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TOWN *of*  
WAKE FOREST

**REQUEST FOR PROPOSALS**

**Fiber Optic Communications Network Construction  
RFP # 2023 - 0005**

**Sealed Proposals to be received until  
Friday, October 20, 2023 at 1:00pm**

**Pre-Bid Conference  
Wednesday, October 4, 2023 at 2:00pm**

## **NOTICE TO BIDDERS**

Sealed proposals will be received until Friday, October 20, 2023 at 1:00pm by the Town of Wake Forest, North Carolina at which time they will be publicly opened and read aloud at the Wake Forest Town Hall Meeting Rooms A-B, 301 S. Brooks Street, Wake Forest, NC 27587 for the following:

### **Request For Proposals # 2023-0005 Fiber Optic Communications Network Construction**

A pre-bid conference will be held on Wednesday, October 4, 2023 at 2:00pm at Wake Forest Town Hall, Conference Room 303, 301 S. Brooks Street, Wake Forest, NC 27587. All prospective bidders who did not attend the prior pre-bid conference are required to attend.

Copies of the proposal documents may be obtained by clicking on the above project name and number.

The Town of Wake Forest reserves the right to reject any or all proposals and to make the award as deemed in the best interest of the Town of Wake Forest.

# Instruction to Bidders

## 1. Submittal

All proposals must be submitted by Friday, October 20, 2023 at 1:00pm to the Town of Wake Forest, North Carolina where they will be publicly opened and read aloud at the Town of Wake Forest Town Hall Meeting Rooms A-B, 301 S. Brooks Street, Wake Forest, NC 27587. Any proposals that are submitted before that time and place should be submitted to Town of Wake Forest Purchasing Department, 234 Friendship Chapel Road, Wake Forest, NC 27587, Attention: Hollie Aldridge. All proposals must be submitted in a sealed envelope marked: **RFP # 2023-0005 – Fiber Optic Communications Network Construction.**

## 2. USE OF CONTRACT DOCUMENTS

These Bidding Documents are to be used only for the purpose of understanding this bid and consideration toward submitting a proposal. They may not be used for any other purpose.

## 3. SPECIFICATIONS

The Specifications are intended to describe the complete project including all materials, processes, equipment, etc. Bidders are expected to carefully examine the Contract Documents, visit the site of the proposed construction, and determine the availability of materials and method required, in order to become thoroughly familiar with the project, the requirements, and to include the cost thereof in the proposal. Bidders shall contact the Project Coordinator at least five (5) days prior to the bid date for clarification of any item not fully understood.

## 4. BIDDER'S QUALIFICATIONS

For projects exceeding \$30,000, consideration will be given only to Contractors who submit evidence that they are properly licensed as required by Chapter 87 of the North Carolina Licensed General Statutes to bid and perform the work described herein as the general contractor. In addition, the Owner may make such other investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish the Owner all such information and data for this purpose as the Owner may request.

The Owner reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces a minimum of ten percent (10%) of the work involved in construction of the improvements embraced in this contract.

Awarded contractor shall be authorized to conduct business in the state of North Carolina as found by checking the Secretary of State records and/or Register of Deeds office, indicating proper registration and active status. This is a condition of executing the contract.

## 5. FAMILIARITY WITH LAWS

It is assumed that the Bidders are familiar with local, state and federal laws, rules, ordinances, and regulations that may in any manner affect those engaged or employed in the work, or the materials or equipment used in or upon the work, or in any way affects the conduct of the work. No plea for misunderstanding or ignorance on the part of the Contractor will in any way serve to modify the provisions of this contract. The Contractor agrees that in carrying out this contract he will comply with all applicable Federal, state and local laws, specifically including, without limitation, the Occupational Safety and Health Act of 1970 and Section 1324A, the Immigration Reform and Control Act.

**6. AMERICAN WITH DISABILITIES ACT (ADA)**

The Contractor shall comply with the provisions of the Americans with Disabilities Act (ADA) ([www.ADA.gov](http://www.ADA.gov)) as amended from time to time and all rules and regulations promulgated thereunder. The contractor hereby agrees to indemnify the Owner from and against all claims, suits, damages, costs, losses and expenses in any manner arising out of or connected with the failure of the contractor, its subcontractors, agents, successors, assigns, officers or employees to comply with the provisions of the ADA or rules and regulations promulgated thereunder.

**7. Minority Participation**

The Town of Wake Forest's minority participation goal is **10%** of the Proposal amount.

**8. ADDENDA**

No oral interpretation will be made to any Bidder as to the meaning of the Proposal Documents. Questions and requests for such interpretation shall be sent in email form to Robert Pittard at [rpittard@wakeforestnc.gov](mailto:rpittard@wakeforestnc.gov) It shall be the Bidder's responsibility to make inquiry as to any Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda. All addendums will be posted to the project on the Town of Wake Forest Website, under the Bids and Announcements Section (<https://www.wakeforestnc.gov/finance/purchasing-warehouse/bids-announcements>). It shall be the Bidder's responsibility to check for addendums. **The last date for Addendums to be posted will be Thursday, October 12, 2023 at 3:00pm.**

**9. UNBALANCED BIDS**

The Contractor shall not submit a bid containing any unbalanced bid prices. Any unit or lump sum bid price that does not reflect reasonable actual costs that the Contractor anticipates for the performance of the item(s) in question along with a reasonable proportional share of the Contractor's anticipated profit, overhead cost, and other indirect costs is an unbalanced bid price. Any bid containing unbalanced bid prices may be deemed non-responsive and rejected.

**10. COLLUSIVE AGREEMENTS**

Each bidder submitting a bid shall execute and attach the Non-Collusion Affidavit of Prime Bidder affidavit attesting that he has not entered into a collusive agreement with any other person, firm or corporation in regard to any bid submitted.

**11. BID Bond**

5% of proposal amount, if amount is \$500K or above.

**12. PERFORMANCE AND PAYMENT BOND**

100% of proposal amount, if amount is \$300K or above.

**13. PREPARATION OF BID**

The Town's bid forms must be used when provided – submit one original. Bidders shall label their bid proposal with business name, bid name and bid date, then seal their bid proposal inside an envelope. If mailing a bid proposal, provide a sealed envelope within the postal envelope.

**14. ITEMS REQUIRED TO BE SUBMITTED WITH THE BID**

Failure to submit the following with the bid is considered a non-responsive bid and the bid will not be considered:

- \_\_\_\_\_ Bid Form with bid price(s) written or typed
- \_\_\_\_\_ Signatures on Forms and notarized where noted
- \_\_\_\_\_ Non-Collusion Affidavit of Prime Bidder
- \_\_\_\_\_ Addendums (if issued)
- \_\_\_\_\_ Minority Participation forms
- \_\_\_\_\_ E-589 CI Form
- \_\_\_\_\_ Coronavirus State and Local Fiscal Recovery Funds Addendum
- \_\_\_\_\_ Title VI Appendment

**15. RECEIPT AND OPENING OF BIDS**

Each Bid is to be submitted in a sealed envelope and plainly marked with the project name, bid number, and bid opening time. If mailed, the sealed envelope containing the Bid is to be enclosed in another envelope to avoid it being opened before the advertised time. Bids received prior to the advertised bid opening will be securely kept as sealed. Bids received after the advertised bid opening time will be returned to the Bidder unopened.

**16. WITHDRAWAL OF BIDS**

Bids may be withdrawn by written request prior to or within seventy-two hours (72) after the opening of bids by contacting the bidding officer. To withdraw an opened bid, proof must be given of a mathematical error or omission as opposed to judgment or interpretation error.

**17. MINIMUM NUMBER OF BIDS (FORMAL CONTRACTS ONLY)**

North Carolina General Statute 143-129 and 143-132 prohibits the awarding of a formal contract unless at least three (3) competitive bids are received from reputable and qualified contractors. Therefore, if fewer than three (3) such bids are received, they will not be opened but returned to the contractors; and the project may be re advertised. The Town's formal limit is \$500,000.

**18. ALTERNATIVE BIDS**

No alternative bids will be considered unless alternative bids are specifically requested.

**19. AWARD OF CONTRACT; REJECTION OF BIDS**

The Town reserves the right to hold bids for a period of sixty (60) days for the purpose of reviewing the bids and investigating the qualifications of the Bidders. The Town reserves the right to reject any or all bids, for any reason. The Town intends to award a contract to the lowest responsive, responsible bidder, complying with the conditions of the bidding documents. The Town reserves the right to award a contract that is deemed in its best interest.

**20. BID PROTEST PROCEDURE**

Prospective bidders or suppliers who feel disadvantaged by the solicitation must submit a written protest within five (5) calendar days prior to the opening of proposals. Actual bidders or subcontractors who are aggrieved by the award of a contract must submit a written protest within five (5) days of the Town announcing its intent to award. The protest must be addressed to the Purchasing Manager, Town of Wake Forest, who will make the final determination after consulting with counsel.

**21. EXECUTION OF AGREEMENT**

The successful Bidder is required to execute a Contract within ten days (10) days after notice of award. Failure to do so constitutes a default and the Owner may elect to award to the next lowest bidder or re-advertise the bid.

**22. LIQUIDATED DAMAGES**

**\$250 per day past stated completion date.** Liquidated damages may be rescinded only by the approval of the Town of Wake Forest in writing.

**23. INSURANCE REQUIRMENTS**

- A. Workers' Compensation: Insurance covering all employees meeting Statutory limits in compliance with the applicable state and federal laws. The coverage must include employer's liability with a minimum limit of \$1,000,000 for each accident.
- B. Commercial General Liability: Coverage shall have minimum limits of \$1,000,000 per occurrence, general aggregate, products/completed operations aggregate, personal and advertising injury. This shall include premises and operations, independent contractors, products and completed operations, broad form property damage, XCU coverage and contractual liability. The coverage shall be written on an occurrence basis. This limit should apply on a per project or per location aggregate basis. **The Town of Wake Forest shall be listed as an additional insured, under this coverage.**
- C. Business Auto Liability: Coverage shall have a minimum limit of \$500,000 per occurrence, combined single limit for bodily injury liability and property damage liability. This shall include owned vehicles, hired vehicles and non-owned vehicles.
- D. Umbrella/Excess Liability: At the option of the contractor, the limits of the primary general liability, auto liability and employers' liability may be less than stipulated herein, with an excess policy providing the additional limits needed. This form of coverage must be approved by the municipality and will only be acceptable when both the primary and excess policies include the coverage and endorsements required herein.
- E. Professional Liability: Coverage shall have a minimum limit of \$1,000,000 per occurrence, unless a higher limit is required by the Town. This coverage is only required for contracts that include professional services.
- F. Special Requirements
  - 1. Current, valid insurance policies meeting the requirements herein identified shall be maintained to be considered an "eligible contractor". Renewal certificates shall be sent to the Town 30 days prior to any expiration date. There shall also be a 30-day notification to the Town in the event of cancellation or modification of any stipulated insurance coverage. Certificates of insurance meeting the required insurance provisions shall be forwarded to the Town of Wake Forest. Wording on the certificate, which states that no liability shall be imposed upon the company for failure to provide such notice, is not acceptable.
  - 2. It shall be the responsibility of the contractor to ensure that all subcontractors comply with the same insurance requirements that he is required to meet.
  - 3. The Town of Wake Forest shall be listed as certificate holder on the certificate of insurance.

**24. Indemnification**

To the extent permitted by law, the Contractor agrees to defend, pay on behalf of, indemnify, and hold-harmless the Town of Wake Forest, its elected and appointed officials, employees, agents, and volunteers against any and all claims, demands, suits or losses, including all costs connected therewith, for any damages which may be asserted, claimed or recovered against or from the Town of Wake Forest, its elected or appointed officials, employees, agents, and volunteers by reason of personal injury, including bodily injury or death and/or property damage, including loss of use thereof resulting from the negligence of the Contractor.

**25. MATERIALS**

The name of a certain brand, make, manufacturer or definite specification is to denote the quality standard of the article desired and not to restrict competitive bidding. It is set forth and conveyed to prospective bidders the general style, type, character and quality of the article desired. Bidders, however, may submit to the Project Coordinator evidence that proposed substitutions are fully up to standards specified and obtain his approval before placing orders.

**26. ERRORS, OMISSIONS, AND DEVIATIONS**

The Contractor is responsible for all errors, omissions, and deviations from the Contract requirements.

**27. OSHA COMPLIANCE PLAN/POLICY**

Contractor hereby acknowledges that it has reviewed and agrees to abide by all OSHA safety regulations and Town of Wake Forest safety regulations. Contractor may be required to submit a copy of the company's current written OSHA Compliance Plan/Policy within 48 hours of request. If requested, no field work shall take place until the plan has been submitted and reviewed by the Town's Safety Officer.

**28. NON-COLLUSION and ANTI-DISCRIMINATION**

Bidder certifies that this proposal is made in good faith and without collusion or in connection with any other person bidding on the same work, nor will any official or employee of the Town of Wake Forest be admitted to share any part of this contract should an award be made to the undersigned. Bidder further certifies that in connection with the performance of this contract not to discriminate against any employee or applicant for employment because of race, creed, color, religion, national origin, gender, age, political affiliation or handicap.

**29. TAXES**

**FEDERAL:** The Town of Wake Forest is exempt from and will not pay Federal Excise or Transportation taxes. **STATE:** Applicable North Carolina Sales and Use Taxes shall not be shown on bids, but shall be added to invoices as a separate item. The Town is not tax exempt.

**NORTH CAROLINA SALES TAX**

The Owner may apply for a refund of all sales and/or use taxes paid in North Carolina by the Contractor on purchases of items which are annexed to, affixed to, or in some manner become a part of any building or structure being erected, altered or repaired under Contract with the Owner; and these taxes shall not be included in the bid amounts or the Contract sum. The Contractor shall include and pay all other taxes imposed by governmental authorities, which are applicable to the work.

The Contractor will be reimbursed for applicable sales and/or use taxes he has paid in North Carolina based on the following. **The Contractor should apply for reimbursement by itemizing and completing a notarized sales and use tax report form and submitting it with each pay request. Failure to submit this form will result in the invoice not being paid.** The contractor will be required to complete

a sales and use tax report affidavit in order to receive the last payment of the project.

A Sales Tax Affidavit must be completed and submitted for this project before final payment will be released.

**30. PAYMENT**

N.C.G.S. 143-134.1 prohibits retainage on public projects that cost less than \$100,000.00 in total. Prior to final payment, the Contractor will be required to submit any forms, warranties, etc. that the Owner requires. The payment of the final amount due the Contractor shall release the Owner from any and all claims or liabilities on account of the work performed and the materials furnished upon the work. The payment terms shall be Net 30 days.

**31. ETHICS POLICY / CODE OF CONDUCT**

The Town of Wake Forest has established guidelines for ethical standards of conduct in that *Town representatives should maintain high standards of personal integrity, truthfulness, honesty, and fairness* in carrying out public duties; avoid any improprieties in their roles as public servants including the appearance of impropriety; and never use their position or power for improper gain. In establishing an ethics policy, the Town of Wake Forest desires to protect the public against decisions that are affected by undue influence, conflicts of interest, or any other violation of these policies as well as promote and strengthen the confidence of the public in their governing body.

**32. E-VERIFY**

CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. Further, if CONTRACTOR utilizes a subcontractor, CONTRACTOR shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes.

