check% 20 Notification% 20 Form.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 % 20 of % 20 Intent % 20 to % 20 Perform % 20 as % 20 as % 20 Subcontractor.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

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%20Example.xls

DBE Goal

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

Disadvantaged Business Enterprises 10 %

- (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 **the Department of Public Utilities**.

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 <u>all</u> 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. **The Department of Public Utilities** 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 forms titled "Identification of HUB Certified/Minority Business Participation"* and corresponding Affidavit.

The documentation shall be received at the time of the bid opening.

If the bidder fails to submit the *Identification of HUB Certified/Minority Business Participation* and *corresponding Affidavit* 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 **Department of Public Utilities** no later than at the time of bid opening.

Submission of Good Faith Effort

If the bidder fails to meet or exceed the DBE goal, the apparent lowest responsive bidder shall submit to **Department of Public Utilities** documentation of adequate good faith efforts, Affidavit A, made to reach the DBE goal.

One complete set copy of this information shall be received at the time of bid opening.

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.

The Department of Public Utilities 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.
 - 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, the **Department of Public Utilities** 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, **the Department of Public Utilities** may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If **the City** does not award the contract to the apparent lowest responsive bidder, **the City** reserves the right to award the contract to the next lowest responsive bidder that can satisfy to **the City** 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 **Department of Public Utilities** 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 **Department of Public Utilities**. 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 <u>not</u> 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 **the Department of Public Utilities**. **The Department of Public Utilities** '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, **the Department of Public Utilities** 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 non-DBE subcontractors receives credit only for the fee or commission it receives as The value of services performed under a result of the subcontract arrangement. 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 **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities**' 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 **Department of Public Utilities**, the **Department of Public Utilities** 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.
- When a committed DBE is decertified prior to the **Department of Public Utilities** 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 **Department of Public Utilities** (see A herein for required documentation).

All requests for replacement of a committed DBE firm shall be submitted to the **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities**.

When the **Department of Public Utilities** 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 **Department of Public Utilities**.

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. The **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities** 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 **Department of Public Utilities** 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.

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) SPI 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 SPI 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 SPI 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 SPI G112 C

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

MAINTENANCE OF THE PROJECT:

(11-20-07) (Rev. 1-17-12) 104-10 SPI G125

Revise the 2018 Standard Specifications as follows:

Page 1-39, Article 104-10 Maintenance of the Project, line 25, add the following after the first sentence of the first paragraph:

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

Page 1-39, Article 104-10 Maintenance of the Project, line 30, add the following as the last sentence of the first paragraph:

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

Page 1-39, Article 104-10 Maintenance of the Project, lines 42-44, replace the last sentence of the last paragraph with the following:

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

<u>TWELVE MONTH GUARANTEE – LGA PROJECTS:</u>

(10-7-13) 108 SPI G146

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

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that **the City**

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 SPI 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/

<u>TurbidityReductionOptionSheet.pdf</u> to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

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

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

PROJECT SPECIAL PROVISIONS - ROADWAY

CLEARING AND GRUBBING - METHOD II:

(9-17-02) (Rev.8-18-15) 200

SP2 R02A

Perform clearing on this project to the limits established by Method "II" shown on Standard Drawing No. 200.02 of the 2018 Roadway Standard Drawings. Conventional clearing methods may be used except where permit drawings or conditions have been included in the proposal which require certain areas to be cleared by hand methods.

BRIDGE APPROACH FILLS:

(10-19-10) (Rev. 1-16-18) 422 SP4 R02A

Description

Bridge approach fills consist of backfilling behind bridge end bents with select material or aggregate to support all or portions of bridge approach slabs. Install drains to drain water from bridge approach fills and geotextiles to separate approach fills from embankment fills, ABC and natural ground as required. For bridge approach fills behind end bents with mechanically stabilized earth (MSE) abutment walls, reinforce bridge approach fills with MSE wall reinforcement connected to end bent caps. Construct bridge approach fills in accordance with the contract, accepted submittals and 2018 Roadway Standard Drawing Nos. 422.01 or 422.02 or Roadway Detail Drawing No. 422D10. Define bridge approach fill types as follows:

Approach Fills – Bridge approach fills in accordance with 2018 Roadway Standard Drawing Nos. 422.01 or 422.02 or Roadway Detail Drawing No. 422D10;

Standard Approach Fill – Type I Standard Bridge Approach Fill in accordance with 2018 Roadway Standard Drawing No. 422.01;

Modified Approach Fill – Type II Modified Bridge Approach Fill in accordance with 2018 Roadway Standard Drawing No. 422.02 and

Reinforced Approach Fill – Type III Reinforced Bridge Approach Fill in accordance with Roadway Detail Drawing No. 422D10.

Materials

Refer to Division 10 of the 2018 Standard Specifications.

| Item | Section |
|-------------------------------|---------|
| Geotextiles, Type 1 | 1056 |
| Portland Cement Concrete | 1000 |
| Select Materials | 1016 |
| Subsurface Drainage Materials | 1044 |

Provide Type 1 geotextile for separation geotextiles and Class B concrete for outlet pads. Use Class V or Class VI select material for standard and modified approach fills. For an approach fill behind a bridge

end bent with an MSE abutment wall, backfill the reinforced approach fill with the same aggregate type approved for the reinforced zone in the accepted MSE wall submittal. For MSE wall aggregate, reinforcement and connector materials, see the *Mechanically Stabilized Earth Retaining Walls* provision. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For PVC drain pipes, use pipes with perforations that meet AASHTO M 278.

Construction Methods

Excavate as necessary for approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place separation geotextiles or aggregate until approach fill dimensions and foundation material are approved.

For reinforced approach fills, cast MSE wall reinforcement or connectors into end bent cap backwalls within 3" of locations shown in the accepted MSE wall submittals. Install MSE wall reinforcement with the orientation, dimensions and number of layers shown in the accepted MSE wall submittals. If a reinforced approach fill is designed with geogrid reinforcement embedded in an end bent cap, cut geogrids to the required lengths and after securing ends of geogrids in place, reroll and rewrap portions of geogrids not embedded in the cap to protect geogrids from damage. Before placing aggregate, pull geosynthetic reinforcement taut so that it is in tension and free of kinks, folds, wrinkles or creases. Attach separation geotextiles to end bent cap backwalls and wing walls with adhesives, tapes or other approved methods. Overlap adjacent separation geotextiles at least 18" with seams oriented parallel to the roadway centerline. Hold geotextiles in place with wire staples or anchor pins as needed. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with separation geotextiles or MSE wall reinforcement.

Install continuous perforated PVC drain pipes with perforations pointing down in accordance with 2018 Roadway Standard Drawing Nos. 422.01 or 422.02. Connect drain pipes to outlet pipes just beyond wing walls. Connect PVC pipes, fittings and outlet pipes with solvent cement in accordance with Article 815-3 of the 2018 Standard Specifications and place outlet pads in accordance with 2018 Roadway Standard Drawing No. 815.03.

Install drain pipes so water drains towards outlets. If the groundwater elevation is above drain pipe elevations, raise drains up to maintain positive drainage towards outlets. Place pipe sleeves in or under wing walls so water drains towards outlets. Use sleeves that can withstand wing wall loads.

Place select material or aggregate in 8" to 10" thick lifts. Compact fine aggregate for reinforced approach fills in accordance with Subarticle 235-3(C) of the 2018 Standard Specifications except compact fine aggregate to a density of at least 98%. Compact select material for standard or modified approach fills and coarse aggregate for reinforced approach fills with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, MSE wall reinforcement or drains when placing and compacting select material or aggregate. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on geosynthetics or drain pipes until they are covered with at least 8" of select material or aggregate. Replace any damaged geosynthetics or drains to the satisfaction of the Engineer. When approach fills extend beyond bridge approach slabs, wrap separation geotextiles over select material or aggregate as shown in 2018 Roadway Standard Drawing No. 422.01 or 2018 Roadway Detail Drawing No. 422D10.

Measurement and Payment

| Type I Standard Approach Fill, Station, Type II Modified Approach Fill, Station 11+99.00 -L- and |
|--|
| Type III Reinforced Approach Fill, Station will be paid at the contract lump sum price. The lump |
| sum price for each approach fill will be full compensation for providing labor, tools, equipment and |
| approach fill materials, excavating, backfilling, hauling and removing excavated materials, installing |
| geotextiles and drains, compacting backfill and supplying select material, aggregate, separation |
| geotextiles, drain pipes, pipe sleeves, outlet pipes and pads and any incidentals necessary to construct |
| approach fills behind bridge end bents. |
| |

The contract lump sum price for *Type III Reinforced Approach Fill*, *Station* ____ will also be full compensation for supplying and connecting MSE wall reinforcement to end bent caps but not designing MSE wall reinforcement and connectors. The cost of designing reinforcement and connectors for reinforced approach fills behind bridge end bents with MSE abutment walls will be incidental to the contract unit price for *MSE Retaining Wall No.* ___.

Payment will be made under:

| Pay Item | Pay Unit |
|--|----------|
| Type I Standard Approach Fill, Station | Lump Sum |
| Type II Modified Approach Fill, Station 11+99.00 -L- | Lump Sum |
| Type III Reinforced Approach Fill, Station | Lump Sum |

SHOULDER WEDGE:

(9-20-11) (Rev. 8-21-12) 610 SP6 R03R

Revise the 2018 Standard Specifications as follows:

Page 6-21, Article 610-8, SPREADING AND FINISHING, add the following after line 39:

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

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

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00) 620 SP6 R25

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

The base price index for asphalt binder for plant mix is \$ 453.64 per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **April 1, 2021**.

FINAL SURFACE TESTING NOT REQUIRED:

(5-18-04) (Rev. 2-16-16) SP6 R45

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

ASPHALT CONCRETE SURFACE COURSE COMPACTION:

(7-1-95) (Rev. 8-21-12) SP6 R49R

Compact the asphalt surface course on this project in accordance with Subarticle 610-9 of the 2018 Standard Specifications and the following provision:

Perform the first rolling with a steel wheel roller followed by rolling with a self-propelled pneumatic tired roller with the final rolling by a steel wheel roller.

ASPHALT CONCRETE PLANT MIX PAVEMENTS:

(2-20-18) (Rev.1-15-19) 610, 101

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 (Gmb) | ± 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) | | | |

Revise the 2018 Standard Specifications as follows:

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 | Design Binder Compaction Levels | | Max. Rut | Volumetric Properties ^B | | | | | |
| Туре | ESALs millions A | PG Grade | Gm | Gmm @ Depth | VMA | VTM | VFA | %Gmm | |
| | Illillolis | Graue | Nini | Ndes | (mm) | % Min. | % | MinMax. | @ Nini |
| 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 Para | meter | | | | Design (| Criteria | |
| All Mix | Dust t | o Binder Ratio | (P _{0.075} / P | be) | | | 0.6 - | 1.4 ^c | |
| Types | Tensi | ile Strength Ra | atio (TSR) | D | | | 85% I | Min. ^E | |

- **A.** Based on 20 year design traffic.
- ${f B.}$ 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 612-1 AGGREGATE CONSENSUS PROPERTIES ^A | | | | | |
|--|--|-------------------------------------|------------------------------|---|--|
| Mix Type | Coarse Aggregate Angularity ^B | Fine Aggregate Angularity % Minimum | Sand Equivalent % Minimum | Flat and Elongated 5 : 1 Ratio % Maximum | |
| Test Method | ASTM D5821 | AASHTO T 304 | AASHTO T 176 | ASTM D4791 | |
| 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.

MODIFIED CONCRETE FLUME WITH CONCRETE OUTLET:

(3-19-96)(Rev. 6-17-08) 825 SP8 R10

At locations shown in the plans, construct concrete flumes, concrete curb, and apron in accordance with the details in the plans. Use materials meeting the requirements of Section 825 of the 2018 Standard Specifications except that the concrete must be Class B or of higher compressive strength.

Each concrete flume, concrete curb, and apron completed and accepted will be paid at the contract unit price per each for *Modified Concrete Flume*. Such price and payment will be full compensation for all materials, labor, equipment, tools, removing and disposing of the temporary slope drains, and any other incidentals necessary to complete the work satisfactorily.

The concrete curb and ditch outside the pay limits of the apron will be measured and paid in accordance with Section 846 and 850 of the 2018 Standard Specifications.

Payment will be made under:

Pay ItemPay UnitModified Concrete FlumeEach

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 <u>Approved Products List</u> 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 2012 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 ItemPay UnitGuardrail End Units, Type TL-2Each

GUARDRAIL ANCHOR UNITS AND TEMPORARY GUARDRAIL ANCHOR UNITS:

(1-16-2018) 862 SP8 R70

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

Revise the 2018 Standard Specifications as follows:

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

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

Payment will be made under:

| Pay Item | Pay Unit |
|--|----------|
| Guardrail Anchor Units, Type III | Each |
| Temporary Guardrail Anchor Units, Type | Each |

STANDARD SPECIAL PROVISIONS

AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS:

(5-20-08) Z-2

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

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

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

DIVISION LET CONTRACT PREQUALIFICATION:

(07-01-14)(12-1-16) SPD 01-410

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

Prior to performing the work, the prime contractor and/or subcontractor(s) shall be prequalified in the work code(s) which are identified as work items in the prime contractor's construction progress schedule that they will complete themselves. Any contractor identified as working outside their expertise may be considered in default of contract.

SAFETY VESTS:

All Contractors' personnel, all subcontractors and their personnel, and any material suppliers and their personnel must wear an OSHA approved reflective vest or outer garment at all times while on the project.

CONTRACTOR CLAIM SUBMITTAL FORM:

(2-12-14) 104-3

SPD 01-440

If the Contractor elects to file a written claim or requests an extension of contract time, it shall be submitted on the *Contractor Claim Submittal Form (CCSF)* available through the Construction Unit or at https://connect.ncdot.gov/projects/construction/Pages/Construction-Resources.aspx as Form CCSF under Construction Forms

Any claims for additional compensation and/or extensions of the completion date shall be submitted to the Division Engineer in writing, with detailed justification, prior to submitting the final invoice payment. Once an invoice is received and accepted that is marked as "Final", the Contractor shall be barred from recovery.

DRIVEWAYS AND PRIVATE PROPERTY:

The Contractor shall maintain access to driveways for all residents and property owners throughout the life of the project. The Contractor shall not perform work for private citizens or agencies in conjunction with this project or within the project limits of this contract.

NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY:

(5-17-11)

7-3

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

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

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

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

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

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

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

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

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

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

Sericea Lespedeza Oats (seeds)

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

Tall Fescue (all approved varieties)

Kobe Lespedeza

Korean Lespedeza

Weeping Lovegrass

Carpetgrass

Bermudagrass

Browntop Millet

German Millet – Strain R

Clover – Red/White/Crimson

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

Common or Sweet Sundangrass

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

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

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

Centipedegrass 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

ERRATA:

(10-16-18) (Rev.2-16-21) 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

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.

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 incomelevel, 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 US.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. (Executive Order 13166) | | | |
| Color | Color of skin, including shade of skin within a racial group | Black, White, brown, yellow, etc. | | | | |

| National Origin (Limited English Proficiency) | Place of birth. Citizenship is not a factor. (Discrimination based on language or a person's accent is also covered) | Mexican, Cuban, Japanese, Vietnamese, Chinese | |
|--|--|---|---|
| Sex | Gender. The sex of an individual. Note: Sex under this program does not include sexual orientation. | 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) (Religion/ Creed in all aspects of any aviation or transit-related construction) | 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. <i>Note:</i> 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. (49 U.S.C. 5332(b); 49 U.S.C. 47123) |

(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, Non-discrimination 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.

EC051821 62 FEDERAL

- 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.)

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% | Area 026 33.5% | Area 029 15.7% |
| Bertie County | Bladen County | Alexander County |
| Camden County | Hoke County | Anson County |
| Chowan County | Richmond County | Burke County |
| Gates County | Robeson County | Cabarrus County |
| HYDE County | Sampson County | Caldwell County |
| Pasquotank County | Scotland County | Catawba County |
| Perquimans County | | Cleveland County |
| | <u>Area 027 24.7%</u> | Iredell County |
| <u>Area 024 31.7%</u> | Chatham County | Lincoln County |
| Beaufort County | Franklin County | Polk County |
| Carteret County | Granville County | Rowan County |
| Craven County | Harnett County | Rutherford County |
| Dare County | Johnston County | Stanly County |
| Edgecombe County | Lee County | |
| Green County | Person County | Area 0480 8.5% |
| Halifax County | Vance County | Buncombe County |

Hyde County
Jones County
Lenoir County
Hyde 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

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

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

Wake County

Area 1300 16.2%

Area 3120 16.4%

Davidson County

Forsyth County

Guilford County

Randolph County

Stokes County

Area 1300 16.2% Alamance County

Area 1520 18.3%
Gaston County
Mecklenburg County
Union County

Yadkin County

Goals for Female

Participation in Each Trade

(Statewide) 6.9%

REQUIRED CONTRACT PROVISION FEDERAL – AID CONSTRUCTION CONTRACTS:

FHWA - 1273 Electronic Version - May 1, 2012

Z-8

I. General

II. Nondiscrimination

III. Nonsegregated Facilities

IV. Davis-Bacon and Related Act Provisions

V. Contract Work Hours and Safety Standards Act Provisions

VI. Subletting or Assigning the Contract

VII. Safety: Accident Prevention

VIII. False Statements Concerning Highway Projects

IX. Implementation of Clean Air Act and Federal Water Pollution Control Act

X. Compliance with Governmentwide Suspension and Debarment Requirements

XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

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

I. GENERAL

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

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

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

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

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

II. NONDISCRIMINATION

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

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

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

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

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

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

- b. The contractor will accept as its operating policy the following statement:
 - "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
- 2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
- 3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
 - a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer
 - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
 - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
 - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
- 4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
 - a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
 - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
 - c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
- 5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
 - a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
 - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
 - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
 - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

- a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
- b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
- c The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.
- 7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
 - a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
 - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
 - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

- d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
- 8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
- 9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
 - a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
 - b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

- a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
- b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
- 11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
 - a. The records kept by the contractor shall document the following:
 - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
 - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
 - b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

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

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

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

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

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

1. Minimum wages

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

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

and the Davis-Bacon

poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (ii) The classification is utilized in the area by the construction industry; and
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
 - (2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - (3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
- 2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

- a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, paid. Whenever made and actual the Secretary of Labor has wages 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.
- Dec. (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.
- 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 contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
- 4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

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

- 1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
 - a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:
 - (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
 - (2) the prime contractor remains responsible for the quality of the work of the leased employees;
 - (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
 - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
 - b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.
- 2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
- 3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
- 4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
- 5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

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

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

- 2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
- 3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

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

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

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

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

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

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

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

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

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible

for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

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

2. Instructions for Certification - Lower Tier Participants:

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

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

$Certification \ Regarding \ Debarment, Suspension, In eligibility \ and \ Voluntary \ Exclusion--Lower \ Tier \ Participants:$

- 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.

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 Onthe-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 of the journeyman wage for the third quarter of the training period 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.

MINIMUM WAGES: GENERAL DECISION NC20210091 01/01/2021 NC91

Z-091

Date: January 1, 2021

General Decision Number: NC20210091 01/01/2021 NC91

Superseded General Decision Numbers: NC20200091

State: North Carolina

Construction Type: HIGHWAY

COUNTIES:

| Beaufort | Granville | Pasquotank |
|----------|-----------|------------|
| Bertie | Halifax | Perquimans |
| Bladen | Harnett | Robeson |
| Camden | Hertford | Sampson |

| Carteret | Hyde | Scotland |
|----------|-------------|------------|
| Chowan | Jones | Tyrrell |
| Columbus | Lenoir | Vance |
| Craven | Martin | Warren |
| Dare | Northampton | Washington |
| Duplin | Pamlico | Wilson |
| Gates | | |

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: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 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, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract for calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR.5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2) – (60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number 0

Publication Date 01/01/2021

SUNC2014-006 11/17/2014

| | | 30NC201 |
|---------------------------------------|-------|---------|
| | Rates | Fringes |
| BLASTER | 21.85 | |
| CARPENTER | 13.72 | |
| CEMENT MASON/CONCRETE FINISHER | 14.26 | |
| ELECTRICIAN | | |
| Electrician | 18.69 | 2.66 |
| Telecommunications Technician | 14.72 | 1.67 |
| IRONWORKER | 16.32 | |
| LABORER | | |
| Asphalt Raker and Spreader | 12.42 | |
| Asphalt Screed/Jackman | 13.48 | |
| Carpenter Tender | 10.85 | |
| Cement Mason/Concrete Finisher Tender | 11.35 | |
| Common or General | 10.12 | |
| Guardrail/Fence Installer | 13.39 | |

| | Rates | Fringes |
|---|-------|---------|
| Pipelayer | 13.31 | |
| Traffic Signal/Lighting Installer | 16.88 | |
| PAINTER | | |
| Bridge | 19.62 | |
| POWER EQUIPMENT OPERATORS | | |
| Asphalt Broom Tractor | 13.28 | |
| Bulldozer Fine | 18.46 | |
| Bulldozer Rough | 14.09 | |
| Concrete Grinder/Groover | 24.66 | |
| Crane Boom Trucks | 17.25 | |
| Crane Other | 21.48 | |
| Crane Rough/All-Terrain | 19.00 | |
| Drill Operator Rock | 15.43 | 1.61 |
| Drill Operator Structure | 19.12 | |
| Excavator Fine | 17.61 | |
| Excavator Rough | 12.99 | |
| Grader/Blade Fine | 16.73 | |
| Grader/Blade Rough | 15.28 | |
| Loader 2 Cubic Yards or Less | 10.28 | |
| Loader Greater Than 2 Cubic Yards | 13.58 | |
| Material Transfer Vehicle (Shuttle Buggy) | 17.39 | |
| Mechanic | 18.63 | |
| Milling Machine | 14.38 | |
| Off-Road Hauler/Water Tanker | 9.30 | |
| Oiler/Greaser | 13.45 | |
| Pavement Marking Equipment | 11.87 | |
| Paver Asphalt | 15.53 | |
| Roller Asphalt Breakdown | 12.13 | |
| Roller Asphalt Finish | 13.65 | |
| Roller Other | 10.48 | |
| Scraper Finish | 13.98 | |
| Scraper Rough | 10.17 | |
| Slip Form Machine | 19.29 | |
| Tack Truck/Distributor Operator | 14.56 | |
| TRUCK DRIVER | | |
| GVWR of 26,000 Lbs or Less | 10.35 | |
| GVWR of 26,001 Lbs or Greater | 12.04 | |

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 Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

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

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

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

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

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

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

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

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

END OF GENERAL DECISION

PROJECT SPECIAL PROVISIONS - GEOTECHNICAL (Rock Embankments)

B-6053 GT-1.1 Pasquotank County

ROCK EMBANKMENTS:

(SPECIAL)

Description

Construct rock embankments in accordance with the contract. Rock embankments are required to construct embankments in water at locations shown in the plans and as directed.

Materials

Refer to Division 10 of the Standard Specifications.

| Item | Section |
|---|---------|
| Geotextile for Rock Embankments, Type 2 | 1056 |
| Rip Rap Materials | 1042 |
| Select Materials | 1016 |

Provide Type 2 geotextile for filtration geotextiles. Use Class 2 rip rap material for rock embankments. Use Class A rip rap and No. 57 stone to fill voids in rock embankments. Obtain aggregates from sources participating in the Department's Aggregate QC/QA Program in accordance with Section 1006 of the *Standard Specifications* or use similar size onsite material approved by the engineer.

Construction Methods

Construct rock embankments in accordance with the slopes, dimensions and elevations shown in the plans and Section 235 of the *Standard Specifications*. Place Class 2 so smaller rocks are uniformly distributed throughout rock embankments. Provide a uniform surface free of obstructions, debris and groups of large rocks that could cause voids in embankments.

Before placing embankment fill material or filtration geotextiles over rock embankments, fill voids in the top of rock embankments with Class A rip rap and No. 57 stone. Place and compact Class A rip rap first. Then, fill any remaining voids with No. 57 stone so geotextiles are not torn, ripped or otherwise damaged when installed and covered. Compact rip rap and No. 57 stone with tracked equipment or other approved methods. Install filtration geotextiles on top of No. 57 stone in accordance with Article 270-3 of the *Standard Specifications* before placing embankment fill material.

Measurement and Payment

Rock Embankment, Rip Rap, Class A, and #57 Stone will be measured and paid in tons. Select material and rip rap will be measured by weighing material and rip rap in trucks in accordance with Article 106-7 of the Standard Specifications. The contract unit prices for Rock Embankment, Rip Rap, Class A and #57 Stone will be full compensation for providing, hauling, handling, placing, compacting and maintaining select material and rip rap.

Geotextile for Rock Embankments will be measured and paid in square yards. Geotextiles will be measured along the top of rock embankments as the square yards of exposed geotextiles before placing embankment fill material. No measurement will be made for overlapping geotextiles. The contract unit price for Geotextile for Rock Embankments will be full compensation for providing, transporting and installing geotextiles.

GT-1.2 B-6053

Pasquotank County

Payment will be made under:

Pay Item

Rock Embankment Rip Rap, Class A #57 Stone Geotextile for Rock Embankments Pay Unit Ton

Ton

Ton

Square Yard



Gary Taylor

PROJECT SPECIAL PROVISIONS - UTILITY CONSTRUCTION

Project: B-6053 UC-1 County: Pasquotank

PROJECT SPECIAL PROVISIONS

Utility Construction 02/04/2021

RK&K 8601 Six Forks Road Forum 1 Suite 700 Raleigh, NC 27615



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Revise the 2018 Standard Specifications as follows:

Page 15-1, Sub-article 1500-2 Cooperation with the Utility Owner, paragraph 2: add the following sentences:

The utility owner is the City of Elizabeth City, NC. The contact person is Dwan Bell and he can be reached by phone at 252-337-6628.

Contractor shall coordinate closely with NCDOT and the Utility Owner during the installation of water and force main sewer lines for any necessary shut downs or by-pass pumping.

Revise the 2018 Standard Specifications as follows:

Page 15-23; Section 1550. The Contractor's attention is directed to this section for the connection of the newly installed HDPE lines to the existing lines. Additional items to be included in the unit price are identified below.

| Measurement and Payment: | |
|---|--|
| Payment for "Directional Drilling of | "shall also include all adapters, bends, restraint of |
| proposed and existing lines, and any inc | identals necessary to complete the work as required in |
| addition to the items in the 2018 Standar | rd Specifications. |
| | |
| Payment will be made under: | |

| Pay Item: | | Pay Unit |
|-------------------------|----|-------------|
| Directional Drilling of | >> | Linear Foot |

PROJECT SPECIAL PROVISIONS - UTILITY by OTHERS (Utility Owners)



General:

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

- A) Elizabeth City Power Power (Distribution)
- B) Centurylink Fiber Optic Telecommunications
- C) Charter CATV

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

The Contractor's attention is directed to Article 105-8 of the 2018 Standard Specifications.

Utilities Requiring Adjustment:

Utility relocations are shown on the Utilities by Others Plans.

- A) Elizabeth City Power Power (Distribution)
 - 1) Elizabeth City Power's relocation work will be completed by the date of availability.
 - 2) Contact person for Elizabeth City Power is Mr. Bob Vannoy at (252) 337-6870 Office or email bvannoy@cityofec.com
- B) Centurylink Fiber Optic Telecommunications
 - 1) Centurylink's relocation work will be completed by the date of availability.
 - **2**) Contact person for Centurylink is Mr. Rod Medlin at (252) 439-1932 or email Rod.M.Medlin@centurylink.com.
- C) Charter CATV
 - 1) Charter's relocation work will be be completed by the date of availability.
 - 2) Contact person for Charter is Mr. Wilbur Haynes at 252-715-2117 or email Wilbur.Haynes@charter.com

PROJECT SPECIAL PROVISIONS - EROSION CONTROL

STABILIZATION REQUIREMENTS:

(3-11-16) S-2

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective April 1, 2019 issued by the North Carolina Department of Environmental Quality Division of Water Resources. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

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

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

SEEDING AND MULCHING (East Crimp):

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

All Roadway Areas

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

Waste and Borrow Locations

| March 1 – August 31 | | September 1 - February 28 | | |
|---------------------|-------|---------------------------|-------|-------------------------|
| | 75# | Tall Fescue | 75# | Tall Fescue |
| | 25# | Bermudagrass (hulled) | 35# | Bermudagrass (unhulled) |
| | 500# | Fertilizer | 500# | Fertilizer |
| | 4000# | Limestone | 4000# | Limestone |

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

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

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

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

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

CRIMPING STRAW MULCH:

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

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

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

TEMPORARY SEEDING:

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

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

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

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MOWING:

The minimum mowing height on this project shall be 4 inches.

NATIVE GRASS SEEDING AND MULCHING (East):

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

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

| March 1 - August 31 | | September 1 - February 28 | |
|---------------------|---------------------|---------------------------|---------------------|
| 18# | Creeping Red Fescue | 18# | Creeping Red Fescue |
| 6# | Indiangrass | 6# | Indiangrass |
| 8# | Little Bluestem | 8# | Little Bluestem |
| 4# | Switchgrass | 4# | Switchgrass |
| 25# | Browntop Millet | 35# | Rye Grain |
| 500# | Fertilizer | 500# | Fertilizer |
| 4000# | Limestone | 4000# | Limestone |

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

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

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Measurement and Payment

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

RESPONSE FOR EROSION CONTROL:

Description

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

| Section | Erosion Control Item | Unit |
|---------|----------------------------------|--------|
| 1605 | Temporary Silt Fence | LF |
| 1606 | Special Sediment Control Fence | LF/TON |
| 1615 | Temporary Mulching | ACR |
| 1620 | Seed - Temporary Seeding | LB |
| 1620 | Fertilizer - Temporary Seeding | TN |
| 1631 | Matting for Erosion Control | SY |
| SP | Coir Fiber Mat | SY |
| 1640 | Coir Fiber Baffles | LF |
| SP | Permanent Soil Reinforcement Mat | SY |
| 1660 | Seeding and Mulching | ACR |
| 1661 | Seed - Repair Seeding | LB |
| 1661 | Fertilizer - Repair Seeding | TON |
| 1662 | Seed - Supplemental Seeding | LB |
| 1665 | Fertilizer Topdressing | TON |
| SP | Safety/Highly Visible Fencing | LF |
| SP | Response for Erosion Control | EA |

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

Pay Item Pay Unit

Response for Erosion Control Each

MINIMIZE REMOVAL OF VEGETATION:

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

STOCKPILE AREAS:

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

ACCESS AND HAUL ROADS:

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

CONSTRUCTION MATERIALS MANAGEMENT:

(3-19-19) (rev. 04-24-19)

Description

The requirements set forth shall be adhered to in order to meet the applicable materials handling requirements of the NCG010000 permit. Structural controls installed to manage construction materials stored or used on site shall be shown on the E&SC Plan. Requirements for handling materials on construction sites shall be as follows:

Polyacrylamides (PAMS) and Flocculants

Polyacrylamides (PAMS) and flocculants shall be stored in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures designed to protect adjacent surface waters. PAMS or other flocculants used shall be selected from the NC DWR List of Approved PAMS/Flocculants The concentration of PAMS and other flocculants used shall not exceed those specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions. The NC DWR List of Approved PAMS/Flocculants is available at:

 $https://files.nc.gov/ncdeq/Water\%20Quality/Environmental\%20Sciences/ATU/ApprovedPAMS4_1_2017.pdf$

Equipment Fluids

Fuels, lubricants, coolants, and hydraulic fluids, and other petroleum products shall be handled and disposed of in a manner so as not to enter surface or ground waters and in accordance with applicable state and federal regulations. Equipment used on the site must be operated and maintained properly to prevent discharge of fluids. Equipment, vehicle, and other wash waters shall not be discharged into E&SC basins or other E&SC devices. Alternative controls should be provided such that there is no discharge of soaps, solvents, or detergents.

