

**Wake County Public School System
CENTRAL SERVICES COMPLEX
LIGHTING IMPROVEMENTS**

ADDENDUM NO. 1

DATE: July 13, 2023

PROJECT: Wake County Public School System
Central Services Complex
Lighting Improvements

OWNER: Wake County Public School System
111 Corning Road, Suite 190, Cary, NC 27518

ENGINEER: Dewberry Engineers Inc.
2610 Wycliff Road, Suite 410, Raleigh, NC 27607

This Addendum, applicable to the work designated herein, shall be understood to be and is an Addendum to the contract documents and, as such, shall become a part of and included in the contract.

1. Please see attached July 05, 2023 Pre-Bid Meeting Minutes and Attendance Sheet. The Pre-Bid Meeting Minutes shall become part of the contract documents.

Specifications:

1. Please see attached revised Section B-2, Bid Form, Unit Prices, for addition of a unit price/allowance for an additional directional bore.
2. Specification 012100 Allowances, revise Paragraph 3.2.B.1 to \$50,000 for the value of the Owner's Contingency.
3. Please see addition of Specification 260544 Underground Directional Boring.

Contractor Questions:

1. See attached meeting minutes.

Clarifications/Directions:

1. Note that the North Arrow on the plans is incorrect. Plan north is approximately project north (actual is a few degrees to the west).
2. The contingency amount shall be \$50,000 as listed on the Form of Proposal. See revision to Allowances spec section listed above.
3. Contractor shall include in their bid providing additional tree trimming at the three fixture locations on the east side of the bus lot on E01.06.
4. Contractor shall provide unit price/allowance for one additional directional bore. See attached revised bid form.

Attached Documents:

1. July 5th Pre-Bid Meeting Minutes
2. July 5th Pre-Bid Meeting Attendance Sheet
3. Section B-2 Single Prime Bid Form
4. Specification Section 260544 Underground Directional Boring

End of Addendum No. 1



PRE-BID MEETING MINUTES

DATE: July 5, 2023

TIME: 2:00 p.m. – 3:30 p.m.

LOCATION: WCPSS Central Services Complex Lighting Improvements

PURPOSE: Pre-Bid Meeting

Summary of Discussion

1. Thank everyone for their interest in the project and attendance at the pre-bid meeting.
2. **Introduction of Wake County Public School System (WCPSS) Owner team and Design Team (Dewberry Engineers Inc. and Gurel Architecture):**
 - a. Cynthia Perez (WCPSS) will be the primary Owner Representative
 - b. Michael Younts (Dewberry Engineers Inc) will be the primary Design Team Representative
3. **Bid Document Access:** Ask if everyone was able to access the bid documents. All parties had received the bid documents.
4. **Project Scope of Work:**
 - a. Addition of new Duke Energy Lighting along bus loop of school, access roads, & parking.
 - b. Addition of underground conduit (directional bore) for utility lighting branch circuit.
5. **Project Schedule:**
 - a. This is an active support facility for both traditional school and year-round schools. Improvements are for early morning arrivals of staff. So this work shall be completed prior to the time change in the fall.
6. **Protection Areas:** Contractor shall be required to isolate/protect areas of construction with orange barrier fencing. Additionally, tree protection fencing shall be installed where indicated on the contract drawings per City of Raleigh Standards.
7. **Alternates:**
 - a. No Alternates for this project.
8. **Unit Prices:**
 - a. Unit Price will be added to bid from for an additional directional bore. Unit Price will be basis of any additional borings applied to the Owner's Contingency.
9. **Allowance/Contingency:**
 - a. Project shall include a \$50,000 contingency/allowance for the owner to use toward their discretion. Any contingency/allowance shall be returned to owner during the project closeout process.
 - b. Allowance for one additional bore with associated unit price will be added as noted in Unit Prices above.
10. **Permitting:**
 - a. Documents have been submitted for permitting by Dewberry. WCPSS will pay permitting fees directly. Contractor shall not include permit fees in their bid.
11. **General Conditions:**
 - a. The General Conditions are the standard WCPSS Formal Conditions and apply to all portions of the project.
12. **Appendix C (Sexual Offender Registry Check Certification Form):**

- a. Appendix C of the General Conditions in the specifications requires all contractors working on WCPSS property to submit a “Sexual Offender Registry Check Certification Form”. The successful Contractors, including all sub-contractors, will be required to submit this form when submitting the contract. Contractors are required to complete this information before they will be allowed on the school property.