**33. HUBSCO REPORTING**

All **building** construction and repair projects (\$30,000 & Over) require a E-Verify. Contractor shall comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. Further, if Contractor utilizes a subcontractor, Contractor shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. If a minority participation report is required to be submitted to the State of NC Department of Administration HUB Office, any information that is requested from the contractor must be provided before the last invoice will be paid.

**34. Iran Divestment Act.**

Contractor certifies that; (i) it is not identified on the Final Divestment List or any other list of prohibited investments created by the NC State Treasurer pursuant to N.C.G.S. 143-6A-4; (ii) it will not take any action causing it to appear on any such list during the term of this Purchase Order, and (iii) it will not utilize any subcontractor to provide goods or services hereunder that is identified on any list.

**35. Divestment from Companies that Boycott Israel.**

Contractor represents, covenants, and certifies that it is not listed on the list of restricted companies developed and published by the North Carolina State Treasurer as required by N.C.G.S. 147-86.81.

**36. Dispute Resolution**

Any construction related disputes resulting from this bid shall be resolved using the procedures set for



by the State Building Commission pursuant to NCGS 143-128(g) 143-135.26(11). These procedures may be viewed at: [https://files.nc.gov/ncdoa/documents/files/sbc\\_Dis\\_rules.pdf](https://files.nc.gov/ncdoa/documents/files/sbc_Dis_rules.pdf)

**37. Standard Terms and Conditions**

The Town of Wake Forest's Standard Terms and Conditions listed at:

[https://www.wakeforestnc.gov/sites/default/files/uploads/residents/finance/8-26-](https://www.wakeforestnc.gov/sites/default/files/uploads/residents/finance/8-26-2_towf_standard_terms_and_conditions.pdf)

[2\\_towf\\_standard\\_terms\\_and\\_conditions.pdf](https://www.wakeforestnc.gov/sites/default/files/uploads/residents/finance/8-26-2_towf_standard_terms_and_conditions.pdf) will govern all matters related to the goods and/or services provided by you or your company (the "Vendor") to the Town of Wake Forest (the "Town") under a Town purchase order. Additional Terms and Conditions stated on the face of a Town purchase order shall take precedence over any conflicting Standard Terms and Conditions stated. Any Terms and Conditions not stated, but incorporated by reference therein, shall be binding only if provided or signed by the Town and attached hereto. In the event that a binding written contract signed by both the Vendor and the Town exists, the Terms and Conditions of that contract shall supersede any conflicting Standard Terms and Conditions.

**38. Project Contact**

The Contact for the Town of Wake Forest for this project will be Robert Pittard

([rpittard@wakeforestnc.gov](mailto:rpittard@wakeforestnc.gov)). Please contact Robert with any questions regarding this proposal.

All questions will be answered at the time of submittal and will also be posted in an addendum at the addendum deadline. **The deadline for questions will be Tuesday, October 10, 2023, 2:00pm.**

**Request for Proposals**  
**TECHNICAL SPECIFICATIONS AND**  
**BID REQUIREMENTS**



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TOWN *of*  
WAKE FOREST

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**Attachment 1: Existing / Proposed Routes and Splice Point Locations – Please click on separate link**

**Attachment 2: Proposal Price Sheets**

**Attachment 3: Contractor Qualifications Information**

**Attachment 4: ARPA Contract Addendum**

**Attachment 5: Title VI Appendment**

Invitation to Bid

# 1 Introduction

In October of 2017, the Town of Wake Forest, North Carolina City Council granted their approval create a fiber network in the town with the primarily focus on upgrading communication infrastructure to all town owned facilities and park sites throughout the town. In August of 2021 the project concluded. The fiber design includes redundant paths to both the primary and secondary data centers to ensure the ability to architect a network that provides high availability and point-to-point connectivity between identified facilities to enhance data and voice communication needs. A “ring” of 432 strands of fiber currently encircles the downtown area and serves as the connection point for 16 “fingers” emanating from the ring to outlying locations. Each “finger” contains runs of 12 to 96 strands of fiber cabling.

This advanced, long-lasting infrastructure will: 1) reduce the overall cost of meeting the town’s internal communications needs, while providing a mechanism to contain exposure to unknown, future cost increases for town services; 2) provide a more secure, more resilient infrastructure to support critical public safety services; 3) provide far greater functionality and capacity to enable advanced governmental services and maximize efficiencies across a wide range of governmental functions.

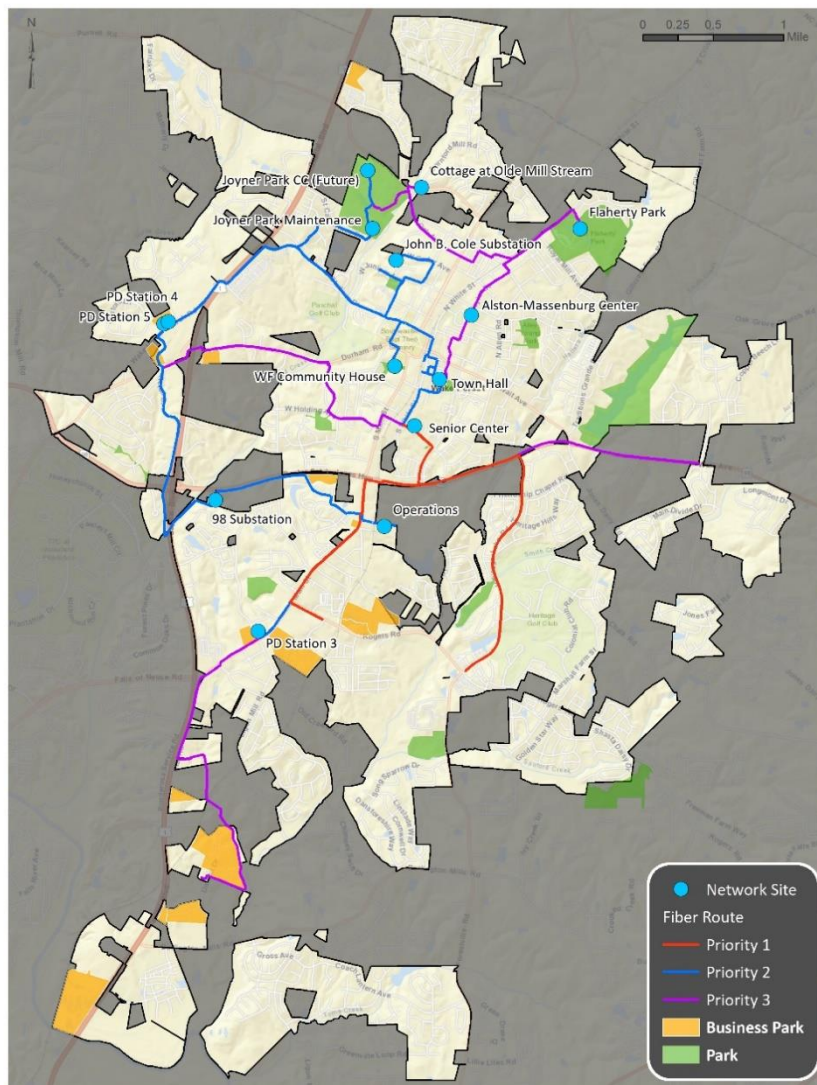
The Town intends to contract with a qualified firm to support the construction/expansion of its fiber optic network. The Town is seeking a commercial partner that comprehends and supports the goals of this effort. The scope of this Request for Bids (RFB) is based on the preliminary output of a detailed design that is recently been completed. The awarded contractor will work with the Town’s IT Department to expand our fiber infrastructure and will aid the Town of Wake Forest in ensuring that ongoing technological advancements further, rather than impede, its continued prosperity.

## 2 Project Summary

### 2.1 Network Design Overview

The project scope consists of approximately 2.2 route miles (11,583 feet) of new underground fiber construction, initially interconnecting a total of 3 Town facilities. The network consists of multiple backbone rings that emanate from Town Hall and extend over physically diverse paths to critical Town facilities. Additionally, a fiber connection will be constructed the Town’s Operations facility, which will serve as a secondary hub location for the network. **Figure 1** provides a high-level map of the planned fiber optic network routes.

**Figure 1: High-Level Fiber Network Route Map**



**Table 1** provides a list of the Town facilities that will be connected by this phase of the network construction.

**Table 1: Fiber Network Site List**

Site Name	Address
Town Hall	301 Brooks St., Wake Forest, NC 27587
Operations (Public Works)	234 Friendship Chapel Rd., Wake Forest, NC 27587
Fire Station 2	9925 Ligon Mill Rd, Wake Forest, NC 27587
Fire Station 3	1412 Forestville Rd, Wake Forest, NC 27587
Fire Station 4	1505 Jenkins Rd, Wake Forest, NC 27587

## 2.2 Summary of Scope of Work

The Contractor shall provide turnkey fiber construction and material supply services, primarily consisting of, but not limited to following tasks:

- Initiation of utility of locate requests through the North Carolina One Call Center (NC811), and strict adherence to all North Carolina Underground Damage Prevention Statutes;
- Sub-surface installation of conduit, primarily through the use of horizontal directional drilling, including in utility locating through test pitting, traffic control, and temporary paved surface restoration;
- Installation of underground handholes/pull-boxes and ground rods, including permanent surface restoration;
- Placement of fiber optic cable and/or tracer wire in conduit;
- Installation of fiber splice enclosures and fiber splicing;
- Placement and assembly of fiber termination panels and related hardware;
- Indoor cable placement, including creating building penetrations, installation of innerduct and/or Electrical Metallic Tubing (EMT), and fiber termination;
- Additional splicing will be required within the existing network to connect to both data centers.

- Optical performance testing of fiber optic strands; and
- Provision and storage of all materials related to the above construction will be at Contractors office/location. Exceptions will be coordinated with Town Representative.

The Contractor and its engineering consultants will provide all engineering work documents necessary for construction, and will supply or facilitate all Town, NC DOT, and environmental permitting required. The Town will not assess permitting fees to the Contractor for performance in accordance with the scope of this document. Any permitting costs to outside entities shall be borne by the Town, and if required to be paid by the Contractor, shall be charged to the Town at direct cost.

The Contractor shall be required to perform permanent restoration of all surfaces, according to Town and NCDOT standards, for accidental damage or otherwise unnecessary surface disturbances caused by the Contractor. The Town shall be the sole determinant as to the reasonableness of surface disturbances caused by the Contractor.

The contractor is responsible for the acquisition and diligent maintenance of all necessary permits issued by the North Carolina Department of Transportation (NCDOT). This encompasses the procurement and ongoing management of permits required for the successful execution of the project. The contractor must ensure that all permits are obtained in a timely manner and that they remain valid throughout the project's duration.

The Contractor will provide regular progress reporting and will closely coordinate its construction schedule with the Town and its designated project management personnel. The Contractor shall provide a primary point of contact to the Town for the duration of the project and shall be expected to attend regular project status and management meetings. The Contractor shall provide daily progress reporting and forecasting of the construction locations for the following workday during active construction phases of the project and shall provide weekly reporting of key progress metrics to be defined by the Town.

## 3 General Requirements of Construction Services

This section defines general requirements and terms applicable to all construction services provided by the Contractor.

### 3.1 General Work Elements

The following elements apply to all work specified in this document unless a particular exception is noted in the specifications for the individual item.

- Each item shall be installed in accordance with the design at locations as shown on the plans or as directed by the Town.
- Backfill in trenches, around forms and vaults, or at any other place shall be completed thoroughly using a power tamper in lifts of not more than six inches as it is being placed unless otherwise directed in writing by the Town. Any paving material or fill removed for trenching shall be replaced in kind.
- All holes and trenches shall be protected at the Contractor's expense from accidental entry by vehicles and pedestrians using steel plates or other approved materials as required by the Town or NCDOT standards. Should the Contractor fail to provide adequate protection to the surroundings of a work site, or should the operations be carried out in such a way as to allow or cause damage to any roadway, street, sidewalk, the property of any utility, or other private or public property, work may be stopped until deficiencies are corrected. Should the repair not be undertaken, and should it be necessary for the Town to protect the area and/or make the repair, the cost shall be deducted from payment due the Contractor.
- At the discretion of the Town, sod shall be removed either using an approved sod cutter and then replaced, or topsoil and seed shall be placed. Care shall be taken to minimize the disturbance, and the area shall be fully restored.
- Concrete shall be finished to match any adjacent concrete. If no match is required, the surface area shall be broom finished and edged.
- All fiber cable shall be transported by and unreeled from a cable trailer(s). The laying of reels on the ground and subsequent removal of fiber cable from this position is prohibited.

### 3.2 Work Standards and Quality



### **3.2.1 Applicable Standards**

The Contractor shall comply with all applicable State of North Carolina, National Electrical Code, National Electric Safety Code and BICSI standards. Construction methods and techniques used by the Contractor shall be in accordance with the recommended practices and procedures published by leading industry manufacturers and trade associations, including but not limited to the following:

- Society of Cable Telecommunications Engineers (SCTE) Recommended Practices for Optical Fiber Construction and Testing;
- ANSI/TIA/EIA Telecommunication Standards (latest editions)
- BICSI Telecommunications Distribution Methods Manual (TDMM)
- BICSI Outside Plant Design Reference Manual (OSPDRM) (Latest Edition)
- North Carolina Occupational Safety and Health (NCOSH) Division;
- Federal Occupational Safety and Health Administration (OSHA) regulations; and
- NC Public Utilities Commission.

The Contractors shall also follow all applicable local standards. The Contractors shall be aware of all standards and their application within North Carolina. Ignorance or lack of knowledge shall not be an excuse for improper work to occur. Any work constructed in violation of any applicable code shall be corrected and re-installed properly at the Contractor's expense. A North Carolina Public Utilities License is required.

### **3.2.2 Unsatisfactory Operations**

Should it be necessary to halt the work because of incorrect or unsatisfactory operations under the terms of the awarded contract or because of failure to follow safety standards applicable hereto, the Contractors must take immediate steps to remedy the deficiencies. Should repair or correction of any safety defect or deficiency not be immediately undertaken, and should the Town be required to protect the site or make the repair or correction, the cost of such work shall be deducted from payment due the Contractor.

### **3.2.3 Inspection**

During any inspection including, but not limited to, the final inspection of each work site, should it be found that non-concealed work is substandard, the burden of proof that the concealed work is up to standard shall be the Contractor's, who shall do such as is necessary, including exposing the concealed work, to clearly establish that the concealed work meets the specifications as outlined. Any and all items

such as, but not limited to, improperly set couplings and concrete or masonry work that is not up to specified standards shall be removed and replaced at the Contractor's expense.