Waste Materials

Construction materials and land clearing waste shall be disposed of in accordance with North Carolina General Statutes, Chapter 130A, Article 9 - Solid Waste Management, and rules governing the disposal of solid waste (15A NCAC 13B). Areas dedicated for managing construction material and land clearing waste shall be at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. Paint and other liquid construction material waste shall not be dumped into storm drains. Paint and other liquid construction waste washouts should be located at least 50 away from storm drain inlets unless there is no alternative. Other options are to install lined washouts or use portable, removable bags or bins. Hazardous or toxic waste shall be managed in accordance with the federal Resource Conservation and Recovery Act (RCRA) and NC Hazardous Waste Rules at 15A NCAC, Subchapter 13A. Litter and sanitary waste shall be managed in a manner to prevent it from entering jurisdictional waters and shall be disposed of offsite.

Herbicide, Pesticide, and Rodenticides

Herbicide, pesticide, and rodenticides shall be stored and applied in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act, North Carolina Pesticide Law of 1971 and labeling restrictions.

Concrete Materials

Concrete materials onsite, including excess concrete, must be controlled and managed to avoid contact with surface waters, wetlands or buffers. No concrete or cement slurry shall be discharged from the site. (Note that discharges from onsite concrete plants require coverage under a separate NPDES permit – NCG140000.) Concrete wash water shall be managed in accordance with the *Concrete Washout Structure* provision. Concrete slurry shall be managed and disposed of in accordance with *NCDOT DGS and HOS DCAR Distribution of Class A Residuals Statewide* (Permit No. WQ0035749). Any hardened concrete residue will be disposed of, or recycled on site, in accordance with state solid waste regulations.

Earthen Material Stock Piles

Earthen material stock piles shall be located at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available.

Measurement and Payment

Conditions set within the *Construction Materials Management* provision are incidental to the project for which no direct compensation will be made.

SAFETY FENCE AND JURISDICTIONAL FLAGGING:

Description

Safety Fence 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.

Interior boundaries for jurisdictional areas noted above shall be delineated by stakes and highly visible flagging.

Jurisdictional boundaries at staging areas, waste sites, or borrow pits, whether considered outside or interior boundaries shall be delineated by stakes and highly visible flagging.

Materials

(A) Safety Fencing

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.

(B) Boundary Flagging

Wooden stakes shall be 4 feet in length with a minimum nominal 3/4" x 1-3/4" cross section. The flagging shall be at least 1" in width. The flagging material shall be vinyl and shall be orange in color and highly visible.

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.

(A) Safety Fencing

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. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull 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.

(B) Boundary Flagging

Boundary flagging delineation of interior boundaries shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Interior boundaries may be staked on a tangent that runs parallel to buffer but must not encroach on the buffer at any location. Interior boundaries of hand clearing shall be identified with a different colored flagging to distinguish it from mechanized clearing.

Boundary flagging delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for delineation of the interior boundaries. This delineation will be considered incidental to the work being paid for as *Construction Surveying*, except that where there is no pay item or construction surveying the cost of boundary flagging delineation shall be included in the unit prices bid for the various items in the contract. Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Additional flagging may be placed on overhanging vegetation to enhance visibility but does not substitute for installation of stakes.

Installation of boundary flagging for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(3)(d) or Subarticle 802-2(F) of the *Standard Specifications*. No direct pay will be made for this delineation, as the cost of same shall be included in the unit prices bid for the various items in the contract.

The Contractor shall be required to maintain alternative stakes and highly visible flagging 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 and installing fence geotextile with necessary posts and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay ItemSafety Fence

Pay Unit Linear Foot

SILT FENCE COIR FIBER WATTLE BREAK:

(8-21-12) 1605,1630

Description

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

Materials

Coir fiber wattle shall meet the following specifications:

| 100% Coir (Coconut) Fi | ibers |
|------------------------|------------------------------|
| Minimum Diameter | 12" |
| Minimum Length | 10 ft |
| Minimum Density | $3.5 \text{ lb/cf} \pm 10\%$ |
| Net Material | Coir Fiber |
| Net Openings | 2" x 2" |
| Net Strength | 90 lb. |
| Minimum Weight | 2.6 lb/ft ± 10% |

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

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

Construction Methods

Excavate a trench the entire length of each wattle with a depth of 1" to 2" for the wattle to be placed. Secure silt fence coir fiber wattle breaks to the soil by wire staples approximately every linear foot and at the end of each wattle. Install at least 4 stakes on the downslope side of the wattle with a maximum spacing of 2 linear feet and according to the detail. Install at least 2 stakes on the upslope side of the silt fence coir fiber wattle break according to the detail provided in the plans. Drive stakes into the ground at least 10" with no more than 2" projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Install temporary silt fence in accordance with Section 1605 of the 2018 Standard Specifications and overlap each downslope side of silt fence wattle break by 6".

Maintain the silt fence coir fiber wattle breaks until the project is accepted or until the silt fence coir fiber wattle breaks are removed, and remove and dispose of silt accumulations at the silt fence coir fiber wattle breaks when so directed in accordance with Section 1630 of the 2018 Standard Specifications.

Measurement and Payment

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

Payment will be made under:

Pay ItemPay UnitCoir Fiber WattleLinear 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

ItemSectionCoir Fiber Mat1060-14

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 ItemPay UnitCoir Fiber MatSquare Yard

FLOATING TURBIDITY CURTAIN:

*cd - cross machine direction

Description

This work consists of furnishing a *Floating Turbidity Curtain* to deter silt suspension and movement of silt particles during construction. The floating turbidity curtain shall be constructed at locations as directed.

Materials

The curtain material shall be made of a tightly woven nylon, plastic or other non-deteriorating material meeting the following specifications:

| Property | Value |
|-------------------------|-----------------------------------|
| Grab tensile strength | *md-370 lbs *cd-250 lbs |
| Mullen burst stength | 480 psi |
| Trapezoid tear strength | *md-100 lbs *cd-60 lbs Apparent |
| opening size | 70 US standard sieve Percent open |
| area | 4% permittivity 0.28 sec-1 |
| *md - machine direction | |

In the event that more than one width of fabric is required, a 6" overlap of the material shall also be required.

The curtain material shall be supported by a flotation material having over 29 lbs/ft buoyancy. The floating curtain shall have a 5/16" galvanized chain as ballast and dual 5/16" galvanized wire ropes with a heavy vinyl coating as load lines.

Construction Methods

The Contractor shall maintain the *Floating Turbidity Curtain* in a satisfactory condition until its removal is requested by the Engineer. The curtain shall extend to the bottom of the jurisdictional resource. Anchor the curtain according to manufacturer recommendations.

Measurement and Payment

Floating Turbidity Curtain will be measured and paid for as the actual number of square yards of curtain furnished as specified and accepted. Such price and payment will be full compensation for the work as described in this section including but not limited to furnishing all materials, tools, equipment, and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item
Floating Turbidity Curtain

Pay Unit Square Yard

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

ItemSectionTemporary Silt Fence1605

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

Geomembrane basin liner shall meet the following minimum physical properties for low permeability; it shall consist of a polypropylene or polyethylene 10 mil think geomembrane. If the minimum setback

dimensions can be achieved the liner is not required. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

Construction Methods

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

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

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

PROJECT SPECIAL PROVISIONS – STRUCTURES

PROJECT SPECIAL PROVISIONS

Bridge #690034 on Providence Road over Knobbs Creek Tributary

Pasquotank County, North Carolina
Project No. B-6053





Structure Design By Rummel, Klepper & Kahl, LLP

8601 Six Forks Road – Forum 1 – Suite 700 Raleigh, NC 27615 (919) 878-9560 NC License Number: F-0112 September 2020

PASQUOTANK COUNTY

PROJECT SPECIAL PROVISIONS BRIDGE #690034 ON PROVIDENCE ROAD OVER KNOBBS CREEK TRIBUTARY

TABLE OF CONTENTS

| | PAGE # |
|--|--------|
| THERMAL SPRAYED COATINGS (METALLIZATION) (12-1-2017) | 2 |
| FALSEWORK AND FORMWORK (4-5-12) | 3 |
| SUBMITTAL OF WORKING DRAWINGS (1-29-21) | 10 |
| CRANE SAFETY (6-20-19) | 16 |
| GROUT FOR STRUCTURES (12-1-17) | 17 |
| ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES (12-30-15) | 18 |
| GALVANIZED STEEL SHEET PILES (SPECIAL) | 21 |
| GROUT FOR PILE BLOCKOUTS (SPECIAL) | 22 |
| PRESTRESSED CORED SLAB BRIDGES (SPECIAL) | 23 |
| PRECAST CONCRETE BARRIER RAIL (SPECIAL) | 25 |
| PRECAST PIECE EB110 (SPECIAL) | 26 |
| PRECAST PIECE EB120 (SPECIAL) | 26 |
| PRECAST PIECE EB130 (SPECIAL) | 27 |
| PRECAST PIECE EB140 (SPECIAL) | 27 |
| PRECAST PIECE BW150 (SPECIAL) | 27 |
| | |

PASQUOTANK COUNTY

PROJECT SPECIAL PROVISIONS BRIDGE #690034 ON PROVIDENCE ROAD OVER KNOBBS CREEK TRIBUTARY

THERMAL SPRAYED COATINGS (METALLIZATION)

(12-1-2017)

1.0 DESCRIPTION

Apply a thermal sprayed coating (TSC) and sealer to metal surfaces in accordance with the Thermal Sprayed Coatings (Metallization) Program and as specified herein when called for on the plans or by other Special Provisions. Use only Arc Sprayed application methods to apply TSC. The Engineer must approve other methods of application.

The Thermal Sprayed Coatings (Metallization) Program is available on the Materials and Tests Unit website.

2.0 QUALIFICATIONS

Only use NCDOT approved TSC Contractors meeting the requirements outlined in the Thermal Sprayed Coatings (Metallization) Program.

3.0 MATERIALS

Use only materials meeting the requirements of Section 7 of the Thermal Sprayed Coatings (Metallization) Program.

4.0 SURFACE PREPARATION AND TSC APPLICATION

Surface preparation of TSC surfaces shall meet the requirements of Section 8 of the Thermal Sprayed Coatings (Metallization) Program. Apply TSC with the alloy to the thickness specified on the plans or as required by Thermal Sprayed Coatings (Metallization) Program.

5.0 INSPECTION AND TESTING

The TSC Contractor must conduct inspections and tests listed in the Thermal Sprayed Coatings (Metallization) Program.

6.0 REPAIRS

Perform all shop repairs in accordance with the procedures outlined in the Thermal Sprayed Coatings (Metallization) Program.

Repairs associated with field welding shall be made by removing the existing metallizing by blast or power tool cleaning. Affected areas shall be addressed as follows:

 For Marine Environments, incorporate a minimum surface preparation in accordance with SSPC SP-11 (Power Tool Cleaning to Bare Metal) and require an approved epoxy mastic

PASQUOTANK COUNTY

coating applied in accordance with the manufacturer's recommendation. Apply a minimum of two (2) coats at a rate of 5-7 (WFT) per coat to the affected area.

- For Non-Marine Environments, incorporate a minimum surface preparation in accordance with SSPC SP-11 (Power Tool Cleaning to Bare Metal) and require an approved organic zinc-rich coating applied in accordance with the manufacturer's recommendation. Apply a minimum of two (2) coats at a rate of 5-7 (WFT) per coat to the affected area.
 - 1. Minor localized areas less than or equal to 0.1 ft² with exposed substrate shall be repaired as outlined above for marine and non-marine environments.
 - Large localized areas greater than 0.1 ft² with exposed substrate shall require
 the Contractor to submit a detailed repair procedure to the Engineer for review
 and approval.
- Repair methods for areas where the substrate has not been exposed shall be mutually
 agreed upon between the Contractor and TSC Contractor as approved by the Engineer.

7.0 TWELVE MONTH OBSERVATION PERIOD

All TSC materials applied under the Thermal Sprayed Coatings (Metallization) Program shall be evaluated twelve (12) months after project acceptance for defective materials and workmanship.

8.0 BASIS OF PAYMENT

The contract price bid for the metal component to which the TSC is applied will be full compensation for the thermal sprayed coating.

FALSEWORK AND FORMWORK

(4-5-12)

1.0 DESCRIPTION

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

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

PASQUOTANK COUNTY

works" is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

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

2.0 MATERIALS

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

3.0 DESIGN REQUIREMENTS

A. Working Drawings

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

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

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

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

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

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

| Member | Member | Max. Overhang | Max. Slab Edge | Max. Screed | Bracket Min. Vertical Leg Extension, (inches) |
|--------|----------|---------------|----------------|---------------|---|
| Type | Depth, | Width, | Thickness, | Wheel Weight, | |
| (PCG) | (inches) | (inches) | (inches) | (lbs.) | |

PASQUOTANK COUNTY

| II | 36 | 39 | 14 | 2000 | 26 |
|-----|----|----|----|------|----|
| III | 45 | 42 | 14 | 2000 | 35 |
| IV | 54 | 45 | 14 | 2000 | 44 |
| MBT | 63 | 51 | 12 | 2000 | 50 |
| MBT | 72 | 55 | 12 | 1700 | 48 |

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

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

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 ½" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

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

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

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

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

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

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices.

PASQUOTANK COUNTY

Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

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

1. Wind Loads

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

Pressure, lb/ft2 for Indicated Wind Velocity, mph Height Zone 70 80 90 feet above ground 100 110 0 to 30 15 20 25 30 35 30 to 50 20 25 30 35 40 50 to 100 25 30 35 40 45 over 100 30 35 40 45 50

Table 2.2 - Wind Pressure Values

2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

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

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

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

| COUNTY | 25 YR (mph) | COUNTY | 25 YR (mph) | COUNTY | 25 YR (mph) |
|-----------|----------------|-----------|----------------|------------|----------------|
| Alamance | 70 | Franklin | 70 | Pamlico | 100 |
| Alexander | 70 | Gaston | 70 | Pasquotank | 100 |
| Alleghany | 70 | Gates | 90 | Pender | 100 |
| Anson | 70 | Graham | 80 | Perquimans | 100 |
| Ashe | 70 | Granville | 70 | Person | 70 |
| Avery | 70 | Greene | 80 | Pitt | 90 |
| Beaufort | 100 | Guilford | 70 | Polk | 80 |
| Bertie | 90 | Halifax | 80 | Randolph | 70 |

PASQUOTANK COUNTY

| Bladen | 90 | Harnett | 70 | Richmond | 70 |
|---------------|-----|-------------|-----|--------------|-----|
| Brunswick | 100 | Haywood | 80 | Robeson | 80 |
| Buncombe | 80 | Henderson | 80 | Rockingham | 70 |
| Burke | 70 | Hertford | 90 | Rowan | 70 |
| Cabarrus | 70 | Hoke | 70 | Rutherford | 70 |
| Caldwell | 70 | Hyde | 110 | Sampson | 90 |
| Camden | 100 | Iredell | 70 | Scotland | 70 |
| Carteret | 110 | Jackson | 80 | Stanley | 70 |
| Caswell | 70 | Johnston | 80 | Stokes | 70 |
| Catawba | 70 | Jones | 100 | Surry | 70 |
| Cherokee | 80 | Lee | 70 | Swain | 80 |
| Chatham | 70 | Lenoir | 90 | Transylvania | 80 |
| Chowan | 90 | Lincoln | 70 | Tyrell | 100 |
| Clay | 80 | Macon | 80 | Union | 70 |
| Cleveland | 70 | Madison | 80 | Vance | 70 |
| Columbus | 90 | Martin | 90 | Wake | 70 |
| Craven 100 | | McDowell | 70 | Warren | 70 |
| Cumberland 80 | | Mecklenburg | 70 | Washington | 100 |
| Currituck 100 | | Mitchell | 70 | Watauga | 70 |
| Dare 110 Mon | | Montgomery | 70 | Wayne | 80 |
| Davidson | 70 | Moore | 70 | Wilkes | 70 |
| Davie | 70 | Nash | 80 | Wilson | 80 |
| Duplin | 90 | New Hanover | 100 | Yadkin | 70 |
| Durham | 70 | Northampton | 80 | Yancey | 70 |
| Edgecombe | 80 | Onslow | 100 | | |
| Forsyth | 70 | Orange | 70 | | |

B. Review and Approval

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

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

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

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

PASQUOTANK COUNTY

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

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

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

A. Maintenance and Inspection

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

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

B. Foundations

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

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

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

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the

PASQUOTANK COUNTY

Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

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

5.0 REMOVAL

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

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

6.0 METHOD OF MEASUREMENT

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

7.0 BASIS OF PAYMENT

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

PASQUOTANK COUNTY

SUBMITTAL OF WORKING DRAWINGS

(1-29-21)

9.0 GENERAL

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

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

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

10.0 ADDRESSES AND CONTACTS

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

Via US mail:

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

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

Via other delivery service:

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

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

Submittals may also be made via email.

Send submittals to:

jlbolden@ncdot.gov (James Bolden)

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

eomile@ncdot.gov (Emmanuel Omile)

PASQUOTANK COUNTY

mrorie@ncdot.gov (Madonna Rorie)

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

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

Via US mail: Via other delivery service:

Mr. David Hering, L. G., P. E.
Eastern Regional Geotechnical

Mr. David Hering, L. G., P. E.
Eastern Regional Geotechnical

Manager Manager

North Carolina Department North Carolina Department

of Transportation of Transportation

Geotechnical Engineering Unit
Eastern Regional Office

Geotechnical Engineering Unit
Eastern Regional Office

1570 Mail Service Center 3301 Jones Sausage Road, Suite 100

Raleigh, NC 27699-1570 Garner, NC 27529

Via Email: EastGeotechnicalSubmittal@ncdot.gov

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

Via US mail or other delivery service:

Mr. Eric Williams, P. E.

Western Regional Geotechnical

Manager

North Carolina Department

of Transportation

Geotechnical Engineering Unit

Western Regional Office

5253 Z Max Boulevard

Harrisburg, NC 28075

Via Email: WestGeotechnicalSubmittal@ncdot.gov

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

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

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

Primary Structures Contact: James Bolden

(919)707 - 6408

(919)

250 - 4082 facsimile

PASQUOTANK COUNTY

jlbolden@ncdot.gov

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

Madonna Rorie (919) 707 –
6508

Eastern Regional Geotechnical Contact (Divisions 1-7):
David Hering (919)
662 – 4710

dthering@ncdot.gov

Western Regional Geotechnical Contact (Divisions 8-14):

Eric Williams

(704)455 -

8902

ewilliams3@ncdot.gov

11.0 SUBMITTAL COPIES

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

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

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

STRUCTURE SUBMITTALS

| Submittal | Copies Required by Structures Management Unit | Copies Required by Geotechnical Engineering Unit | Contract Reference Requiring Submittal ¹ |
|------------------------------------|---|--|--|
| Arch Culvert Falsework | 5 | 0 | Plan Note, SN Sheet & "Falsework and Formwork" |
| Box Culvert Falsework ⁷ | 5 | 0 | Plan Note, SN Sheet & "Falsework and Formwork" |

| PROJECT NO. B-6053 | | | PASQUOTANK COUNTY |
|--|---------------------------|---|---|
| Cofferdams | 6 | 2 | Article 410-4 |
| Foam Joint Seals ⁶ | 9 | 0 | "Foam Joint Seals" |
| Expansion Joint Seals (hold down plate type with base angle) | 9 | 0 | "Expansion Joint Seals" |
| Expansion Joint Seals (modular) | 2, then 9 | 0 | "Modular Expansion Joint Seals" |
| Expansion Joint Seals (strip seals) | 9 | 0 | "Strip Seals" |
| Falsework & Forms ² (substructure) | 8 | 0 | Article 420-3 & "Falsework and Formwork |
| Falsework & Forms (superstructure) | 8 | 0 | Article 420-3 & "Falsework and Formwork |
| Girder Erection over Railroad | 5 | 0 | Railroad Provisions |
| Maintenance and Protection of Traffic Beneath Proposed Structure | 8 | 0 | "Maintenance and Protection of Traffic Beneath Proposed Structur at Station" |
| Metal Bridge Railing | 8 | 0 | Plan Note |
| Metal Stay-in-Place Forms | 8 | 0 | Article 420-3 |
| Metalwork for Elastomeric Bearings ^{4,5} | 7 | 0 | Article 1072-8 |
| Miscellaneous Metalwork 4,5 | 7 | 0 | Article 1072-8 |
| Disc Bearings ⁴ | 8 | 0 | "Disc Bearings" |
| Overhead and Digital Message Signs (DMS) (metalwork and foundations) | 13 | 0 | Applicable Provisions |
| Placement of Equipment on Structures (cranes, etc.) | 7 | 0 | Article 420-20 |
| Precast Concrete Box Culverts | 2, then 1 reproducible | 0 | "Optional Precast Reinforced Concrete Box Culvert at Station" |
| | | | 13 |

| PROJECT NO. B-6053 | | | PASQUOTANK COUNTY |
|--|--|--|---|
| Prestressed Concrete Cored Slab (detensioning sequences) ³ | 6 | 0 | Article 1078-11 |
| Prestressed Concrete Deck Panels | 6 and 1 reproducible | 0 | Article 420-3 |
| Prestressed Concrete Girder (strand elongation and detensioning sequences) | 6 | 0 | Articles 1078-8 and 1078- 11 |
| Removal of Existing Structure over Railroad | 5 | 0 | Railroad Provisions |
| Revised Bridge Deck Plans (adaptation to prestressed deck panels) | 2, then 1 reproducible | 0 | Article 420-3 |
| Revised Bridge Deck Plans (adaptation to modular expansion joint seals) | 2, then 1 reproducible | 0 | "Modular Expansion Joint Seals" |
| Sound Barrier Wall (precast items) | 10 | 0 | Article 1077-2 & "Sound Barrier Wall" |
| Sound Barrier Wall Steel Fabrication Plans ⁵ | 7 | 0 | Article 1072-8 & "Sound Barrier Wall" |
| Structural Steel ⁴ | 2, then 7 | 0 | Article 1072-8 |
| Temporary Detour Structures | 10 | 2 | Article 400-3 & "Construction, Maintenance and Removal of Temporary Structure at Station" |
| TFE Expansion Bearings ⁴ | 8 | 0 | Article 1072-8 |
| | (detensioning sequences) ³ Prestressed Concrete Deck Panels Prestressed Concrete Girder (strand elongation and detensioning sequences) Removal of Existing Structure over Railroad Revised Bridge Deck Plans (adaptation to prestressed deck panels) Revised Bridge Deck Plans (adaptation to modular expansion joint seals) Sound Barrier Wall (precast items) Sound Barrier Wall Steel Fabrication Plans ⁵ Structural Steel ⁴ Temporary Detour Structures | Prestressed Concrete Cored Slab (detensioning sequences) 3 Prestressed Concrete Deck Panels Prestressed Concrete Girder (strand elongation and detensioning sequences) Removal of Existing Structure over Railroad Revised Bridge Deck Plans (adaptation to prestressed deck panels) Revised Bridge Deck Plans (adaptation to modular expansion joint seals) Sound Barrier Wall (precast items) Sound Barrier Wall Steel Fabrication Plans 5 Structural Steel 4 Temporary Detour Structures 6 and 1 reproducible 6 and 1 reproducible 2 then 1 reproducible 7 then 1 reproducible 2 then 1 reproducible 2 then 1 reproducible 2 then 1 reproducible 2 then 1 reproducible | Prestressed Concrete Cored Slab (detensioning sequences) 3 6 0 Prestressed Concrete Deck Panels 1 reproducible 0 Prestressed Concrete Girder (strand elongation and detensioning sequences) Removal of Existing Structure over Railroad 5 0 Revised Bridge Deck Plans (adaptation to prestressed deck panels) Revised Bridge Deck Plans (adaptation to modular expansion joint seals) Sound Barrier Wall (precast items) 10 0 Sound Barrier Wall Steel Fabrication Plans 5 7 0 Structural Steel 4 2, then 7 0 Temporary Detour Structures 10 2 |

FOOTNOTES

- 1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the Standard Specifications.
- 2. Submittals for these items are necessary only when required by a note on plans.
- 3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
- 4. The fabricator may submit these items directly to the Structures Management Unit.
- 5. The two sets of preliminary submittals required by Article 1072-8 of the Standard Specifications are not required for these items.

PASQUOTANK COUNTY

- 6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
- 7. Submittals are necessary only when the top slab thickness is 18" or greater.

GEOTECHNICAL SUBMITTALS

| Submittal | Copies Required by Geotechnical Engineering Unit | Copies Required by Structures Management Unit | Contract Reference Requiring Submittal ¹ |
|---|--|---|--|
| Drilled Pier Construction Plans ² | 1 | 0 | Subarticle 411-3(A) |
| Crosshole Sonic Logging (CSL) Reports ² | 1 | 0 | Subarticle 411-5(A)(2) |
| Pile Driving Equipment Data Forms ^{2,3} | 1 | 0 | Subarticle 450-3(D)(2) |
| Pile Driving Analyzer (PDA) Reports ² | 1 | 0 | Subarticle 450-3(F)(3) |
| Retaining Walls ⁴ | 1 drawings, 1 calculations | 2 drawings | Applicable Provisions |
| Temporary Shoring ⁴ | 1 drawings, 1 calculations | 2 drawings | "Temporary Shoring" & "Temporary Soil Nail Walls" |

FOOTNOTES

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

PASQUOTANK COUNTY

CRANE SAFETY (6-20-19)

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

Submit all items listed below to the Engineer prior to beginning crane operations. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

- A. <u>Competent Person:</u> Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
- B. <u>Riggers:</u> Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.
- C. <u>Crane Inspections:</u> Inspection records for all cranes shall be current and readily accessible for review upon request.
- D. <u>Certifications:</u> Crane operators shall be certified by the National Commission for the Certification of Crane Operators (NCCCO) or the National Center for Construction Education and Research (NCCER). Other approved nationally accredited programs will be considered upon request. In addition, crane operators shall have a current CDL medical card. Submit a list of crane operator(s) and include current certification for each type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

PASQUOTANK COUNTY

GROUT FOR STRUCTURES

(12-1-17)

1.0 DESCRIPTION

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

2.0 MATERIAL REQUIREMENTS

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

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

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

3.0 SAMPLING AND PLACEMENT

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

4.0 BASIS OF PAYMENT

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

PASQUOTANK COUNTY

ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES

(12-30-15)

1.0 Inspection for Asbestos Containing Material

Prior to conducting bridge demolition or renovation activities, the Contractor shall thoroughly inspect the bridge or affected components for the presence of asbestos containing material (ACM) using a firm prequalified by NCDOT to perform asbestos surveys. The inspection must be performed by a N.C. accredited asbestos inspector with experience inspecting bridges or other industrial structures. The N.C. accredited asbestos inspector must conduct a thorough inspection, identifying all asbestos-containing material as required by the Environmental Protection Agency National Emission Standards for Hazardous Air Pollutants (NESHAP) Code of Federal Regulations (CFR) 40 CFR, Part 61, Subpart M.

The Contractor shall submit an inspection report to the Engineer, which at a minimum must include information required in 40 CFR 763.85 (a)(4) vi)(A)-(E), as well as a project location map, photos of existing structure, the date of inspection and the name, N.C. accreditation number, and signature of the N.C. accredited asbestos inspector who performed the inspection and completed the report. The cover sheet of the report shall include project identification information. Place the following notes on the cover sheet of the report and check the appropriate box:

| ACM | was | four | nd |
|------------|-----|------|-------|
| ACM | was | not | found |

2.0 REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIAL

If ACM is found, notify the Engineer. Compensation for removal and disposal of ACM is considered extra work in accordance with Article 104-7 of the Standard Specifications.

An Asbestos Removal Permit must be obtained from the Health Hazards Control Unit (HHCU) of the N.C. Department of Health & Human Services, Division of Public Health, if more than 35 cubic feet, 160 square feet, or 260 linear feet of regulated ACM (RACM) is to be removed from a structure and this work must be completed by a contractor prequalified by NCDOT to perform asbestos abatement. RACM is defined in 40 CFR, Part 61, Subpart M. Note: 40 CFR 763.85 (a)(4) vi)(D) defines ACM as surfacing, TSI and Miscellaneous which does not meet the NESHAP RACM.

3.0 DEMOLITION NOTIFICATION

Even if no ACM is found (or if quantities are less than those required for a permit), a Demolition Notification (DHHS-3768) must be submitted to the HHCU. Notifications and Asbestos Permit applications require an original signature and must be submitted to the HHCU 10 working days prior to beginning demolition activities. The 10 working day period starts based on the post-marked date or date of hand delivery. Demolition that does not begin as originally notified requires submission of a separate revision form HHCU 3768-R to HHCU. Reference the North Carolina Administrative Code, Chapter 10A, Subchapter 41C, Article .0605 for directives on revision submissions.

PASQUOTANK COUNTY

Contact Information

Health Hazards Control Unit (HHCU) N.C. Department of Health and Human Services 1912 Mail Service Center Raleigh, NC 27699-1912 Telephone: (919) 707-5950

Fax: (919) 870-4808

4.0 SPECIAL CONSIDERATIONS

Buncombe, Forsyth, and Mecklenburg counties also have asbestos permitting and NESHAP requirements must be followed. For projects involving permitted RACM removals, both the applicable county and the state (HHCU) must be notified.

For demolitions with no RACM, only the local environmental agencies must be notified. Contact information is as follows:

Buncombe County

WNC Regional Air Pollution Control Agency 49 Mt. Carmel Road Asheville, NC 28806 (828) 250-6777

Forsyth County

Environmental Affairs Department 537 N. Spruce Street Winston-Salem, NC 27101 (336) 703-2440

Mecklenburg County

Land Use and Environmental Services Agency Mecklenburg Air Quality 700 N. Tryon Street Charlotte, NC 28202 (704) 336-5430

5.0 ADDITIONAL INFORMATION

Additional information may be found on N.C. asbestos rules, regulations, procedures and N.C. accredited inspectors, as well as associated forms for demolition notifications and asbestos permit applications at the N.C. Asbestos Hazard Management Program website:

www.epi.state.nc.us/epi/asbestos/ahmp.html

PASQUOTANK COUNTY

6.0 BASIS OF PAYMENT

Payment for the work required in this provision will be at the lump sum contract unit price for "Asbestos Assessment". Such payment will be full compensation for all asbestos inspections, reports, permitting and notifications.

PASQUOTANK COUNTY

GALVANIZED STEEL SHEET PILES

(SPECIAL)

The 2018 Standard Specifications shall be revised as follows:

Replace the first paragraph of Section 1084-2 - STEEL SHEET PILES with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required by the plans. Galvanized sheet piles shall be coated in accordance with Section 1076. Complete all work in accordance with the contract plans and Section 452 of the Standard Specifications except measurement and payment for the steel sheet piles will be as described below.

Sheet piles will be measured and paid as the actual number of square feet of sheet piles completed and accepted. In determining this quantity, the sheet pile length used in the computation is the sheet pile length shown on the plans. The sheet pile heights are measured as the difference between the top elevation as shown on the plans and the bottom of the steel sheet piles.

Payment will be made under:

PASOUOTANK COUNTY

GROUT FOR PILE BLOCKOUTS (SPECIAL)

Use grout that is commercially manufactured non-shrink, non-metallic material meeting the requirements of the Standard Specifications when water or water and aggregate is added in accordance with the manufacturer's recommendations.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate.

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

Compressive strength shall be at least 5000 psi at 3 days.

Compressive strength in the laboratory will be determined in accordance with ASTM C109 except that the mix shall contain only water and the dry manufactured material. Compressive strength will be determined in the field by molding and testing 4" x 8" cylinders in accordance with AASHTO T22.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

The quantity of water added to the mix shall be in accordance with the manufacturer's recommendations.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer. The quantity and gradation of the aggregate will be in accordance with the manufacturer's recommendations.

Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure that the material is non-shrink

The Engineer reserves the right to reject material based on unsatisfactory performance.

PASQUOTANK COUNTY

PRESTRESSED CORED SLAB BRIDGES (SPECIAL)

Material shall meet the requirements of the North Carolina Department of Transportation Standard Specifications sections: 420-15(A), 420-18, 1081-2(B), 1078-15,

A. GROUT FOR TRANSVERSE STRANDS

All recesses at the ends of the transverse strands shall be filled completely with a non-shrink, non-metallic grout. All recesses shall be filled in a neat and workmanlike manner and the grout shall match the neat lines of the cored slabs.