13. MBE Participation:

- a. MBE Documentation is required as noted in specifications

14. Photo ID Requirement:

- a. WCPSS requires all workers to wear a generated Photo ID, at all times, while on site.

15. COVID-19 Requirements:

- a. There are no COVID-19 requirements at this time. However please see the directions indicated below if requirements are put back in place during construction.

WCPSS COVID-19 GUIDELINES:

1. ALL CONTRACTORS SHALL SCREEN ALL EMPLOYEES AND SUBCONTRACTORS' EMPLOYEES PRIOR TO ENTERING THE SCHOOL. SCREENING SHALL INCLUDE TEMPERATURE CHECKS AND COVID-19 QUESTIONNAIRE PROVIDED BY WCPSS.
2. RECORDS OF ALL SCREENINGS SHALL BE SCANNED AND EMAIL TO WCPSS PROJECT MANAGER WEEKLY.
3. ALL CONTRACTORS AND SUBCONTRACTORS SHALL WEAR PROPERLY FITTED MASKS AT ALL TIMES WHEN ON WCPSS PROPERTY. THOSE WHO VIOLATE THIS POLICY WILL BE REMOVED FROM THE SITE PERMANENTLY.
4. ALL CONTRACTORS AND SUBCONTRACTORS MUST FOLLOW CURRENT WCPSS QUARANTINING GUIDELINES AS FOUND AT [HTTPS://WWW.WCPSS.NET/DOMAIN/17067](https://www.wcpss.net/domain/17067).
5. WCPSS WILL NOT BE RESPONSIBLE FOR ANY ADDITIONAL GENERAL CONDITIONS OR OTHER CHANGE ORDERS ASSOCIATED WITH COVID-19 SCREENINGS AND QUARANTINES NECESSARY TO MEET WCPSS REQUIREMENTS.

16. Project Schedule:

- | | |
|---|------------------------|
| a. Pre-Bid Meeting: | July 5, 2023 @ 2:00pm |
| b. Open Bids: | July 20, 2023 @ 2:00pm |
| c. Notice of Intent to Award : | July 21, 2023 |
| d. Notice to Proceed with Construction: | September 1, 2023 |
| e. Substantial Completion: | November 3, 2023 |
| f. Final Completion: | December 1, 2023 |

17. Liquidated Damages:

- a. Beyond Substantial Completion: \$750 per day
- b. Beyond Final Completion: \$250 per day

18. Staging:

- a. Staging area can be allocated on site as needed. This will be discussed at the Pre-construction meeting.

19. Toilet Use:

- a. Contractors shall provide portable toilets.

20. Utility Use:

- a. Contractor shall be permitted to use existing on-site water and power. These utilities shall be left in the same condition as when the project began.

21. Bid Clarification Question Contact:

- a. Any bid clarification questions should be submitted in writing to Michael Younts at the following contact information:

Michael Younts
Dewberry Engineers Inc.
2610 Wycliff Road, Suite 410
Raleigh, NC 27607
(919) 424-3757 – work
myounts@dewberry.com – email

22. Project Bid Opening:

- a. Note project bids will be received up until Thursday, July 20th at 2:00pm and be reviewed at 111 Corning Road, Suite 190, Cary, NC 27518.
- b. First addendum will be issued Thursday, July 14th, which will include the Pre-Bid Meeting minutes and responses to any questions.

23. Contractor Questions/Design Team Comments:

- a. Comment: Duke Energy stated on similar projects that poles shall be installed a minimum of 2' back from any existing or future sidewalks/back of curbs.
- b. Comment: Contractor shall provide a survey area to field locate the new poles and to coordinate with existing utilities. See plan notes for additional guidance on this.
- c. Question: Boring Crew on-site water – Return water what is disposal procedure?
 - i. Response: Specification section will be added to address disposal.
- d. Question: On-site water locations
 - i. Response: Owner to provide locations at Pre-con meeting.

24. Site Walk/Visit:

- a. All parties present can walk around the project site to view existing conditions.
- b. Contractors are welcome to come back and visit the project site if approved by WCPSS. Just utilize the normal check-in/check-out process in the school office.