### **3.3 Aerial Cable Installation**

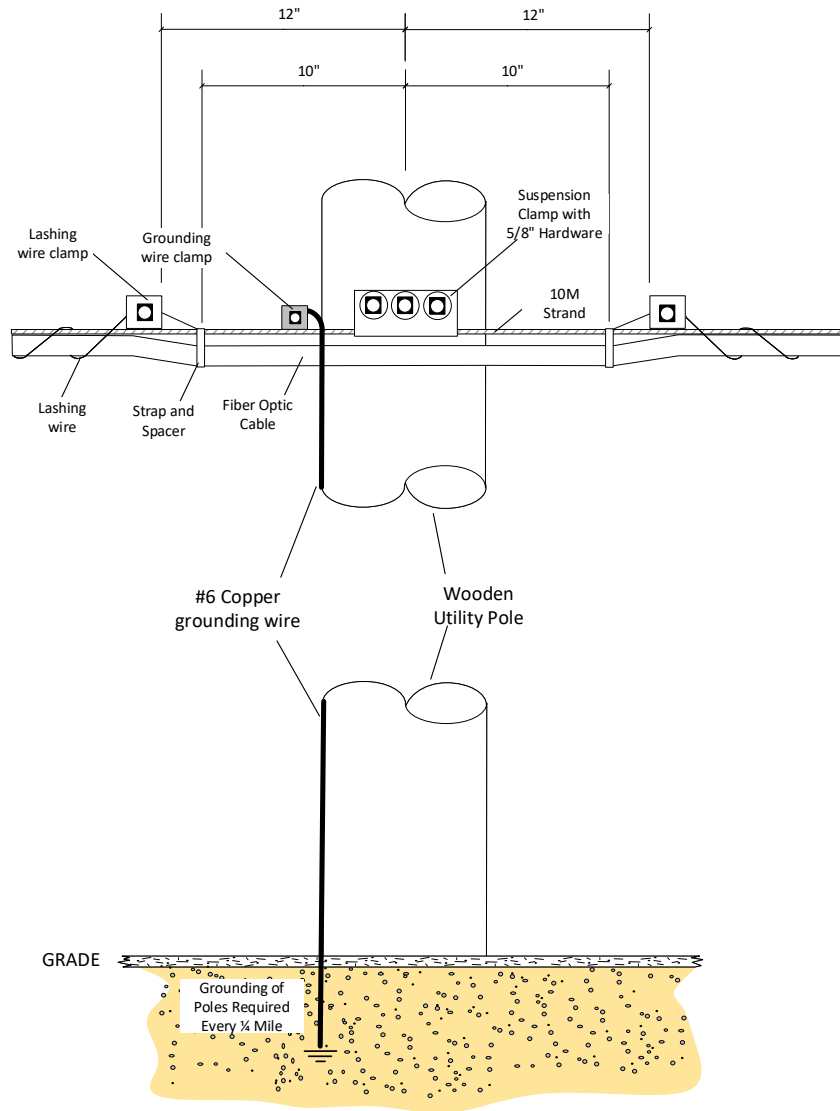
Aerial cable installation shall be performed using attachment hardware and methods approved by the cable manufacturer, and in accordance with NEC and pole owner-approved designs.

#### **3.3.1 Messenger Strand**

Messenger strand installations shall adhere to the following specifications (Figure 2):

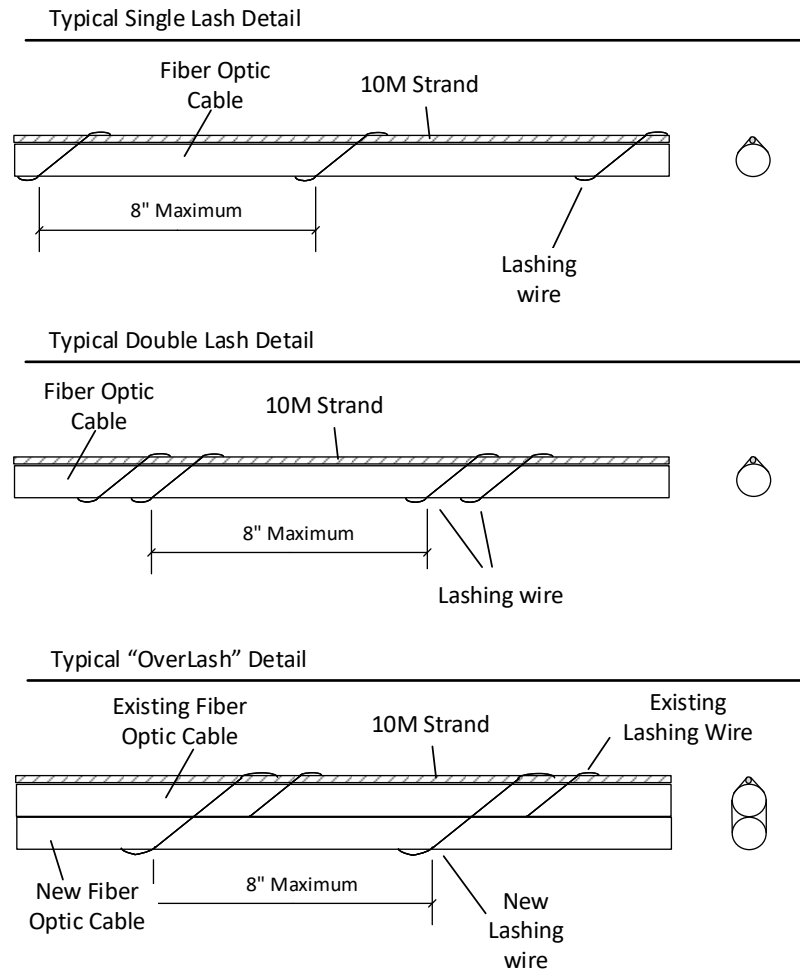
- Unless otherwise specified by the engineering prints, all suspension clamps shall be installed with 3/8-inch hardware;
- Stranded messenger wire (strand) shall be 10M (3/8 inches (.375 in diameter)) extra high strength (EHS), class C galvanized steel;
- Straps and spacers shall be placed on each side of the suspension clamp at a distance of no more than 10 inches from the center of the attachment;
- Attachments shall be bonded to a vertical ground at the first pole, last pole, and every tenth pole. A maximum of 1,320 feet between grounds shall be required;
- All attachment heights of cable placement shall be recorded at time of attachment and provided as part of the construction redline documentations;
- The minimum bend radius specified by the cable manufacturer shall be observed by the Contractor at all times when handling the fiber cable.

**Figure 2: Typical Aerial Strand Placement**



Lashing wire shall be placed to follow the lay of strand wire, wrapped around cable at intervals no greater than 8 inches. Unless otherwise specified, lashing wire shall be Type 316 Stainless Steel with a minimum diameter of .045-inch diameter, and shall have the highest rated corrosion resistance.

**Figure 3: Typical Aerial Cable Lashing Details**



New installation of aerial attachments shall occur only after the Contractor is notified that any utility pole make-ready work required by the pole owner is complete, and that the Town has received attachment licenses from the pole owner(s).

### 3.3.2 Aerial Snowshoes

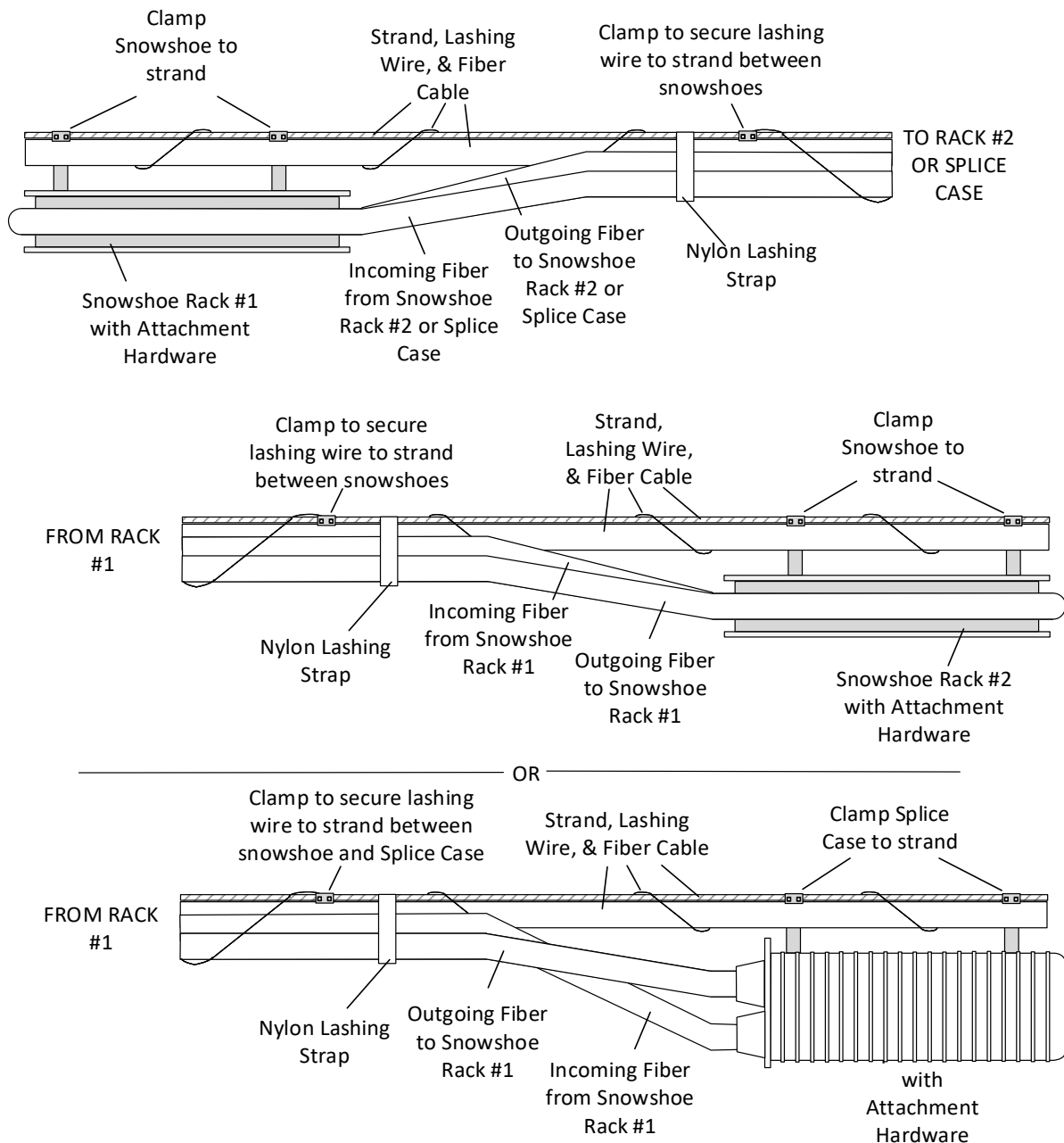
Fiber cable storage loops shall be installed using suitable "snowshoe" hardware, consisting of no less than an additional 10 percent cable length compared to the physical route distance, or at locations prescribed by approved engineering drawings. Aerial snowshoes shall have the following baseline specifications:

- Aluminum with polyester powder coat finish
- 17.7" Outside Diameter
- 31" Length

- Hubbell Opti-Loop FOS-3, or equivalent

Cable shall be coiled with a bend radius no less than specified for storage by the cable manufacturer. Unless otherwise specified, there shall be a minimum of 100 feet of slack cable between the snowshoe racks or between the snowshoe and splice case. Slack cable shall be lashed separately from the initial span lashing. Snowshoe racks shall have a diameter that exceeds the manufacturer’s specification for the minimum bend radius of the cable placed in it (Figure 4).

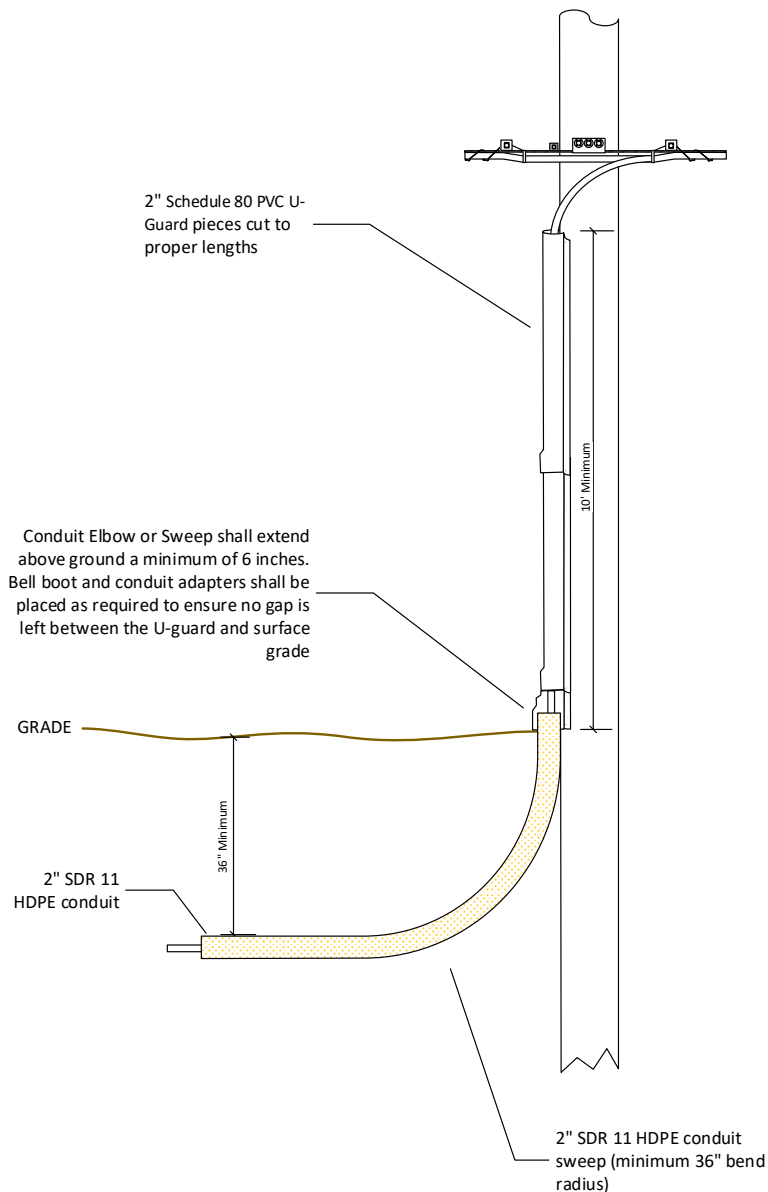
**Figure 4: Typical Aerial “Snowshoe” Installation**



### 3.3.3 Transition Pole Risers

Fiber cables shall be protected with non-metallic U-Type risers (i.e. “U-guards”) at all underground to aerial transition poles (Figure 5). The U-guard shall be Schedule 80 PVC, and shall meet or exceed NEMA TC-19. The U-guard shall be installed to overlap the manufactured conduit elbow or conduit sweep emerging from below ground by no less than 6 inches, and shall extend from the ground surface (leaving no gap) to a height on the pole of no less than 10 feet, including any bell boots or adapters at the pole base. The U-guard shall be properly attached to the utility pole per manufacturer instructions.

**Figure 5: Typical Transition Pole Riser Installation**



### 3.4 Underground Cable Installation

Before construction, the Contractor shall provide notification to other Utilities and other parties using appropriate One-Call underground location and marking services. Pull-tapes with linear length markers and a minimum tensile strength of 1,100 pounds shall be installed in all installed conduit. Tracer wire for purposes of locating conduit shall be installed within all installed conduit.

The minimum bend radius specified by the cable manufacturer shall be observed by the Contractor at all times when handling the fiber cable. Fiber cable storage loops shall be installed in handholes at locations prescribed by engineering drawings supplied by the Town, and cable shall be coiled with a bend radius no less than specified for storage by the cable manufacturer.

New fiber installations to Town facilities that are served by underground service shall A minimum of 100 feet or 15 percent of the drop length, whichever is greater, shall be provided and stored as excess fiber at the termination location or point of facility entrance unless specified otherwise by engineering drawings supplied by the Town.

Field markers or marking poles shall be installed along underground fiber routes after installation.