B. EPOXY PROTECTIVE COATING: (420-18)

(A) General

Use a Type 4A flexible and moisture insensitive epoxy coating in accordance with Section 1081. Provide a Type 3 material certification in accordance with Article 106-3 showing the proposed epoxy meets Type 4A requirements.

(B) Surfaces

Apply the epoxy protective coating to the top surface area, including chamfer area of bent caps under expansion joints and of end bent caps, excluding areas under elastomeric bearings. For cored slab and box beam bridges, do not apply the epoxy protective coating to the bent or end bent caps. Use extreme care to keep the area under the elastomeric bearings free of the epoxy protective coating. Thoroughly clean all dust, dirt, grease, oil, laitance and other objectionable material from the concrete surfaces to be coated. Air blast all surfaces immediately before applying the protective coating. Use only cleaning agents approved by the Engineer.

(C) Application

Apply epoxy protective coating only when the air temperature is at least 40°F and rising, but less than 95°F and the surface temperature of the area to be coated is at least 40°F, and in accordance with the manufacturer's recommendations. Remove any excess or free-standing water from the surfaces before applying the coating. Apply one coat of epoxy protective coating at a rate such that it covers between 100 and 200 square feet per gallon. Under certain combinations of circumstances, the cured epoxy protective coating may develop an oily condition on the surface due to amine blush. This condition is not detrimental to the applied system. Apply the coating so the entire designated surface of the concrete is covered, and all pores are filled. To provide a uniform appearance, use the exact same material on all visible surfaces.

C. TOLERANCES FOR PLACING VERTICAL RAIL ANCHORAGE BARS The exterior cored slab sections shall be manufactured with the vertical rail anchorage bars (#8 S7) placed to meet the following tolerances:

Deviation from plan position of an individual bar

±1/4"

PASQUOTANK COUNTY

Horizontal alignment (deviation from a straight line which coincides with the plan center line of bars) ±1/4" ±1/4"

Projection of bars above top of cored slab (deviation from plan dimension)

D. MATCHMARKING

In order to be assured of a good, neat field fit, span shall be assembled by manufacturer in his yard and pieces match-marked. Pieces must fit together neatly and in a workmanlike manner.

E. ERECTION OF PRESTRESSED CONCRETE CORED SLABS

The transverse strands shall be greased and then placed in a non-corrosive 0.6" diameter, 1/16" wall thickness black polyethylene pipe meeting the requirements of ASTM D2239. The grease and pipe shall not be applied in the areas of the recesses at the ends of the tensioning strands where grout is to be applied.

In erecting the prestressed cored slabs, the 0.6" diameter transverse post tensioning strands shall be placed and tensioned to 43,950 pounds per strands in each span. After the 0.6" diameter transverse strand has been tensioned in a span and before any equipment, material or barrier rail is placed on the span, the shear keys and anchor holes shall be filled with the mix or grout as specified else where in these special provisions, except as noted in the four paragraphs:

- (1) The Contractor will be allowed with the approval of the Engineer, to place material and equipment on the cored slab spans on mats after the transverse strands have been tensioned to 43,950 pounds.
- (2) The Contractor must submit a detailed drawing for approval to the Engineer for the mats he intends to place on the cored slabs for his material and equipment. This drawing should give a complete description of the material and equipment that the Contractor intends to place on the mats.
- (3) In the event the Contractor uses mats and places material and equipment on the cored slabs, the transverse strands shall be retensioned to 43,950 pounds after the material and equipment is removed from the spans. The shear keys shall be grouted after the transverse strands have been retensioned.

F. GROUTING OF PRESTRESSED CORED SLABS

After all erection work has been completed the shear keys shall be grouted by the Contractor with a non-shrink, non-metallic grout.

The non-shrink, non-metallic grout shall be on the Department's approval list and shall meet the approval of the Engineer. The minimum strength for this grout shall be 3000 pounds per square inch after curing for 3 days minimum.

G. SURFACE FINISH

Top surface of slab sections shall be given a broom finish. No surface finish will be required for sides and bottom of slab sections.

PASOUOTANK COUNTY

H. CHAMFERS

Bottom corners on ends and sides of all slab sections and top outside corner of exterior slab sections shall be chamfered ¾". Vertical corners at ends of slab sections shall not be chamfered except acute corners of skew slabs shall be chamfered ¾" on all corners.

PRECAST CONCRETE BARRIER RAIL

(SPECIAL)

Use the precast concrete barrier rail in accordance with the plans, sections 460 and 1077 of the Standard Specifications and this special provision.

Replace references to "concrete barrier rail" with "precast concrete barrier rail."

Submit 8 copies of casting drawings as required in accordance with the "Submittal of Working Drawings" Special Provision. Casting drawings should include all details and notes required for casting and installing precast concrete barrier rail including the installation, tensioning of the anchor bolts, and grouting of anchor bolt pockets. Inspection of the elements is required in accordance with the Standard Specifications.

Concrete shall be CLASS "AA".

Steel forms shall be used in casting to insure uniformity of the precast concrete vertical barrier rail. No surface finish will be required for the bottom of the precast concrete vertical barrier rail.

Precast concrete vertical barrier rail shall be manufactured within the tolerances indicated as follows:

| Depth (overall) | ±1/4" |
|---|-------|
| Width (top or bottom) | ±1/4" |
| Length (any one precast section) | ±1/8" |
| Anchor Holes (deviation from plan position) | ±1/4" |
| Square ends (deviation from square) | ±1/4" |

Horizontal alignment (deviation from a straight line parallel to centerline of a precast section) $\pm 1/8$ " per 10 ft.

A. ERECTION OF PRECAST CONCRETE VERTICAL BARRIER RAIL

The Contractor shall erect the precast concrete barrier vertical barrier rail including placement of the grout bed and grouting of the anchorage bar voids.

B. GROUT BED AND GROUTING OF ANCHORAGE BAR VOIDS

A non-shrink, non-metallic grout shall be used for the grout bad and for grouting the anchorage bar voids. The non-shrink, non-metallic grout shall be on the Department's approved list and shall meet the approval of the Engineer. The minimum strength for this grout shall be 3000 pounds per square inch after curing for 3 days minimum.

PASQUOTANK COUNTY

Payment shall include all work, tools and materials required beginning with precasting the concrete barriers through the completed installation of the barriers on the bridge. The payment includes but is not be limited to casting, storing, transporting, erecting, and anchoring the precast concrete barrier rail units. The payment shall include the grout bed, steel anchor plates, and adhesive anchors.

Payment will be made under:

Precast Concrete Barrier Rail Linear Feet

PRECAST PIECE EB110

(SPECIAL)

The Contractor shall provide prestressed concrete end bent caps in accordance with the plans and Standard Specifications.

Measurement and payment will be for the actual number of piece of prestressed concrete end bent caps.

Payment will be made under:

Precast Piece EB110 Each

PRECAST PIECE EB120

(SPECIAL)

The Contractor shall provide prestressed concrete end bent caps in accordance with the plans and Standard Specifications.

Measurement and payment will be for the actual number of piece of prestressed concrete end bent caps.

Payment will be made under:

Precast Piece EB120. Each

PASOUOTANK COUNTY

PRECAST PIECE EB130

(SPECIAL)

The Contractor shall provide prestressed concrete end bent caps in accordance with the plans and Standard Specifications.

Measurement and payment will be for the actual number of pieces of prestressed concrete end bent caps.

Payment will be made under:

Precast Piece EB130 Each

PRECAST PIECE EB140

(SPECIAL)

The Contractor shall provide prestressed concrete end bent caps in accordance with the plans and Standard Specifications.

Measurement and payment will be for the actual number of pieces of prestressed concrete end bent caps.

Payment will be made under:

Precast Piece EB140 Each

PRECAST PIECE BW150

(SPECIAL)

The Contractor shall provide prestressed concrete end bent caps in accordance with the plans and Standard Specifications.

Measurement and payment will be for the actual number of pieces of prestressed concrete end bent caps.

Payment will be made under:

Precast Piece BW150 Each

BID FORM

WBS Element: 48754.3.1 Contract Number: EC051821
DESCRIPTION: Replace Bridge No.34 on Providence Rd. over Knobbs Creek Tributary in Pasquotank County

PAGE 1 OF 3

| | | | | | | PAGE | 1 01 5 |
|------|----------------|-------|--|--------|------|-------------|---------------|
| LINE | ITEM NUMBER | SECT. | DESCRIPTION | QUANT. | UNIT | UNIT BID | AMOUNT BID |
| 1 | 0000100000-N | 800 | MOBILIZATION | 1 | LS | | |
| 2 | 0000400000-N | 801 | CONSTRUCTION SURVEYING | 1 | LS | | |
| 3 | 0030000000-N | SP | TYPE II MODIFIED APPROACH FILL, STA 11+99.00 -L- | 1 | LS | | |
| 4 | 0043000000-N | 226 | GRADING | 1 | LS | | |
| 5 | 0050000000-E | 200 | SUPPLEMENTAL CLEARING & GRUBBING | 1 | ACR | | |
| 6 | 0196000000-E | 270 | GEOTEXTILE FOR SOIL STABILIZATION | 300 | SY | | |
| 7 | 0220000000-E | SP | ROCK EMBANKMENTS | 160 | TON | | |
| 8 | 0222000000-E | SP | GEOTEXTILE FOR ROCK EMBANKMENTS | 280 | SY | | |
| 9 | 0223000000-Е | 275 | ROCK PLATING | 380 | SY | | |
| 10 | 1077000000-E | SP | #57 STONE | 70 | TON | | |
| 11 | 1099500000-E | 505 | SHALLOW UNDERCUT | 100 | CY | | |
| 12 | 1099700000-E | 505 | CLASS IV SUBGRADE STABILIZATION | 190 | TON | | |
| 13 | 1220000000-E | 545 | INCIDENTAL STONE BASE | 50 | TON | | |
| 14 | 133000000-Е | 607 | INCIDENTAL MILLING | 200 | SY | | |
| 15 | 1491000000-E | 610 | ASPHALT CONC BASE COURSE, TYPE B25.0C | 40 | TON | | |
| 16 | 1519000000-E | 610 | ASPHALT CONC SURFACE COURSE, TYPE S9.5B | 130 | TON | | |
| 17 | 1575000000-E | 620 | ASPHALT BINDER FOR PLANT MIX | 15 | TON | | |
| 18 | 2044000000-Е | 815 | 6" PERFORATED SUBDRAIN PIPE | 200 | LF | | |
| 19 | 2556000000-E | 846 | SHOULDER BERM GUTTER | 13 | LF | | |
| 20 | 2570000000-N | SP | MODIFIED CONCRETE FLUME | 4 | EA | | |
| 21 | 3150000000-N | 862 | ADDITIONAL GUARDRAIL POSTS | 5 | EA | | |
| 22 | 3288000000-N | SP | GUARDRAIL END UNITS, TL-2 | 4 | EA | | |
| 23 | 3319000000-N | SP | GUARDRAIL ANCHOR UNITS, TYPE B-83 | 4 | EA | | |
| 24 | 3642000000-E | 876 | RIP RAP, CLASS A | 70.00 | TON | | |
| 25 | 440000000-E | 1110 | WORK ZONE SIGNS (STATIONARY) | 434 | SF | | |
| 26 | 4410000000-E | 1110 | WORK ZONE SIGNS (BARRICADE MOUNTED) | 57 | SF | | |
| 27 | 4415000000-N | 1115 | FLASHING ARROW BOARD | 1 | EA | | |
| 28 | 4430000000-N | 1130 | DRUMS | 24 | EA | | |
| 29 | 4445000000-E | 1145 | BARRICADES (TYPE III) | 48 | LF | | |
| 30 | 5329000000-E | 1510 | DUCTILE IRON WATER PIPE FITTINGS | 345 | LBS | | |
| 31 | 5589100000-E | 1515 | 1" AIR RELEASE VALVE | 2 | EA | | |
| 32 | 5769000000-E | 1520 | DUCTILE IRON SEWER PIPE FITTINGS | 230 | LBS | | |
| 33 | 5775000000-E | 1525 | 4' DIA UTILITY MANHOLE | 2 | EA | | |
| 34 | 5798000000-E | 1530 | ABANDON 4" UTILITY PIPE | 345 | LF | | |
| 35 | 5800000000-E | 1530 | ABANDON 6" UTILITY PIPE | 333 | LF | | |
| | | | **CONTINUED ON DACE 2 | | | | |

CONTINUED ON PAGE 2

BID FORM

WBS Element: 48754.3.1 Contract Number: EC051821

DESCRIPTION: Replace Bridge No.34 on Providence Rd. over Knobbs Creek Tributary in Pasquotank County

PAGE 2 OF 3

| | | | | | | FAGE 2 | |
|------|----------------|-------|--|--------|------|-------------|---------------|
| LINE | ITEM NUMBER | SECT. | DESCRIPTION | QUANT. | UNIT | UNIT BID | AMOUNT BID |
| 36 | 5872600000-E | 1550 | DIRECTIONAL DRILLING OF 6" (HDPE) | 347 | LF | | |
| 37 | 5872600000-E | 1550 | DIRECTIONAL DRILLING OF 8" (HDPE) | 336 | LF | | |
| 38 | 600000000-Е | 1605 | TEMPORARY SILT FENCE | 795 | LF | | |
| 39 | 6006000000-Е | 1610 | STONE FOR EROSION CONTROL, CLASS A | 75 | TON | | |
| 40 | 6012000000-Е | 1610 | SEDIMENT CONTROL STONE | 55 | TON | | |
| 41 | 6015000000-Е | 1615 | TEMPORARY MULCHING | 1.50 | ACR | | |
| 42 | 6018000000-Е | 1620 | SEED FOR TEMPORARY SEEDING | 200.00 | LB | | |
| 43 | 6021000000-Е | 1620 | FERTILIZER FOR TEMPORARY SEEDING | 1.00 | TON | | |
| 44 | 6024000000-E | 1622 | TEMPORARY SLOPE DRAINS | 200 | LF | | |
| 45 | 6029000000-Е | SP | SAFETY FENCE | 920 | LF | | |
| 46 | 6036000000-E | 1631 | MATTING FOR EROSION CONTROL | 1,125 | SY | | |
| 47 | 6037000000-Е | SP | COIR FIBER MAT | 100 | SY | | |
| 48 | 6042000000-E | 1632 | 1/4" HARDWARE CLOTH | 90 | LF | | |
| 49 | 6048000000-Е | SP | FLOATING TURBIDITY CURTAIN | 1035 | SY | | |
| 50 | 6070000000-E | 1639 | SPECIAL STILLING BASINS | 2 | EA | | |
| 51 | 6071014000-Е | SP | COIR FIBER WATTLE BARRIER | 120 | LF | | |
| 52 | 6084000000-E | 1660 | SEEDING AND MULCHING | 3.00 | ACR | | |
| 53 | 6087000000-E | 1660 | MOWING | 3.00 | ACR | | |
| 54 | 6090000000-E | 1661 | SEED FOR REPAIR SEEDING | 50.00 | LB | | |
| 55 | 6093000000-Е | 1661 | FERTILIZER FOR REPAIR SEEDING | 0.25 | TON | | |
| 56 | 6096000000-E | 1662 | SEED FOR SUPPLEMENTAL SEEDING | 50.00 | LB | | |
| 57 | 6108000000-E | 1665 | FERTILIZER TOPDRESSING | 1.25 | TON | | |
| 58 | 6114500000-N | 1667 | SPECIALIZED HAND MOWING | 10 | MHR | | |
| 59 | 6117000000-N | SP | RESPONSE FOR EROSION CONTROL | 7 | EA | | |
| 60 | 6117500000-N | SP | CONCRETE WASHOUT STRUCTURE | 2 | EA | | |
| 61 | 8035000000-N | 402 | REMOVAL OF EXISTING STRUCTURE AT STATION 11+99.00 -L- | 1 | LS | | |
| 62 | 8065000000-N | SP | ASBESTOS ASSESSMENT | 1 | LS | | |
| 63 | 8112730000-N | 450 | PDA TESTING | 1 | EA | | |
| 64 | 8121000000-N | 412 | UNCLASSIFIED STRUCTURE EXCAVATION AT STA 11+99.00 -L- | 1 | LS | | |
| 65 | 8210000000-N | 422 | BRIDGE APPROACH SLABS, STATION 11+99.00-L- | 1 | LS | | |
| 66 | 8364000000-E | 450 | HP 12X53 STEEL PILES | 900 | LF | | |
| 67 | 8393000000-N | 450 | PILE REDRIVES | 6 | EA | | |
| 68 | 8657000000-E | 430 | ELASTOMERIC BEARINGS | 1 | LS | | |
| | | | | | | | |

CONTINUED ON PAGE 3

BID FORM

WBS Element: 48754.1.1 Contract Number: EC051821

DESCRIPTION: Replace Bridge No.34 on Providence Rd. over Knobbs Creek in Pasquotank County

PAGE 3 OF 3

| LINE | ITEM NUMBER | SECT. | DESCRIPTION | QUANT. | UNIT | UNIT BID | AMOUNT BID |
|------|----------------|-------|---|--------|------|-------------|---------------|
| 69 | 8755000000-E | 430 | 3'-0" X 1'-6" PRESTRESSED CONC CORED SLABS | 446.67 | LF | | |
| 70 | 8892000000-E | SP | GENERIC STRUCTURE ITEM (PZ27 GALVANIZED STEEL SHEET PILES) | 4,180 | SF | | |
| 71 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (7'-4" PRECAST BARRIER RAIL UNIT) | 4 | EA | | |
| 72 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (10'-0" PRECAST BARRIER RAIL UNIT) | 6 | EA | | |
| 73 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (PRECAST PIECE EB110) | 2 | EA | | |
| 74 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (PRECAST PIECE EB120) | 4 | EA | | |
| 75 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (PRECAST PIECE EB130) | 4 | EA | | |
| 76 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (PRECAST PIECE EB140) | 4 | EA | | |
| 77 | 8897000000-N | SP | GENERIC STRUCTURE ITEM (PRECAST PIECE BW150) | 4 | EA | | |

| TOTAL BID FOR PROJECT: | |
|--|----------------------|
| | |
| | |
| | |
| THIS SECTION TO BE COMPLETED BY The City of Elizabeth City | |
| This bid has been reviewed in accordance with Article 103-1 of the Standard Roads and Structures 2018. | l Specifications for |
| Reviewed by | (date) |

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 | By |
| Secretary/Assistant Secretary | President/Vice President/Assistant Vice President |
| (Select appropriate title) | (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 |
| Print or Type Signer's Name | Print or Type Signer's Name |

${\bf NON\text{-}COLLUSION\ AFFIDAVIT,\ DEBARMENT\ CERTIFICATION\ AND\ GIFT\ BAN\ CERTIFICATION}$

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 |
|-----------------------------|---|
| | |
| | |
| Addres | s 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) | inia joint venturer, ii applicable and execut | e below in the appropriate manner. | |
|-------------------------|---|------------------------------------|-----------------------------|
| ame of Joint Vent | ture | | |
| (2) ame of Contracto | | | |
| unic of Communic | • | | |
| _ | | Address as Prequalified | |
| | | BY | |
| | Signature of Witness or Attest | | Signature of Contractor |
| | Print or Type Signer's Name | _ | Print or Type Signer's Name |
| | If Corporation, affix Corporate Seal | AND | |
| (3) | | | |
| ame of Contracto | r | | |
| _ | | Address as Prequalified | |
| | | BY | |
| | Signature of Witness or Attest | | Signature of Contractor |
| | Print or Type Signer's Name | - | Print or Type Signer's Name |
| | If Corporation, affix Corporate Seal | AND | |
| (4)ame of Contracto | r | | |
| | | Address as Prequalified | |
| | | BY | |
| _ | Signature of Witness or Attest | | Signature of Contractor |
| | Print or Type Signer's Name | _ | Print or Type Signer's Name |
| | If Corporation, affix Corporate Seal | | |

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 Daine Dusiness As | |
| Trading and Doing Business As | Full name of Firm |
| | |
| Addre | ess 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 o | 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 bidde

| eing considered non-responsive. |
|--|
| Check here is an explanation is attached to this certification |

STATE OF NORTH CAROLINA

BID BOND

| Principal: | | |
|---|---|---|
| Surety: | | Name of Principal Contractor |
| | - | Name of Surety |
| Contract Number: | | County: |
| Date of Bid: | | |
| and SURETY about sum of five (5) per which sum well an | ve named, are held and firmly bor ercent of the total amount bid by | ve, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and unto the Department of Transportation in the full and just the Principal for the project stated above, for the payment of ves, our heirs, executors, administrators, and successors, jointly |
| days after the oper Board of Transport days after written in the faithful perfort equipment for the particles of the mistake in accordant the conditions and Transportation mal contract. In the ey days to comply with opened except as additional docume | ning of the bids, or within such of tation shall award a contract to the notice of award is received by him mance of the contract and for a prosecution of the work. In the even nee with the provisions of Article I obligations of this Bid Bond si kes a final determination to either ent a determination is made to awaith the requirements set forth above provided in Article 103-3, or after ints as may be required and to provi | on is: the Principal shall not withdraw its bid within sixty (60) ther time period as may be provided in the proposal, and if the ne Principal, the Principal shall, within fourteen (14) calendar, provide bonds with good and sufficient surety, as required for the protection of all persons supplying labor, material, and ent the Principal requests permission to withdraw his bid due to 103-3 of the Standard Specifications for Roads and Structures, thall remain in full force and effect until the Department of allow the bid to be withdrawn or to proceed with award of the ard the contract, the Principal shall have fourteen (14) calendar we. In the event the Principal withdraws its bid after bids are are award of the contract has been made fails to execute such yide the required bonds within the time period specified above, attely paid to the Department of Transportation as liquidated |
| IN TESTIMONY | WHEREOF, the Principal and Sure | ety have caused these presents to be duly signed and sealed. |
| This the da | y of, 20 | |
| | | Country |
| | | Surety |
| | | By |
| | | General Agent or Attorney-in-Fact Signature |
| | Seal of Surety | |
| | | Print or type Signer's Name |

BID BOND

CORPORATION

| | Full name of Corporation |
|--------|---|
| | |
| | Address as prequalified |
| | Ву |
| | 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 |

| EC051821 | FEDERAL |
|----------|---------|
| | |

| Contract No. | | Rev. 4-19-1 |
|--|-------------------------------------|-------------|
| County | | |
| | BID BOND | |
| | LIMITED LIABILITY COMPANY | |
| | SIGNATURE OF CONTRACTOR (Principal) | |
| Name of Contractor | Full name of Firm | |
| | run name or rum | |
| | Address as prequalified | |
| Signature of Member/ Manager/Authorized Agent | | |
| gen/ | Individually | |
| | | |
| | | |
| | Print or type Signer's name | |

BID BOND

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

| Name of Contractor | |
|-------------------------------|-----------------------------|
| <u> </u> | Individual Name |
| Trading and doing business as | |
| | Full name of Firm |
| \ <u>-</u> | Address as prequalified |
| Signature of Contractor | Individually |
| | |
| - | Print or type Signer's name |
| | |
| Signature of Witness | |
| Signatore of Witness | |
| Print or type Signer's name | |

BID BOND

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

| Name of Contractor | |
|---------------------------|-------------------------------|
| - | Print or type Individual Name |
| | |
| | |
| | Address as prequalified |
| | |
| | |
| Signature of Contractor _ | |
| | Individually |
| | |
| | |
| - | Print or type Signer's name |
| | |
| | |
| | |
| G' CW' | |
| Signature of Witne | ess |
| | |
| | |
| Print or type Signer's | name |

BID BOND

PARTNERSHIP

| | Full name of Partner | ship |
|----------------------|----------------------|----------------------------|
| | | |
| | | |
| | | |
| | Address as prequali | fied |
| | | |
| | Ву _ | Signature of Partner |
| | | Signature of Farmer |
| | | |
| | | |
| | · - | Drint or true Signaria nom |
| | | Print or type Signer's nam |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Signature of Witness | | |
| | | |
| | | |
| | | |

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 Venturers 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.

| | | Name of Joint Ventu | ıre |
|---|-------------------------------------|----------------------------|-----------------------------|
| - | | Name of Contracto | or |
| _ | | Address as prequalif | ı̃ed |
| | | | |
| | Signature of Witness or Attest | By | Signature of Contractor |
| _ | Print or type Signer's name | - | Print or type Signer's name |
| Į | f Corporation, affix Corporate Seal | | |
| | | and | |
| _ | | Name of Contracto | Net - |
| | | | |
| | | Address as prequalif | ied |
| | Signature of Witness or Attest | Ву | Signature of Contractor |
| _ | Print or type Signer's name | - | Print or type Signer's name |
| I | f Corporation, affix Corporate Seal | | |
| | | and | |
| | | | |
| | Name | of Contractor (for 3 Joint | Venture only) |
| - | | Address as prequalif | ied |
| - | Signature of Witness or Attest | Ву | Signature of Contractor |
| | | | Print or type Signer's name |

If Corporation, affix Corporate Seal

Execution of Contract

| Contract No: EC051821 | |
|--|--|
| County: PASQUOTANK | |
| ACCEPTED BY THE CITY | |
| | |
| <u>Mayor</u> | |
| Date | |
| EXECUTION OF CONTRACT AND BONDS APPROVED AS TO FORM: | |
| <u>City Attorney</u> | |
| Date | |

Signature Sheet (Bid) - ACCEPTANCE SHEET

Attach to Bid Attach to Bid

Identification of HUB Certified/ Minority Business Participation

| o hereby certify that on this project, we will onstruction subcontractors, vendors, suppli | | | business as |
|---|--|-----------------------|-----------------------------|
| irm Name, Address and Phone # | Work Type | *Minority Category | **HUB Certified (Y/N) |
| | 1 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| *Minority categories: Black, African America Female (F) Socially : | n (B), Hispanic (H), Asian <i>i</i> and Economically Disadvar | | rican Indian (I |

Attach to Bid Attach to Bid

State of North Carolina AFFIDAVIT A - Listing of Good Faith Efforts County of (Name of Bidder) Affidavit of I have made a good faith effort to comply under the following areas checked: Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101) 1 - (10 pts) Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed. 2 -- (10 pts) Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due. 3 - (15 pts) Broken down or combined elements of work into economically feasible units to facilitate minority participation. 4 – (10 pts) Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses. 5 - (10 pts) Attended prebid meetings scheduled by the public owner. ☐ 6 - (20 pts) Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors. 7 - (15 pts) Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing. 8 - (25 pts) Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit. 9 – (20 pts) Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible. 10 - (20 pts) Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands. The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract. The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth. Name of Authorized Officer:_____ Signature:____ Title: _____ , County of Subscribed and sworn to before me this _____day of _____20 SEAL Notary Public____ My commission expires

Attach to Bid Attach to Bid

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

| County of |
|---|
| Affidavit of |
| (Name of Bidder) I hereby certify that it is our intent to perform 100% of the work required for the |
| contract. |
| (Name of Project) |
| In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform <u>all</u> <u>elements of the work</u> on this project with his/her own current work forces; and |
| The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible. |
| The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained. |
| Date:Name of Authorized Officer: |
| Signature: |
| SEAL Title: |
| State of, County of Subscribed and sworn to before me thisday of20 Notary Public My commission expires |

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid

| State of North Carolina - AFFIDAVIT C - | Portion of the Work to be |
|--|---------------------------|
| Performed by HUB Certified/Minority Business | es |

| (Note this form is to be su | ubmitted only by the ap | parent lowest | t responsible, re | sponsive bidder.) |
|---|---|---|------------------------------------|-----------------------|
| If the portion of the work to 128.2(g) and 128.4(a),(b),(c) bidder must complete this a This affidavit shall be provide after notification of being log | e) is <u>equal to or greater the</u> affidavit. ded by the apparent lowe | nan 10% of the | e bidders total cor | tract price, then th |
| Affidavit of | | | l do herel | by certify that on th |
| | (Name of Bidder) | | | |
| Project ID# | (Project Name) | Amount of Bid | \$ | |
| I will expend a minimum of enterprises. Minority busin or providers of professiona below. | nesses will be employed | as construction will be subco | on subcontractors | , vendors, supplier |
| Name and Phone Number | *Minority Category | **HUB Certified Y/N | Work Description | Dollar Value |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | rican American (B), Hispan emale (F) Socially and Eco e state HUB Office require | nomically Disad d to be counte | vantaged (D) d toward state par | ticipation goals. |
| | d) the undersigned will e | | | |
| Pursuant to GS143-128.2(owork listed in this schedule | e conditional upon execu | ition of a cont | ract with the Owi | ner. Failure to full |
| Pursuant to GS143-128.2(d work listed in this schedule this commitment may const The undersigned hereby ce authorized to bind the bidde | e conditional upon executitute a breach of the con ertifies that he or she has | ition of a cont tract. read the term: | | |

_____, County of ____

Subscribed and sworn to before me this _____day of ___

My commission expires_____

Title:____

State of _

Notary Public__

Do not submit with the bid Do not submit with the bid

State of North Carolina AFFIDAVIT D - Good Faith Efforts County of (Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.) If the goal of 10% participation by HUB Certified/ minority business is not achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts: I do hereby certify that on the Affidavit of (Name of Bidder) (Project Name) Project ID# Amount of Bid \$ I will expend a minimum of % of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors. vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required) Name and Phone Number **HUB Work Dollar Value *Minority Certified Category Description Y/N *Minority categories: Black, African American (B), Hispanic (H), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (D) ** HUB Certification with the state HUB Office required to be counted toward state participation goals. Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following: A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received. B. Copies of quotes or responses received from each firm responding to the solicitation. C. A telephone log of follow-up calls to each firm sent a solicitation.

- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

Do not submit with the bid Do not submit with the bid Do not submit with the bid Do not submit with the bid

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

| Date: | Name of Authorized Officer: | | |
|-------|--|--------|----|
| | Signature: | | |
| | Title: | | |
| CEAL | State of, County of | of | |
| SEAL | Subscribed and sworn to before me this _ Notary Public My commission expires | day of | 20 |

ATTACHMENT "A" – GEOTECHNICAL SUBSURFACE INFORMATION ROADWAY



January 20, 2021

WBS Number: 48754.1.1 TIP Number: B-6053 County: Pasquotank

Description: Bridge No. 34 on Providence Road over Knobbs Creek Tributary Between

US 17 (S. Hughes Blvd.) and Lexington Dr.

Subject: Geotechnical Report – Design and Construction Recommendations

RK&K has completed the subsurface investigation for this project and submits the following recommendations. These recommendations are based on soil borings performed by RK&K and 25% roadway plans.

I. SLOPE AND EMBANKMENT STABILITY

A. Slope Design

It is recommended that fill and slopes be constructed at a ratio of 3:1 (H:V) or flatter, except as noted below where rock plating is proposed.

Proposed fill slopes shown in the following area at a ratio steeper than 2:1 (H:V) and will require rock plating in accordance with the attached detail. Recommend 380 square yards of rock plating to be used in these areas. For rock plating, see Section 275 of the Standard Specifications.

| <u>Line</u> | Stations (\pm) | <u>Offset</u> |
|-------------|------------------|---------------|
| -L- | 11+12-11+78 | RT & LT |
| -L- | 12+21-12+80 | RT & LT |

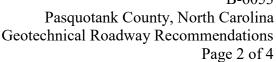
It is recommended that embankment preparation and bench cuts be in accordance with the Article 235-3(A) of the NCDOT Standard Specifications where embankments will be placed on existing slopes steeper than 4:1 (H:V).

B. Rock Embankment

Rock embankment is recommended for the following locations where embankments will be constructed in water:

| <u>Line</u> | Stations (\pm) | <u>Offset</u> |
|-------------|------------------|---------------|
| -L- | 11+12-11+78 | RT & LT |
| -L- | 12+21-12+80 | RT & LT |

Class 2 Rip Rap shall be used for rock embankments. Rock embankments are recommended to be installed 2 ft above the water level. Recommend 160 tons of Rip Rap, Class 2, 70 tons of Rip Rap Class A, 70 tons of #57 stone, and 280 square yards of Geotextile for Rock





Embankment. The embankment in the water shall be constructed in accordance with the attached detail and Special Provision.