SINGLE PRIME CONTRACT

SECTION B-2

FORM OF PROPOSAL

Contract for Single Prime General Construction

Project # _____

TO: Wake County Public School System
Facilities Design and Construction
111 Corning Road, Suite 190
Cary, North Carolina 27518

FROM: _____
BIDDER

ADDRESS

CITY STATE ZIP

1. BASE BID PROPOSAL:

Having become completely familiar with the local conditions affecting the cost of work at the place where work is to be executed, and having carefully examined the site conditions as they currently exist, and having carefully examined Bidding Documents prepared by _____,

and titled: _____

Dated _____ together with any addenda to such Bidding Documents as listed hereinafter, the undersigned hereby proposes and agrees to provide all labor, materials, plant, equipment, transportation and other facilities as necessary and/or required to execute all of the work described by the aforesaid Bidding Documents for the lump sum consideration of:

Dollars(\$ _____),

said amount being hereinafter referred to as the Base Bid or Base Bid Proposal.

For separate prime bids to single prime contractor pursuant G.S.143-128, the separate prime contractor shall not submit a higher bid to any single prime contractor than the separate prime bid submitted to the owner for the same scope of work, including the cost of bonds. Therefore, if the separate prime contractor is NOT including bonds in its bid to a single prime contractor, the deduction for bonds shall be clearly shown in the bid to the single prime contractor.

2. BID BREAKDOWN:

For the Owner's accounting purposes only, the following base bid cost breakdown is provided. It is agreed upon that this information will not be used for any decisions to determine the award of this contract. This information is required of the successful contractors within 72 hours.

Sitework Costs	_____
New Building Construction Costs	_____
Renovation Building Construction Costs	_____
 TOTAL (equal to base bid amount)	 _____

Sitework Costs (as used in the above breakdown) are defined as all Division 2 costs, and all site utility costs 5'-0" outside the building line. Renovation Costs (as used in the above breakdown) are defined as all costs associated with work on, or within an existing building.

3. SUBCONTRACTOR LISTING:

As required by state statute, single prime bidders shall show below the names of major subcontractor and the cost of the major contractors. Mechanical, electrical and plumbing must be shown. The amount of a bid submitted by a subcontractor to the general contractor under the single-prime system shall not exceed the amount bid, if any, for the same work by that subcontractor to the local school administrative unit under the separate-prime system. This information is required to be submitted at bid time. Failure to include this information shall be cause to disqualify or reject the bid.

	<u>Name of Subcontractors</u>	<u>Cost</u>
Mechanical	_____	_____
Electrical	_____	_____
Plumbing	_____	_____
Other (_____)	_____	_____
Other (_____)	_____	_____
Other (_____)	_____	_____
Other (_____)	_____	_____

4. ALTERNATES:

“NC” or “\$0” means no cost.

“NA” or “NO BID” or “LEAVING THE LINE BLANK” means not applicable – IF OWNER ACCEPTS AN ALTERNATE CONTAINING THIS RESPONSE, AND THERE IS WORK FOR THE CONTRACTOR, THEN THE ENTIRE BID IS NON RESPONSIVE.

The undersigned proposes to perform alternatives for stated resulting additions to or deductions from the Base Bid. Additions and deductions shall include any modifications of work or additional work that undersigned may be required to perform by reason of the acceptance of any alternative.

No Alternates for this project.

5. UNIT PRICES and ALLOWANCES:

Unit prices are complete for labor, equipment, material and overhead and profit; Base bid includes allowance quantity of each item. Unused amount will be credited to the Owner by change order at the end of the job.

Description	Unit Price	Unit Measure	Allowance Units
Additional Directional Bore – One Instance, 100' bore		Per LF	100

Base bid shall include an owner contingency of **\$50,000** to be used for unforeseen conditions as directed by WCPSS. Unused contingency shall be returned to the owner at the end of the project.

6. MINORITY BUSINESS ENTERPRISE (MBE) SUBCONTRACTORS:

All bidders, including MBEs shall complete this Affidavit, unless the bidder is self-performing as defined in N.C. Gen. Stat. § 143-128.2(c). If a bidder is self-performing, the bidder shall submit an affidavit stating that it will perform all of the work under a contract with its own workforce in lieu of this affidavit.