### 3.5 Fiber Laterals and Inside Plant Construction

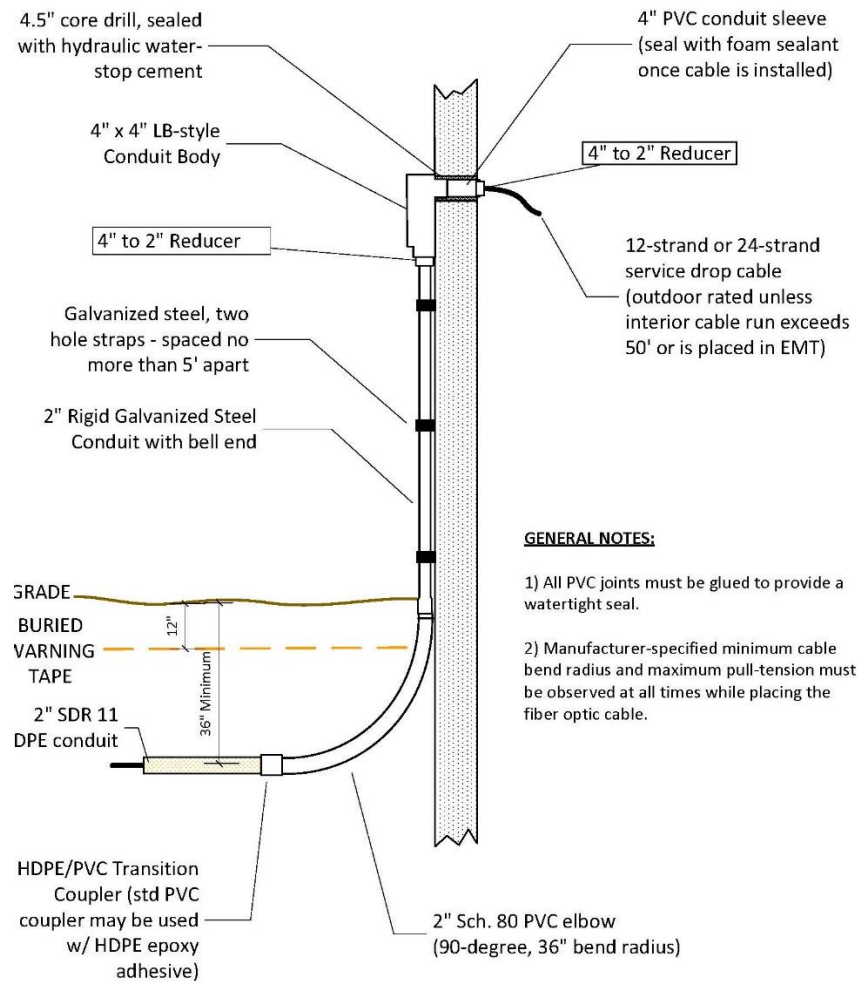
Fiber Laterals to Town facilities will typically consist of a 12-count single mode, indoor/outdoor and/or plenum-rated fiber optic cable installed within a 2-inch underground conduit unless otherwise noted by the Town.

Underground service drops shall be placed in conduit from the nearest handhole according to town specs and shall enter the facility at the existing utility and/or telecommunications demarcation location. Where available, new fiber drop cable shall be placed in existing conduit.

A 100 feet of fiber slack loops will be located at the termination point and 50 feet at the splice points. Refer to engineering design documents for additional specifications.

Where existing conduit is not available, new wall penetrations shall be created according to the following specifications for aboveground penetrations (**Figure 6**):

**Figure 6: Typical Building Entrance**



- Underground HDPE conduit shall be joined below grade to a Schedule 80 PVC, 90-degree elbow using a watertight HDPE/PVC transition coupler (ex. Carlon E-Loc). Note: a standard PVC coupler may be used with a suitable HDPE epoxy adhesive.
- At the height of the building penetration, a weather resistant fiber optic rated 90 degree pull box or conduit outlet body with removable cover shall be placed for ease of pulling fiber and to maintain the minimum bend radius specified by the cable manufacturer.
- Core drills must be at 90-degrees (plumb and square) to the wall.
- A Schedule 80 PVC conduit sleeve shall be placed from the pull-box through the core drill, and must be sealed and waterproofed using hydraulic water-stop cement both on the inside and outside of the bore (Note: silicone caulk/sealant may be used to create a water tight seal between the pull-box and the wall when placed against vinyl or metal siding). The conduit sleeve shall extend beyond the interior wall surface by 1" to 2".



- Fire rated sealant is required for penetrations through all exterior and interior fire resistance-rated walls. All conduits shall be sealed per NEC 300.7. A modular seal product (i.e. GPT Link Seal) is suitable for sealing between the wall penetration and the conduit exterior. The conduit must be internally sealed around the cable using a suitable fire-rated foam sealant or duct plug.
- Riser conduit shall be fastened to the exterior wall using galvanized steel, two-hole straps. At a minimum, one strap shall be placed within 12" above grade, and another within 12" below the pull-box. Strap spacing shall not exceed 5-feet.
- Underground HDPE conduit shall be mechanically joined below grade to a Schedule 80 PVC Conduit using a watertight HDPE/PVC transition coupler (ex. Carlon E-Loc). Note: All HDPE couplers must be threaded or barbed.
- Core drilling through concrete or masonry walls shall be at 90-degrees (plumb and square) to the wall.
- A Schedule 80 PVC conduit sleeve shall be placed from the pull-box through the core drill, and must be sealed and waterproofed using hydraulic water-stop cement both on the inside and outside of the bore (Note: silicone caulk/sealant may be used to create a water tight seal between the pull-box and the wall when placed against vinyl or metal siding). The conduit sleeve shall extend beyond the interior wall surface by 1" to 2".
- The conduit sleeve shall be internally sealed using foam sealant or a duct plug once the fiber optic cable is installed.

All inside plant construction shall meet applicable federal, state, and local codes, laws and regulations, as well as use approved construction methods and meet aesthetic standards of the building owner. All fiber cables must be properly bonded and grounded upon building entrance, where applicable. All fibers entering and exiting facilities shall be spliced in rack-mounted or wall-mounted splice enclosures and fiber patch panels.

Outdoor-rated cable shall not be run for a distance of more than 50 feet internal to the facility unless installed within Rigid Metallic Tubing (RMT). For runs less than 50 feet, plenum-rated HDPE innerduct shall be used to provide a cable path between the building entry point and termination panel.

Refer to the Construction Plan details for each site (Attachment A).

Each termination and patch panel will be labeled to identify the termination point of the fiber according to a naming schema to be approved by the Town. Fiber connectors shall be LC/UPC.

### **3.6 Fiber Testing**

The Contractor shall perform optical performance tests during construction to validate that installed cable is not damaged or defective, and that outdoor splices meet performance requirements. This testing will generally occur prior to termination of fiber strands and will require the use of bare fiber adapters for temporary connection. This testing must occur after cable is installed with all intermediate backbone splices and mid-sheath splices completed on any particular segment. This testing shall consist of bi-directional end-to-end OTDR testing for each fiber strand installed.

Additionally, final acceptance shall be contingent upon successful end-to-end testing of each terminated fiber strand will be tested end-to-end to validate the optical performance of the entire link, as well as to verify that fiber splicing has occurred according to supplied splice matrices. This testing will consist of bi-directional OTDR testing, as well as direct optical attenuation and continuity testing using a calibrated optical source and power meter. This testing shall occur only after fibers are terminated on both ends of a link, and all intermediate construction and/or splicing involving the re-entry of installed splice cases or handling of the fiber optic cable is completed for a particular segment under test.

The Contractor shall provide the Town with electronic documentation of all test results.

### **3.6.1 Testing Criteria**

Testing shall be deemed successfully completed if: (1) maximum fiber losses meet manufacturer specifications, with an allowance for splices and connectors; (2) individual splice losses do not exceed 0.1 dB; and (3) maximum mated connector losses do not exceed manufacturer specifications. Testing will be performed by Contractor personnel and may be observed by designated representatives of the Town. The Town may request and/or perform additional testing to verify results prior to accepting test data.

### **3.6.2 OTDR Testing Procedure**

An OTDR shall be used to measure and document splice losses and connector losses. To correctly identify abnormalities at a short range, a 100-meter or longer launch cable shall be used between the OTDR and the fiber under test. Bi-directional traces shall be acquired for each fiber. If the connection of the launch cable to the patch panel requires optimization by the operator, sampling acquisition will commence upon completion of the optimization.

Each fiber will be identified, and the results of the test for each fiber will be recorded as indicated below in the section "Test Data File Names." The test will be repeated for each of the fibers linking a particular site. All tests will be made at 1310 nm and 1550 nm.

Settings on the OTDR shall reflect the following:

- A. The Refractive Index shall be set for the actual fiber utilized (commonly-used Corning SMF-28 single mode fiber has a refractive index of 1.4677 at 1310 nm);
- B. Pulse width no greater than 100 ns (10m) for all fiber lengths;
- C. Scattering coefficient specified by the fiber manufacturer for each wavelength tested;
- D. A minimum of 10,000 sampling acquisitions (averages);
- E. Maximum range set to no more than 10 km for all fiber length less than 10 km;
- F. Maximum range set to no more than 25 km for fiber lengths greater than 10 km; and
- G. Event threshold: 0.05 dB.

A uniform file-naming scheme for recorded data shall be used, complying with the following conventions or mutually agreed conventions by the Town and Contractor:

xxx000yyy111

\*Where:

- xxx = three-place alpha-numeric site designation or splice location (Sp1, Sp2, ec.) at which the OTDR is located (see table below)
- 000 = three digit fiber port number (or fiber strand number for un-terminated fiber)
- xxx = three-place alpha-numeric site designation or splice location (Sp1, Sp2, ec.) at the opposite end from where the OTDR is located (see table below)
- 111 = three digit fiber port number (or fiber strand number for un-terminated fiber)

Site Designation	Site Name	Address
WTH	Town Hall	301 Brooks St., Wake Forest, NC 27587
WOP	Operations	234 Friendship Chapel Rd., Wake Forest, NC 27587
WFFD2	Fire Station 2	9925 Ligon Mill Rd, Wake Forest, NC 27587
WFFD3	Fire Station 3	1412 Forestville Rd, Wake Forest, NC 27587
WFFD4	Fire Station 4	1505 Jenkins Rd, Wake Forest, NC 27587

For example, WTH024JBS001.trc would be the OTDR trace captured from Town Hall connected to fiber port 24, which should provide connectivity to John B. Cole Substation port 1. The filename JBC001WTH024.trc would be for the OTDR trace captured on this same fiber in the opposite direction.

Installed optical fiber OTDR test documentation shall include:

- A. Total fiber length;
- B. Individual fiber traces for complete fiber length;
- C. Losses of individual splices and connectors;
- D. Losses of other anomalies;
- E. Wavelength tested and measurement directions;
- F. Manufacturer, model and serial number of the test equipment; and
- G. Name and company of the technician performing the tests.

All data collected at each location during the tests shall be recorded at the time of the tests using electronic means.

### **3.6.3 Optical Power Meter Test Procedure**

Optical power meter measurements shall be made at the same time as the OTDR tests to determine overall fiber loss and to ensure that fibers have appropriate end-to-end continuity (fibers not crossed). Power meter testing shall be performed at both 1310 nm and 1550 nm and shall report the relative loss of each fiber strand.

## **3.7 Material Handling**

### **3.7.1 Materials Transport**

The Contractor shall be responsible for trans-shipping material between their yards and for maintaining the inventory of these items once received from suppliers on behalf of the Town. Materials or equipment shall be transported in a legal fashion and shall be protected from damage or loss. Lost or unaccounted material will be the responsibility of the Contractor and will be reimbursed to the Town.

### **3.7.2 Materials Damaged**

Any damage to or loss of any materials or equipment supplied by the Town to the Contractors, which occurs from handling or transport, or from any other source or way, shall be the sole responsibility of the Contractor and the value thereof shall be deducted from any payments due the Contractor.

### **3.7.3 Salvageable Materials**

The Contractor shall salvage all useful materials and reuse materials for other Town projects to the extent feasible at the Contractor's discretion.

### **3.7.4 Materials Returned to the Town**

The Contractor shall return to the Town any Town-supplied materials and fiber optic cable greater than 300 feet.

## **3.8 Hours of Operation**

Unless otherwise approved by the Town, the Contractor shall perform all work between 8:00am and 5:00pm Monday-Friday. These Hours of Operation are superseded by any requirements listed in the applicable permits for a given area.

## **3.9 Safety Documentation and Training**

The Contractor shall comply with all the requirements set forth in Sections 103 and 107 of the Contract Work Hours and Safety Standards Act ([40 U.S.C. 327330](#)) as supplemented by Department of Labor regulations (29 CFR Part 5). The Contractor agrees to comply with all the requirements set forth in Sections 103 and 107 of the Contract Work Hours and Safety Standards Act ([40 U.S.C. 327330](#)) as supplemented by Department of Labor regulations (29 CFR Part 5). The Contractor shall maintain records of safety training classes held, and any safety certifications held by its employees and sub-contractors.

The Contractor, its employees, agents, and subcontractors must be trained on the Underground Damage Prevention statutes and best practices prior to excavating on the Town project. All Contractor crew members must carry a training verification card with the date of training and prime contractor/subcontractor crew name at all times.

### **3.10 Construction Safety and Health Standards**

The Contractor and any subcontractors shall not require any laborer or mechanic employed in performance of the contract to work under working conditions or in surroundings which are unsanitary, hazardous, or dangerous to the worker's health or safety, as determined under construction safety and health standards (Title 29, Code of Federal Regulations, Part 1926, published in the Federal Register on December 16, 1972), as revised from time to time. The Contractors and any subcontractors shall comply with any and all NIOSH and OSHA regulations.

### **3.11 Traffic Control and Work Area Protections**

The Contractor shall provide all equipment necessary to protect the well-being of employees, motorists and all others who come in contact with construction areas. Such precautions include, but are not limited to, crash cushions, flashing arrow boards, lighted barricades, steel plates, and concrete barriers. The Contractor shall ensure that all required signage meets Federal, State and Local standards.

The Contractor shall furnish, erect, maintain, relocate, and/or remove traffic control devices in accordance with the Contract Documents as well as the latest versions of the NCDOT "Standard Specifications for Roads and Structures, January 2018," NCDOT "Roadway Standard Drawings Manual, January 2018," MUTCD, NCDOT Supplement to the MUTCD, or as directed by the Town.

All traffic control devices furnished by the Contractor shall remain the property of the Contractor, unless otherwise specified by the contract. Traffic control devices shall include, but are not limited to signs, drums, barricades, barriers, electronic variable message boards, cones, delineators, flashing arrow panels, temporary guardrails, temporary concrete median barriers, vehicle-mounted temporary impact attenuators, pavement markings, raised reflective pavement markers, NCDOT Certified flaggers, and pilot vehicles.

#### **3.11.1 Traffic Control Materials**

Unless otherwise required, materials used in the fabrication and installation of construction traffic control devices shall be in accordance with the applicable provisions of the MUTCD. When traffic control devices are no longer required for traffic handling in the initial phase of construction requiring their use, they may be reused at various locations throughout the project provided the device is not defaced, is structurally sound, clean and otherwise conforms to the above requirements.

All enclosed lens (Engineer's Grade) sheeting required for use on traffic control devices shall have an identification mark on the surface. This mark signifies that the sheeting meets the requirements of Federal Specification L-S-300C for Minimum Reflectivity 1 Sheeting and Tape. The identification mark shall not interfere with the function of the device but shall be visible both day and under illumination at

night without the use of special devices. No work on the project shall start until all the traffic control devices required for the particular work activity are inspected and approved by the Engineer.