II. SUBGRADE STABILITY

A. Undercut for Subgrade Stability

Cohesive soils with plasticity indices (PI) greater than 20 and high percent passing the No. 200 sieve within 3 feet of the proposed subgrade shall be undercut. Backfill undercut areas with Select Granular Material, Class II or III. Undercut material should be wasted or used in landscape areas.

B. Aggregate Subgrade

Shallow undercut for Aggregate Subgrade is recommended in lieu of Undercut for Subgrade Stability where existing pavement is retained due to traffic control limitations. The Aggregate Subgrade procedure shall be completed in accordance with Standard Specifications Section 505. The minimum depth of undercut shall be one foot below subgrade and shall extend one foot outside the edge of the proposed pavement. Undercut material should be wasted or used in landscape areas.

A contingency quantity of 100 cubic yards of shallow undercut for subgrade stability is recommended to be used at the discretion of the Engineer. Backfill to replace shallow undercut material shall be Select Material, Class IV, on top of Geotextile for Soil Stabilization, Type 4.

C. Geotextile for Soil Stabilization

A contingency quantity of 300 square yards of Geotextile for Soil Stabilization is recommended at the discretion of the Engineer.

D. Subsurface Drainage

A contingency quantity of 200 linear feet of 6" Perforated Subdrain Pipe for subsurface drains (Roadway Standard Drawing 815.02) is recommended at the discretion of the Engineer.

III. BORROW SPECIFICATIONS

A. Borrow Criteria

Common borrow for embankment construction to subgrade shall meet the Statewide criteria outlined in Section 1018-2(B) of the Standard Specifications.

B. Class IV Subgrade Stabilization

A contingency quantity of 190 tons of Class IV Subgrade Stabilization material is recommended at the discretion of the Engineer. The material should meet the requirement of Standard Specification, Article 10-16-3 Class IV.



C. Shrinkage Factor

A shrinkage factor of 30 percent is recommended for calculation of earthwork on this project.

IV. MISCELLANEOUS

A. Reduction of Unclassified Excavation – Clearing and Grubbing

No significant loss of unclassified excavation due to clearing and grubbing is anticipated.

Prepared by,

— DocuSigned by: Arash Bozorçi

1/20/2021

Arash Bozorgi, PhD, PE
Project Engineer, Geotechnical
Registered, North Carolina 048490

—DocuSigned by:

Sary Jaylor

—1948327A8527485...

1/20/2021

Gary Taylor, PE Senior Manager, Geotechnical Registered, North Carolina 018580



Attachments:

- Rock Embankment Special Provision
- Rock Embankment/Rock Plating Details and Notes

WBS Number: 48754.1.1 County: Pasquotank Project Engineer: A. Bozorgi
TIP Number: B-6053 Field Office / PEF: Raleigh Project Geologist: P. Neumann

Description: Bridge No. 34 on Providence Road over Knobbs Creek Tributary

| Pay Item No. | Pay Item/ Quantity Adjustment | Spec Book Section No. or Special Provision (SP) Reference | Report Section | Alignment | Begin Station | End Station | Quantity | Units / % |
|---|-----------------------------------|--|-------------------|----------------|------------------|----------------|----------|--------------|
| 0196000000-E | Geotextile for Soil Stabilization | 270 - Geotextile for Soil Stabilization | II. C | Contingency | N/A | N/A | 300 | SY |
| | - | To | tal Quan | tity of Geotex | tile for Soil S | tabilization = | 300 | SY |
| 0220000000-Е | Rock Embankments | SP - Rock Embankments | I. B | Varies | N/A | N/A | 160 | TON |
| | | | | Total Quantity | y of Rock Em | bankments = | 160 | TON |
| 0222000000-Е | Geotextile for Rock Embankments | SP - Rock Embankments | I. B | Varies | N/A | N/A | 280 | SY |
| | • | Total | Quantity | of Geotextile | for Rock Em | bankments = | 280 | SY |
| 0223000000-Е | Rock Plating | 275 - Rock Plating | I. A | Varies | N/A | N/A | 380 | SY |
| | | | | Total (| Quantity of R | ock Plating = | 380 | SY |
| 1077000000-E | #57 Stone | SP - Rock Embankments | I. B | Varies | N/A | N/A | 70 | TON |
| | | | | Tot | al Quantity o | f #57 Stone = | 70 | TON |
| 1099500000-E | Shallow Undercut | 505 - Aggregate Subgrade | II. B | Contingency | N/A | N/A | 100 | CY |
| | | | | Total Quant | tity of Shallov | w Undercut = | 100 | CY |
| 1099700000-E | Class IV Subgrade Stabilization | 505 - Aggregate Subgrade | III. B | Contingency | N/A | N/A | 190 | TON |
| Total Quantity of Class IV Subgrade Stabilization = | | | | | | 190 | TON | |
| 2044000000-Е | 6" Perforated Subdrain Pipe | 815 - Subsurface Drainage | II. D | Contingency | N/A | N/A | 200 | LF |
| Total Quantity of 6" Perforated Subdrain Pipe = | | | | | 200 | LF | | |
| 3642000000-Е | Rip Rap, Class A | SP - Rock Embankments | I. B | Varies | N/A | N/A | 70 | TON |
| | | | | Total Quar | ntity of Rip R | ap, Class A = | 70 | TON |

| These Items Only Impact Earthwork Totals | | | | | | | | |
|--|------------------|-------------------|--------|-----|-----|-----|----|---|
| N/A | Shrinkage Factor | 235 - Embankments | III. C | N/A | N/A | N/A | 30 | % |

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

PROFILE STATION <u>PLAN</u>

CROSS SECTIONS

<u>LINE</u>

60.

2

 $oldsymbol{\mathcal{H}}$

REFERENC

LINE STATION SHEETS 11+25 - 13+00 5 - 8

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

COUNTY **PASQUOTANK**

PROJECT DESCRIPTION BRIDGE NO. 34 ON PROVIDENCE ROAD OVER KNOBBS CREEK IN

ELIZABETH CITY

INVENTORY

STATE PROJECT REFERENCE NO. STATE B - 60538

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

CENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARRS ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORNOS OR BETWEEN SAMPLED STRATA WITHIN THE BORCHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU INH-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS, AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HINSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- IES:
 THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.

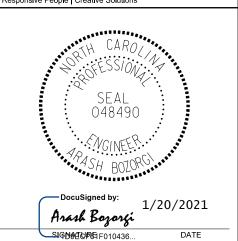
 BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL P. NEUMANN T. DONAHUE INVESTIGATED BY _RK&K, LLP DRAWN BY _ A. BOZORGI CHECKED BY _G. TAYLOR SUBMITTED BY _RK&K, LLP DATE **JANUARY 2021**

8601 Six Forks Road, Forum 1,Suite 700 Raleigh, North Carolina 27615-3960 NC License No. F-0112 Engineers | Construction Managers | Planners | Scientists

Responsive People | Creative Solutions

(919) 878-9560



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

S 48 OIE

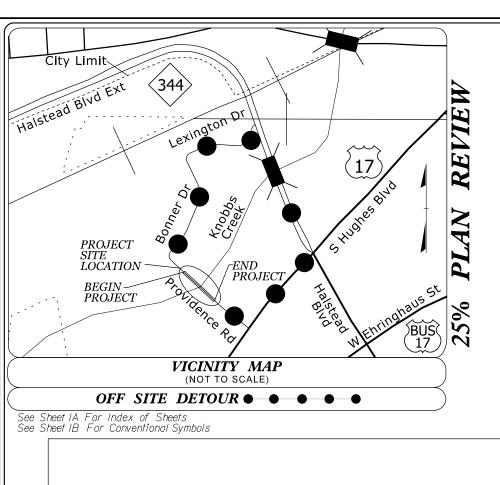
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| B-6053 | 2 |

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

| SOIL DESCRIPTION | GRADATION | ROCK DESCRIPTION | TERMS AND DEFINITIONS |
|---|--|--|---|
| SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. | HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. | ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. |
| ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586), SOIL CLASSIFICATION | GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. | SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN | AQUIFER - A WATER BEARING FORMATION OR STRATA. |
| IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH | ANGULARITY OF GRAINS | REPRESENTED BY A ZONE OF WEATHERED ROCK. | ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. |
| AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF.GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6 | THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: | ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: | ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. |
| SOIL LEGEND AND AASHTO CLASSIFICATION | ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED. | WEATHERED // NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED. | ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT |
| GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS OPCOMIC MATERIALS | MINERALOGICAL COMPOSITION | CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT | WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND |
| ULASS. (≤ 35% PASSING *2000) (> 35% PASSING *2000) | MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. | ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. | SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. |
| GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 B-2-6 A-2-7 A-3 A-6, A-7 | COMPRESSIBILITY | NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. | COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM |
| 000000000 | SLIGHTLY COMPRESSIBLE LL < 31 | ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. | OF SLOPE. |
| \$YMB0L | MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50 | COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED | CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. |
| *10 50 MX GRANULAR SILI- MUCK. | PERCENTAGE OF MATERIAL | (CP) SHELL BEDS, ETC. WEATHERING | DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT |
| *40 30 MX 50 MX 51 MN | GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL | FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER | ROCKS OR CUTS MASSIVE ROCK. |
| MATERIAL | TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% | HAMMER IF CRYSTALLINE. | <u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. |
| PASSING *40 | LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% | VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, | DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE |
| LL 48 MX 41 MN 48 MX 41 MN 48 MX 41 MN 48 MX 41 MN 40 MX 41 MN LITTLE OR HIGHLY PI 6 MX NP 18 MX 18 MX 11 MN 11 MN 18 MX 18 MX 11 MN 11 MN MODERATE HIGHLY | HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE | (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. | LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. |
| GROUP INDEX Ø Ø Ø 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS | GROUND WATER | SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO | FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE |
| USUAL TYPES STONE FRAGS. FINE CHAY OF CLAYEY CHAY | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING | (SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. | SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. |
| OF MAJOR GRAVEL, AND MATERIALS SAND GRAVEL AND SAND SOLLS SOLLS | STATIC WATER LEVEL AFTER 24 HOURS | MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN | FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM |
| CEN BATING FAIR TO | <u> </u> | (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS | PARENT MATERIAL. |
| AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE | SPRING OR SEEP | DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. | FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. |
| PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 | | MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL | FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. |
| CONSISTENCY OR DENSENESS RANGE OF STANDARD RANGE OF UNCONFINED | MISCELLANEOUS SYMBOLS | SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. | JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. |
| PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH | ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION | <u>IF TESTED, WOULD YIELD SPT REFUSAL</u> | LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO |
| (N-VALUE) (TONS/FT ²) VERY LOOSE | with soil description of rock structures Solver Test Pooling Slope Indicator | SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL, IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED | ITS LATERAL EXTENT. |
| GRANIII AR LOOSE 4 TO 10 | SOIL SYMBOL OPT DMT TEST BORING SLOPE INDICATOR INSTALLATION | TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. | LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS |
| MATERIAL NENSE 30 TO 50 | ARTIFICIAL FILL (AF) OTHER AUGER BORING COME PENETROMETER THAN ROADWAY EMBANKMENT AUGER BORING TEST | IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE | USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. |
| (NON-COHESIVE) VERY DENSE > 50 | | SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK | PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE |
| VERY SOFT < 2 < 0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.5 | INFERRED SOIL BOUNDARY | (V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i> | OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. |
| SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0 | TEST BORING MONITORING WELL TEST BORING WITH CORE | COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND | ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF |
| MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4 | TTTTT ALLUVIAL SOIL BOUNDARY A PIEZOMETER TO SPT N-VALUE | SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE. | ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE |
| HARD > 30 > 4 | INSTRUCTION | ROCK HARDNESS | RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT |
| TEXTURE OR GRAIN SIZE | RECOMMENDATION SYMBOLS | VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES | ROCK. |
| U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053 | UNDERCUT UNDERC | SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. | SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO |
| COARSE FINE | SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF | HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. | THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. |
| BUDLUER CUBBLE GRAVEL SAND SAND SILL CLAY | ONDERCOT ESS ACCEPTABLE DEGRAPABLE NOCK | MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE | SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT |
| (CSE, SD.) (F SD.) (CE.) | ABBREVIATIONS AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST | HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. | OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE)(SPT) - NUMBER OF BLOWS (N OR BPF) OF |
| GRAIN MM 305 75 2.0 0.25 0.005 0.005 SIZE IN. 12 3 | BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED | MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. | A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL |
| SOIL MOISTURE - CORRELATION OF TERMS | CL CLAY MOD MODERATELY γ - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC γ_a - DRY UNIT WEIGHT | HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. | WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. |
| SOIL MOISTURE SCALE FIELD MOISTURE CHINE FOR FIELD MOISTURE DESCRIPTION | CSE COARSE ORG ORGANIC | SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS | STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY |
| (ATTERBERG LIMITS) DESCRIPTION SOLDE FOR FIELD MOISTURE DESCRIPTION | DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK | FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. | TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. |
| - SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE | e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON | VERY CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I INCH | STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY |
| LL _ LIQUID LIMIT | F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK | SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY | THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. |
| PLASTIC SEMISOLID; REQUIRES DRYING TO | FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL | FINGERNAIL. FRACTURE SPACING BEDDING | TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. |
| (PI) PL PLASTIC LIMITATTAIN OPTIMUM MOISTURE | FRAGS FRAGMENTS | TERM SPACING TERM THICKNESS | BENCH MARK: #10N -L- STA.14+53.64, 23.3' RT., BENCH TIE MAGNAIL IN POLE 8010-9 |
| - MOICT - (M) COLID. AT OR NEAR ORTIMUM MOICTURE | EQUIPMENT USED ON SUBJECT PROJECT | VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET | ELEVATION: 6.61 FEET |
| OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT | DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: | MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET | NOTES: |
| PEOLITIPES ADDITIONAL WATER TO | X CME-45C CLAY BITS X AUTOMATIC MANUAL | CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET | COLLAR FLEVATIONS DETERMINED BY SURVEY-GRADE GPS |
| - DRY - (D) ATTAIN OPTIMUM MOISTURE | CME-55 6* CONTINUOUS FLIGHT AUGER CORE SIZE: | THINLY LAMINATED < 0.008 FEET | ABBREVIATIONS: |
| PLASTICITY | 8' HOLLOW AUGERS | INDURATION | BT - BORING TERMINATED |
| PLASTICITY INDEX (PI) DRY STRENGTH | L CME-550 HARD FACED FINGER BITS -N | FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. | FIAD - FILLED IN AFTER DRILLING |
| NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT | VANE SHEAR TEST TUNGCARBIDE INSERTS | FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. | NMW - NORMAL WATER CONTENT (2/3/2020) PER BRIDGE SURVAY REPORT |
| MODERATELY PLASTIC 16-25 MEDIUM | CASING W/ ADVANCER POST HOLE DIGGER | MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; | |
| HIGHLY PLASTIC 26 OR MORE HIGH | PORTABLE HOIST X TRICONE $2\frac{7}{8}$ STEEL TEETH X HAND AUGER | BREAKS EASILY WHEN HIT WITH HAMMER. | |
| COLOR | TRICONE TUNG,-CARB. X SOUNDING ROD | INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. | |
| DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE. | CORE BIT VANE SHEAR TEST | CHAND HAMMED DI DUC DECILIDED TO DDEAN CAMBLE. | |
| HOUR ILING SOUTH AS EIGHT, DHAN, STREMACH, CIC. MAC USED TO DESCRIBE APPEARANCE. | | EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS. | |
| | | | |

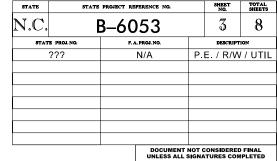


STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PASQUOTANK COUNTY

LOCATION: BRIDGE No. 34 on Providence Road over Knobbs Creek in Elizabeth City

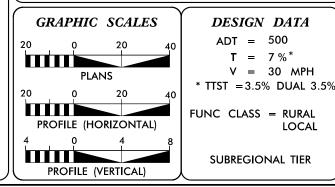
TYPE OF WORK: DRAINAGE, PAVING, AND STRUCTURE





PROVIDENCE ROAD 23.5' PAVED ROADWAY S HUGHES BLVD.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS OF METHOD THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ELIZABETH CITY.



DESIGN DATA

T = 7%* V = 30 MPH

FUNC CLASS = RURAL

SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-6053 = LENGTH STRUCTURE TIP PROJECT B-6053 = TOTAL LENGTH TIP PROJECT B-6053 =

0.043 mi 0.008 mi 0.051 mi

RKX

DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 3, 2020

LETTING DATE: February 1, 2021

SIGNATURE ROADWAY Scott D. Blevins, P.E. **DESIGN**

Scott A. Beasley, E.I.T. City Of Elizabeth City ENGINEER

HYDRAULICS

SIGNATURE:



605.

Ŕ



January 20, 2021

WBS Number: 48754.1.1 TIP Number: B-6053 County: Pasquotank

Description: Bridge No. 34 on Providence Road over Knobbs Creek Tributary Between

US 17 (S. Hughes Blvd.) and Lexington Dr.

Subject: Roadway Subsurface Inventory Report

PROJECT DESCRIPTION

The project is at Providence Road over Knobbs Creek Tributary in Elizabeth City, North Carolina. The project is approximately 270 feet in length and mainly consists of replacing the bridge and includes widening of Providence Road before and after the bridge.

A CME-45C drill rig with an automatic hammer was used for the geotechnical investigation in April 2020. A total of two (2) Standard Penetration Tests (SPT) borings and two (2) hand auger borings were drilled. Eight (8) rod soundings also performed.

PHYSIOGRAPHY AND GEOLOGY

The project is located within the Coastal Plain Physiographic Province. The proposed bridge crosses swamp land that is bordered by flat to gently sloping, sandy deposits.

SOIL PROPERTIES

Soils encountered during the geotechnical investigation are separated into four (4) categories based on soil origin. The origins consist of roadway embankment, alluvial soils, and Undivided Coastal Plain, and Coastal Plain.

Materials interpreted as roadway embankment were encountered within the limits of the existing Providence Road. The roadway embankment generally consisted of loose to medium dense, fine SAND (A-3 and A-2-5). The thickness of the encountered roadway embankment varied up to 5.0 feet.

Alluvial soils generally consisted very soft to soft MUCK that was highly organic and included little to some wood fragments. The thickness of the encountered alluvial soils varied up to 13.0 feet.

Undivided Coastal Plain consisted of SAND and CLAY, and Coastal Plain soils (Yorktown Formation) primarily consisted of blue gray, stiff CLAY and dense coarse SAND, with shell fragments.

Sheet 3A

AREAS OF SPECIAL GEOTECHNICAL INTEREST

Alluvial: Alluvial soils (MUCK) were encountered along the proposed alignments containing little to some wood fragments. The wood fragments impeded advancing the hand auger borings in the layer.

Groundwater: During the investigation, the borings were filled immediately after drilling or caved. The normal water surface elevation in the swamp/river (2/3/2020 survey) was 2.9 feet.

Prepared by,

—DocuSigned by

Arash Bozorgi 1/20/2021

Arash Bozorgi, PhD, PE Associate Engineer, Geotechnical Registered, North Carolina 048490

SEAL 048490

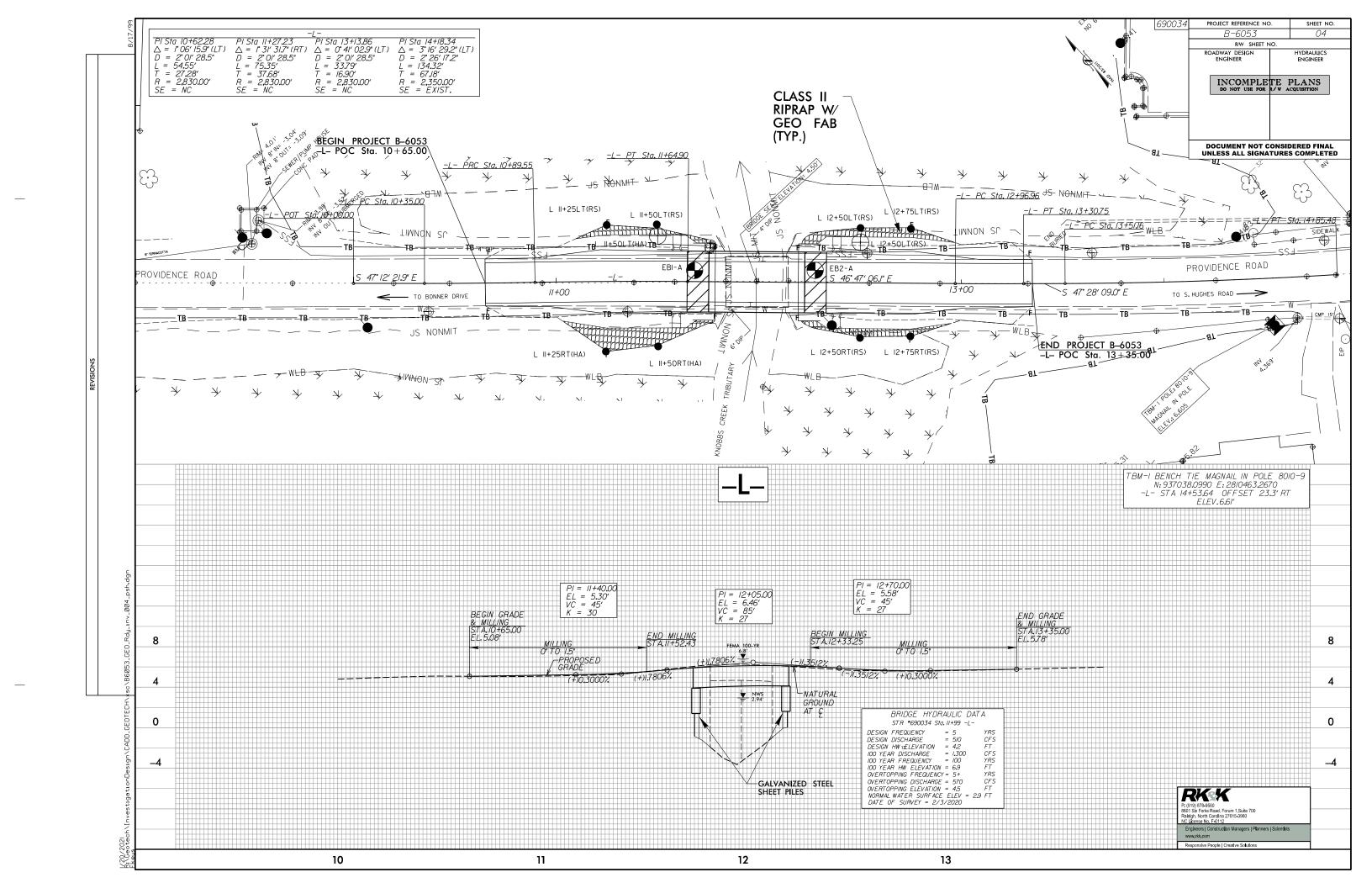
NG INEER CHARLES

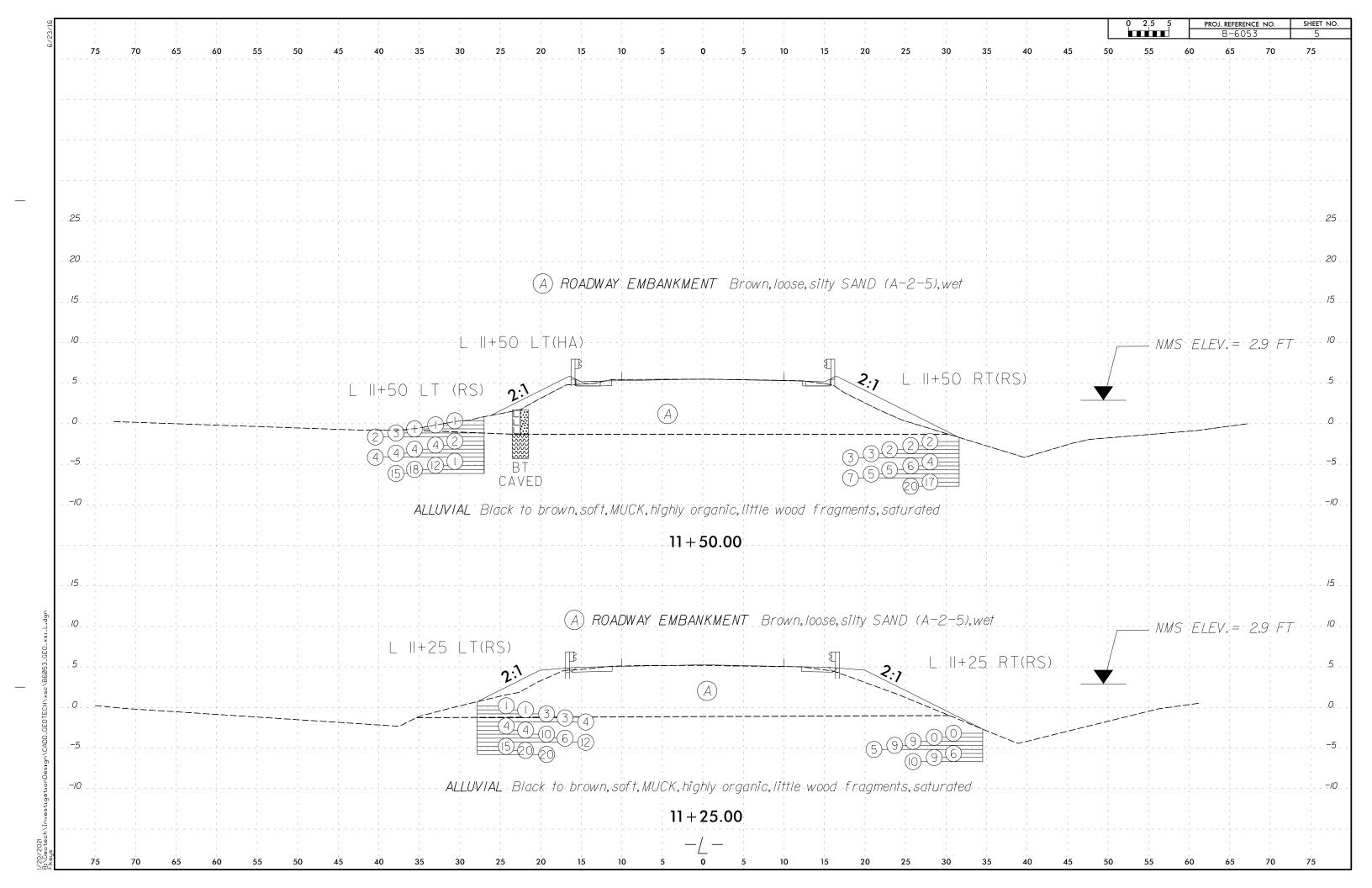
—DocuSigned by:

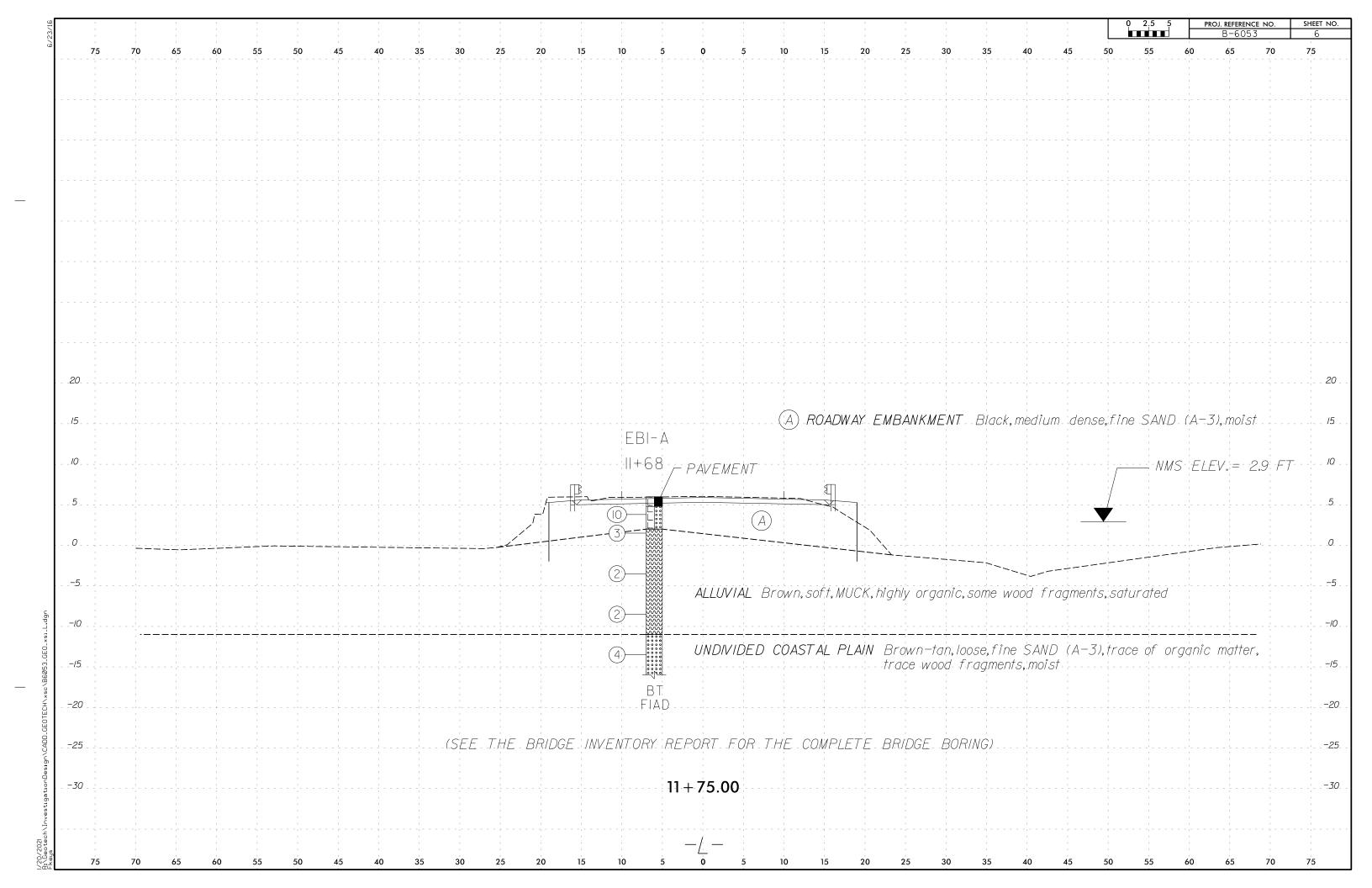
Yary Jaylor 1/20/20

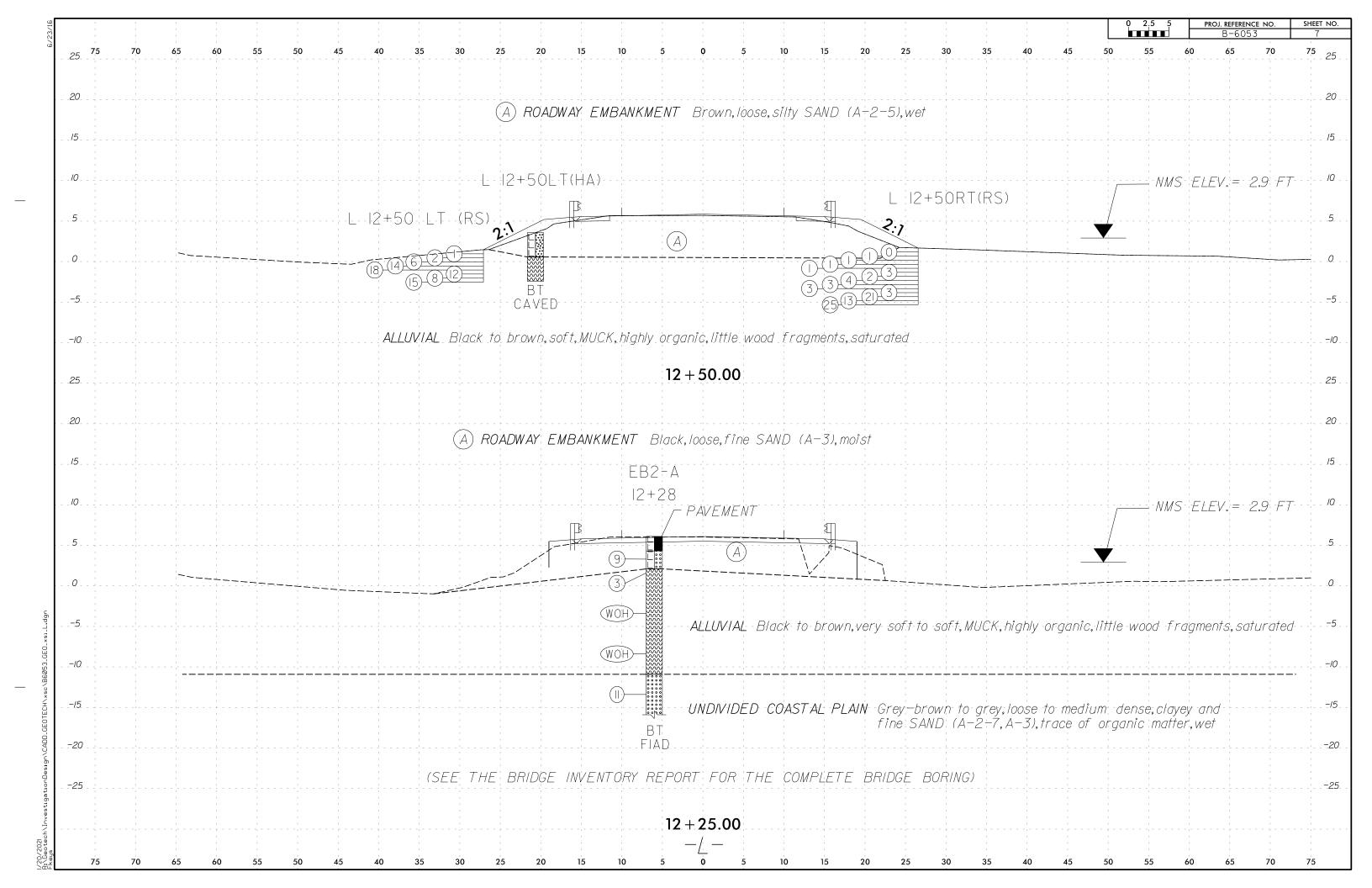
-194B327A8527485...