State of _____

AFFIDAVIT page 1
A Listing of the Good Faith Effort

County of _____

The below-signed company has made a good faith effort to recruit minority businesses in accordance with N.C. Gen. Stat. § 143-128.2 and represents that it has performed the following (**check all that apply; note that a minimum of fifty (50) points must be achieved**):

- (10 points) 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.
- (10 points) Made the construction plans, specifications and requirements available for review by prospective minority businesses, or provided these documents to them at least 10 days before the bids are due.
- (15 points) Broke down or combined elements of work into economically feasible units to facilitate minority participation.
- (10 points) 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.
- (10 points) Attended prebid meetings scheduled by the public owner.
- (20 points) Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- (15 points) 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.
- (25 points) 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.
- (20 points) 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.
- (20 points) Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash flow demands.

_____ **TOTAL POINTS**

IDENTIFICATION OF MINORITY BUSINESS PARTICIPATION SCHEDULE

Name	Description of Work to be performed	Subcontract Amount	Percentage of Bid
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
13. _____	_____	_____	_____
14. _____	_____	_____	_____
15. _____	_____	_____	_____

In accordance with G.S. 143-128.2, the undersigned will enter into a formal agreement with the firms listed in the above Identification of Minority Business Participation Schedule conditioned upon execution of a contract with the Owner. The failure to abide by this statutory provision shall constitute a breach of the construction contract.

The undersigned hereby certifies that he or she has read this affidavit and the information contained herein is true and accurate. The undersigned further certifies that he or she is authorized to bind the bidder to the commitment herein set forth.

Company: _____

Date: _____ Signature: _____

Name/Title Authorized Officer: _____

NOTARY
SEAL

State of _____, County of _____

Subscribed and sworn to before me this ____ day of _____, _____.

Notary Public _____

My commission expires: _____

7. ADDENDA ACKNOWLEDGMENT:

The undersigned acknowledges receipt of the following addenda: (List by number and date appearing on addenda.)

<u>Addendum No.</u>	<u>Date</u>	<u>Addendum No.</u>	<u>Date</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

8. BID SECURITY:

Bid security in the amount of five (5) percent of the Base Bid is attached, without endorsement, in the sum of _____ Dollars (\$ _____) which is to become the property of the Owner in the event the Contract and Performance and Payment Bonds are not executed within the time set forth, as liquidated damages for the delay and additional work caused the Owner.

- 9. The undersigned declares that the person or persons signing this Proposal is/are fully authorized to sign on behalf of the firm listed and to fully bind the firm listed to all the Proposal's conditions and provisions thereof.
- 10. The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud.
- 11. It is agreed that the undersigned has complied or will comply with all requirements of local, state, and national laws, and that no legal requirement has been or will be violated in making or accepting this Proposal, in awarding the contract to him and/or in the prosecution of the work required.
- 12. It is agreed that the undersigned shall provide any information deemed necessary by the Owner to establish the responsiveness and responsibility of the bidder.
- 13. The undersigned acknowledges that he has received the General Conditions dated November 20, 2018.

14. The following information is provided pursuant to the Contract Documents:

.1 Legal Name of Firm:

a. If Firm is a corporation, state that corporation is organized under the laws of the State of _____. Please affix corporate seal to this Form of Bid.

b. If Firm is a partnership, state names of partners:

c. If Firm is an individual using a trade name, state name of individual:

.2 Contractor Registration Number: _____

Respectfully submitted, this

_____ day of _____, 20__

(Signature) _____

(Name Typed) _____

(Title) _____

(SEAL IF BIDDER IS A CORPORATION)

End of Form of Proposal
Enclosure

1. Bid Bond

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we,

(Bidder's Name)

_____, of _____
(Street Address) (City, State, Zip)

hereinafter called the Principal, and

,
(Surety's Name)

a corporation organized and existing under the Laws of the State of _____, and authorized to transact business in the State of North Carolina, as Surety, hereinafter called Surety, are held and firmly bound unto Wake County, by and through its authorized agent the Wake County Board of Education, as Owner, hereinafter called Obligee, in the Penal sum of five percent (5%) of the amount bid, good and lawful money of the United States of America, for the payment of which the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. This bid bond is submitted in lieu of submitting cash, a cashier's check, or a certified check pursuant to G.S.143-129.