Traffic control devices which do not meet the requirements of this section shall not be used. If a device ceases to meet the requirements of this section during the project, it shall be promptly removed and replaced with a conforming device at no additional compensation. The Engineer shall have the authority to determine the acceptability of the traffic control devices.

### **3.11.2 Traffic Control Construction Methods**

Existing public streets or highways shall be kept open to traffic at all times by the Contractor unless permission to close these streets, or portions thereof, is granted by the Transportation Engineer. In addition to the Transportation Engineer, the Town of Wake Forest Transportation Engineer must be contacted BY THE CONTRACTOR A MINIMUM OF 72 HOURS before any streets are closed or partially closed. Wake Forest Engineering Staff may request that the Contractor make additional notifications to property owners. Lane and Road Closure requests can be made at <https://www.cognitofirms.com/TownOfWakeForest3/LaneClosureDetourNotificationForm>. Engineering Staff reserves the right to request changes to the traffic control, or removal of the lane closure all together in the event of a safety or traffic issue. Lane Closures will not be permitted from 6am – 9am or 4pm – 7pm Monday thru Friday, unless otherwise noted by the Transportation Engineer.

Traffic control devices shall be installed at the inception of construction operations, and shall be properly maintained, relocated as necessary, cleaned, and operated during the time they are in use. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. Where operations are performed in stages, only those devices that apply to the conditions present shall be left in place.

The location, legends, sheeting, dimension, number of supports, and horizontal and vertical placement of warning signs, barricades, and other traffic control devices shall be as required by the plans or the MUTCD or as directed by the Engineer. The Contractor may submit for the Engineer's consideration a method for handling traffic other than as shown on the plans. The alternate traffic control plans shall not be used until they are approved in writing by the Engineer. During periods when not warranted, warning signs and other devices shall be removed from the work area, covered with specified material, or otherwise positioned so that they do not convey their message to the traveling public. If covered, the covering material shall be exterior plywood and shall cover the entire face of the sign panel. The covering material shall be installed in such a manner that the sign panel will not be defaced. Non-metal washers or other spacing devices shall be used to keep the plywood covering material from direct contact with the sign panel. Covering material shall be maintained in a neat manner during its use.

Weeds, brush, trees, construction materials, equipment, etc. shall not be allowed to obscure any traffic control device in use. There will be no separate compensation for any trimming or cutting required for this purpose.

Competent and properly trained flaggers, properly attired and equipped, shall be provided in accordance with MUTCD standards and when directed by the Engineer or Inspector or when the Contractor deems it necessary to safely handle traffic through the construction zone. All flaggers shall carry their Flagging Certification Card and present immediately upon request. Any flagger unable to present their Certification Card will be requested to be removed from the worksite immediately.

The Contractor shall assume full responsibility for the continuous and expeditious maintenance of all construction warning signs, barricades, and other traffic control devices which in the opinion of the Engineer are damaged by traffic or other means or deteriorated beyond effectiveness. Conditions covered under maintenance shall include but not be limited to replacement due to loss of reflectivity; replacement of broken supports; plumbing of leaning signs; cleaning of dirty signs, barricades, and other devices; repair of defaced sheeting and legend; and replacement of stolen or vandalized items. All items used for traffic control shall be maintained in a satisfactory condition. Failure to maintain all traffic control devices in a satisfactory condition may be cause for suspension of construction operations until proper traffic control is re-established.

The Contractor shall follow the construction procedure and maintenance of traffic as shown on the Traffic Control Plan, unless a more workable plan is agreed to by the Engineer prior to or during the execution of the work. The Contractor shall complete each construction phase in the sequence shown if phasing is specified.

Work on the project shall not start until all the traffic control devices required for the particular work activity have been inspected and approved by the Engineer.

The Contractor shall continuously review and maintain all traffic control measures to assure that adequate provisions have been made for the safety of the public and workers.

The Contractor shall furnish a material certification for all new and used reflective sheeting.

### **3.12 Accident Reporting**

Any accident resulting in damage to property or causing personal injury within the limits of a work site shall be immediately reported to the appropriate police agency, other required agencies and the Town.

The Contractor shall immediately contact the Utility Operator/Owner and the Town when damage to an underground facility is identified. If a Natural or Propane Gas line is damaged, the Contractor must call 911 prior to notifying the Utility Operator. The Contractor shall not backfill around the underground utility line until the Utility Operator has repaired the damage and has given clearance to backfill. The Town will not pay the Contractor for labor, vehicles, material, or equipment or any other cost associated with the repair to any at-fault damage. Failure to comply may result in a verbal warning, suspension of the crew, loss of work, and/or termination.

## 4 Construction Scope of Services

The following sections define the scope and specific requirements for Construction Services Tasks to be provided on a per unit basis according to the proposal pricing sheets (Attachment 2-A). All work performed shall adhere to all applicable requirements of Section 3.

Proposed pricing for each unit pricing item specified below shall include all basic mobilization, site preparation, work area protection, and standard traffic control necessary to perform the task safely and according to all applicable specifications in this document. Also, unit pricing shall be inclusive of any overhead, project oversight (foreman, project manager, etc.).

Unless otherwise specified, the basis of pricing and payment shall be network route distance, not material length (cable, conduit, etc.), for linear unit measurements of tasks performed.

### 4.1 Underground Conduit and Cable Installation

#### ***Item #A1: Installation of Ground Rod***

This item shall provide for installation of a grounding rod as well as a length of copper wire to bond to the item to be grounded. A minimum of 8 feet of the ground rods must be driven into undisturbed soil. The contractor shall supply up to 30 feet of copper grounding wire and shall cut the wire to the length as necessary. The grounding wire shall be properly bonded to the grounding rod. Materials include ground rod, 5/8" x 1-1/2" Galvanized Hex Bolts, 5/8" acorn type ground clamp, and 30 feet of copper grounding wire.

#### ***Item #A2: Installation of Conduit***

This item consists of installing rolled duct (conduit or multi-way conduit), having a nominal diameter ranging up to 2-inches, with all necessary fittings. The Town has the right to reject any installation method proposed for a given work site.

Unless otherwise specified by Town-supplied engineering drawings, conduit shall have a minimum cover of 36 inches as measured from the finished grade, and a minimum of 48 inches below the elevation of the adjacent edge of pavement, whichever is deeper. Conduit not terminated to a base or in a vault shall be terminated two feet beyond the edge of the finished grade otherwise directed by the Town. Conduit shall not extend more than three inches inside a vault or junction well.

Splicing or joining of HDPE conduit is prohibited without prior approval from the Town. All conduit joints shall be sealed with the appropriate coupler and cement to ensure that the two conduit pieces bond to one another to form a solid waterproof link. For metallic conduit, install metallic bushings and bond conduits.

On or inside a building, conduit shall be installed by drilling anchors into concrete, brick, stone, steel, or wood and mounting the conduit with the proper clamps or hangers.

If bends are required during installation, they must be sweeping bends. The Town shall be consulted before any bends are installed to ensure that the proper arc is provided.



If not already pre-installed by the manufacturer, a polyester or polypropylene pulling rope or tape with a minimum rated strength of 1,100 pounds shall be installed in each conduit for future use.

Except where armored cable with a metallic sheath or “locatable” conduit is installed immediately upon placement of the conduit, a 10-AWG copper tracer wire shall be installed in at least one conduit in each segment or conduit bank as part of this item. The tracer wire shall be pulled simultaneously with the installation of fiber optic cable in a continuous length. Where multiple pulls of fiber-optic cable are required and conduit is placed in the same trench or bore, only one tracer wire is required. Where multiple pulls of fiber-optic cable are required and conduits may separate into individual trenches, install a tracer wire in each conduit run. Provide waterproof butt splices where tracer wire is spliced. Splicing is allowed only in handholes, and must be bonded to the electrical ground rod in each handhole.

For all conduits entering handhole boxes, seal spare conduits with approved duct plugs. Seal conduits containing fiber-optic communications cable with mechanical sealing devices.

**Item A2a: Installation using Directional Boring**

This item consists of horizontal directional drilling/boring and placing conduit. Directional boring is the required underground placement technique unless approved otherwise by the Town. The size of a bore shall not exceed the two-inch outside diameter of the conduit by more than one (1) inch. If it does, cement grout shall be pumped into the void.

At all points where HDPE conduit will traverse under roadways, driveways, sidewalks, or Controlled Access Areas including entrance/exit ramps, conduit shall be placed a minimum depth of 4 feet or 8 times the back reamer’s diameter, whichever is deeper. Conduit shall be placed to maintain a clearance of one foot (12-inches) from drainage pipe less than 60-inches in diameter while maintaining all other required clearances. A depth of 15-feet below finished grade may be required when crossing an NCDOT-maintained controlled access highway, or as specified by approved permit drawings.

The Contractor shall guarantee the drill rig operator and digital walkover locating system operator are factory-trained to operate the make and model of equipment provided and have a minimum of one year experience operating the make and model of drill rig.

The Contractor shall provide a means of collecting and containing drilling fluid/slurry that returns to the surface such as a slurry pit, and shall provide measures to prevent drilling fluids from entering drainage ditches and storm sewer systems. The Contractor shall prevent drilling fluid/slurry from accumulating on or flowing onto pedestrian walkways, driveways, and streets. Immediately remove all drilling fluids/slurry that are accidentally spilled. The Contractor shall transport waste drilling fluid/slurry from site and dispose of in a method that complies with local, state and federal laws and regulations.

The Contractor shall provide grounding for the drill rig in accordance with the manufacturer’s recommendations.

All excavated material shall be placed near the top of the working pit and disposed of properly. The Contractor shall backfill pits and trenches to facilitate drilling operations immediately after drilling is completed.

During drilling operation, the Contractor shall locate the drill head every 10 feet along drill path and before traversing underground utilities or structures using a digital walkover locating system. The locating system must be capable of determining pitch, roll, heading, depth, and horizontal position of the drill head at any point.

Upon completion of the conduit installation, the Contractor shall perform a mandrel test on the conduit system to ensure conduit has not been damaged using a non-metallic mandrel with a diameter or approximately 50% of the inside diameter of the conduit. If damage has occurred, replace the entire length of conduit and ensure that pull line is re-installed.

**Item A2b: Installation Under Existing Pavement - Open Cut**

This item consists of trenching/cutting in existing pavement and placing conduit in an open trench. All open cutting of roadways must first be approved by the Town. The conduit shall be installed by cutting a slot in the pavement with a masonry saw. The contractor shall be responsible for the removal of all cut pavement and the replacement and correction of any damaged pavement once the conduit(s) are installed.

The Contractor shall install HDPE conduit for all underground runs, unless otherwise specified by engineering drawings for special conditions (i.e. where conduits cross beneath railroad tracks). If more than one conduit is required between the same points, install conduit in one common trench. Install non-detectable marker tape.

Remove all rock and debris from backfill material. Remove excess material from site and compact area according to NCDOT Standard Specifications Article 300-7. Backfill with excavated material and compact to 95% of original density. Backfill trench at locations along the trench path where non-movable objects, such as rocks and boulders, cannot be avoided. The purpose of the backfill is to provide a gradual change in elevation of the trench, so that excessive bending and stress will not be transferred to conduits once underground conduit system is installed.

After installation of conduits and upon completion of tamping and backfilling, perform a mandrel test on each conduit to ensure no conduit has been damaged. Furnish a non-metallic mandrel having a diameter of approximately 50% of the inside diameter of the conduit in which it is to be pulled through. If damage has occurred, replace the entire length of conduit. Ensure pull line is re-installed.

The Contractor shall be responsible for performing temporary patching of affected pavement immediately upon installation of conduit.

**Item A2c: Installation in Unpaved Right-of-Way – Open Trench**

This item consists of trenching/cutting in unpaved right-of-way and placing conduit in an open trench. When trenching is used, the opening shall be filled halfway with the cover material and tamped down firmly before filling in the remainder of the opening to 12 inches below grade.

A fiber optic warning tape shall be installed, and the remainder of the fill shall be added, tamping down the top layer. All fiber shall be marked in the ground with a bright orange (preferably "ULCC" orange) or yellow warning tape at least 3 inches wide. The tape shall have integrated metallic mesh or cable to allow for easy detection. The marking tape shall be buried directly above the conduit run at a depth of approximately 12 inches below existing grade. The tape shall read "WARNING - OPTICAL CABLE" or other wording approved by the Town that conveys the same message.

The Contractor shall rake smooth the top 1 ½ inches, and seed with same type of grass as surrounding area. Finish unpaved areas flush with surrounding natural ground.

***Item #A3: Installation of Additional Conduit***

This item consists of installing one or more additional conduits at the same time as the initial installation of a single conduit (Item 2). Additional conduits may be stacked one on top of the other, side by side, or in a matrix. The orientation shall be at the contractor's discretion, but conduits shall not twist around one another or be allowed to deviate from straight-line paths, except in the case of bend installations. Conduits installed at the same time in the same trench or slot shall remain oriented the same in relation to one another throughout the conduit run. Additional conduits installed using directional boring shall be limited to a total of three conduits of the same size.

***Item A3a: Installation of Additional Conduit – Directional Bore***

***Item A3b: Installation of Additional Conduit – Open Cut***

***Item A3c: Installation of Additional Conduit – Open Trench***

***Item #A4: Installation of Vaults/Handholes/Flowerpots***

This item consists of constructing and installing conduit vaults, handholes, or flowerpots. The conduit vault shall conform to the dimensions shown in the system design. Several conduits may extend into the vault. The vaults will have a minimum 30" depth below surface that may be obtained by stacking vaults. All vault lids must be appropriate for the required loading. The base of the vault shall have gravel to a depth of one inch or as specified by the Town to promote drainage of water. All conduit ends shall be sealed to minimize water ingress.

***Item #A4a: Installation of Type 1 Handhole – Tier 15, 17"(18") x 30" x 30"***

***Item #A4b: Installation of Type 2 Handhole – Tier 15, 24" x 36" x 36"***

***Item #A4c: Installation of Type 3 Handhole – Tier 22, 24" x 36" x 36"***

***Item #A4d: Installation of Type 4 Handhole – Tier 22, 30"x 48" x 48"***

***Item #A5: Cable Installation in Conduit***

This item consists of installing fiber optic cable in existing or newly installed conduits that may or may not contain an existing communications cable or cable(s). A strain limiter/release element that will part if the strain exceeds 300 pounds for 12-count fiber and 600 pounds for larger cables shall be used for outdoor fiber optic cable between the pulling grip and the pulling medium.

Any and all cable(s) pulled into any conduit without the use of an acceptable pulling grip, kellems or equivalent, or without the use of a strain limiter/release element, or by using methods which may result in pulling forces in excess of strain release material set forth herein or prescribed by industry standards are unacceptable.

Any and all cable(s) installed in violation of allowed methodology shall be removed and replaced with new cable(s) using correct methods at no cost to the Town.

This item also includes installation of slack cable, either with or without a splice, in slack-loops within underground vaults. Slack footage will be priced on a per foot basis as part of this item.

## **4.2 Aerial Cable Installation**

***Item #A6 Installation of Messenger Strand***

This item consists of supplying and installing a stranded steel messenger wire attachment along a utility pole line, including all required attachment hardware, in accordance with the requirements in Section 3.3.1. The suspension strand shall be 10M (3/8 inches (.375 in diameter)) Extra High Strength (EHS), class C galvanized steel meeting or exceeding ASTM A-475 or A-363.