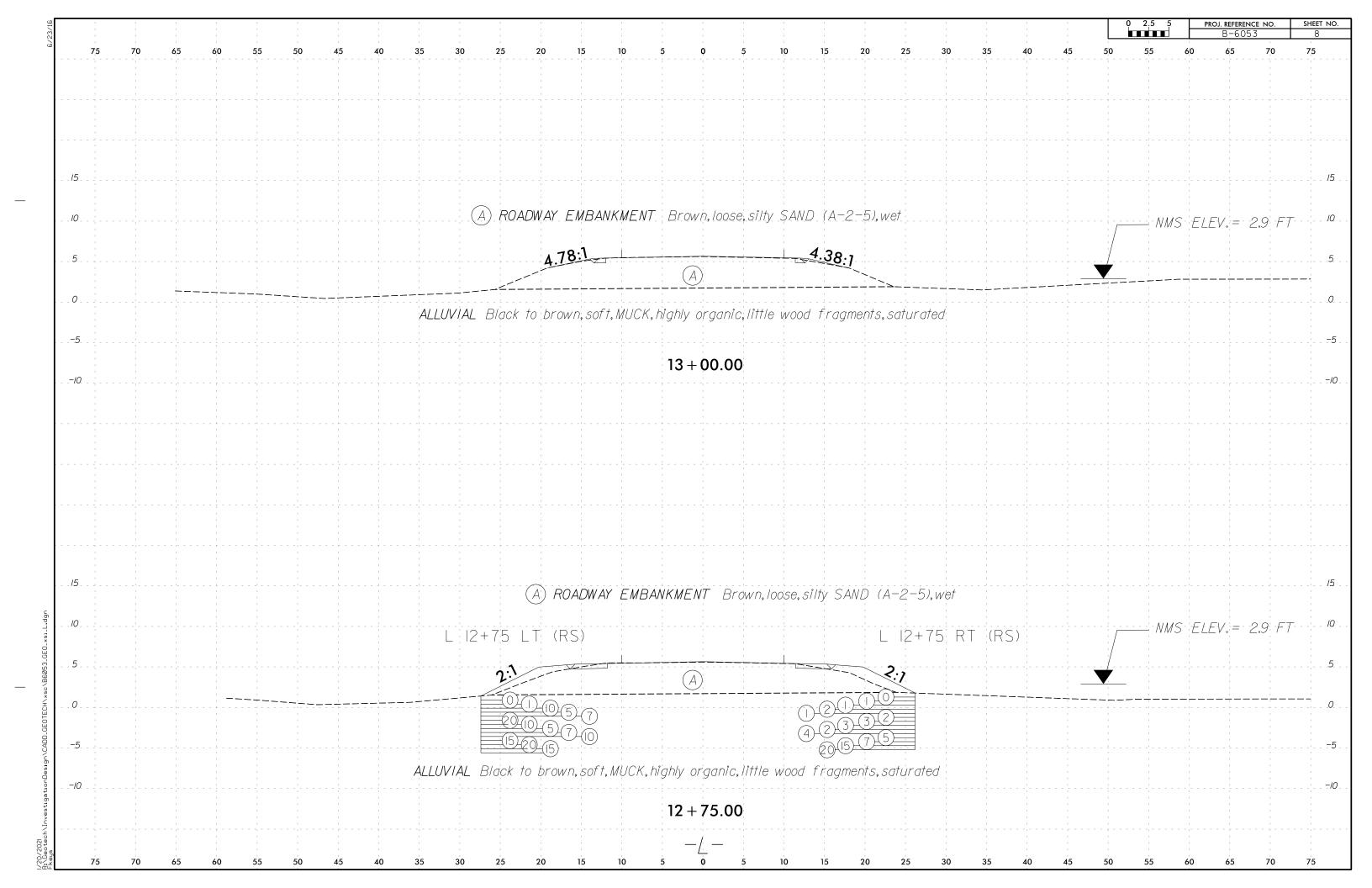
Gary Taylor, PE Senior Manager, Geotechnical Registered, North Carolina 018580











ATTACHMENT "B" – GEOTECHNICAL SUBSURFACE INFORMATION STRUCTURES



FOUNDATION RECOMMENDATIONS

BRIDGE ON PROVIDENCE ROAD OVER KNOBBS CREEK TRIBUTARY BETWEEN US 17 (S. HUGHES BLVD.) AND LEXINGTON DR.

TIP NO. B-6053

PASQUOTANK COUNTY

July 16, 2020

FOUNDATION RECOMMENDATIONS

STATE NO. 48754.1.1

TIP NO. B-6053

COUNTY PASQUOTANK

STATION -L- Sta. 11+99.00

INITIALS DATE

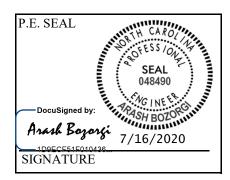
DESIGN CHECK

APPROVE

| AB | 7/16/20 |
|----|---------|
| GT | 7/16/20 |
| | |

OVER KNOBBS CREEK TRIBUTARY BETWEEN

US 17 (S. HUGHES BLVD.) AND LEXINGTON DR.



| | BENT STATION | FOUNDATION TYPE | FACTORED RESISTANCE | ADDITIONAL INFORMATION |
|------------------|----------------------|--|------------------------|---|
| END BENT 1 | -L- Sta. 11+75.33 | CAP ON HP 12 x 53 STEEL H-PILES | 55 Tons/Pile | Bottom of Cap Elev. = 1.2 ft Avg. Estimated Pile Length = 75 ft Number of Piles/Cap = 6 |
| END BENT 2 | -L- Sta. 12+22.67 | CAP ON HP 12 x 53 STEEL H-PILES | 55 Tons/Pile | Bottom of Cap Elev. = 1.4 ft Avg. Estimated Pile Length = 75 ft Number of Piles/Cap = 6 |

(SEE NOTES ON PLANS AND COMMENTS ON FOLLOWING PAGES.)

FOUNDATION RECOMMENDATIONS

BRIDGE ON PROVIDENCE ROAD OVER KNOBBS CREEK TRIBUTARY BETWEEN US 17 (S. HUGHES BLVD.) AND LEXINGTON DR.

FOUNDATION RECOMMENDATION NOTES ON PLANS

- 1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- 2. PILES AT END BENTS NO. 1 AND NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 55 TONS PER PILE.
- 3. DRIVE PILES AT END BENTS NO. 1 AND NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.
- 4. THE SCOUR CRITICAL ELEVATION FOR END BENTS NO. 1 AND NO. 2 IS ELEVATION -12 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- 5. TESTING PILES WITH THE PDA DURING DRIVING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTIONS 450 OF THE STANDARD SPECIFICATIONS.

FOUNDATION RECOMMENDATION SPECIAL NOTES ON PLANS

- 1. SHEET PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- 2. INSTALL PZ27 OR EQUIVALENT SHEET PILE SECTION TO A TIP ELEVATION NO HIGHER THAN -36 FEET AT END BENTS NO. 1 AND NO. 2.

FOUNDATION RECOMMENDATIONS COMMENTS

- 1. PILE LENGTHS ARE BASED ON PLUMB PILES FROM BOTTOM OF CAP TO THE TIP ELEVATION PLUS 1.5 FT EMBEDMENT, ROUNDED UP TO THE NEAREST FIVE FEET.
- 2. THE REQUIRED DRIVING RESISTANCE USES A RESISTANCE FACTOR OF 0.6.
- 3. TYPE II MODIFIED APPROACH FILLS ARE REQUIRED FOR THE END BENTS IN ACCORDANCE WITH THE NCDOT 2018 STANDARD DRAWING 422.02.
- 4. THE DESIGN SCOUR ELEVATION AT END BENT NO. 1 AND NO. 2 IS ELEVATION 9.5' FOR DESIGN OF PZ27 SHEET PILING.

PILE PAY ITEMS

(Revised 8/11/15)

| WBS ELEMENT | 48754.1.1 | DATE | 6/25/2020 |
|------------------|--|---|-----------|
| TIP NO. | B-6053 | DESIGNED BY | AB |
| COUNTY | Pasquotank | CHECKED BY | MS |
| STATION | -L- Sta. 11+99.00 | _ | |
| • | BRIDGE ON PROVIDENCE ROAD OVER | | RY |
| | BETWEEN US 17 (S. HUGHES BLVD.) A | ND LEXINGTON DR. | |
| NUM NUMBER OF | R OF BENTS WITH PILES BER OF PILES PER BENT END BENTS WITH PILES OF PILES PER END BENT | Only required for "Predrilling for Piles" & "Pile Excavation" pay items | |

| | | PILE PAY ITEM QUANTITIES | | | | | | |
|----------------|----------|--------------------------|-----------------|------------|--------|-----------|------------|--|
| | Pile | | | | | | | |
| | Steel | | | | Exca | avation | | |
| | Pile | Pipe Pile | Predrilling | Pile | (per l | inear ft) | PDA | |
| Bent # or | Points | Plates | For Piles | Redrives | In | Not In | Testing | |
| End Bent # | (yes/no) | (yes/no/maybe) | (per linear ft) | (per each) | Soil | Soil | (per each) | |
| END BENT NO. 1 | no | | | 3 | | | \ / | |
| END BENT NO. 2 | no | | | 3 | | | | |
| | | | | | | | \ / | |
| | | | | | | | \ / | |
| | | | | | | | | |
| | | | | | | | \wedge | |
| | | | | | | | / / | |
| | | | | | | | / | |
| | | | | ļ | | | / \ | |
| TOTAL O | | | ^ | | | <u> </u> | / | |
| TOTALS | 0 | \geq | 0 | 6 | 0 | 0 | 1 | |

Notes:

Blanks or "no" represent quantity of zero.

If steel pile points are required, calculate quantity of "Steel Pile Points" as equal to the number of steel piles.

If pipe pile plates are or may be required, calculate the quantity of "Pipe Pile Plates" as equal to the number of pipe piles.

Show quantity of "PDA Testing" on the plans as total only.

PROVIDED INFORMATION

STRUCTURAL INFORMATION

PRELIMINARY GENERAL DRAWINGS

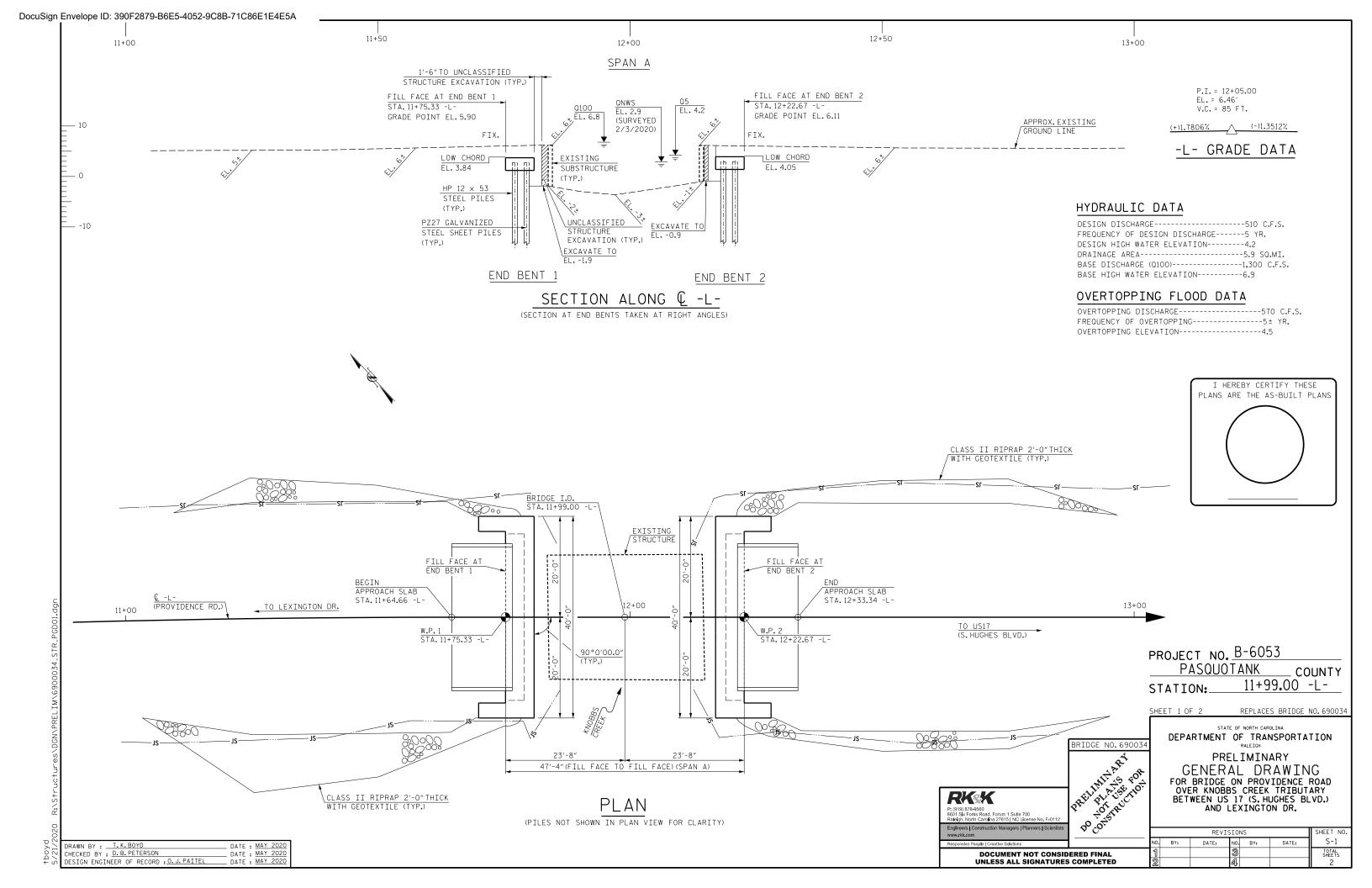
BRIDGE SURVEY REPORT

by OJP

5/18/2020

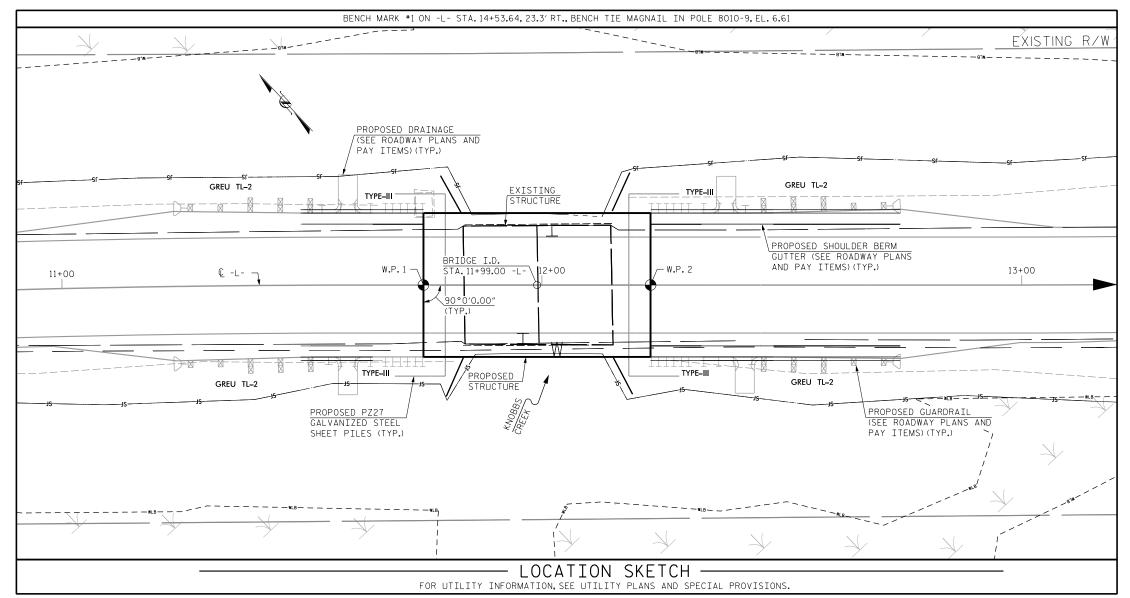
INFORMATION FROM STRUCTURAL ENGINEER

| | B-6 | 053 | Bridge: | Elizabeth City - 690034 | | | |
|---|--------------------------------|----------------------------|---|-------------------------|---------------------------|--------------|--|
| Bent No.: | End E | Bent 1 | Prefered Pile Type: | | HP 12x53 | | |
| Number of Piles per bent: | 6 | | Bot. of Cap El | 1.2 (Level) | | | |
| Design Scour Elevation: | tion: N/A N/A m of Leveling | | MSE Wall N/A | | | | |
| Bottom of Leveling Pad EI: | | | A Front Slope: | | N/A | | |
| Load Combination | Fx | Fy | Fz | Mx | Му | Mz | |
| (Load is per pile) | kip | kip | kip | kip-ft | kip-ft | kip-ft | |
| Strength I | | 110 | | | | | |
| Service I | | 80 | | | | | |
| | | | | | • | | |
| Bent No.: | End E | Bent 2 | Prefered Pile Type: | | HP 12x53 | | |
| Number of Piles per bent: | End E | | | | HP 12x53 | | |
| Number of Piles per bent: Design Scour Elevation: | | 3 | Pile Type: | | | | |
| Number of Piles per bent: Design Scour | ę N | 3 | Pile Type: Bot. of Cap El | | 1.4 (Level) | | |
| Number of Piles per bent: Design Scour Elevation: Bottom of Leveling | R/ | 6 /A /A | Pile Type: Bot. of Cap El. MSE Wall Front Slope: | Mv | 1.4 (Level) N/A N/A | M- | |
| Number of Piles per bent: Design Scour Elevation: Bottom of Leveling Pad El: Load Combination | N/ N/ Fx | 6 /A /A Fy | Pile Type: Bot. of Cap El. MSE Wall Front Slope: | Mx | 1.4 (Level) N/A N/A My | Mz | |
| Number of Piles per bent: Design Scour Elevation: Bottom of Leveling Pad El: Load Combination (Load is per Bent) | R/ | A /A /A Fy kip | Pile Type: Bot. of Cap El. MSE Wall Front Slope: | Mx kip-ft | 1.4 (Level) N/A N/A | Mz kip-ft | |
| Number of Piles per bent: Design Scour Elevation: Bottom of Leveling Pad El: Load Combination | N/ N/ Fx | 6 /A /A Fy | Pile Type: Bot. of Cap El. MSE Wall Front Slope: | | 1.4 (Level) N/A N/A My | | |



TYPICAL SECTION

* THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE, FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

PROJECT NO. <u>B-6053</u> PASQUOTANK COUNTY 11+99.00 -L-STATION:

SHEET 2 OF 2 REPLACES BRIDGE NO. 690034

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PRELIMINARY

BRIDGE NO.69003

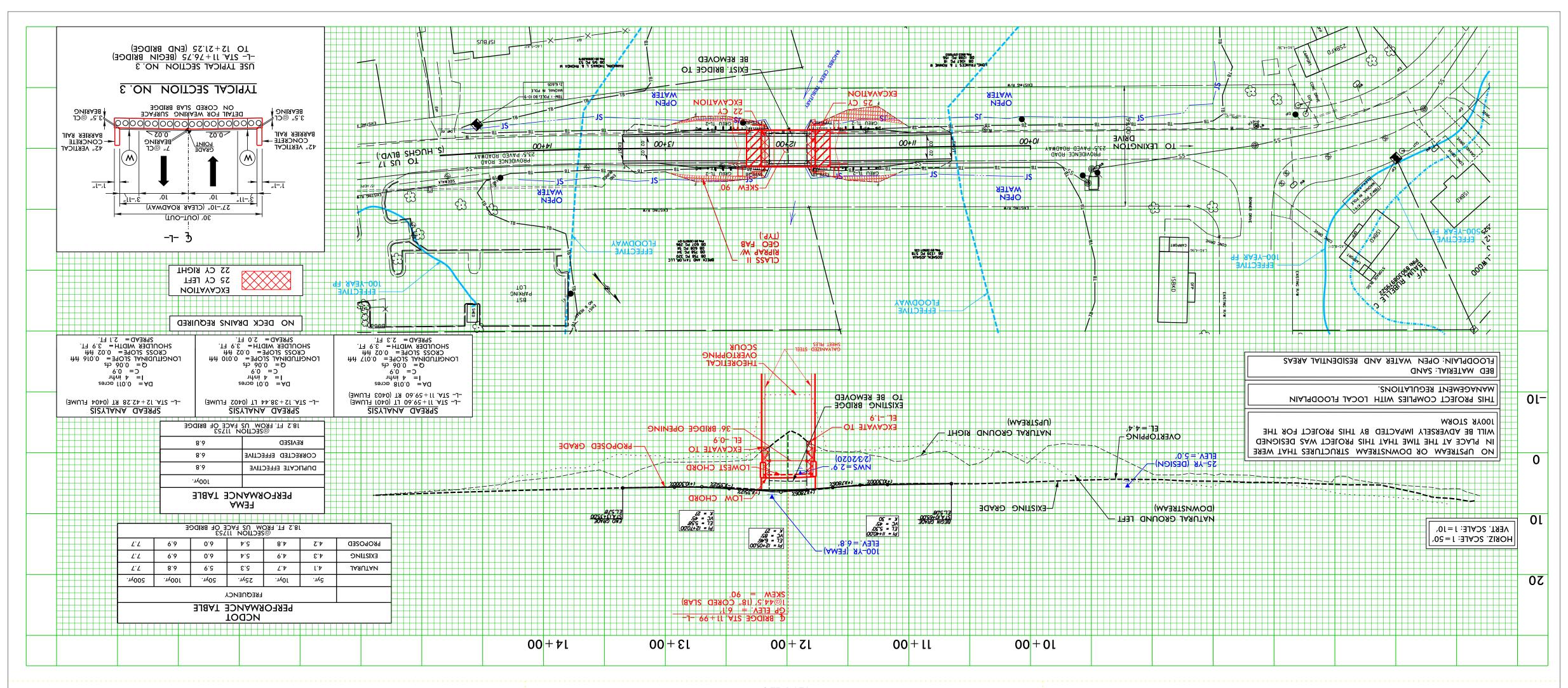
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RKK

PARILIPLA 15 FOR TO CONSTRUCTION GENERAL DRAWING FOR BRIDGE ON PROVIDENCE ROAD OVER KNOBBS CREEK TRIBUTARY BETWEEN US 17 (S. HUGHES BLVD.) AND LEXINGTON DR.

REVISIONS S-2 TOTAL SHEETS

DATE : MAY 2020 DATE : MAY 2020 DATE : MAY 2020 DRAWN BY : T.K.BOYD
CHECKED BY : D.B.PETERSON ESIGN ENGINEER OF RECORD : 0. J. PAITEL



| | <u>,</u> | | O BE SHOWN ON PLANS O @ River Station 11753 | |
|--|--|-----------------------|--|---|
| Design: | Discharge 5 | | Frequency5yr. | Elev. 4.2ft. |
| Base Flood: | Discharge1 | 300 c.f.s. | Frequency 100 yr. | Elev. 6.9 ft. |
| Overtopping | : Discharge ⁵ | 570c.f.s. | Frequency5+yr. | Elev |
| | | | | |
| | <u>ADDI</u> | TIONAL INFOR | MATION AND COMPUTATION | <u>ONS</u> |
| HYDROL | OGY | | | |
| KNOBBS CREE | EK TRIBUTARY IS LO | OCATED WITHIN | HYDROLOGIC REGION 4. | |
| REGION 4 SIR 2014–503 | <u> </u> | | | <u>FEMA</u> |
| | | LES, 50yr24hr P = | 8.25", % IMPERVIOUS = 10% | DRAINAGE AREA = |
| | | | SAY | FIS EFFECTIVE 12/21/2018 |
| $Q_s = 40.6($ | 0.5958 (0.0125(IA)) (0.06 DA) 10 10 | = 509 | 510 cfs | |
| $Q_{10} = 51.8(I$ | DA) 10 10 10 10 10 10 10 10 10 10 10 10 10 | =673 | 670 cfs | 527 cfs |
| $Q_{25} = 67.1(I$ | DA) 10 10 | =899 | 900 cfs | |
| $Q_{50} = 78.4($ | DA) 10 (0.0058(IA)) (0.07 | =1,080 | | 968 cfs |
| Q ₁₀₀ = 90.5(| DA) 10 10 (0.0043(IA)) | =1,270 | 1,300 cfs | |
| Q = 119(E | DA) 10 10 | =1,750 | 1.800 cfs | 1,910 cfs |
| DA: DRAINAC | GE AREA IA: PERCEN | NTAGE IMPERVIOU | S AREA P: 50yr24hr PRECIPITATION | |
| THE 5-YEAR | EVENT IS THE DESI | GN STORM. THE | | FOR COMPLIANCE. |
| SCOUR | CALCULATIO | NS (HEC_1 | 8, 5TH EDITION, APRI | L 2012) |
| | | · | (OVERTOPPING): | 4 . 4 . 9 . 4 |
| | | | 5.9 ft. $Q_1 = 306.8$ c.f.s. | |
| | | | –3.4) = 7.4 ft. | |
| | | | | |
| | 1 = 306.8 / 43.6 = 7 | '.0 ft/s ² | $q_2 = Q_2 / W_2 = 510.0 / 36 = 14.2 \text{ ft}$ | |
| $q_1 = Q_1 / W_1$ | | | | |
| | /7.0.00 | | | |
| $q_2/q_1 = 14.2$ | /7.0=2.0 | | | |
| $q_2/q_1 = 14.2$ $\alpha_A = 1.25$ | /7.0=2.0 FROM HEC-18 FIG | GURE 8.10 | | |
| $q_2/q_1 = 14.2$ $\alpha_A = 1.25$ $Y_{MAX} = \alpha_A(Y_c)$ | $/7.0 = 2.0$ FROM HEC-18 FIG. 67 $= \alpha [Y_1(q_2/q_1)] = 1.2$ | 5 [5.9 (14.1/7.0) |] = 13.4 ft. | |
| $q_2/q_1 = 14.2$ $\alpha_A = 1.25$ $Y_{MAX} = \alpha_A(Y_c)$ | /7.0=2.0 FROM HEC-18 FIG | 5 [5.9 (14.1/7.0) | | |
| $q_2/q_1 = 14.2$ $\alpha_A = 1.25$ $Y_{MAX} = \alpha_A(Y_c)$ | $/7.0 = 2.0$ FROM HEC-18 FIG. 67 $= \alpha [Y_1(q_2/q_1)] = 1.2$ | 5 [5.9 (14.1/7.0) |] = 13.4 ft. | |
| $q_2/q_1 = 14.2$ $\alpha_A = 1.25$ $Y_{MAX} = \alpha_A(Y_c)$ | $/7.0 = 2.0$ FROM HEC-18 FIG. 67 $= \alpha [Y_1(q_2/q_1)] = 1.2$ | 5 [5.9 (14.1/7.0) |] = 13.4 ft. | |

INFORMATION TO BE SHOWN ON PLANS

| | | <u>SI</u> - | TE DATA | | | |
|---|---|---|--|------------------------|---|-----------------------|
| Drainage Area | 5.9 SQ. A | AILES | Source | STREA | MSTATS | |
| River Basin | PASQUO | TANK | Character | 100% | REGION 4 URBAN | |
| Stream Classif | ication (Such as | Trout, High Quali | ty Water, etc.) | N/A | | |
| | | O SPANS @ 15'-9' CAP, VERTICAL ABUT oderateXHigh | Waterway Ope | Total Waterwa | 7" X 6" GIRDERS, 1 7' VERTICAL BARRIE by Opening 166.2 0yr. WS EL. 166.2 | s.f. |
| Data on Structu | ures Up and Do | wn Stream UPSTRE | AM: SR 1152 (HA | LSTEAD BLVD. EX | T.) STR #690101 | |
| 8 TOTAL SPANS: | 1@86.1′, 2@85′, 2 | 2@84.8′, 2@85.1′, 1@ | 86.1′; RC_FLOO | R/CONT. PPC GIR | DERS | |
| Design Control | MAINTAIN Elev. EXISTING YR FEMA E | BLVD.) 2@8'X7' RCE OR IMPROVE OS AND 100 ft. BACKWATER | | | | |
| Max. Discharge | <u>ŅĄ</u> | c.f.s. D | ate | Fre | quencyŅ | <u>/A</u> |
| Historical Flood 2–3 TIMES Date PER YR. Ele | | req. 10 yr Sourc | e MIKE HAWKIN | 1Ş, LOCAL RESIDE | Period of | . 30 _{vrs} . |
| | | req. NA yr.Sourc | | | Period of | • |
| | | req. NA yr Sourc | | | Period of | • |
| | | | | | | , |
| Channel Slope | _0.006ft/ft Se | ource FEMA MO | DEL Norm | al Water Surface | Elev 2.9 | |
| Flood Study /Sto | DETAI TOUQZAA) _ autr | .Channel . 0.045 . LED FLOOD STUDY, ANK CO. FIS REPORT | PANEL #8913 [_ EFF. 12/21/2018 With | B) Floodway | y Established? Without Floodway 7. | YEŞ |
| | | <u>DESI</u> | GN DATA | | | |
| | | AN REGRESSION EG | | | | |
| Floods Evaluate | (91.) | Q (c.f.s) | Elev. (ft.) | Backwater (ft.) | Bridge Opening (f.p.s.) | Velocity |
| River Station 11753 | | 510 | | | | |
| | | | 4.8 | | | |
| | | | 5.4 | 0.1 | 2.1 | |
| | 50 100 (FEMA) 100 (NCDOT) | 1,100 1,210 1,300 | 6.0 6.8 6.9 | 0.1 N/A 0.1 | 1.3 1.0 2.6 | |
| Waterway Open | 500 ing Provided Be | 1,800 ow:Design W.S. Ele | 7.7 ev. 214.1 s.f.,10 | 0.0 00yr W.S. Elev. | 2.1 214.1 s.f.,Total 2 | 14.1 s.f., |
| Average Channe | el Velocity (Desig | n) <u>1.2</u> f.p.s. | Average Over | bank Velocity (D | esign) 0.3 | f.p.s. |
| Computed Scoul | r: General . | 6.0ft. Coı | ntraction N | ⁄Aft. Lo | ocal | ft. |
| Is a Floodway R | evision Required | \$ NO - NO BISE | CERTIFICATION | | | |