The Condition of this Obligation is such, that, WHEREAS the Principal has submitted a proposal to the Obligee on a contract for the construction

of _____
.
(Contract Name and Number)

NOW THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the Bidding or Contract Documents with good and sufficient surety for the faithful performance of such construction for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void; otherwise to remain in full force and effect.

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SECTION 260544 – DIRECTIONAL BORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct banks.
 - 2. Directional conduit boring.

1.3 DEFINITION

- A. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

- A. Contractor/Installer Qualifications:
 - 1. Contractor and Superintendent experience documentation.
 - 2. Contractor licenses.
 - 3. Similar project list with description and references.
 - 4. Drilling superintendent & operator.
- B. Product Data: For the following:
 - 1. Directional bore materials, including conduits and miscellaneous components.
- C. Field quality-control test reports.
- D. Record Drawings. As-built paths including plan and discovery of exposed uncharted existing utilities and services.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Contractor(s) or Subcontractor(s) performing work specified in this Section as well as work specified in Section 31200 Earthmoving in support of this section shall be an experienced Installer with a minimum of 5 years of experience and 3 completed similar projects.
- B. Comply with ANSI C2.
- C. Comply with NFPA 70 National Electrical Code.
- D. Comply with National Electrical Safety Code.

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1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver ducts to Project site with ends capped.

1.7 COORDINATION

- A. Coordinate layout and installation of ducts, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

PART 2 - PRODUCTS

2.1 BORING PIPE AND FITTINGS

A. HDPE Pipe

1. HDPE pipe shall conform to ASTM F2160 and NEMA TC-7, Non-Pressure-Rated Conduit, thickness class DR11.
2. Pipe shall be legibly marked with the manufacturer's name, pipe size, HDPE cell classification, date of manufacture and point of origin. Pipe not marked as indicated above will be rejected.
3. The HDPE pipe shall be orange.
4. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Carlon Products
 - b. Dura-line
 - c. ISCO
 - d. J-M Manufacturing
 - e. Flying W Plastics, INC

B. Drilling Fluids (Mud/Slurry) System

1. Drill fluid shall be designed for the conditions of this specific project. All components of the drill fluid shall be NSF 60 or NSF 61 certified. Typical acceptable drill fluids consist of bentonite clay (compatible with the environment) and clean water.
2. Select appropriate drill fluid cleaning equipment for the drill production rate and for the anticipated site soil and groundwater conditions. The Contractor shall be responsible for providing a drill fluid circulation and recycling system that is compatible with the drill production rate.
3. Waste oil, diesel fuel, or environmentally non-compatible polymers cannot be part of the drilling mud/slurry composition.
4. Submit documentation and information for all additives.
5. All additives shall be approved by the National Science Foundation.
6. The composition of the fluid shall comply with all legislative requirements.

C. Water Supply

1. Contractor shall supply water for flushing from clean, clear potable sources on-site.
2. All water for flushing shall be furnished and disposed of in accordance with all federal, state, and local requirements by the Contractor at his expense.

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PART 3 - EXECUTION

3.1 UNDERGROUND DUCT APPLICATION

- A. Ducts for Electrical Cables Over 600 V: RNC, NEMA Type EPC-40, in direct buried duct bank, unless otherwise indicated.
- B. Ducts for Electrical Cables 600 V and less: RNC, NEMA Type EPC-40, in concrete-encased duct bank, unless otherwise indicated.
- C. Ducts for Telecommunications: RNC, NEMA Type EPC-40, in concrete-encased duct bank, unless otherwise indicated.

3.2 EARTHWORK

- A. Excavation: Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavate trenches to indicated gradients, lines, depths, and elevations. Excavate trenches to uniform widths to provide 3-inch clearance on each side of conduit except where concrete encased. Excavate trench walls vertically from trench bottom to 12 inches higher than top of conduit/ductbank unless otherwise indicated.
 - a. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade. Hand-excavate trench bottoms and support ductbank on an undisturbed subgrade.
 - 2. Excavation for Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.
 - 3. Excavations at Edges of Tree- and Plant-Protection Zones:
 - a. Contractor shall submit and receive approval of a tree protection by City of Raleigh prior to excavation.
 - b. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
 - c. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
 - d. Cut and protect roots according to requirements in accordance with North Carolina Central University Standards.
- B. Backfill: Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to final subgrade elevation. When a ductbank is installed through cut rock; at least 3 inches of clean backfill such as sand, fine gravel or crush and run shall be placed in the bottom of the trench and properly compacted before conduits are installed.