This item shall include the supply and installation of all required down guys, overhead pole-to-pole guys, and anchors specified in the Town-approved engineering documents and utility pole owner permits. All attachments, guy wires, and anchors shall be installed according to all applicable electrical and safety codes.

***Item #A7: Cable Installation on Messenger Strand***

This item consists of installing fiber optic cable on messenger wire (also referred to as suspension strand) and overlashing fiber optic cable where existing cables are present. The lashing wire shall start and terminate on each span between poles. Lashing wire shall be placed to follow the lay of strand wire, wrapped around cable at intervals no greater than 8 inches. The end points shall be installed so that the lashing wire remains tensioned. At mid-span splices, the lashing wire shall terminate on each side of the splice.

This item also includes installation of fiber slack cable in aerial snowshoes in accordance with the requirements in Section 3.3.2. Slack loops shall be installed in each snowshoe at locations specified by Town-approved engineering drawings, observing the minimum bend radius specified by the cable manufacturer at all times. Slack footage will be priced on a per foot basis as part of this item, however installation of Aerial Snowshoes will be priced per each, according to Bid item

***Item #A8: Installation of Aerial Snowshoes (Pair)***

This item consists of installing aerial snowshoes in accordance with the requirements in Section 3.3.2. Slack loops shall be installed in each snowshoe at locations specified by Town-approved engineering drawings, observing the minimum bend radius specified by the cable manufacturer at all times.

***Item #A9: Installation of Transition Pole Risers***

This item consists of installing a single 2" diameter pole riser, including all required fasteners, in accordance with the requirements in Section 3.3.3. This item does not include placement of fiber optic cable(s) within the riser, which shall be invoiced on a linear foot basis according to Item #A5.

The U-guard shall be installed to overlap the manufactured conduit elbow or conduit sweep emerging from below ground by no less than 6 inches, and shall extend from the ground surface (leaving no gap) to a height on the pole of no less than 10 feet, including any bell boots or adapters at the pole base. The U-guard shall be properly attached to the utility pole per manufacturer instructions.

### **4.3 Fiber Splicing and Testing**

***Item #A10: Installation of New or Re-entry of Existing Splice Enclosure***

This item consists of the physical preparation and installation of a non-encapsulated, gasket-sealed splice enclosure, but does **not** include the actual strand splicing.

For new installation, the item includes the equipment setup, preparation of cable ends for splicing, and installing the splice enclosure in an underground pull box or vault for one or more cables containing up to 432 fiber strands.

For an existing splice enclosure, this item consists of reentering an existing non-encapsulated, gasket-sealed splice enclosure to make additional splices, installing a new gasket, and resealing the enclosure after the splice work has been completed.

Splice enclosure installation shall be in accordance with applicable standards and manufacturer instructions.

***Item #A11: Installation of Mid-sheath Splice Enclosure (Ring Cut)***

This item consists of the physical preparation and installation of a non-encapsulated, gasket-sealed splice enclosure for a mid-sheath splice, but does **not** include the actual strand splicing.

This item allows access to one or more fibers for splicing without cutting the entire cable. It consists of cutting away a section of cable jacketing to expose the buffer tubes, cutting or splitting open a buffer tube (depending on whether or not there are active fibers in that tube), preparing the designated fibers for splicing, and installing a splice enclosure to house the exposed section of cable. It typically will be performed on the Town's backbone fiber to facilitate splicing to a new or existing lateral fiber cable.

Care shall be taken not to cut any fibers that are in active use, and may require use of an active fiber identifier to verify strands not in-use before cutting strands. The work may include pulling fiber cable

slack from adjacent handholes, and includes installing the splice enclosure in an underground pull box or vault for one or more cables containing up to 432 fiber strands.

***Item #A12a: Splicing of Fiber (per Strand)***

This item consists of splicing two ends of single-mode fiber, placing the fused fiber in a splice tray, and placing the tray in a splice enclosure, wall-mounted housings, or rack-mounted housings. All fiber shall be fusion-spliced. Splices shall have an optical attenuation of no more than 0.1 dB at 1550 nm and 1310 nm.

***Item #A12b: Splicing of Fiber (per Ribbon)***

This item consists of splicing two ends of ribbon fiber, consisting of 12 to 24 strands, placing the fused fiber ribbon in a splice tray, and placing the tray in a splice enclosure. Splices shall have an optical attenuation of no more than 0.1 dB at 1550 nm and 1310 nm.

***Item #A13a: OTDR Testing of Un-terminated Cable***

This item consists of bi-directional OTDR testing of an un-terminated, installed fiber optic cable, requiring the use of bare fiber adapters. Pricing shall be provided on a per strand basis for lateral cables ranging from 12-count to 432-count.

All fiber strands shall be tested using an OTDR at 1310 nm and 1550 nm, and documented according to the specifications in Section **Error! Reference source not found..**

***Item #A13b: Final Acceptance testing of Terminated cable***

This item consists of bi-directional OTDR and power meter testing installed fiber optic cable, terminated on both ends. Pricing shall be provided on a per strand basis for all connected Town locations.

All fiber strands shall be tested at 1310 nm and 1550 nm, and documented according to the specifications in Section **Error! Reference source not found..**

## **4.4 Fiber Termination and Inside Plant Work**

***Item #A14: Installation of Lateral Termination Panel***

This item consists of the installation of a wall-mounted or rack-mounted fiber termination panel, typically for fiber strand counts of 12. This item includes any required assembly of the termination housing/frame, mounting the housing/frame (including mounting a plywood backboard where required), installation of splice trays, installation of connector modules and pigtails, installation of cable management hardware, and proper labeling of fiber ports.

***Item #A15: New Building Entry***

This item consists of the installation of a new building penetrations and indoor cable pathways for a lateral fiber cables as specified in Section 3.5.

***Item #A16: Installation of Indoor/Plenum Innerduct***

This item consists of installing one or more innerduct along a path between the building entry point of the outdoor conduit and the fiber termination location internal to the building. The innerduct path may

consist of placement in an existing conduit or affixed to ceiling or wall structure. If a pull rope is not already pre-installed in the conduit in which innerduct will be placed, this item shall include the installation of any pull rope or mule tape required for installation of the innerduct. The Contractor shall rod existing conduit to ensure that it is free of any obstructions before installing a pull rope or innerduct. If a pull rope is not already pre-installed in the innerduct, the Contractor shall place a pull rope or mule tape in each innerduct.

***Item #A17: Installation of EMT***

This item consists of installing Electrical Metallic Tubing (EMT) along a path between the building entry point of the outdoor conduit and the fiber termination location internal to the building. The path may consist of placement in a drop ceiling or affixed to ceiling or wall structure. This item shall include the installation of any pull rope or mule tape required for installation of fiber optic cable. Building penetrations shall be properly sealed to prevent water seepage. Appropriate fire-stop sealant materials shall be used wherever the EMT must penetrate fire-rated walls or floor assemblies.

## 5 Time and Material Rates

The following items are intended for any work completed on a time and material basis outside the scope of the items in Section 4. Pricing shall be provided on a per unit basis in the proposal pricing sheets (Attachment 2-B). All work performed shall adhere to all applicable requirements of Section 3. All time and material billing must be **pre-approved** by the Town.

### ***Item #B1: Foreman***

This item shall consist of providing a Foreman for a construction or installation crew at any location, as directed by the Town. The payment for the item shall be made at the contract unit price per hour bid for “Foreman,” which price and payment shall constitute full compensation for wages, transportation to and from the work site, Contractor’s allowable administrative costs and markup, and necessary incidentals.

### ***Item #B2: Technician***

This item shall consist of providing a Technician for an installation crew at any location, as directed by the Town. The payment for the item shall be made at the contract unit price per hour bid for “Technician,” which price and payment shall constitute full compensation for wages, transportation to and from the work site, Contractor’s allowable administrative costs and markup, and necessary incidentals.

### ***Item #B3: Assistant***

This item shall consist of providing a Helper or Assistant for a cable or splice installation crew at any location, as directed by the Town. The payment for the item shall be made at the contract unit price per hour bid for “Assistant,” which price and payment shall constitute full compensation for wages, transportation to and from the work site, Contractor’s allowable administrative costs and markup, and necessary incidentals.

### ***Item #B4: Laborer***

This item shall consist of providing a Laborer for a construction crew at any location, as directed by the Town. The payment for the item shall be made at the contract unit price per hour bid for “Laborer,” which price and payment shall constitute full compensation for wages, transportation to and from the work site, Contractor’s allowable administrative costs and markup, and necessary incidentals.

### ***Item #B5: Air Compressor***

This item shall consist of providing an Air Compressor with a minimum CFM rating of 150. The use and payment of this item at any location shall be subject to the approval of the Town.

### ***Item #B6: Generator***

This item shall consist of providing a Generator with a minimum capacity of 6,500 watts. This item consists of providing a Generator. This category includes a gasoline, hydraulic or other powered unit capable of providing 110/220 volts of electricity. This item includes transporting the unit to and from the work site as well as monitoring the unit for continuous operation.



***Item #B7: Bucket Truck - Short (Reach Up To 40 Feet)***

This item shall consist of providing a short Bucket Truck. The truck must be capable of lifting two persons with tools and equipment to a height of up to 40 feet. The use and payment of this item at any location shall be subject to approval of the Town.

***Item #B8: Large Vehicle***

This item shall consist of providing a large vehicle with tools. This category applies to all large vehicles required for outside plant construction activity. This category includes all tools (shovels, rakes, pick-axes, etc.), required for the type of construction work to be performed. Examples of a Large Vehicle include a tandem axle dump or flatbed truck, material handler truck, rear-end loader, roll back truck, tractor trailer, large bucket truck, etc.

***Item #B9: Medium Vehicle***

This item shall consist of providing a medium vehicle with tools. This category applies to all medium vehicles required for outside plant construction activity. This category includes all tools (shovels, rakes, pick- axes, etc.) required for the type of construction work to be performed. Examples of a Medium Vehicle include a utility truck, chip disposal truck, single axle dump or flatbed truck, stake-body utility truck, etc.

***Item #B10: Small Vehicle***

This item shall consist of providing a small vehicle with tools. This category applies to all small vehicles required for outside plant construction activity. This category includes all tools (shovels, rakes, pick-axes, etc.) required for the type of construction work to be performed. Examples of a Small Vehicle include a pick-up truck, four- wheel drive vehicle, van, farm tractor, etc.

***Item #B11: Large Equipment***

This item consists of providing large equipment with a trailer. This category applies to all large equipment required for outside plant construction activity. This category includes all equipment required for the type of construction work to be performed. Examples of Large Equipment include a bull-dozer, trac-hoe, back-hoe with greater than 40' reach, directional drill, crash truck, large bucket, vacuum truck, vibratory plow 36", etc.

***Item #B12: Medium Equipment***

This item consists of providing medium equipment with a trailer. This category applies to all medium equipment required for outside plant construction activity. This category includes all equipment required for the type of construction work to be performed. Examples of Medium Equipment include a back- hoe with 14' reach, front end loader small, roller, cable plow, vibratory plow 24", etc.

***Item #B13: Small Equipment***

This item consists of providing small equipment with a trailer: This category applies to all small equipment required for outside plant construction activity. This category includes all equipment required for the type of construction work to be performed. Examples of Small Equipment include a ditch witch, walk behind plow, generator trailer, light tower, arrow board, compressor, bush hog, bobcat, vibratory plow 18", chipper, rotary hammer, tamp, core driller, etc.

***Item #B14: Light Plant***

This item consists of providing a light plant that will provide enough illumination to meet the job's requirements. This category includes gasoline, diesel, propane, natural gas, solar, etc. powered units. This includes transporting the unit to and from the work site as well as monitoring the unit for continuous operation.

***Item #B15: Crash Cushion***

This item consists of providing a Department of Transportation approved portable cushion, which is attached to and moved by a truck. The Town will not be responsible for replacement or repair of crash cushions in cases of accidents involving purpose of use.

***Item #B16: Flashing Arrow Board***

This item consists of providing a Department of Transportation approved traffic arrow capable of sequential or flashing lighted signals to control traffic flow. This category shall include all gasoline, propane, or other fuels used to power the equipment.

***Item #B17: Lighted Barricade***

This item consists of providing Department of Transportation approved barricades Type I with 8-inch diameter flashing amber lights.

***Item #B18: Steel Plate***

This item consists of providing Department of Transportation approved steel plates and will be invoiced as each plate per day (continuous 24 hour period), and includes any pins or patch required to safely set the plate. The category includes placement and maintenance of the plate.

***Item #B19: Concrete Barriers***

This item consists of providing concrete barriers (Jersey walls) used for work area protection. This category includes set-up, movement, removal and maintenance of concrete barriers.

***Item #B20: Water Pump***

This item consists of providing an electric, gasoline, or hydraulic operated pump capable of discharging at least 200 GPM (gallons per minute). Pump must be designed to operate in manhole environments where debris may be present in the liquid being pumped.

***Item #B21: Intermediate "Soft" Rock Adder***

This item consists of directional boring when a standard directional bore and standard bore head or reamer are not capable of finding a path through rock without the use of a rock drilling head or reamer. The determination of the use of the Intermediate Rock Adder will be left to the discretion of the Town. The Intermediate Rock Adder is in addition to the unit cost for Item #A2a: Installation Using Directional Boring.

***Item #B22: Solid Rock Adder***

This item consists of directional boring when a standard directional bore and rock drilling bore head or reamer are not capable of finding a path through rock without the use more specialized rock drilling equipment. The determination of the use of the Solid Rock Adder will be left to the discretion of the Town. The Solid Rock Adder is in addition to the unit cost for Item #A2a: Installation Using Directional Boring.

## 6 Contractor-Supplied Material Specifications

All necessary material for construction of the Town's portion of fiber optic network shall be supplied by the Contractor. Pricing shall be provided on a per unit basis in the proposal pricing sheets (Attachment 2-C). Prices are to include all shipping costs. Bidders are to review the Project specifications carefully to determine if any miscellaneous materials not specified in this Section will be necessary to complete the defined project scope, and to include all necessary materials in the proposal.

The selected contractor is to store and issue all material for construction, except as otherwise directed by the Town. The Town may require certain quantities be delivered and stored at a Town facility for purposes of maintenance, future construction, and/or self-performance of certain tasks.

The materials specified or an approved equivalent shall be supplied by the contractor and used as needed to complete the scope defined in this document. All materials supplied shall be new and unused and, where applicable, all materials and equipment supplied shall be UL-approved.

Prices are to include all shipping costs to any location within the Town of Wake Forest specified by the Town.

### 6.1 Conduit

The Contractor shall provide orange high-density polyethylene (HDPE) roll duct meeting ASTM D-3350 specifications. All supplied conduit shall have a smooth inner wall and smooth outer wall. All conduit shall be pre-lubricated, and contain a pre-installed 1100 pound polyester pull tape. Conduit shall be provided in the following variations:

***Item #C1: 2-inch SDR 11***

- Two-inch (2"), SDR 11, Orange
- 2.375-inch nominal outer diameter
- 1.943-inch nominal inner diameter
- 0.216-inch minimum wall thickness
- Carlon #A13C6D1JNNB or approved equivalent

### 6.2 Handholes

The Contractor shall supply communications handhole boxes ("handholes") meeting dimensional and structural loading requirements specified by Town-supplied engineering drawings and all applicable permit requirements.