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT MUNICIPAL OWNED AND MAINTAINED STRUCTURE

|] ! ! | | | | | |
|-------------------------|--------------------|-------------------|---------------------|---------------|----------------|
| I.D. No. BR-690034 | Project No | B-6053 | Proj. Statie | on | +99L- |
| County PASQUOTANK | _ | US | 17 | _ | |
| On Highway PROVIDENC | E ROAD Betw | een (S. HUGHI | S BLVD) and | LEXINGTO | N DRIVE |
| Recommended Structure | 1 SPAN @ 44.5 F | T; 18" CORED ! | SLAB, 3.5' VERTICAL | BARRIER RAIL, | 2.6' DEEP CAPS |
| ON STEEL H-PILES AND SH | HEET PILE WALLS W | IŢĦ A MIN FAC | E TO FACE BRIDG | E OPENING = | = .36′ |
| Recommended Width of R | Roadway 30′–0″ F | OUT TO OUT | | Skew | 90° |
| Recommended Location is | s (Up, At, Down) | Stream from | Existing Crossing. | | |
| Latitude | 36.29420° | . Lon | gitude | 76.25027° | |
| Statewide Tier 🗆 | Regional Ti | er 🗆 | Sub-Regional T | ier 🛚 🗷 | |
| Bench Mark is BM #514, | ON _L_ STA. 14 + 5 | 3.64, 23.4′ RT, N | AIL IN UTILITY PO | LE | |
| Northing 937038 | Easting | 2810463 | Elev. 6.61 | _ft. Datum: _ | NAVD 88 |
| Temporary Crossing NOT | REQUIRED | | | | |
| | | | | MANA | |



RK&K ENGINEERS, LLP

8601 SIX FORKS DRIVE, FORUM 1 STE. 700

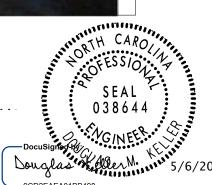
RALE IGH, NC 27615, LICENSE NO- F-0112

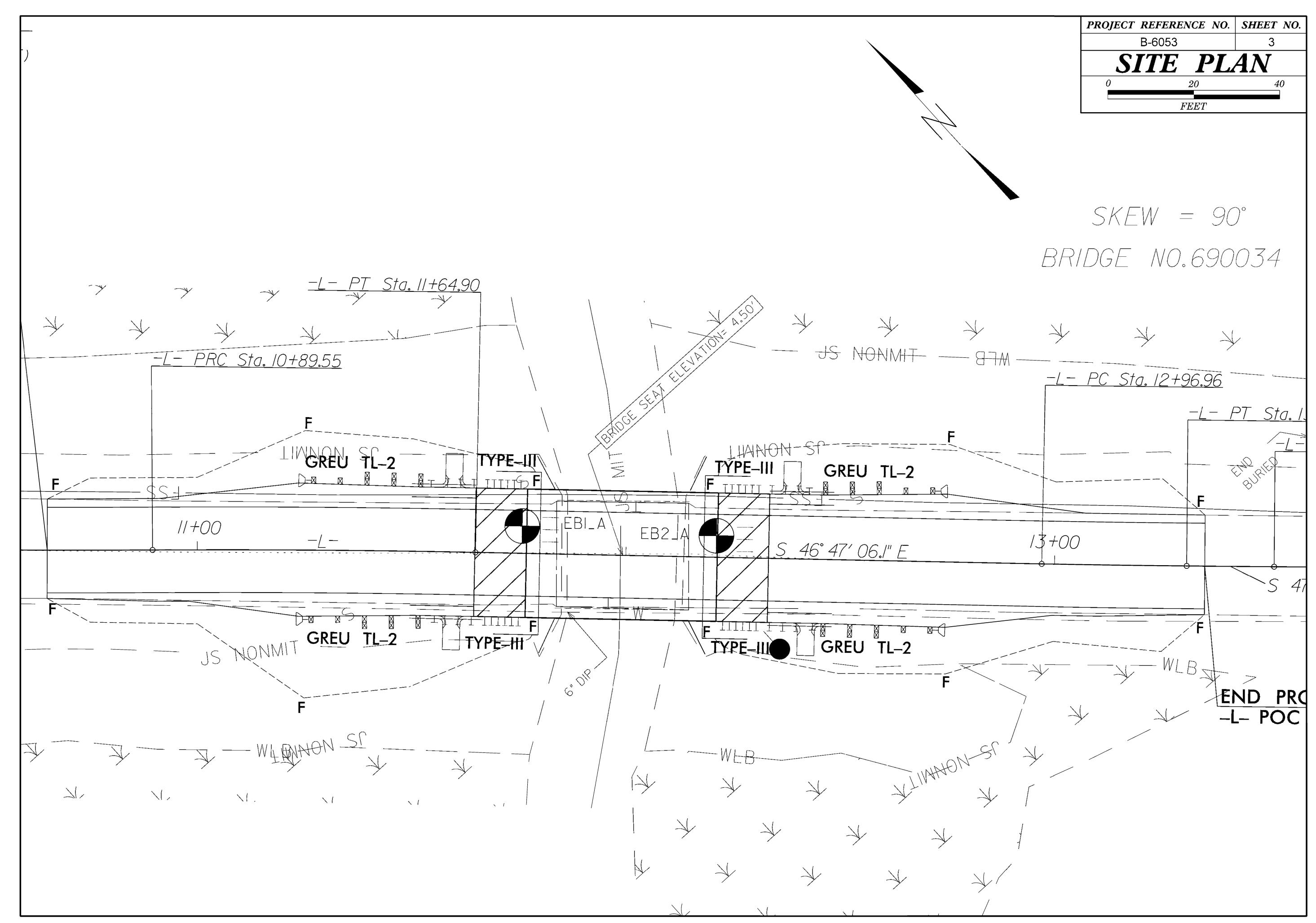
Doug Keller, PE

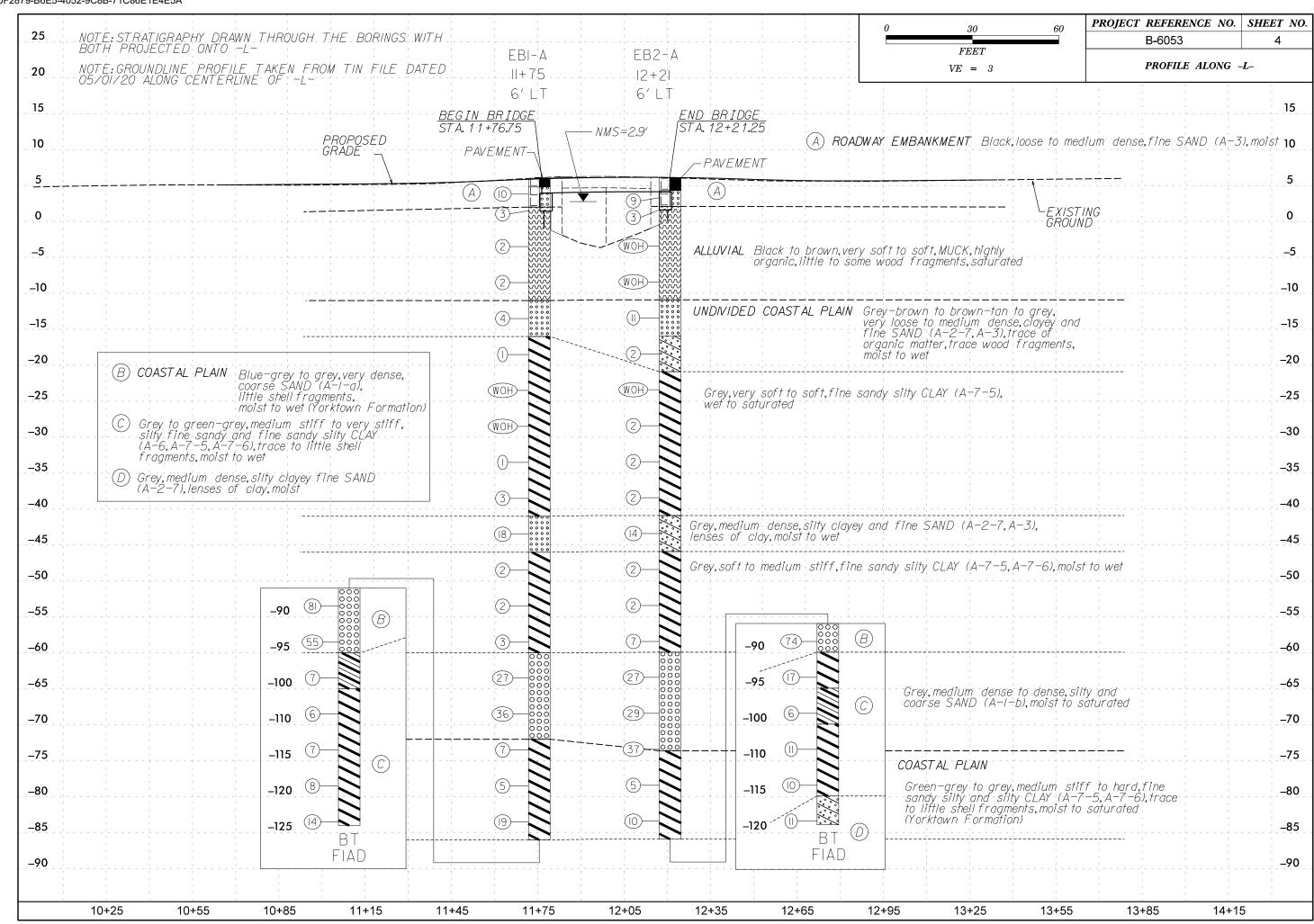
Assisted by: AMY KEETER

Project Engineer: DOUG KELLER, PE

Reviewed by:







FOUNDATION CALCULATIONS

END BENT NO. 1
END BENT NO.2
SHEET PILE DESIGN

CALCULATIONS FOR END BENT NO. 1



Task: Foundation Recommendations

Job Name: Bridge over Knobbs Creek in Elizabeth City

By: AB Date: 5/27/2020

Checked By: MS Date: 6/3/2020

End Bent #1

References: AASHTO LRFD (6th Ed.) and NCDOT LRFD Driven Pile Foundation Policy (6th Update)

PROVIDED INFORMATION

- Location of End Bent #1: -L- Sta. 11+75.33

- Type of Abutment: Vertical abutment with Steel Sheet Piles

- Foundation Type: Vertical HP 12x53 steel piles

- Number of piles: 6

Bottom of Cap (B/C) Elev. (ft): 1.2 FTDesign Scour Elev. (DSE) (ft): -9 FT

Factored Loads (Provided by Structures)

Max Axial Load (Strength I): 110 kips per pile
Max Axial Load (Service I): 80 kips per pile

BORING SUMMARY

| | Ground | | Boring |
|--------|---------------|--------------------------|--------------------------|
| | Surface Elev. | Groundwater | Termination Elev. |
| Boring | (ft) | Elev. (ft) | (ft) |
| EB1-A | 6.0 | 2.9 (NWS) ⁽¹⁾ | -119.0 |

(1) NWS = Normal Water Surface (See BSR)



Task: Foundation Recommendations

Job Name: Bridge over Knobbs Creek in Elizabeth City

By: AB Date: 5/27/2020

Checked By: MS Date: 6/3/2020

End Bent #1 (Continued)

References: AASHTO LRFD (6th Ed.) and NCDOT LRFD Driven Pile Foundation Policy (6th Update)

STRUCTURAL CAPACITY

Nominal Structural Capacity of Pile, P ,

- Use NCDOT SMU chart for preliminary estimate of nominal compressive resistance for steel piles
- Unbraced length (L) = B/C EL DSE = 0-ft

$$P_n = 775$$
 kips (for unbraced length (L) = 0.0-ft)

Factored Structural Capacity of Pile, P,

$$P_r = \phi_c P_n = 465 \text{ kips (> } P_f = 110 \text{-kips)}$$

where:
$$\phi_c = 0.60$$

NCDOT Pile Policy 1.3.1

(normal driving conditions)

DOWNDRAG

Downdrag is not anticipated and settlement should not be signicant.

STATIC ANALYSIS

$$R_n = R_f / \phi_{stat} =$$
 157 kips (Use 160 kips)

where: $R_f = 110$ kips

 ϕ_{stat} = 0.70 NCDOT Pile Policy 3.1.1

- Estimated pile length below BOC using FHWA method in Apile = 68.0 ft
- Estimated pile tip EL = (BOC EL Est. Pile Length below BOC)= EL 1.2' 68' = EL 67'

LATERAL ANALYSIS

- Minimum tip elevation of 10-ft below bottom of end bent cap satisfied. (See pile length and tip elevation summary)



Task: Foundation Recommendations

Job Name: Bridge over Knobbs Creek in Elizabeth City

By: AB

Date: 5/27/2020

Checked By: MS

Date: 6/3/2020

End Bent #1 (Continued)

References: AASHTO LRFD (6th Ed.) and NCDOT LRFD Driven Pile Foundation Policy (6th Update)

DYNAMIC ANALYSIS

$$R_{ndr} = (R_f + \gamma DD)/\phi_{dyn} + DD = 183 \text{ kips}$$
 (Use 190 kips) = 95 tons

where: $R_f = 110$ kips

 ϕ_{dvn} = 0.60 NCDOT Pile Policy 3.2 (WEAP without PDA)

y = 1.25 NCDOT Pile Policy 6.2

DD = 0 kips

% Shaft resistance = $F_{skin} / R_{ndr} = 68\%$

where: $F_{skin} = 130 \text{ kips}$ From static axial analysis with Apile

Min blow count = 30 bpf NCDOT Pile Policy 2.1.1

Max blow count = 180 bpf NCDOT Pile Policy 2.1.2

 $\sigma_{dr} = 45$ ksi NCDOT Pile Policy 2.2.1

| | Energy | Max. Comp. Stress | Max. Tensile | Stroke | Blow Count |
|---------|----------|-------------------|--------------|--------|-------------------|
| Hammer | (kip-ft) | (ksi) | Stress (ksi) | (ft) | (bpf) |
| D 19-42 | 15 | 23 | 0.2 | 6 | 35 |

Delmag D 19-42 OK

Actual driving system to be evaluated prior to construction.

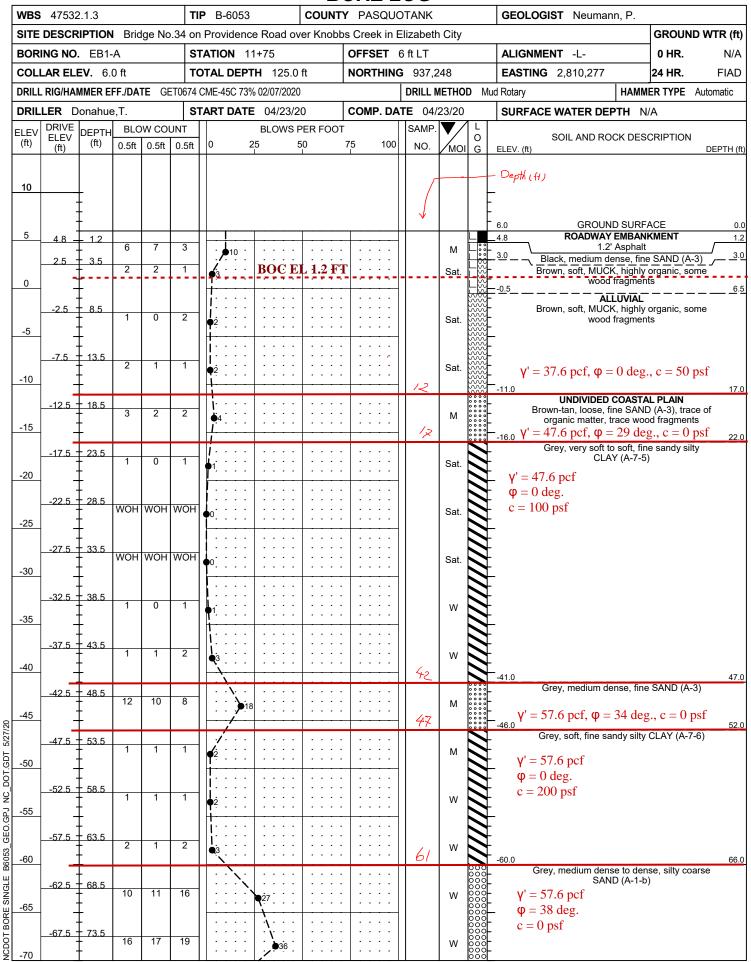
Dynamic analysis was performed using boring EB1-A

SUMMARY

| | | B/C Elev. | Est. Pile Tip | Recommended |
|------|--------|-----------|---------------|------------------|
| Bent | Boring | (ft) | Elev. (ft) | Pile Length (ft) |
| EB1 | EB1-A | 1.2 | -67 | 75 |

Estimated Pile Tip Elevation from the axial analysis

Recommended Pile Length = (B/C EL) - (Estimated Pile Tip Elevation) + (1.5 ft Pile Embedment into Cap) (Round up to nearest 5-ft)



| | | | | | | | | UKE L | JUG | | | | |
|-------|----------------------|--|---------------|----------|--------|--|------------------|--------------|-----------|---------------|------------|--|------------------------------|
| WBS | 4753 | 2.1.3 | | | Т | TP B-6053 | COUNT | Y PASQUO | DTANK | | | GEOLOGIST Neumann, P. | |
| SITE | DESCI | RIPTION | I Brid | dge No | o.34 o | n Providence Road o | ver Knobb | s Creek in E | Elizabeth | City | | | GROUND WTR (|
| BORI | NG NC |). EB1 | -A | | s | STATION 11+75 | | OFFSET | 6 ft LT | | | ALIGNMENT -L- | 0 HR . N/ |
| COLL | AR EL | .EV. 6. | 0 ft | | Т | OTAL DEPTH 125. | 0 ft | NORTHING | 937,2 | 248 | | EASTING 2,810,277 | 24 HR . FIA |
| DRILL | RIG/HA | MMER E | FF./DA | TE GI | | 1 CME-45C 73% 02/07/202 | | 1 | | | D Mi | ud Rotary HAMM | IER TYPE Automatic |
| DRIL | LER [| Donahu | е.Т. | | s | START DATE 04/23/ | 20 | COMP. DA | | | | SURFACE WATER DEPTH N | /A |
| ELEV | DRIVE | | | DW CO | | 11 | PER FOOT | | SAMP. | _ | 1 [| | |
| (ft) | ELEV (ft) | (ft) | 0.5ft | | | ┥ | | 75 100 | NO. | моі | O G | SOIL AND ROCK DES | CRIPTION DEPTH |
| -70 | | <u> </u> | | <u> </u> | | Mat | ch Line | | | L | 000 | | |
| | -72.5 <mark>-</mark> | T 78.5 | _ | | | | | | 73 | | 000 | -72.0 COASTAL PLA | AIN 7 |
| -75 | | Ŧ | 5 | 3 | 4 | • • • • • • • • • | | | | М | | Green-grey, medium stiff to to fine sandy silty CLAY (A | very stiff, silty |
| | - | Ŧ | | | | 1 | | 1 | | | | . little shell fragme | ents |
| | -77.5 | + 83.5 + | 3 | 3 | 2 | $\left \left \int_{5}^{1} \cdot \cdot \cdot \cdot \right \cdot \cdot \cdot \cdot \cdot$ | | | 0. | Sat. | | Y' = 57.6 mof (0 = 0 dog | • |
| -80 | | † | | | | 1 2 | | 1 | 81 | | | $y' = 57.6 \text{ pcf}, \ \phi = 0 \text{ deg.}$ | c = 000 psf |
| | -82.5 | + + 88.5 | | | |] ::\:: :::: | | | | | | $y' = 57.6 \text{ pcf}, \phi = 0 \text{ deg.}$ | c = 900 psf |
| -85 | | ‡ | 3 | 7 | 12 | 19 | | | | М | | $\gamma = 37.0$ pc., $\psi = 0$ deg., | , c = 500 psi |
| -00 | - | ‡ | | | | 1 | | 1 | 86 | | 000 | -86.0 | 9 |
| | -87.5 | 93.5 | 18 | 40 | 41 | | | ↓ · · · · · | | l w | 0000 | Blue-grey to grey, very de SAND (A-1-a), little she | ense, coarse Il fragments |
| -90 | - | ‡ | | | | | | 81 | | '' | ŏŏŏ | y' = 57.6 pcf | |
| | -92 5 | + + 98.5 | | | | | 1 /. | | | | ŏŏŏ ŏŏŏ | $\varphi = 38 \text{ deg.}$ | |
| 2- | -32.3 | + 30.5 | 19 | 35 | 20 | 1 :::: | . €55 · · | | 96 | w | 0000 | c = 0 psf | |
| -95 | | | | | | | | | 76 | | | -95.0 Grey, medium stiff, sandy | 10 CLAY (A-6), |
| - | -97.5 | 103.5 | 2 | 3 | 4 | : : <u> </u> | | | | \ <u>,,</u> , | | trace shell fragm | ents |
| 100 | | Ŧ | _ | | * | <u> •</u> 7 | :: | <u> </u> | | W | | - -100.0 | 10 |
| | 400 - | Ī.,,, . | | | | | | | | | | Grey, medium stiff to stiff, f | fine sandy silty |
| ŀ | -102.5 | <u>† 108.5</u> † | 3 | 3 | 3 | <mark> </mark> 6 | | | | М | | | J |
| 105 | - | Ŧ | | | | | + | + | | | | · = | |
| | -107.5 | † 113.5 | | <u> </u> | L. | 1 :1:::: | | | | | | | |
| 110 | | Ŧ | 3 | 3 | 4 | • † · · · · · · · · · | | | | М | | • | |
| | - | Ŧ | | | | | | 1 | | | | - | |
| | -112.5 | + 118.5 + | 4 | 3 | 5 | | | | | w | | · · | |
| 115 | - | ‡ | | | | 1 | | | | | | - | |
| | -117.5 | † †123.5 | | | |] ::\::: ::::: | | | | | | | |
| | | ‡ | 4 | 6 | 8 | 14 | | • • • • | 4 | W | | -119.0 Roring Terminated at Flova | 12 tion 110 0 ft in |
| | - | ‡ | | | | | | | | | | Boring Terminated at Eleva fine sandy silty CLAY (A-7 | '-6) (Yorktown |
| | | ‡ | | | | | | | | | | Formation) | |
| | | <u> </u> | | | | | | | | | 1 - | - | |
| | | İ | | | | | | | | | 1 - | | |
| | | ł | | | | | | | | | | | |
| | - | Ŧ | | | | | | | | | | - - | |
| | | Ŧ | | | | | | | | | 1 - | • | |
| | | Ŧ | | | | | | | | | | • | |
| | • | Ŧ | | | | | | | | | | - , | |
| | | ‡ | | | | | | | | | | | |
| | - | ‡ | | | | | | | | | | = | |
| | | ‡ | | | | | | | | | | | |
| | | ‡ | | | | | | | | | | | |
| | - | ‡ | | | | | | | | | | _ | |
| | | İ | | | | | | | | | | | |
| | | Ŧ | | | | | | | | | | · | |

| | | | | | | | SD | R-2721 <i>F</i> T N-Value Co | | | | | | | | |
|---------|--------|-------------|-----------|-----------|--------|----------|-------------|---------------------------------|--------------|--------------------------|-----------------|------------------|-------|-----------------|------------------|----------|
| | | | | | | | OI. | EB1-A | | | | | | | | |
| | % Hamr | mer Energy: | 0.92 | (Auto Har | nmer) | | Surface EL | 6 | | Depth | to GWT fro | om Surface: | 2 | ft | | |
| | | | | SPT | | Material | | Buoyant | Effective | Overburden | | | Avg. | Avg. | Avg. | |
| | | Sample | | N | AASHTO | Туре | Unit Weight | Unit Weight | Vertical | Correction | N ₆₀ | N1 ₆₀ | N | N ₆₀ | N1 ₆₀ | Shear |
| Stratum | Sample | Depth(ft) | Elevation | (bpf) | Class. | Gran/Coh | (pcf) | (pcf) | Stress (ksf) | Factor (C _N) | (bpf) | (bpf) | (bpf) | (bpf) | (bpf) | Strength |
| 1 | | 1.8 | 4.2 | 10 | | g | 110 | 110 | 0.198 | 1.78 | 15 | 27 | 10 | 15 | 27 | 35 deg |
| 2 | | 3.5 | 2.5 | 3 | | С | 110 | 47.6 | 0.291 | _ | - | - | 3 | | | 300 psf |
| 1 | | 8.5 | -2.5 | 2 | | С | 100 | 37.6 | 0.479 | - | - | - | 2 | | | |
| | | 13.5 | -7.5 | 2 | | С | 100 | 37.6 | 0.667 | - | - | - | 2 | | | 200 psf |
| 2 | | 18.5 | -12.5 | 4 | | g | 110 | 47.6 | 0.905 | 1.27 | 6 | 8 | 4 | 6 | 8 | 29 deg |
| | | 23.5 | -17.5 | 1 | | С | 110 | 47.6 | 1.143 | - | - | - | | | | |
| | | 28.5 | -22.5 | 0 | | С | 110 | 47.6 | 1.381 | - | - | - | | | | |
| 3 | | 33.5 | -27.5 | 0 | | С | 110 | 47.6 | 1.619 | - | - | - | | | | |
| | | 38.5 | -32.5 | 1 | | С | 110 | 47.6 | 1.857 | - | - | - | | | | |
| | | 43.5 | -37.5 | 3 | | С | 110 | 47.6 | 2.095 | - | - | - | 1 | | | 100 psf |
| 4 | | 48.5 | -42.5 | 18 | | g | 120 | 57.6 | 2.383 | 0.94 | 27 | 25 | 18 | 27 | 25 | 34 deg |
| | | 53.5 | -47.5 | 2 | | С | 120 | 57.6 | 2.671 | - | - | - | | | | |
| 5 | | 58.5 | -52.5 | 2 | | С | 120 | 57.6 | 2.959 | - | - | - | | | | |
| | | 63.5 | -57.5 | 3 | | С | 120 | 57.6 | 3.247 | - | - | - | 2 | | | 200 psf |
| 6 | | 68.5 | -62.5 | 27 | | g | 120 | 57.6 | 3.535 | 0.81 | 41 | 33 | | | | |
| O | | 73.5 | -67.5 | 36 | | g | 120 | 57.6 | 3.823 | 0.79 | 55 | 43 | 32 | 48 | 38 | 38 deg |
| 7 | | 78.5 | -72.5 | 7 | | С | 120 | 57.6 | 4.111 | - | - | - | | | | |
| | | 83.5 | -77.5 | 5 | | С | 120 | 57.6 | 4.399 | - | - | - | 6 | | | 600 psf |
| 8 | | 88.5 | -82.5 | 19 | | С | 120 | 57.6 | 4.687 | - | - | - | 19 | | | 1900 psf |
| 9 | | 93.5 | -87.5 | 81 | | g | 120 | 57.6 | 4.975 | 0.70 | 124 | 86 | | | | |
| Ů | | 98.5 | -92.5 | 55 | | g | 120 | 57.6 | 5.263 | 0.68 | 84 | 57 | 55 | 84 | 57 | 38 deg |
| | | 103.5 | -97.5 | 7 | | С | 120 | 57.6 | 5.551 | - | - | - | 7 | #DIV/0! | #DIV/0! | 700 psf |
| | | 108.5 | -102.5 | 6 | | С | 120 | 57.6 | 5.839 | - | - | - | 6 | #DIV/0! | #DIV/0! | 600 psf |
| 10 | | 113.5 | -107.5 | 7 | | С | 120 | 57.6 | 6.127 | - | - | - | 7 | #DIV/0! | #DIV/0! | 700 psf |
| | | 118.5 | -112.5 | 8 | | С | 120 | 57.6 | 6.415 | - | - | - | 8 | #DIV/0! | #DIV/0! | 800 psf |
| | | 123.5 | -117.5 | 14 | | С | 120 | 57.6 | 6.703 | - | - | - | 14 | #DIV/0! | #DIV/0! | 1400 psf |

 C_N = Overburden Correction Factor = $(0.77log_{10}(40/\sigma'_v)) \le 2.0$ (1.0 for fine grained)

N₆₀ = SPT Value Corrected for Hammer Efficiency = N(ER/60)

ER = Hammer Efficiency

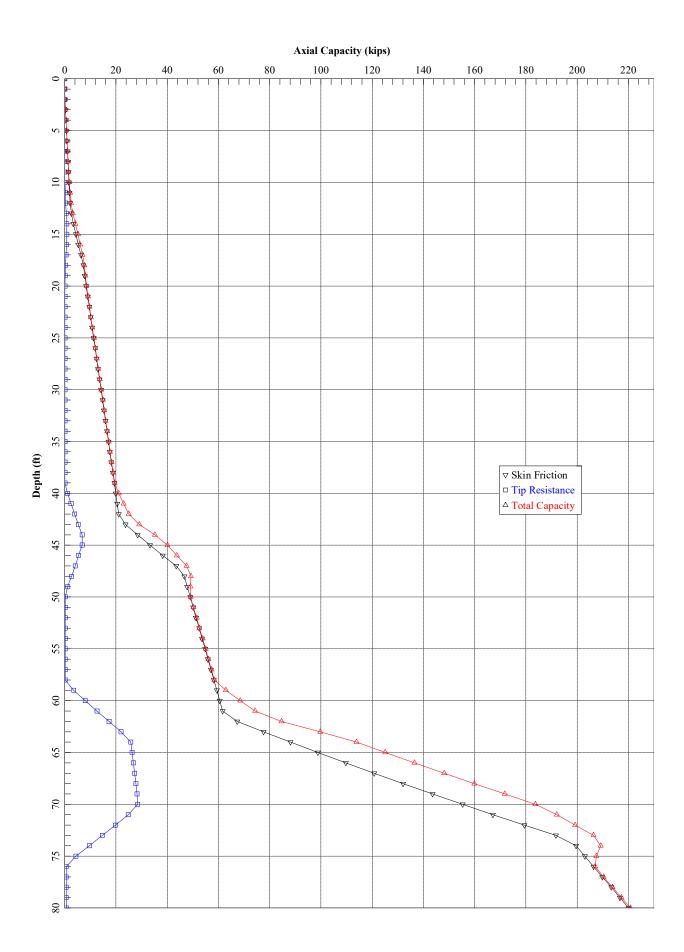
 $N1_{60}$ = SPT Value Corrected for Hammer Efficiency and Overburden Effects = $C_N(N_{60})$

 $\phi = 27.1 + 0.3(N1_{60}) - 0.00054(N1_{60})^2$

(Peck, Hanson and Thorburn (1974)) (Limited to 38 deg)

 $S_u = N*100 \text{ (psf, min 100)}$

Assume S_u = 50-psf for muck layers



```
______
               APILE for Windows, Version 2015.7.8
                Serial Number: 139303838
                A Program for Analyzing the Axial Capacity
                and Short-term Settlement of Driven Piles
                        under Axial Loading.
               (c) Copyright ENSOFT, Inc., 1987-2015
                   All Rights Reserved
   _____
   This program is licensed to :
   RK&K
   Raleigh, NC
   Path to file locations
Recs\EB1\Axial\
   Name of input data file : .ap7d
   Name of output file : .ap7o
Name of plot output file : .ap7p
   ______
                 Time and Date of Analysis
          Date: May 27, 2020 Time: 12:18:26
1
       ******
       * INPUT INFORMATION *
       ********
       B-6053 EB2
       DESIGNER : Arash Bozorgi
       JOB NUMBER : B-6053
       METHOD FOR UNIT LOAD TRANSFERS:
       - FHWA (Federal Highway Administration)
        Unfactored Unit Side Friction and Unit Side Resistance are used.
       COMPUTATION METHOD(S) FOR PILE CAPACITY:
       - FHWA (Federal Highway Administration)
       TYPE OF LOADING:
       - COMPRESSION
       PILE TYPE :
       H-Pile/Steel Pile
```

DATA FOR AXIAL STIFFNESS :

- MODULUS OF ELASTICITY = 0.290E+08 PSI - CROSS SECTION AREA = 15.50 IN2

NONCIRCULAR PILE PROPERTIES :

- TOTAL PILE LENGTH, TL = 80.00 FT.
- PILE STICKUP LENGTH, PSL = 0.00 FT.
- ZERO FRICTION LENGTH, ZFL = 0.00 FT.
- PERIMETER OF PILE = 69.13 IN.
- TIP AREA OF PILE = 15.50 IN2
- INCREMENT OF PILE LENGTH
USED IN COMPUTATION = 1.00 FT.