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- C. Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

3.3 EXAMINATION

- A. The drawings and specifications may contain information relating to conditions below the ground surface at the site of proposed work, but such information is furnished without guarantee as to it being complete or correct. The Contractor shall assume all risk and responsibilities and shall complete the work in whatever manner and under whatever conditions encountered or created without extra cost to the Owner. Location of existing underground facilities at or contiguous to the site is based upon information and data furnished to the Engineer by owners of such underground facilities or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof.
- B. The Contractor shall contact 811 and perform exploratory excavations in advance of this work to verify the location, depth, size, and material of existing utilities which may interfere with the work to be performed under this contract. All damage to existing utilities shall be the Contractor's cost to repair or replace.
- C. If authorized, cutting of the pipe shall be done in a neat and workmanlike manner without damage to the pipe lining. All pipe cutting shall be done by means of an acceptable type of power cutter and in accordance with manufacturer's instructions. The use of hammer and chisel, or any other method that results in rough edges, chipped or damaged pipe, is prohibited.

3.4 TOLERANCES

- A. The horizontal drill path shall remain within a radius of 5 feet of the proposed drill path as shown on the Drawings. If this is not possible, notify the owner and design team prior to proceeding.
- B. Exit pit tolerance shall be no more than 5 feet to either the right or left and no more than 5 feet short or long of the locations shown on the Drawings (provided this location is in the earthen areas and not hardscapes).

3.5 PERFORMANCE REQUIREMENTS

- A. Coordination
 - 1. At least 10 business days before starting the authorized work, Contractor shall coordinate a preconstruction meeting. The meeting must include the Contractor, HDD Contractor (if different), Owner, and Engineer. At the meeting, at a minimum, review the following:
 - a. Permits required for the work have been obtained and fees paid.
 - b. Applicable submittals have been submitted and reviewed that allow work to occur.
 - c. Work Plan.
 - d. Schedule including review of hours of work restrictions.

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- e. Contractor personnel responsibilities.
- f. Water discharge and treatment.
- g. Confirmation of the certification from the spoil disposal location.
- h. Required notifications.
- i. Traffic control requirements.
- j. Planned hours of work.
- k. Approved permits from local agencies as needed to commence excavation.

B. General

- 1. When water is encountered, provide and maintain a dewatering system of sufficient capacity to remove water. Keep all excavations and pits free of water until backfill operation is in progress. Perform dewatering in such a manner that removal of soil particles are held to a minimum. Dewater into an approved sediment removal device.
- 2. Notifications: Provide notification a minimum of 72 hours before mobilizing onto the site. Provide notification 48 hours in advance of drilling. Provide notification 48 hours in advance of acceptance verification tests on the product pipe.
- 3. Construct the perimeter bentonite slurry, cuttings, and pit spoil control system, and storm water control barrier in accordance with Best Management Practices in the local area. The system shall provide positive containment for all drilling fluids and drainage from drill cuttings and prevent any of the drill fluid or drainage fluids or other drill fluid contaminated material or fluid from entering nearby wetlands/streams either by topping or breaching including under storm conditions.
- 4. The entry and exit pits are the only acceptable locations to start and end directional drilling. Intermediate pits are not allowed.
- 5. All material encountered during the directional drilling process shall be considered unclassified with no adjustment in cost for hitting consolidated material, sandstone, cobbles, boulders, or other subsurface material that would require surface recovery of a damaged cutter head.
- 6. Owner's representative(s) shall be permitted access to the work area and equipment to observe operations during fusing, pilot hole, reaming, pull-back, testing, and other work related to HDD operations.