All handholes shall have the appropriate ANSI 77-2010 Tier designation/load rating embedded in a surface that will be visible after installation. All handholes shall be straight-walled with an open bottom.

Handholes shall each be provided with a lid, lid bolts, and any required reducing coupler to support 2-inch nominal diameter conduit. Supplied lids shall be engraved with the words "**Wake Forest Fiber Optics. Phone Number: 919-435-9500**".

The Contractor shall supply the following handhole varieties meeting the specified loading standard and having the specified nominal outer dimensions:

*Item # C2a: Type 1 Handhole – Tier 15, 17"(18") x 30" x 30"*

- Tier 15 Rated (15,000 pound design load, 22,500 pound test load)
- Composite Construction, UL listed to ANSI 77-2010,
- External dimensions: 18" x 30" x 30" (WxLxD)
- RUS listed
- Straight-walled, open bottom

*Item # C2b: Type 2 Handhole – Tier 15, 24" x 36" x 36"*

- Tier 15 Rated (15,000 pound design load, 22.5 test load)
- Composite Construction, UL listed to ANSI 77-2010,
- External dimensions: 24" x 36" x 36" (WxLxD)
- RUS listed
- Straight-walled, open bottom

*Item # C2c: Type 3 Handhole – Tier 22, 24" x 36" x 36"*

- Tier 22 Rated (22,500 pound design load, 33,750 pound test load)
- Composite Construction, UL listed to ANSI 77-2010
- External dimensions: 24" x 36" x 36" (WxLxD)
- RUS listed
- Straight-walled, open bottom

*Item # C2d: Type 4 Handhole – Tier 22, 30 x 48" x 48"*

- Tier 22 Rated (22,500 pound design load, 33,750 pound test load)

- Composite Construction, UL listed to ANSI 77-2010
- External dimensions: 30" x 48" x 48" (WxLxD)
- RUS listed
- Straight-walled, open bottom

### 6.3 Aerial Construction Materials

The Contractor shall supply aerial construction materials meeting the specifications outlined in Section 3.3.

#### ***Item #C3: 10M Messenger Strand***

The Contractor shall supply aerial messenger strand meeting the following specifications:

- 10M (3/8 inches (.375 in diameter))
- Extra High Strength (EHS) steel
- Minimum breaking strength of 10,000 lbf (10M)

The suspension strand shall be Extra High Strength (EHS), class C galvanized steel meeting or exceeding ASTM A-475 or A-363.

#### ***Item #C4: Lashing Wire***

The Contractor shall supply lashing wire strand meeting the following specifications:

- 0.045-inch diameter
- 1200' linear feet

Unless otherwise specified, lashing wire shall be Type 316 Stainless Steel with a minimum diameter of .045-inch diameter, and shall have the highest rated corrosion resistance.

#### ***Item #C5: Fiber Optic Cable Snowshoes***

The Contractor shall supply aerial snowshoes strand meeting the following specifications:

- Aluminum with polyester powder coat finish
- 17.7-inch Outside Diameter
- 31-inch Length
- Hubbell Opti-Loop FOS-3, or equivalent

#### ***Item #C6: 2-Inch Transition Pole Riser (U-Guard)***

The Contractor shall supply and transition pole risers meeting the following specifications:

- The U-guard shall be Schedule 80 PVC, and shall meet or exceed NEMA TC-19
- 2-inch nominal diameter

## 6.4 Splice Enclosures

The Contractor shall supply fiber optic splice enclosures, including splice traces and related hardware. Splice enclosures shall be suitable for splicing both ribbon and loose-tube fiber cable types.

### ***Item #C7: Backbone Splice Enclosure and Accessories (6 cable, 576 mass fusion and 72 single splices)***

This item consists of a single splice enclosure equipped with termination hardware for up to six cables, capacity for 576 mass fusion (ribbon) splices, and capacity for 72 single strand splices. The enclosure must be scalable to support up to 1156 mass fusion (ribbon) splices or 576 single splices.

The enclosure dimensions should not exceed 30-inches in length and 12-inches in either width or height.

The enclosure and accessories shall be the Tyco FOSC 450-D6, or equivalent, with the configuration:

- One (1) each, FOSC 450-D6 enclosure (FOSC 450-D6-6-NT-0-C6V)
- Two (2) each, FOSC-ACC-D-TRAY-RIBN-24 ribbon splice tray supporting 288 mass fusion splices, including tie wraps and 60MM SMOUV splice protection sleeves
- Two (2) each, FOSC-ACC-D-TRAY-36-SMV60 splice tray supporting 36 single fiber splices, including tie wraps and 6 MM SMOUV splice protection sleeves
- All necessary cable retention and strength member retention hardware, port plugs, grounding accessories, and closure sealing accessories.

### ***Item #C8: Lateral Splice Enclosure and Accessories (6 cable, 144 mass fusion and 24 single splices)***

This item consists of a single splice enclosure equipped with termination hardware for up to six cables, capacity for 144 mass fusion (ribbon) splices, and capacity for 24 single strand splices. The enclosure must be scalable to support up to 288 mass fusion (ribbon) splices or 144 single splices.

The enclosure dimensions should not exceed 24-inches in length and 10-inches in either width or height.

The enclosure and accessories shall be the Tyco FOSC 450-B6, or equivalent, with the configuration:

- One (1) each, FOSC 450-B6 enclosure (FOSC 450-B6-6-NT-0-C6V)
- One (1) each, FOSC-ACC-A/B-TRAY-12-RBN ribbon splice tray supporting 144 mass fusion splices, including tie wraps and 60MM SMOUV splice protection sleeves

- Two (2) each, FOSC-ACC-B-TRAY-12-SMV60 splice tray supporting 12 single fiber splices, including tie wraps and 6 MM SMOUV splice protection sleeves
- All necessary cable retention and strength member retention hardware, port plugs, grounding accessories, and closure sealing accessories.

## 6.5 Construction Hardware

The contractor shall supply commonly used construction hardware meeting all applicable codes and standards as follows:

### ***Item #C9: Ground rod, 8 ft.***

This item shall consist of the following components:

- Rod, Sectional, 13 mil copper-clad steel, 5/8-inch diameter, 8-foot length, Erico 635883 or approved equivalent.
- Driving Stud, 5/8", high strength carbon steel. Withstands hammer impact while driving sectional rods. (same manufacturer as rod) or approved equivalent
- Ground Rod Clamp, 5/8", high strength bronze alloy, corrosion resistant, accommodates #12 to 1/0 AWG, suitable for direct burial. Electric Motion EM 2DB-01 or approved equivalent.
- #6 copper ground wire, green insulation, typical 6-foot length.

### ***Item #C10: #10 copper tracer/ground wire, green insulation***

The Contractor shall supply 10 AWG copper wire, UL-listed, with green insulation to be used as a tracer wire within conduit, or for other general electrical grounding purposes.

### ***Item #C11: Wrap-Around Cable Marker Labels***

The Contractor shall supply wrap-around cable labels, day-glow green (or orange). Labels shall be 4-inches by 4-inches, William Frick P/N WFS-ES-0004, or approved equivalent, and shall read "Wake Forest Fiber Optic Cable."

### ***Item #C12: Warning Tape***

The Contractor shall supply warning Tape (for trenching applications), bright (Day-Glow) orange, 3-inch (or 75 mm) wide, to allow for easy visual detection with wording "WARNING – OPTICAL CABLE" or similar message approved in advance, repeated on tape at least every 3 feet or 1 meter.

### ***Item #C13: Markers, Soil Disk***

The Contractor shall supply soil disk fiber markers for areas of frequently grass cutting and maintenance. Markers shall be orange disks, 6 to 8-inch diameter, with 13 inch stainless steel stakes. Markers shall be labeled with "WARNING – BURIED FIBER OPTIC CABLE" "Call 811 Before Digging" "Town of Wake Forest" in UV stabilized black lettering.

***Item #C14: Markers, Domed Post***

The Contractor shall supply domed post markers for road-side usage. Marker dome caps shall be orange, labeled with “WARNING – BURIED FIBER OPTIC CABLE” “Call 811 Before Digging” “Town of Wake Forest” in UV Stabilized Black Lettering. Markers shall be white, 6-foot height, 3.5-inch diameter, and include an anchor bar for ground attachment.

## **6.6 Fiber Termination Panels and Accessories**

The Contractor shall supply fiber termination (patch) panels, each equipped with the appropriate number of bulkhead connector panels, fusion splicing trays, strain relief accessories, and rack-mounting hardware (if applicable). All panels shall include accessories for cable management and protection of splicing to outside plant cable in the space behind or inside of the panel housing. Panels designed for both wall-mounting and rack-mounting shall be provided.

Panels supporting greater than 48 fibers may have the splicing storage and handling space provided in a physically separate, but integrated housing.

***Item #C15a: Lateral Termination Panel, rack-mount, 12-strands***

This item consists of a single termination panel equipped to support the termination of 12 fiber strands, scalable to 24 fiber strands. The termination panel housing shall be designed for rack-mounting in a standard 19-inch equipment rack or enclosure, and shall occupy no more than 1 RU (rack unit, 1.75-inches) of vertical rack space. The panel shall include 12 fiber pigtails terminated with LC/UPC connectors, 12 LC/UPC bulkhead connectors, bulkhead panel/module, splice tray, and related cable management accessories.

This item shall be the Corning PCH-01U, or equivalent, consisting of the following:

- One (1) each, Corning PCH-01U Pretium Connector Housing Patch Panel
- One (1) each, Corning PC1-SPLC-04R – Splice Tray Bracket for PCH-01U
- One (1) each, Corning CCH-CP12-A9 – 12 port, duplex, singlemode LC-UPC connector panel
- Twelve (12) each, LC/UPC fiber pigtail, preterminated, 2 meter
- One (1) each, Corning M67-110 Type 4R splice tray
- All required cable management and mounting accessories.

***Item #C15b: Lateral Termination Panel, wall-mount, 12-strands***

This item consists of a single termination panel equipped to support the termination of 12 fiber strands, scalable to 24 fiber strands. The termination panel housing shall be designed for wall-mounting, and shall provide a lockable door to protect splice trays and fiber pigtails. The panel shall include 12 fiber pigtails terminated with LC/UPC connectors, 12 LC/UPC bulkhead connectors, bulkhead panel/module, splice tray, and related cable management accessories.



This item shall be the Corning PWH-02P, or equivalent, consisting of the following:

- One (1) each, Corning PWH-02P Pretium Connector Housing Patch Panel
- One (1) each, Corning HDWR-LOCK-KIT, lock kit for PWH-02P housing
- One (1) each, Corning PWH-SPLC-04-12P – Splice Tray Bracket for PWH-02P
- One (1) each, Corning CCH-CP12-A9 – 12 port, duplex, singlemode LC-UPC connector panel
- Twelve (12) each, LC/UPC fiber pigtail, preterminated, 2 meter
- One (1) each, Corning M67-110 Type 4R splice tray
- All required cable management and mounting accessories.

## 6.7 Inside Plant Construction Materials

### ***Item #C16: New building entrance materials***

The Contractor shall supply all materials specified in Section 3.5 for new entry of a Town Facility. Materials shall be priced as a lump sum per each new building entry.

### ***Item #C17a: 1.25-inch corrugated HDPE, plenum-rated***

The Contractor shall supply innerduct shall be high-density polyethylene (HDPE) innerduct. All innerduct shall contain a pre-installed 900-pound polyester pull tape, and shall have the following characteristics:

- Corrugated construction, orange
- 1.38-inch nominal inner diameter
- 0.035-inch minimum wall thickness
- Plenum rated and UL listed to UL910
- Tensile pulling strength: 319 pounds
- Color: orange
- Carlon CG4X1Cxxxx, or approved equivalent.

### ***Item #C17b: 2-inch Electrical Metallic Tubing (EMT)***

The contractor shall supply galvanized steel EMT meeting ANSI C80.3 standards. This item shall have a smooth interior wall, a minimum I.D of 2" and be provided in sections with a nominal length of no less than 10'. This item includes all fittings and couplers required to extend the length of the EMT.

## 6.8 Fiber Optic Cable

The Contractor shall deliver fiber optic cable in accordance to the following specifications:

- Ribbon optical cable for backbone applications, containing 12-strand ribbons, in 144, and 432-count sheaths, conforming to international standards ITU-T G.652.D and Telcordia G-20.

- Loose buffer tube optical cable for service drop applications, containing 12-strand buffer tubes, in 12, 24, 48, and 96-count sheaths, conforming to international standards ITU-T G.652.D and Telcordia G-20.
- Delivered on reels holding a contiguous fiber cable length of up to 16,000 feet. Pricing shall include return shipping of steel reels if used. The Contractor shall be expected to coordinate cable orders to ensure cable lengths are provided as needed support contiguous cable runs without splicing (not including mid-sheath splices) according to final designs.
- Comprised of All Dielectric (AD) materials.
- Comprised of a gel-free cable design incorporating dry water-blocking elements.
- Marked, in permanent white characters, with:
  - Manufacturer name
  - Month and year of manufacture
  - Number of optical fibers
  - Sequential length markings, minimum of every two feet, in feet

The Contractor shall supply the following fiber cable varieties meeting the above specifications:

***Item #C19a: 12-strand lateral cable, loose buffer tube, outdoor cable***

***Item #C19b: 144-strand backbone cable, ribbon, outdoor cable***

***Item #C19c: 432-strand backbone cable, ribbon, outdoor cable***

## 7 Technical and Price Proposals

### 7.1 Technical Proposal Document Requirements

This Invitation to Bid requires the return of sufficient narrative in response to the technical requirements of this document, including any exceptions the Contractor may take (on company letterhead), Attachment 2 (Technical Price Proposal Sheets), and Attachment 3 (Contractor Qualifications). Failure to return required documents may be cause for rejection of proposal.

Submissions shall include a Proposal that details the capabilities and qualifications of the Contractor to meet the requirements of this document. The detail shall include:

- The Contractor's technical approach to construction of fiber optic cabling with an emphasis on a safe work environment, professional and quality workmanship, and timely completion of work (to include Contractor's use of equipment and facilities). Proposals shall describe the availability of the Contractor's resources to mobilize and an estimated timeline to initiate construction efforts, not including permitting and other tasks outside the scope of the Contractor. Also, Proposals shall describe the availability of the Contractor's resources to provide a dedicated and continuous effort towards the construction of the Town's fiber network, including number of crews and primary equipment resources that can be dedicated to Wake Forest for the estimated duration of the project;
- The Contractor's Management Plan to include a staffing plan; a subcontracting plan indicating the proposed sub-contractors to be used; a quality control plan that identifies service warranties; a sustainability plan describing to what extent the Contractor is environmentally conscious and a safety plan demonstrating compliance with OSHA and other applicable requirements; and
- A list of five references in construction of single mode fiber optic cable (underground and aerial) in an outside plant environment during the past five years (Attachment 3, Contractor's Qualification Information). References may be contacted;
- Resumes for Key Personnel; and
- Proposal Pricing Sheet (Attachment 2).

Timely proposals become the property of the Town. Late proposals will not be considered and will be returned unopened.

The submission of a proposal on this Invitation to Bid will be considered as a representation that the Bidder: (1) has carefully investigated all conditions which affect or may, at some future date, affect the performance of the services covered by the proposal; (2) has carefully reviewed all contract documents; (3) is fully informed concerning the conditions to be encountered, character, quality and quantity of work to be performed and materials to be furnished; and (4) is familiar with all Federal, State and County laws, all codes and ordinances of the Town that in any way affect the prosecution of the work or persons engaged or employed in the work.