SOIL INFORMATIONS :

| | | LATERAL | EFFECTIVE | FRICTION | BEARING |
|-------|------|----------|-----------|----------|----------|
| | SOIL | EARTH | UNIT | ANGLE | CAPACITY |
| DEPTH | TYPE | PRESSURE | WEIGHT | DEGREES | FACTOR |
| FT. | | | LB/CF | | |
| 0.00 | CLAY | 0.00 | 37.60 | 0.00 | 0.00 |
| 12.00 | CLAY | 0.00 | 37.60 | 0.00 | 0.00 |
| 12.00 | SAND | 0.00 | 47.60 | 29.00 | 0.00 |
| 17.00 | SAND | 0.00 | 47.60 | 29.00 | 0.00 |
| 17.00 | CLAY | 0.00 | 47.60 | 0.00 | 0.00 |
| 42.00 | CLAY | 0.00 | 47.60 | 0.00 | 0.00 |
| 42.00 | SAND | 0.00 | 57.60 | 34.00 | 0.00 |
| 47.00 | SAND | 0.00 | 57.60 | 34.00 | 0.00 |
| 47.00 | CLAY | 0.00 | 47.60 | 0.00 | 0.00 |
| 61.00 | CLAY | 0.00 | 47.60 | 0.00 | 0.00 |
| 61.00 | SAND | 0.00 | 57.60 | 38.00 | 0.00 |
| 73.00 | SAND | 0.00 | 57.60 | 38.00 | 0.00 |
| 73.00 | CLAY | 0.00 | 57.60 | 0.00 | 0.00 |
| 81.00 | CLAY | 0.00 | 57.60 | 0.00 | 0.00 |
| 81.00 | CLAY | 0.00 | 57.60 | 0.00 | 0.00 |
| 86.00 | CLAY | 0.00 | 57.60 | 0.00 | 0.00 |
| 86.00 | SAND | 0.00 | 57.60 | 38.00 | 0.00 |
| 96.00 | SAND | 0.00 | 57.60 | 38.00 | 0.00 |
| | | | | | |

| MAXIMUM | MAXIMUM | UNDISTURB | REMOLDED | | | |
|-----------|-----------|-----------|----------|-------|-----------|----------|
| UNIT | UNIT | SHEAR | SHEAR | BLOW | UNIT SKIN | UNIT END |
| FRICTION | BEARING | STRENGTH | STRENGTH | COUNT | FRICTION | BEARING |
| KSF | KSF | KSF | KSF | | KSF | KSF |
| 0.10E+08* | 0.10E+08* | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10E+08* | 0.10E+08* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

0.10E+08* 0.10E+08* 0.00 0.00 0.00 0.00 0.00

* MAXIMUM UNIT FRICTION AND/OR MAXIMUM UNIT BEARING WERE SET TO BE 0.10E+08 BECAUSE THE USER DOES NOT PLAN TO LIMIT THE COMPUTED DATA.

| | LRFD FACTOR | LRFD FACTOR |
|-------|-------------|-------------|
| | ON UNIT | ON UNIT |
| DEPTH | FRICTION | BEARING |
| FT. | | |
| 0.00 | 1.000 | 1.000 |
| 12.00 | 1.000 | 1.000 |
| 12.00 | 1.000 | 1.000 |
| 17.00 | 1.000 | 1.000 |
| 17.00 | 1.000 | 1.000 |
| 42.00 | 1.000 | 1.000 |
| 42.00 | 1.000 | 1.000 |
| 47.00 | 1.000 | 1.000 |
| 47.00 | 1.000 | 1.000 |
| 61.00 | 1.000 | 1.000 |
| 61.00 | 1.000 | 1.000 |
| 73.00 | 1.000 | 1.000 |
| 73.00 | 1.000 | 1.000 |
| 81.00 | 1.000 | 1.000 |
| 81.00 | 1.000 | 1.000 |
| 86.00 | 1.000 | 1.000 |
| 86.00 | 1.000 | 1.000 |
| 96.00 | 1.000 | 1.000 |
| | | |

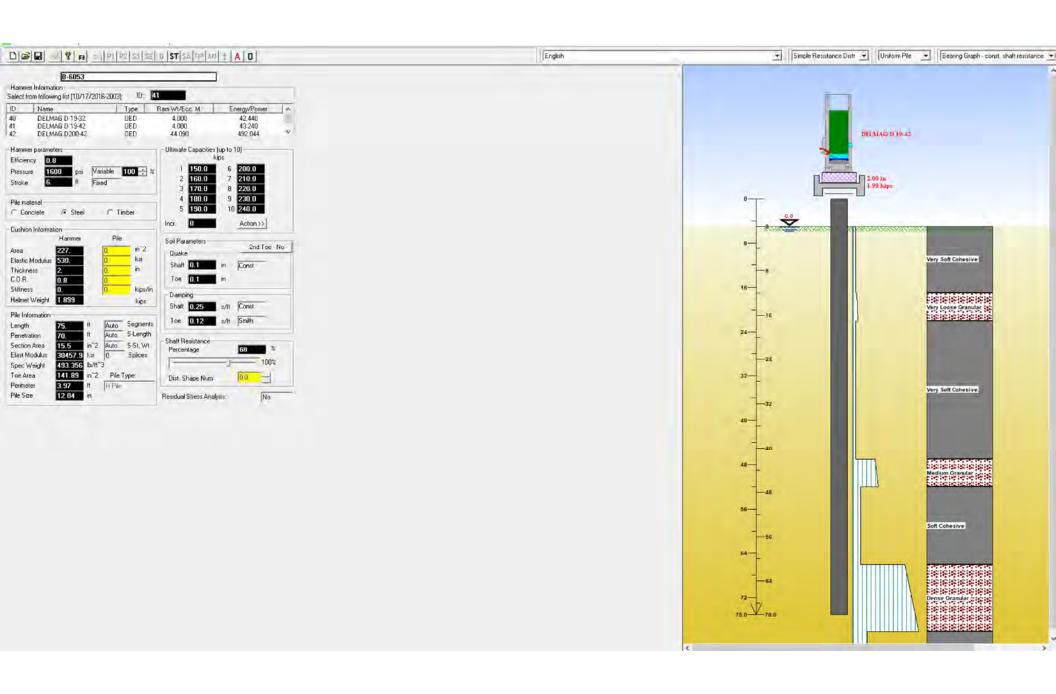
1

| PILE | TOTAL SKIN | END | ULTIMATE |
|-------------|------------|---------|----------|
| PENETRATION | FRICTION | BEARING | CAPACITY |
| FT. | KIP | KIP | KIP |
| 0.00 | 0.0 | 0.0 | 0.0 |
| 1.00 | 0.0 | 0.0 | 0.0 |
| 2.00 | 0.1 | 0.0 | 0.1 |
| 3.00 | 0.3 | 0.0 | 0.3 |
| 4.00 | 0.5 | 0.0 | 0.5 |
| 5.00 | 0.7 | 0.0 | 0.7 |
| 6.00 | 0.9 | 0.0 | 0.9 |
| 7.00 | 1.1 | 0.0 | 1.1 |
| 8.00 | 1.3 | 0.0 | 1.3 |
| 9.00 | 1.5 | 0.0 | 1.5 |
| 10.00 | 1.7 | 0.1 | 1.8 |
| 11.00 | 1.9 | 0.3 | 2.1 |
| 12.00 | 2.1 | 0.4 | 2.5 |
| 13.00 | 2.6 | 0.6 | 3.2 |
| 14.00 | 3.4 | 0.8 | 4.2 |
| 15.00 | 4.4 | 0.8 | 5.2 |
| 16.00 | 5.3 | 0.7 | 6.0 |
| 17.00 | 6.4 | 0.5 | 7.0 |
| 18.00 | 7.3 | 0.4 | 7.7 |
| 19.00 | 7.8 | 0.2 | 8.1 |
| 20.00 | 8.4 | 0.1 | 8.5 |
| 21.00 | 9.0 | 0.1 | 9.1 |

| 22.00 | 9.6 | 0.1 | 9.7 |
|-------|-------|------|-------|
| 23.00 | 10.1 | 0.1 | 10.2 |
| 24.00 | 10.7 | 0.1 | 10.8 |
| 25.00 | 11.3 | 0.1 | 11.4 |
| 26.00 | 11.9 | 0.1 | 12.0 |
| | 12.4 | | |
| 27.00 | | 0.1 | 12.5 |
| 28.00 | 13.0 | 0.1 | 13.1 |
| 29.00 | 13.6 | 0.1 | 13.7 |
| 30.00 | 14.2 | 0.1 | 14.3 |
| 31.00 | 14.8 | 0.1 | 14.9 |
| 32.00 | 15.3 | 0.1 | 15.4 |
| 33.00 | 15.9 | 0.1 | 16.0 |
| 34.00 | 16.5 | 0.1 | 16.6 |
| 35.00 | 17.1 | 0.1 | 17.2 |
| 36.00 | 17.6 | 0.1 | 17.7 |
| 37.00 | 18.2 | 0.1 | 18.3 |
| 38.00 | 18.8 | 0.1 | 18.9 |
| 39.00 | 19.4 | 0.1 | 19.5 |
| 40.00 | 19.9 | 1.1 | 21.1 |
| | | | |
| 41.00 | 20.5 | 2.5 | 23.0 |
| 42.00 | 21.1 | 3.9 | 25.0 |
| 43.00 | 23.7 | 5.3 | 29.1 |
| 44.00 | 28.5 | 6.8 | 35.2 |
| 45.00 | 33.3 | 6.8 | 40.1 |
| 46.00 | 38.3 | 5.4 | 43.8 |
| 47.00 | 43.5 | 4.1 | 47.6 |
| 48.00 | 46.7 | 2.7 | 49.3 |
| 49.00 | 47.8 | 1.2 | 49.1 |
| 50.00 | 49.0 | 0.2 | 49.2 |
| 51.00 | 50.2 | 0.2 | 50.3 |
| 52.00 | 51.3 | 0.2 | 51.5 |
| 53.00 | 52.5 | 0.2 | 52.6 |
| 54.00 | 53.6 | 0.2 | 53.8 |
| 55.00 | 54.8 | 0.2 | 55.0 |
| | | | |
| 56.00 | 55.9 | 0.2 | 56.1 |
| 57.00 | 57.1 | 0.2 | 57.3 |
| 58.00 | 58.2 | 0.2 | 58.4 |
| 59.00 | 59.4 | 3.5 | 62.9 |
| 60.00 | 60.5 | 8.0 | 68.5 |
| 61.00 | 61.7 | 12.6 | 74.3 |
| 62.00 | 67.3 | 17.3 | 84.6 |
| 63.00 | 77.6 | 22.0 | 99.7 |
| 64.00 | 88.1 | 25.8 | 113.9 |
| 65.00 | 98.8 | 26.3 | 125.1 |
| 66.00 | 109.7 | 26.8 | 136.5 |
| 67.00 | 120.8 | 27.3 | 148.1 |
| 68.00 | 132.1 | 27.8 | 159.9 |
| 69.00 | 143.6 | 28.2 | 171.8 |
| 70.00 | 155.3 | 28.5 | 183.8 |
| 71.00 | 167.2 | 24.8 | 192.1 |
| 72.00 | 179.4 | 19.8 | 199.2 |
| 73.00 | 191.7 | 14.7 | 206.4 |
| | | | |
| 74.00 | 199.6 | 9.6 | 209.2 |
| 75.00 | 203.0 | 4.4 | 207.5 |
| 76.00 | 206.4 | 0.6 | 207.0 |
| 77.00 | 209.8 | 0.6 | 210.4 |
| 78.00 | 213.3 | 0.6 | 213.8 |
| 79.00 | 216.7 | 0.6 | 217.3 |
| 80.00 | 220.1 | 0.7 | 220.8 |
| | | | |

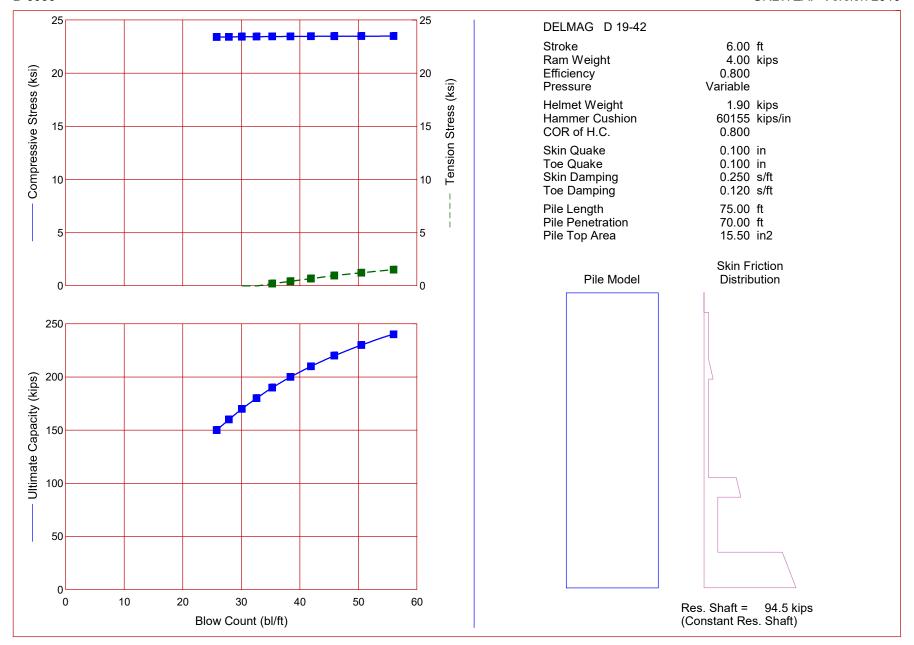
NOTES

- AN ASTERISK IS PLACED IN THE END-BEARING COLUMN
IF THE TIP RESISTANCE IS CONTROLLED BY THE FRICTION
OF SOIL PLUG INSIDE AN OPEN-ENDED PIPE PILE.



RK&K B-6053

27-May-2020 GRLWEAP Version 2010



RK&K B-6053

27-May-2020 GRLWEAP Version 2010

| Ultimate Capacity kips | Maximum Compression Stress ksi | Maximum Tension Stress ksi | Blow Count bl/ft | Stroke ft | Energy kips-ft |
|------------------------------|---|-------------------------------------|------------------------|--------------|-------------------|
| 150.0 | 23.40 | 0.00 | 25.8 | 6.00 | 14.80 |
| 160.0 | 23.40 | 0.00 | 27.9 | 6.00 | 14.67 |
| 170.0 | 23.43 | 0.00 | 30.1 | 6.00 | 14.58 |
| 180.0 | 23.43 | 0.00 | 32.6 | 6.00 | 14.51 |
| 190.0 | 23.45 | 0.21 | 35.3 | 6.00 | 14.44 |
| 200.0 | 23.45 | 0.43 | 38.4 | 6.00 | 14.38 |
| 210.0 | 23.46 | 0.68 | 41.9 | 6.00 | 14.32 |
| 220.0 | 23.47 | 0.97 | 45.9 | 6.00 | 14.26 |
| 230.0 | 23.48 | 1.24 | 50.5 | 6.00 | 14.21 |
| 240.0 | 23.48 | 1.51 | 56.0 | 6.00 | 14.18 |

CALCULATIONS FOR END BENT NO. 2



Task: Foundation Recommendations

Job Name: Bridge over Knobbs Creek in Elizabeth City

By: AB Date: 5/27/2020

Checked By: MS Date: 6/3/2020

End Bent #2

References: AASHTO LRFD (6th Ed.) and NCDOT LRFD Driven Pile Foundation Policy (6th Update)

PROVIDED INFORMATION

- Location of End Bent #2: -L- Sta. 12+22.67

- Type of Abutment: Vertical abutment with Steel Sheet Piles

- Foundation Type: Vertical HP 12x53 steel piles

- Number of piles: 6

- Bottom of Cap (B/C) Elev. (ft): 1.2 FT

- Design Scour Elev. (DSE) (ft): -9 FT

Factored Loads (Provided by Structures)

Max Axial Load (Strength I): 110 kips per pile
Max Axial Load (Service I): 80 kips per pile

BORING SUMMARY

| | Ground | | Boring |
|--------|---------------|--------------------------|-------------------|
| | Surface Elev. | Groundwater | Termination Elev. |
| Boring | (ft) | Elev. (ft) | (ft) |
| EB2-A | 6.1 | 2.9 (NWS) ⁽¹⁾ | -113.9 |

(1) NWS = Normal Water Surface (See GPD)

Axial, Lateral, and Dynamic Analysis

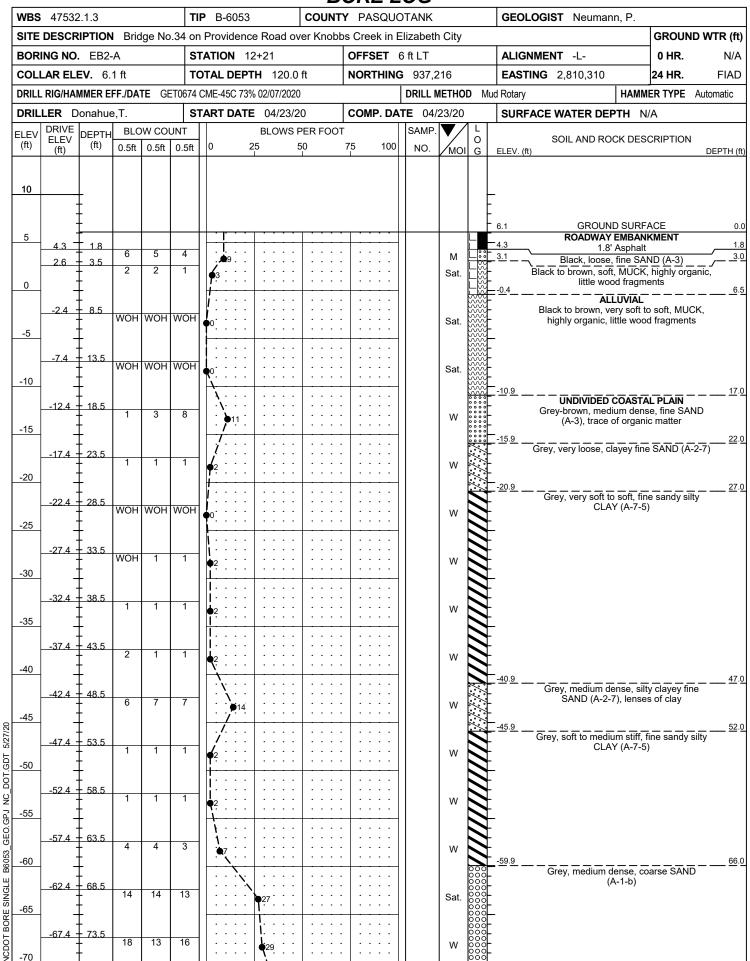
* The two borings at the two end bents are fairly consistent, so the more conservative borig (EB1-A) is considered for the design. See EB1 calculations

SUMMARY

| | | B/C Elev. | Est. Pile Tip | Recommended Pile |
|------|--------|-----------|---------------|-------------------------|
| Bent | Boring | (ft) | Elev. (ft) | Length (ft) |
| EB2 | EB1-A | 1 2 | -67 | 75 |

Estimated Pile Tip Elevation from the axial analysis

Recommended Pile Length = (B/C EL) - (Estimated Pile Tip Elevation) + (1.5 ft Pile Embedment into Cap) (Round up to nearest 5-ft)



| | | | | | | | | UKE L | | | | 1 | |
|--------------|-----------------------|--------------------------|--------------|-------|--------|---|------------|--------------|--------------|-------|--|---|----------------------------------|
| WBS | 4753 | 2.1.3 | | | Т | TIP B-6053 | COUNT | Y PASQU | DTANK | | | GEOLOGIST Neumann, P. | |
| SITE | DESC | RIPTION | I Bri | dge N | o.34 o | on Providence Road o | over Knobb | s Creek in I | Elizabeth | City | | | GROUND WTR (f |
| BORI | NG NC |). EB2- | -A | | s | STATION 12+21 | | OFFSET | 6 ft LT | | | ALIGNMENT -L- | 0 HR. N/A |
| COLL | AR EL | .EV. 6. | 1 ft | | Т | TOTAL DEPTH 120. | 0 ft | NORTHING | 937,2 | 16 | | EASTING 2,810,310 | 24 HR. FIAI |
| DRILL | RIG/HA | MMER E | FF./D | ATE G | ET0674 | 4 CME-45C 73% 02/07/202 | 20 | | DRILL N | ИЕТНО | D M | ud Rotary HAMN | IER TYPE Automatic |
| DRILI | LER [| Donahu | e,T. | | S | START DATE 04/23 | /20 | COMP. DA | TE 04/ | 23/20 | | SURFACE WATER DEPTH | I/A |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | 0.5ft | OW CO | _ | ⊣ | PER FOOT | 75 100 | SAMP. NO. | MOI | L O G | SOIL AND ROCK DES | CRIPTION DEPTH |
| -70 | | <u> </u> | | + | | Mat | tch Line | T | | | 000 | Grey, medium dense, c | |
| -75 | <u>-72.4</u> | + 78.5 + | 19 | 24 | 13 | 37 | | | | М | | . (A-1-b) (continue -73.6 COASTAL PLA - Green-grey to grey, mediu | AIN m stiff to hard, |
| -80 | -77.4 | 83.5 | 3 | 3 | 2 | 4 5 | | | | М | | fine sandy śilty ČLÁY (A-7- shell fragmer (Yorktown Forma | ts |
| -85 | -82.4 | + + 88.5 + | 3 | 4 | 6 | | | | | М | | | |
| | -87.4 | 93.5 | 25 | 39 | 35 | | | 74 | | М | 000 | Blue-grey, very dense, c (A-1-a), little shell fr | agments |
| -90 | -92.4 | 98.5 | 5 | 11 | 6 | | | | | М | | Grey, very stiff, fine sand (A-7-5), little shell fr | dy silty CLAY agments |
| -95 | -97.4 | 103.5 | 2 | 3 | 3 | | | | | м | | Grey, medium stiff, silty fir (A-6), trace shell fra | e sandy CLAY agments |
| -100 | -102.4 | 108.5 | 5 | 4 | 7 | | | | | | | Grey to green-grey, stiff, 1 CLAY (A-7-6), trace she | ine sandy silty ell fragments |
| -105 | -107 4 | 113.5 | | - | | 111 | | | | M | | _ _ | |
| -110 | - | † † | 5 | 4 | 6 | 10 | | | | М | | | |
| | -112.4 | + 118.5 + | 4 | 4 | 7 | - : j : : : : : : : : : : : : : : : : | | | - | М | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | -113.9 Boring Terminated at Eleva silty clayey fine SAND (A- | 12 ation -113.9 ft in |
| | | | | | | | | | | | | . Formation) | |

| | | | | | | | SP | R-2721 <i>F</i> T N-Value Co EB2-A | rrections | | | | | | | |
|---------|--------|-------------|-----------|-----------|--------|----------|-------------|---|--------------|--------------------------|-----------------|------------------|-------|-----------------|------------------|----------|
| | % Hamr | ner Energy: | 0.92 | (Auto Har | mmer) | | Surface EL | 6 | | Depth | to GWT fro | om Surface: | 2 | ft | | |
| | | 3, | | SPT | , | Material | | Buoyant | Effective | Overburden | | | Avg. | Avg. | Avg. | |
| | | Sample | | N | AASHTO | Туре | Unit Weight | Unit Weight | Vertical | Correction | N ₆₀ | N1 ₆₀ | N | N ₆₀ | N1 ₆₀ | Shear |
| Stratum | Sample | Depth(ft) | Elevation | (bpf) | Class. | Gran/Coh | (pcf) | (pcf) | Stress (ksf) | Factor (C _N) | (bpf) | (bpf) | (bpf) | (bpf) | (bpf) | Strength |
| 1 | | 1.8 | 4.2 | 9 | | g | 110 | 110 | 0.198 | 1.78 | 13 | 23 | 9 | 13 | 23 | 34 deg |
| 2 | | 3.5 | 2.5 | 3 | | С | 110 | 47.6 | 0.291 | _ | - | - | | | | 0 psf |
| 1 | | 8.5 | -2.5 | 0 | | С | 110 | 47.6 | 0.529 | - | - | - | | | | |
| Į. | | 13.5 | -7.5 | 0 | | С | 110 | 47.6 | 0.767 | - | - | - | 0 | | | 50 psf |
| 2 | | 18.5 | -12.5 | 11 | | g | 110 | 47.6 | 1.005 | 1.23 | 16 | 20 | | | | |
| | | 23.5 | -17.5 | 2 | | g | 110 | 47.6 | 1.243 | 1.16 | 3 | 3 | 7 | 10 | 12 | 31 deg |
| | | 28.5 | -22.5 | 0 | | С | 100 | 37.6 | 1.431 | - | = | - | | | | |
| 3 | | 33.5 | -27.5 | 2 | | С | 100 | 37.6 | 1.619 | - | - | - | | | | |
| | | 38.5 | -32.5 | 2 | | С | 100 | 37.6 | 1.807 | - | - | - | | | | |
| | | 43.5 | -37.5 | 2 | | С | 100 | 37.6 | 1.995 | - | - | - | 2 | | | 150 psf |
| 4 | | 48.5 | -42.5 | 14 | | g | 100 | 37.6 | 2.183 | 0.97 | 21 | 20 | 14 | 21 | 20 | 33 deg |
| | | 53.5 | -47.5 | 2 | | С | 100 | 37.6 | 2.371 | - | - | - | | | | |
| 5 | | 58.5 | -52.5 | 2 | | С | 100 | 37.6 | 2.559 | - | - | - | | | | |
| | | 63.5 | -57.5 | 7 | | С | 120 | 57.6 | 2.847 | - | - | - | 4 | | | 367 psf |
| | | 68.5 | -62.5 | 27 | | g | 120 | 57.6 | 3.135 | 0.85 | 41 | 35 | | | | |
| 6 | | 73.5 | -67.5 | 27 | | g | 120 | 57.6 | 3.423 | 0.82 | 41 | 34 | | | | |
| | | 78.5 | -72.5 | 37 | | g | 125 | 62.6 | 3.736 | 0.79 | 56 | 44 | 30 | 46 | 38 | 38 deg |
| 7 | | 83.5 | -77.5 | 5 | | С | 125 | 62.6 | 4.049 | - | - | - | | | | |
| | | 88.5 | -82.5 | 10 | | С | 126.5 | 64.1 | 4.370 | - | - | - | 8 | | | 750 psf |
| 8 | | 93.5 | -87.5 | 74 | | g | 128 | 65.6 | 4.698 | 0.72 | 113 | 81 | 74 | 113 | 81 | 38 deg |
| | | 98.5 | -92.5 | 17 | | С | 129.5 | 67.1 | 5.033 | - | - | - | | | | |
| 9 | | 103.5 | -97.5 | 6 | | С | 131 | 68.6 | 5.376 | - | - | - | | | | |
| | | 108.5 | -102.5 | 11 | | С | 132.5 | 70.1 | 5.727 | - | - | - | | | | 1100 1 |
| | | 113.5 | -107.5 | 10 | | С | 134 | 71.6 | 6.085 | - | - | - | 11 | 40 | 40 | 1100 psf |
| 10 | | 118.5 | -112.5 | 11 | | g | 135.5 | 73.1 | 6.450 | 0.61 | 16 | 10 | 11 | 16 | 10 | 30 deg |

 $C_N = Overburden Correction Factor = (0.77log_{10}(40/\sigma'_v)) \le 2.0 (1.0 for fine grained)$

N₆₀ = SPT Value Corrected for Hammer Efficiency = N(ER/60)

ER = Hammer Efficiency

 $N1_{60}$ = SPT Value Corrected for Hammer Efficiency and Overburden Effects = $C_N(N_{60})$

 $\phi = 27.1 + 0.3(N1_{60}) - 0.00054(N1_{60})^2$

(Peck, Hanson and Thorburn (1974)) (Limited to 38 deg)

 $S_u = N*100 \text{ (psf, min 100)}$

Assume S_u = 50-psf for muck layers

CALCULATIONS FOR SHEET PILE DESIGN



Subject: B-6053

Sheet Pile Calc Summary - Embedment

Prepared By: AB Date: 6/25/20 Checked by: MS Date: 6/25/20

Page 1 of 5

Calculation Summary

Assumptions:

- Model Geometry:
 - Grade Point:
 Ground water:
 Top of wall:
 DSE
 EL 5.9 ft
 EL 2.9 ft
 EL 1.2 ft
 EL -9 ft
- LRFD design method:
 - o Load factors: (AASHTO LRFD Tables 3.4.1-1)
 - Active horizontal earth pressure, $\gamma_{EH} = 1.50$ (Strength I)
 - \triangleright Live load $\gamma_{LL} = 1.75$
 - o Resistance factor (AASHTO LRFD Table 11.5.6-1)
 - Passive resistance of vertical elements for non-gravity cantilevered walls, $\phi_{PEP} = 0.75$ (Strength I)
- Boring Logs (see attachments):
 - o EB1-A
- Soil Properties:
 - o Muck/CLAY: $\gamma' = 47.6$ -pcf and $\varphi' = 22$ -deg (Drained condition)

Sheet Pile Wall

- Calculations show embedment of 27 ft below the DSE is required for sheet piles (sheet pile tip at Elev. -36 ft).
- PZ 27 or similar sections with 50 ksi steel.