C. Preparation

- 1. Use electronic survey instrumentation to monitor and adjust the drill head. The survey system shall measure the horizontal and vertical location of the drill head throughout the bore and provide sufficient readings to allow for slope adjustment. If magnetic interference affects the bearing sensors of the steering tool, use appropriate secondary methods to maintain the required slope and alignment within project tolerances. Obtain an accuracy range of within two percent of the depth of actual position of the steering device.
- 2. In each case, a pilot hole shall be drilled along the path, as shown on the Drawings. Do not exceed allowable bending radius of the product pipe. Vertical path of the pilot hole must not establish new high points not shown on the Drawings.
- 3. Excavate required pits in accordance with the Construction Plan.
- 4. Removal and restoration of landscaping, pavement or concrete shall meet the requirements of Civil, Site Rehabilitation specification section.

D. Handling of drilling fluid and cuttings

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1. Provide adequate measures for handling and disposal of drilling fluid and cuttings.
2. Provide watertight piping, pumps, storage containers and other measures to guard against leakage.
3. Drilling fluid and cuttings shall not be discharged into waterways, storm drains, sanitary sewer or other such conveyance.
4. Dispose of drilling fluid and excavated materials properly away from the construction site in accordance with applicable state regulations for disposal of these materials.
5. Contractor is responsible for fines levied on Owner by state, federal, and/or other agencies due to spills caused by directional drilling operations. These are to include impacts caused by inadvertent drill fluid returns in wetlands during directional drilling.
6. Inadvertent returns or spills shall be promptly contained, mitigated, and cleaned up.

E. Directional Drilling Operations

1. Pilot Hole Boring
 - a. The entry angle of the pilot hole and the boring process shall maintain a curvature that does not exceed the allowable bending radii of the product pipe or drilling rods, including due consideration of bending and pullback/thrust induced stresses.
 - b. Record the average and maximum force for each drill rod pulled from the drill rig pressure gages and provide calibration factors to convert pressure to force for each gear.
 - c. Monitor pilot hole location. Record and plot the actual horizontal and vertical alignment of the pilot hole at intervals not to exceed 30 feet. Update these records continuously as the pilot hole is advanced. Correct alignment as necessary.
 - d. Notify the Engineer immediately when forward motion of operation is stopped by an obstruction.
 - e. After the pilot hole is completed and alignment accuracy confirmed, commence pullback operations.
 - f. Reaming diameter shall not exceed 1.5 times the diameter of the product pipe being installed. Provide justification if deviation is necessary. The pilot hole shall be reamed to a diameter to be determined by the Contractor that is sufficiently sized in order to reduce forces applied to the pipe during pullback.
2. Installing Pipe Product
 - a. A swivel shall be installed between the reamer and the pipe connection to minimize torsional stress imposed on the pipe and allow the reamer to turn without rotating the pipe.
 - b. Pullback forces shall not exceed the allowable pulling forces for the product pipe.
 - c. The leading edge of the pipe shall be examined for significant external damage after pullback. If the pipe is deemed by the Engineer to have suffered significant damage, the damaged pipe shall be cut off and additional pipe pulled through the hole.
 - d. Because of the elastic properties of the pipe, pipe shall be relaxed for a period of no less than 24 hours in order to return to its original pre-pull length prior to making any connections. The pipe shall be installed past the exit tie-in point a minimum of 10 feet, to accommodate thermal contraction as well as viscoelastic stretch recovery in the pipe.
 - e. The pullback shall be conducted in one continuous operation to limit the potential for binding of the pipe in the hole.

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- F. Settlement or displacement of existing grade and/or adjacent facilities shall be monitored closely. Notify Engineer immediately if settlement or displacement is detected. The Contractor shall make provisions to maintain safe conditions and prevent damage.
- G. Should the Contractor abandon a hole for its convenience before the hole is completed, then the Contractor shall seal the drill hole with a bentonitic environmental grout or cementitious grout and re-drill at no additional cost to the Owner.
- H. In the case that an obstruction is encountered during drilling or reaming, the bid unit price shall include at least three (3) redirects per drill path. A “redirect” shall be defined as an occurrence wherein the drill tools encounter an obstruction which halts drill progress and the driller has attempted in good faith for a minimum of 1 hour to clear the obstruction, thus requiring the pullback of the drill rods, and redirection of the drill hole alignment around the obstruction.

3.6 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 - 1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts.
- B. Correct deficiencies and retest as specified above to demonstrate compliance.

END OF SECTION 26 05 44