(2016 AASHTO LRFD Bridge Design Specifications)

Project: B-6053 Design: AB Check: MS Page 2 of 5

Section: Date: 6/25/2020 **Date:** 6/25/2020

Soil Input

| Effective Soil Unit Weight (pcf) = | 47.6 |
|------------------------------------|-------|
| Friction Angle (deg) = | 22 |
| K_a (Rankine) = | 0.455 |
| K_p (Rankine) = | 2.198 |
| Cohesion (psf) = | 0 |
| GWT Depth (ft) = | 2.9 |

Wall Geometry

| Grade Point Elev., E_1 = | 5.6 |
|--|-------|
| Bottom of Cap Elev., BOC = | 1.2 |
| Design Scour Elev., E ₂ = | -9.5 |
| Bottom of Wall Elev., E ₃ = | -36.6 |
| Front Slope, β (deg) = | 0.0 |

Load/Resistance Factors

(AASHTO LRFD Tables 3.4.1-1, 3.4.1-2, and 11.5.7-1)

| Active Horizontal EP, γ_{EH} = | 1.5 |
|---------------------------------------|------|
| Live Load Surcharge , γ_{LL} = | 1.75 |
| Passive Horizontal EP, $\phi_{PEP} =$ | 0.75 |

Factored Soil Pressure

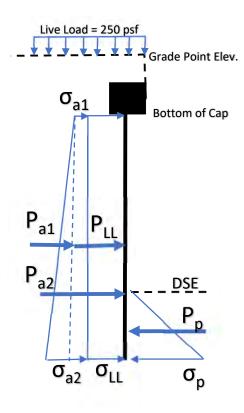
(AASHTO Section 3.11.5.10)

| , | |
|---|-------|
| Active EP at Bottom of Cap, σ_{a1} (psf) = | 143 |
| Active EP at Tip, σ_{a2} (psf) = | 1,371 |
| Live Load Stress at Tip, σ_{LL} (psf) = | 199 |
| Passive EP at Tip, σ_p (psf) = | 2,127 |

Factored Loads

| Active EP (uniform), P _{a1} (kip) = | 5,405 |
|--|--------|
| Active EP (triangular), P_{a2} (kip) = | 23,223 |
| Live Load Pressure, P_{LL} (kip) = | 7,526 |
| Passive EP, P_p (kip) = | 28,840 |





(2016 AASHTO LRFD Bridge Design Specifications)

Project: B-6053 Design: AB Check: MS Page 3 of 5

Section: Date: 6/25/2020 **Date:** 6/25/2020

Moment Arm - From the Bottom of Cap

| Active EP - P_{a1} (ft) = | 19 |
|-----------------------------|----|
| Active EP - P_{a2} (ft) = | 25 |
| Live Load - P_{LL} (ft) = | 19 |
| Passive EP - P_P (ft) = | 29 |

Factored Moment About Pile Tip

| Active EP - P_{a1} (kip-ft) = | 102 |
|---------------------------------|-----|
| Active EP - P_{a2} (kip-ft) = | 585 |
| Live Load - P_{LL} (kip-ft) = | 142 |
| Passive EP - P_P (kip-ft) = | 830 |
| Sum of moments (kip-ft) = | 0 |

Find Bottom of Wall Elevation using Excel Solver to set moment equal to zero:

Minimum Embedment Below DSE, D (ft) = 27 Use 27 ft

(2016 AASHTO LRFD Bridge Design Specifications)

Project: B-6053 Design: AB Check: MS Page 4 of 5

Section: Date: 5/28/2020 **Date:** 6/9/2020

Soil Input

| Effective Soil Unit Weight (pcf) = | 48 |
|------------------------------------|------|
| Friction Angle (deg) = | 22 |
| K_a (Rankine) = | 0.45 |
| K_p (Rankine) = | 2.20 |
| Cohesion (psf) = | 0.0 |
| GWT Depth (ft) = | 2.9 |

Wall Geometry

| Grade Point Elev., $E_1 =$ | 5.6 |
|-----------------------------------|-------|
| Bottom of Cap Elev., BOC = | 1.2 |
| Design Scour Elev., $E_2 =$ | -9.5 |
| Point of Zero Shear Elev., POZS = | -10.6 |
| Bottom of Wall Elev., $E_3 =$ | -36.6 |
| Front Slope, β (deg) = | 0.0 |

Load/Resistance Factors

(AASHTO LRFD Tables 3.4.1-1, 3.4.1-2, and 11.5.7-1)

| Active Horizontal EP, γ_{EH} = | 1.5 |
|---------------------------------------|------|
| Live Load Surcharge , γ_{LL} = | 1.75 |
| Passive Horizontal EP, ϕ_{PEP} = | 0.75 |

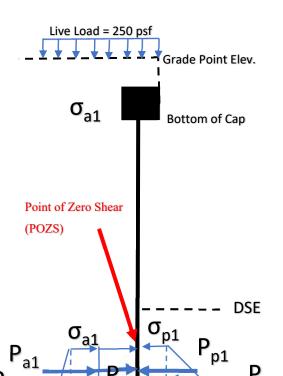
Factored Soil Pressure

(AASHTO Section 3.11.5.10)

| Active EP at POZS, σ_{a1} (psf) = | 525 |
|--|-------|
| Active EP at Tip, σ_{a2} (psf) = | 1,371 |
| Live Load Stress at Tip, σ_{LL} (psf) = | 199 |
| Passive EP at POZS, σ_p (psf) = | 83 |
| Passive EP at Tip, σ_p (psf) = | 2,127 |

Factored Loads - Find Point of Zero Shear using Excel Solver:

| Active EP (uniform), P _{a1} (kip) = | 13,677 |
|--|--------|
| Active EP (triangular), P _{a2} (kip) = | 11,021 |
| Live Load Pressure, P _{LL} (kip) = | 5,185 |
| Passive EP (uniform), P _{p1} (kip) = | 2,174 |
| Passive EP (triangular), P _{p2} (kip) = | 27,709 |
| Sum of Horizontal Forces (kip) = | 0 |



(2016 AASHTO LRFD Bridge Design Specifications)

Project: B-6053 Design: AB Check: MS Page 5 of 5

Section: Date: 5/28/2020 **Date:** 6/9/2020

Moment Arm - From the Point of Zero Shear

| Active EP - P_{al} (ft) = | 13 |
|------------------------------|----|
| Active EP - P_{a2} (ft) = | 17 |
| Live Load - P_{LL} (ft) = | 13 |
| Passive EP - P_{P1} (ft) = | 13 |
| Passive EP - P_{P2} (ft) = | 17 |

Factored Moment About Pile Tip

| Active EP - P_{a1} (kip-ft) = | 178 |
|----------------------------------|-----|
| Active EP - P_{a2} (kip-ft) = | 191 |
| Live Load - P_{LL} (kip-ft) = | 68 |
| Passive EP - P_{P1} (kip-ft) = | 28 |
| Passive EP - P_{P2} (kip-ft) = | 481 |
| Sum of moments (kip-ft) = | -72 |

Required Section Modulus

| F_y of steel, ksi = | 50 |
|--|------|
| M_{max} , kip-in/ft = | 869 |
| $S_{req.} = M_{max} / (0.6*F_y)$, $in^3/ft =$ | 29.0 |
| Section modulus of PZ27, in ³ = | 31.2 |
| Is $S > S_{req}$? | Yes |



June 29, 2020

Memorandum to: J. L. Pilipchuk, L.G., P.E.

State Geotechnical Engineer

WBS Element: 48754.1.1
TIP: B-6053
County: Pasquotank

Description: Bridge No. 34 on Providence Road over Knobbs Creek Tributary

Between US 17 (S. Hughes Blvd.) and Lexington Dr.

Subject: Design Scour Elevation

After a review of site flooding history, historical scour depth, and geologic conditions encountered at the site, RKK has determined the design scour elevation(s) (DSE), and presents the following:

| Location | Theoretical Scour Elevation (Contraction Only) | Does DSE impact end bents? |
|------------|--|----------------------------|
| End Bent 1 | -9.5 feet | Yes |
| End Bent 2 | -9.5 feet | Yes |

The Theoretical Scour Elevation is from the Bridge Survey and Hydraulic Design Report dated 5/6/2020. The subsurface investigations at the site encountered alluvial soils to elevations -11 feet. Alluvial soils encountered at the site consist of MUCK with little to some organic content. This material is susceptible to scour; therefore, sheet piles are recommended to protect the end bents.

Prepared by,

Arash Bozorgi

7/6/2020

1D9ECF51F010436...

Arash Bozorgi, PhD, PE Project Engineer, Geotechnical Registered, North Carolina 048490



605. 2 REFERENCE

CONTENTS

DESCRIPTION

LEGEND (SOIL & ROCK)

TITLE SHEET

SITE PLAN

BORE LOGS SITE PHOTO

PROFILE

SHEET NO.

5-6

V 48 OIE STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY **PASQUOTANK**

PROJECT DESCRIPTION BRIDGE NO. 34 ON

PROVIDENCE ROAD OVER KNOBBS CREEK IN

ELIZABETH CITY

INVENTORY REPORT

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|--------------|-----------------|
| I.C. | B-6053 | 1 | 7 |

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6805. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

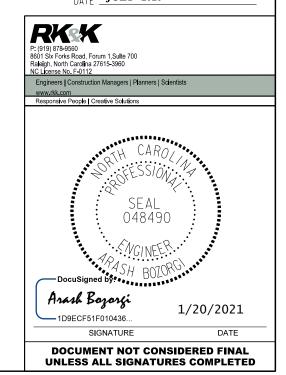
CENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARRS ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORNOS OR BETWEEN SAMPLED STRATA WITHIN THE BORCHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU INH-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT, FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED, THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISTY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS FOR DESTROYING OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- IES:
 THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.

 BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

P. NEUMANN T. DONAHUE INVESTIGATED BY _ RK&K, LLP DRAWN BY M. METRY CHECKED BY A. BOZORGI SUBMITTED BY __RK&K, LLP DATE JULY 2020



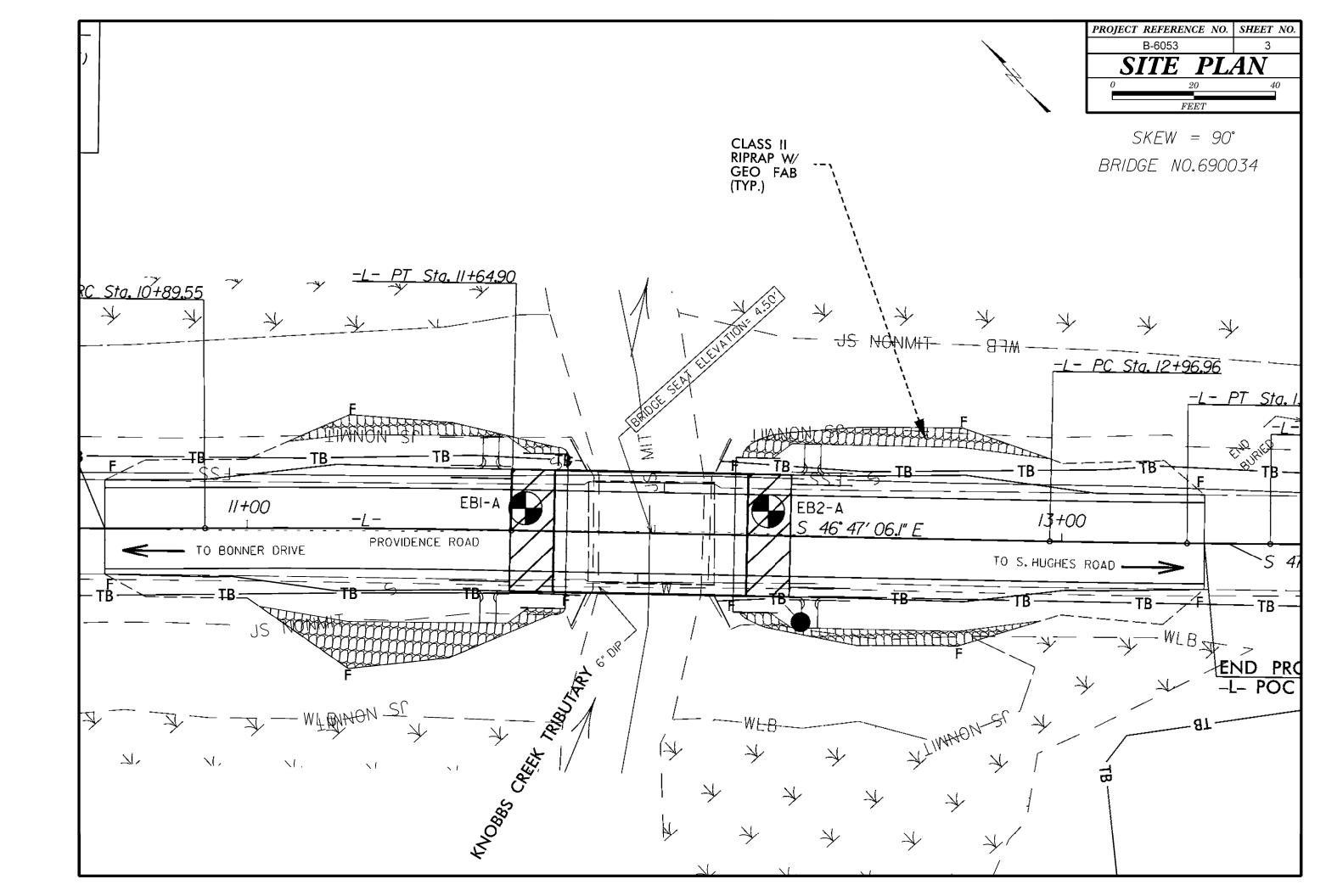
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| B-6053 | 2 |

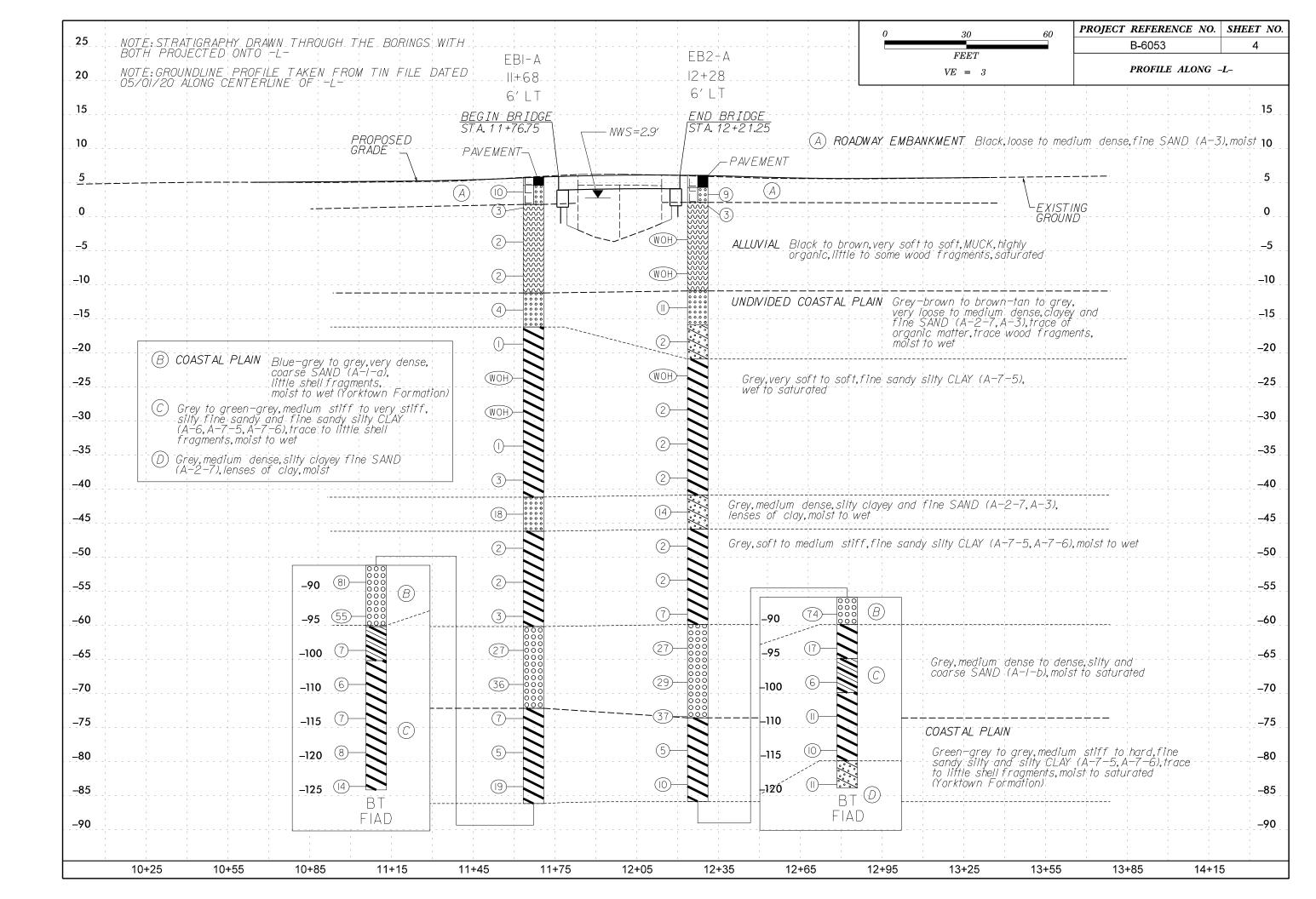
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

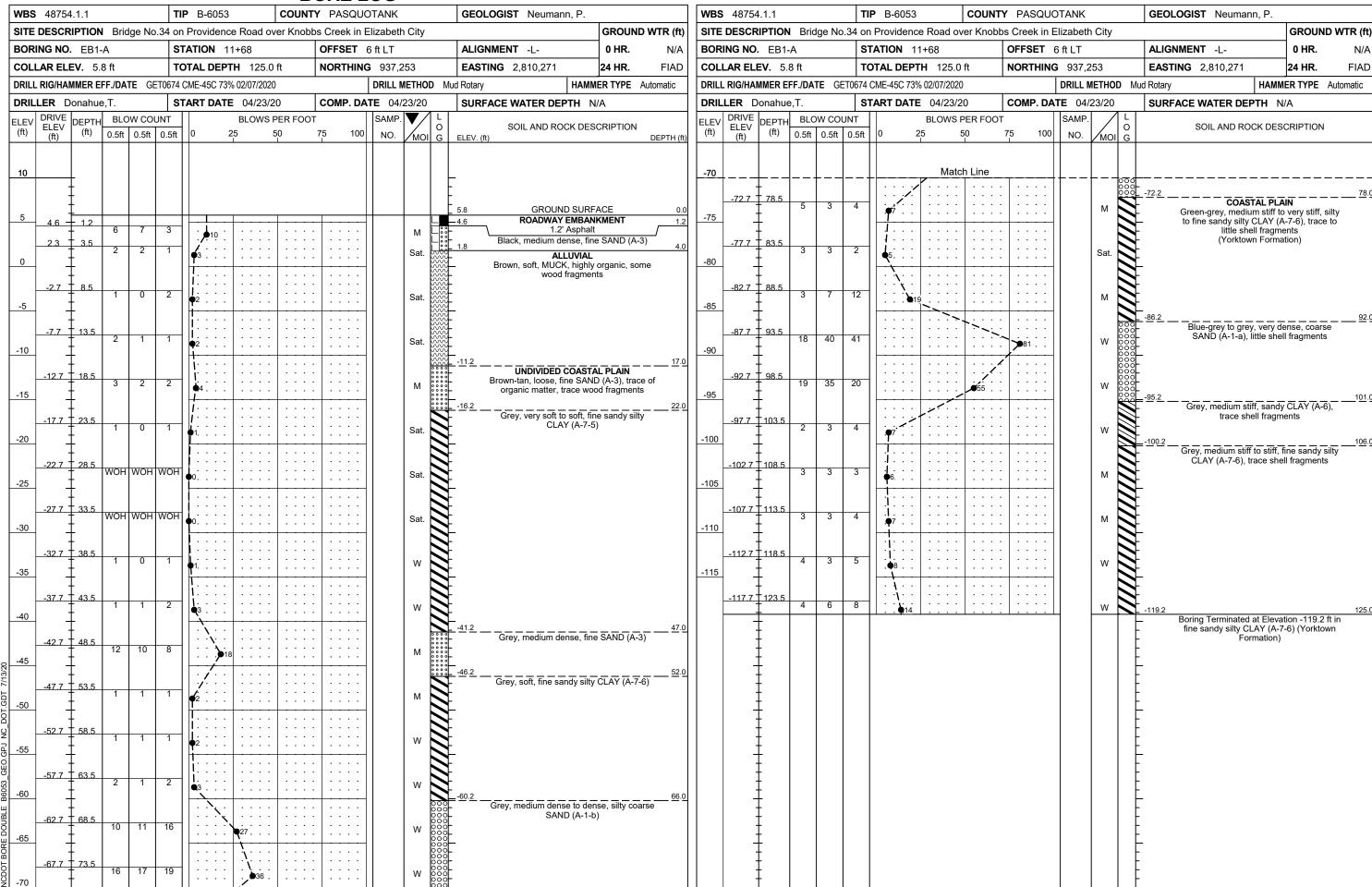
SUBSURFACE INVESTIGATION

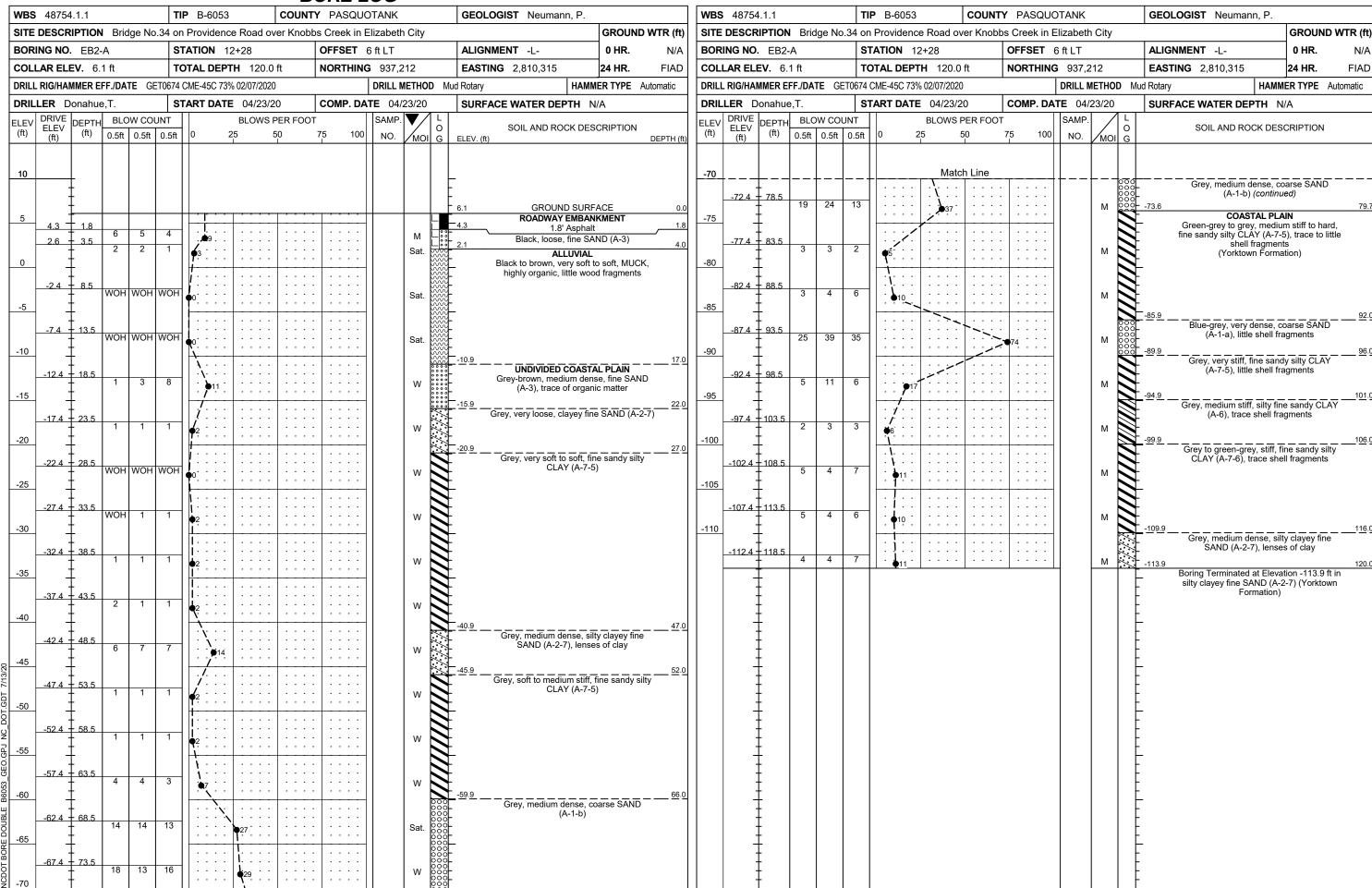
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

| 0011 050001071011 | 00.00.7700 | | TERMO AND REFINITIONS |
|--|--|---|---|
| SOIL DESCRIPTION | GRADATION WELL CRADED - INDICATES A COOR REPRESENTATION OF RAPTICLE SIZES FROM FINE TO COARSE | ROCK DESCRIPTION HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED | TERMS AND DEFINITIONS |
| SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT | <u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. | ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. | ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. |
| ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: | GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. | SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN | AQUIFER - A WATER BEARING FORMATION OR STRATA. |
| CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH | ANGULARITY OF GRAINS | REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: | ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARCILLACEOUS - APPLIED TO ALL ROCKS OR SURSTANCES COMPOSED OF CLAY MINERALS OR HAVING |
| AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6 | THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: | MEATHERED WIND COACTAL PLAIN MATERIAL THAT HOURD VIELD COT N. VALUES | ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. |
| SOIL LEGEND AND AASHTO CLASSIFICATION | ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED. | ROCK (WR) 100 BLOWS PER FOOT IF TESTED. | ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT |
| GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS | MINERALOGICAL COMPOSITION | CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT | WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. |
| CLASS. (\(\sigma 30.4\) PASSING "200) (> 30.4\) PASSING "200) | MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. | ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. | CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. |
| GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-1-a A-3 A-6, A-7 | COMPRESSIBILITY | NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN | COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM |
| | SLIGHTLY COMPRESSIBLE LL < 31 | ROCK (NCR) SEDIMENTARY ROCK THAT WOOLD TELED SPIT REPOSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. | OF SLOPE. |
| SYMBOL 000000000000000000000000000000000000 | MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50 | COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SEDIMENTARY ROCK SPT REFUSAL, ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED | CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED |
| 7. PASSING SILT- SILT- GRANULAR SILT- MUCK, | PERCENTAGE OF MATERIAL | (CP) SHELL BEDS, ETC. | BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. |
| *40 30 MX 50 MX 51 MN SOILS COILS PEAT | | - WEATHERING | <u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. |
| 13 MM 25 MM 16 MM 15 MM 25 MM 25 MM 25 MM 25 MM 36 MM 36 MM 36 MM | GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3%, 3 - 5%, TRACE 1 - 10% | FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER | DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE |
| MATERIAL PASSING *40 | LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% | HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. | HORIZONTAL. |
| LL - 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN UITTE OP | MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE | (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF | <u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. |
| PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE ORGANIC | GROUND WATER | OF A CRYSTALLINE NATURE. | FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE |
| GROUP INDEX W W 4 MX 8 MX 12 MX 16 MX NU MX AMUUN 15 UF SOILS | | SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO (SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR | SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. |
| USUAL TYPES STUNE FHAUS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING | CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. | FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. |
| MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS | STATIC WATER LEVEL AFTER 24 HOURS | MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN | FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM |
| GEN. RATING EXCELLENT TO GOOD FAIR TO POOR PAIR TO POOR UNSUITABLE | <u> </u> | (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED | PARENT MATERIAL. |
| AS SUBURADE PUUK | SPRING OR SEEP | WITH FRESH ROCK. | FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. |
| PLOF 4-7-5 SUBGROUP IS ≤ LL - 30; PLOF 4-7-6 SUBGROUP IS > LL - 30 CONSISTENCY OR DENSENESS | MISCELLANEOUS SYMBOLS | MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH | <u>FORMATION (FM.)</u> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. |
| DANCE OF CTANDARD DANCE OF UNCONFINED | MIGGELLHINEUUS STMBULS | SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. | JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. |
| PRIMARY SOIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH | ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION | IF TESTED, WOULD YIELD SPT REFUSAL | LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO |
| (N-VALUE) (TUNS/FT-) | WITH SOIL DESCRIPTION OF ROCK STRUCTURES | SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED | ITS LATERAL EXTENT. |
| GENERALLY VERY LOOSE | SOIL SYMBOL SOIL SYMBOL SOIL SYMBOL SLOPE INDICATOR INSTALLATION | TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. | LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. |
| MATERIAL MEDIUM DENSE 10 TO 30 N/A | ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER | IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF | MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. |
| (NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50 | THAN ROADWAY EMBANKMENT TEST | VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK | PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE |
| VERY SOFT < 2 < 0.25 | INFERRED SOIL BOUNDARY | (V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR | OF AN INTERVENING IMPERVIOUS STRATUM. |
| GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0 | MW MONITORING WELL TEST BORING | VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF | RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. |
| SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0 MATERIAL STIFF 8 TO 15 1 TO 2 | MONITORING WELL WITH CORE | COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS | ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE |
| (COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4 | TTTTT ALLUVIAL SOIL BOUNDARY A PIEZOMETER INSTALLATION SPT N-VALUE | ALSO AN EXAMPLE. | RUN AND EXPRESSED AS A PERCENTAGE. |
| TEXTURE OR GRAIN SIZE | RECOMMENDATION SYMBOLS | ROCK HARDNESS | SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT |
| | DZZZ LINCLACCICIED EVCAVATION DE NUMERICACCICIED EVCAVATION | VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES | ROCK. |
| U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053 | UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE | SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. | SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO |
| COARSE FINE | SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL | HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. | THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. |
| BOULDER COBBLE GRAVEL SAND SAND SILT CLAY | | MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE | SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT |
| (CSE, SD.) (F SD.) | ABBREVIATIONS ARE AUGED REFUGAL MED. MEDIUM. VCT. VANE CHEAR TECT. | HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. | OR SLIP PLANE. |
| GRAIN MM 305 75 2.0 0.25 0.005 0.005 SIZE IN 12 3 | AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED | MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. | STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB, HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL |
| SOIL MOISTURE - CORRELATION OF TERMS | CL CLAY MOD MODERATELY γ - UNIT WEIGHT | HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE | WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. |
| SOLI MOISTURE SCALE FIFLD MOISTURE | CPT - CONE PENETRATION TEST NP - NON PLASTIC 7 _d - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC | POINT OF A GEOLOGIST'S PICK. | STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY |
| (ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION | DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS | SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT, SMALL, THIN | TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. |
| - SATURATED - USUALLY LIQUID; VERY WET, USUALLY | DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON | PIECES CAN BE BROKEN BY FINGER PRESSURE. | STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY |
| (SAT.) FROM BELOW THE GROUND WATER TABLE | F - FINE SL SILT, SILTY ST - SHELBY TUBE | VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY | THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. |
| PLASTIC COMMIT COMMIT COMMISSION OF THE PROPERTY OF THE PROPER | FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRACT - FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL | FINGERNAIL. | TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. |
| RANGE - WET - (W) SEMISULIUS REQUIRES DRYING TO | FRAGS FRAGMENTS ω - MOISTURE CONTENT CBR - CALIFORNIA BEARING | FRACTURE SPACING BEDDING | BENCH MARK: #ION -L- STA. 14+53,64, 23,3' RT., BENCH TIE MAGNAIL |
| (PI) PL _ PLASTIC LIMIT | HI HIGHLY V - VERY RATIO | TERM SPACING TERM THICKNESS | IN POLE 8010-9 |
| OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE | EQUIPMENT USED ON SUBJECT PROJECT | VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET | ELEVATION: 6.61 FEET |
| SL SHRINKAGE LIMIT | DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: | MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET | NOTES: |
| - DRY - (D) REQUIRES ADDITIONAL WATER TO | X CME-45C CLAY BITS X AUTOMATIC MANUAL | CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET | |
| - DRY - (U) ATTAIN OPTIMUM MOISTURE | CME-55 6* CONTINUOUS FLIGHT AUGER CORE SIZE: | THINLY LAMINATED < 0.008 FEET | COLLAR ELEVATIONS FOR SPT BORINGS DETERMINED BY SURVEY-GRADE GPS (DEVICE NAME: SOKKIA GCX3) |
| PLASTICITY | 8" HOLLOW AUGERS | INDURATION | ARRREVIATIONS. |
| PLASTICITY INDEX (PI) DRY STRENGTH | CME-550 HARD FACED FINGER BITS | FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. | ABBREVIATIONS: |
| NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT | VANE SHEAR TEST LINGCARBIDE INSERTS | FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. | BT - BORING TERMINATED |
| MODERATELY PLASTIC 16-25 MEDIUM | VANE SHEAR TEST X CASING W/ ADVANCER HAND TOOLS: POST HOLE DIGGER | CDAING CAN BE CEDARATED FROM CAMPLE WITH CTEEL PRODE. | FIAD - FILLED IMMEDIATELY AFTER DRILLING |
| HIGHLY PLASTIC 26 OR MORE HIGH | PORTABLE HOIST X TRICONE 27/8 STEEL TEETH X HAND AUGER | MODERATELY INDURATED WATER STEEL PROBET BREAKS EASILY WHEN HIT WITH HAMMER. | NWS - NORMAL WATER SURFACE (2/3/2020) PER BRIDGE SURVEY REPORT |
| COLOR | TRICONE TUNGCARB. X SOUNDING ROD | INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; | |
| DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). | CORE BIT SOCIOLING ROD VANE SHEAR TEST | DIFFICULT TO BREAK WITH HAMMER. | |
| MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE. | | EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS. | |
| | | SHIFTE DIEMAS HURUSS UNHINS. | |









SITE PHOTOGRAPH

Bridge No.34 on Providence Road over Knobbs Creek in Elizabeth City