## **7.2 Price Proposal Submission Instructions**

Price proposals shall be for turnkey delivery of a fiber optic network as specified in this document and according to the estimated quantities specified in the Proposal Pricing Sheet (Attachment 2). The Town reserves the right to award all or any portion of the specified scope. Proposal pricing shall remain valid during the term of the negotiated contract for same services required for the expansion or modification of the particular project scope or design, to include, but not limited to the addition of network sites/laterals, modification of network routes, or expansion of the backbone network to other portions of the Town.

Proposed pricing shall be provided in Attachment 2-A for unit pricing of Construction Services Tasks defined in Section 4. Each item shall include all basic mobilization, site preparation, work area protection, and standard traffic control necessary to perform the task safely and according to all applicable specifications in this document. Also, unit pricing shall be inclusive of any overhead costs, project oversight (foreman, project manager, etc.), and quality control.

Use of supplied Labor and Equipment Hourly rates as defined in Section 5 and specified in the Proposal Pricing Sheet (Attachment 2-B) shall only be applicable to work tasked directly to the Contractor by the Town outside of the scope defined by specified Unit Pricing Items, or for anticipated non-standard levels of effort in relation to the Project Scope.

Proposed pricing shall be provided in Attachment 2-C for unit pricing of Construction Materials as specified in Section 6. Unit pricing shall be for estimated quantities shown, and shall include all shipping and related costs. Proposals may specify a percentage markup, not to exceed 15-percent, from direct cost incurred by the contractor for miscellaneous materials not included in specified construction materials. Proposals shall identify any anticipated miscellaneous material costs not captured within the costs for defined unit price items.

Unless otherwise specified, the basis of pricing and payment shall be network route distance, not material length (cable, conduit, etc.), for linear unit measurements of tasks performed.

The "Total Proposal Price" calculated on Attachment 2-D shall be the basis of proposal pricing evaluation and must represent a turnkey price for construction of the Wake Forest Fiber Optic Communications Network as described within this document.

## 8 Evaluation of Proposals

Bidder must be a responsible bidder and must satisfactorily prove to the Town that they have adequate facilities, manpower and financial capacity to perform all requirements. Bidder shall demonstrate and warrant to the satisfaction of the Town that the bidder and/or the Bidder's subcontractors have the technical expertise, relevant project experience, and ability to complete the various elements of the contract and scope of work. Specifically, the Bidder shall demonstrate sufficient success and experience on similar projects of similar scope, in order to be considered a responsible bidder.

Prospective bidders must have a minimum of five years' experience performing fiber optic construction and related tasks for projects of similar size and scope. Submissions shall include a Technical Submittal that details the capabilities and qualifications of the Contractor to meet the requirements of this RFB. The details shall include:

- The Contractor's technical approach to construction of fiber optic cabling with an emphasis on a safe work environment, professional and quality workmanship, and timely completion of work (to include the Contractor's use of equipment and facilities). The submission should detail, at a minimum, the Contractor's ability to do the following:
  - approach to utility locates and test pitting;
  - methods protection of fiber optic cable and related materials from damage during installation;
  - equipment to be used;
  - approach to work area protection;
  - anticipated construction phasing; and
  - approach to project status reporting and communications with the Town and its Engineering Consultant.
- The availability of the Contractor's resources to mobilize and an estimated timeline to initiate construction efforts, not including permitting and other tasks outside the scope of the Contractor. Also, submissions shall describe the availability of the Contractor's resources to provide a dedicated and continuous effort towards the construction of the Town's fiber network, including number of crews and primary equipment resources that can be dedicated to Wake Forest for the estimated duration of the project.
- If you have any projects that may cause a conflict of interest, competing for resources, or could otherwise hinder the proposed timeframes, please describe those projects and how the firm manages multiple client priorities.
- The Contractor's staffing plan; a subcontracting plan indicating the proposed sub-contractors to be used; a quality control plan that identifies service warranties; and

- A list of five references in construction of fiber optic cable in an outside plant environment for similar projects during the past five years. References may be contacted; and
- Resumes for key personnel proposed for this project, including quality control personnel, jobsite foreman / crew leaders, and equipment operators, indicating related experience, training, and certifications relevant to the scope of work. Foreman / crew leader(s) should have a minimum seven (7) years of; and

The submission of a bid will be considered as a representation that the Bidder: (1) has carefully investigated all conditions which affect or may, at some future date, affect the performance of the services covered by the bid; (2) has carefully reviewed all contract documents; (3) is fully informed concerning the conditions to be encountered, character, quality and quantity of work to be performed and materials to be furnished; and (4) is familiar with all Federal, State and County laws, all codes and ordinances of the Town that in any way affect the prosecution of the work or persons engaged or employed in the work.

Contractor shall incorporate all specifications, terms and conditions in every subcontract issued pursuant to or under this Contract and shall require the same reference or inclusion be contained in every subcontract entered into by any subcontractor.

The Town of Wake Forest reserves the right to reject any or all *bids* and to make the award as deemed in the best interest of the Town of Wake Forest.

**ATTACHMENT 2-A: Construction Service Proposal Pricing Sheet – RFP # 2022-0006**

Bid Item #	Description	Unit	Estimated Quantity	Price	Extended Price
<b>CONSTRUCTION SERVICES - PRICE PROPOSAL SHEET A</b>					
<b>UNDERGROUND CONDUIT AND CABLE INSTALLATION</b>					
A1	Installation of Ground Rod	EA			
A2a	Installation of Conduit using Directional Boring	FT			
A2b	Installation of Conduit Under Existing Pavement - Open Cut	FT			
A2c	Installation of Conduit in Unpaved Right-of-Way – Open Trench	FT			
A3a	Installation of Additional Conduit - Directional Boring	FT			
A3b	Installation of Additional Conduit - Open Cut	FT			
A3c	Installation of Additional Conduit - Open Trench	FT			
A4a	Installation of Type 1 Handhole – Tier 15, 17”(18”) x 30” x 30”	EA			
A4b	Installation of Type 2 Handhole – Tier 15, 24” x 36” x 36”	EA			
A4c	Installation of Type 3 Handhole – Tier 22, 24” x 36” x 36”	EA			
A4d	Installation of Type 4 Handhole – Tier 22, 30” x 48” x 48”	EA			
A5	Cable Installation in Conduit	FT			

Fiber Optic Communications  
Network Construction

Bid Item #	Description	Unit	Estimated Quantity	Price	Extended Price
<b>CONSTRUCTION SERVICES - PRICE PROPOSAL SHEET A</b>					
<b>AERIAL CABLE INSTALLATION</b>					
A6	Installation of Messenger Strand (10M 3/8 inches (.375 in diameter))	FT			
A7	Cable Installation on Messenger Strand	FT			
A8	Installation of Fiber Optic Snowshoes (pair)	EA			
A9	Installation of Transition Pole Riser (U-Guard)	EA			
<b>FIBER SPLICING AND TESTING</b>					
A10	Installation of New or Re-entry of Existing Splice Enclosure	EA			
A11	Installation of Mid-sheath Splice Enclosure (Ring Cut)	EA			
A12a	Splicing of Fiber (per splice)	EA			
A12b	Splicing of Fiber (per Ribbon)	EA			
A13a	OTDR Testing of Un-terminated Cable (per strand)	EA			
A13b	Final Acceptance testing of Terminated Cable (per strand)	EA			
<b>FIBER TERMINATION AND INSIDE PLANT WORK</b>					
A14	Installation of Lateral Termination Panel	EA			
A15	Installation of Backbone Termination Panel	EA			
A16	New Building Entry	EA			





**ATTACHMENT 2-B: Time and Material Price Proposal Sheet**

Bid Item #	Description	Unit	Price
<b>TIME AND MATERIAL - PRICE PROPOSAL SHEET B</b>			
B1	Foreman	HR	
B2	Technician	HR	
B3	Assistant	HR	
B4	Laborer	HR	
B5	Air Compressor	HR	
B6	Generator	HR	
B7	Bucket Truck - Short (Reach Up To 40 Feet)	HR	
B8	Large Vehicle	HR	
B9	Medium Vehicle	HR	
B10	Small Vehicle	HR	
B11	Large Equipment	HR	
B12	Medium Equipment	HR	
B13	Small Equipment	HR	
B14	Light Plant	HR	

Fiber Optic Communications  
Network Construction

Bid Item #	Description	Unit	Price
<b>TIME AND MATERIAL - PRICE PROPOSAL SHEET B</b>			
B15	Crash Cushion	HR	
B16	Flashing Arrow Board	HR	
B17	Lighted Barricade	HR	
B18	Steel Plate	HR	
B19	Concrete Barriers	HR	
B20	Water Pump	HR	
B21	Intermediate "Soft" Rock Adder	FT	
B22	Solid Rock Adder	FT	

F

**ATTACHMENT 2-C: Construction Material Price Proposal Sheet**

Bid Item #	Description	Unit	Estimated Quantity	Price	Extended Price
<b>CONSTRUCTION MATERIAL - PRICE PROPOSAL SHEET C</b>					
<b>CONDUIT</b>					
C1	2-inch, SDR 11, HDPE Roll Duct	FT			
<b>HANDHOLES</b>					
C2a	Type 1 Handhole – Tier 15, 17”(18”) x 30” x 30”	EA			
C2b	Type 2 Handhole – Tier 15, 24” x 36” x 36”	EA			
C2c	Type 3 Handhole – Tier 22, 24” x 36” x 36”	EA			
C2d	Type 4 Handhole – Tier 22, 30” x 48” x 48”	EA			
C3	Messenger Strand 10M (3/8 inches (.375 in diameter))	FT			
C4	Lashing Wire	FT			
C5	Fiber Optic Snowshoes (pair)	EA			
C6	2-inch Transition Pole Riser (U-Guard)	EA			
<b>SPLICE ENCLOSURES</b>					
C7	Backbone Splice Enclosure and Accessories (6 cable, 576 mass fusion and 72 single splices)	EA			

Fiber Optic Communications  
Network Construction

Bid Item #	Description	Unit	Estimated Quantity	Price	Extended Price
<b>CONSTRUCTION MATERIAL - PRICE PROPOSAL SHEET C</b>					
C8	Lateral Splice Enclosure and Accessories (6 cable, 144 mass fusion and 24 single splices)	EA			
<b>CONSTRUCTION HARDWARE</b>					
C9	Ground rod, 8 ft.	EA			
C10	#10 copper tracer/ground wire, green insulation	FT			
C11	Wrap-Around Cable Marker Labels	EA			
C12	Warning Tape	FT			
C13	Markers, Soil Disk	EA			
C14	Markers, Domed Post Marker	EA			
<b>FIBER TERMINATION PANELS AND ACCESSORIES</b>					
C15a	Lateral Termination Panel, rack-mount, 12-strands	EA			
C15b	Lateral Termination Panel, wall-mount, 12-strands	EA			
C16	Hub Termination Panel, 144-strands	EA			
<b>BUILDING ENTRY MATERIALS</b>					
C17	Building Entry Materials	EA			
C18a	1.25-inch corrugated HDPE, plenum-rated	FT	-		
C18b	2-inch Electrical Metallic Tubing (EMT)	FT	-		

Fiber Optic Communications  
Network Construction

Bid Item #	Description	Unit	Estimated Quantity	Price	Extended Price
<b>CONSTRUCTION MATERIAL - PRICE PROPOSAL SHEET C</b>					
	<b>FIBER OPTIC CABLE</b>				
C19a	12-strand lateral cable, loose buffer tube, outdoor cable	FT			
C19b	144-strand backbone cable, ribbon, outdoor cable	FT			
C19c	432-strand backbone cable, ribbon, outdoor cable	FT			
	<b>ADDITIONAL ITEMS</b>				

Price Proposal Sheet C (Construction Materials) Subtotal: \$ \_\_\_\_\_

**PROPOSAL FORM**

**RFP # 2022-0006**

**Fiber Optic Communications Network Construction**

The undersigned bidder affirms and declares that he has carefully examined all bidding documents and Instructions to Bidders which are acknowledged to be a part of this proposal, and agrees to provide all labor, materials, equipment, supervision, permits; abide by all local, state and federal laws, rules, regulations, and ordinances applicable to perform the work listed in the specifications and scope of work for the following sum to wit:

**TOTAL BASE BID – Lump Sum**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_

**Construction Duration from NTP** \_\_\_\_\_

**ITEM 1- Scope of Project**

**CONSTRUCTION OF UNDERGROUND FIBER OPTIC CABLE NETWORK TO SPECIFIED AREAS.**

**ITEM 2- Addendums**

**All addendums must be acknowledged in order for the proposal to be considered.**

**Addendum #1** \_\_\_\_\_

**Addendum #2** \_\_\_\_\_

**Addendum #3** \_\_\_\_\_

**Addendum #4** \_\_\_\_\_

**Addendum #5** \_\_\_\_\_

The Town of Wake Forest intends to award a contract to the overall lowest responsible, responsive bidder taking into consideration quality, performance, and the time specified in this bid. The Town of Wake Forest reserves the right to reject any or all proposals and to make the award as deemed in the best interest of the Town of Wake Forest.

SIGNATURE PAGE

RFP # 2022-0006

Fiber Optic Communications Network Construction

The undersigned certifies that they have read and understood all the provided bidding documents, the project specifications, and agree to the terms and conditions stated herein.

**This bid must be signed by a responsible official of the bidding organization and notarized.**

_____	(SEAL)
Date	
_____	
Company	
_____	_____
Authorized Signature	Federal Identification #
_____	_____
Printed Name and Title	Email Address
_____	_____
Street Mailing Address	City, State, Zip Code
_____	_____
Contactors' NC License No.	Telephone Number

On this day of \_\_\_\_\_, 20\_\_\_\_, before me \_\_\_\_\_ (name) appeared and, being duly sworn, did execute the foregoing proposal, and did so state that he/she was properly authorized by \_\_\_\_\_ (name of company) to execute the proposal and did so on his/her free act and deed.

Notary Public \_\_\_\_\_ My Commission Expires \_\_\_\_\_ (SEAL)



**NON-COLLUSION AFFIDAVIT OF PRIME BIDDER**

**\*\*attach to bid (required)\*\***

State of \_\_\_\_\_ )

County of \_\_\_\_\_ )

**Project: RFP # 2022-0006 – Fiber Optic Communications Network Construction**

\_\_\_\_\_, being first duly sworn, deposes and says that:

1. He is (owner, partner, officer, representative or agent) of \_\_\_\_\_, the Bidder that has submitted the attached Bid;

2. He is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such Bid;

3. Such Bid is genuine and is not a collusive or sham Bid;

4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bids of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Town of Wake Forest or any person interested in the proposed Contract; and

5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees or parties in interest, including this Affiant.

\_\_\_\_\_  
Name Title

Subscribed and Sworn to before me this \_\_\_\_\_ Day of \_\_\_\_\_, 20\_\_\_\_\_

Notary Public: \_\_\_\_\_

(Seal)

My Commission Expires: \_\_\_\_\_



## Identification of HUB Certified/ Minority Business Participation

I, \_\_\_\_\_,

(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	Minority Category	HUB Certified (Y/N)	\$ Amount
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\*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.

The total value of minority business contracting will be (\$)\_\_\_\_\_.

The total percentage of minority business contracting will be (%)\_\_\_\_\_.

## Town of Wake Forest -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

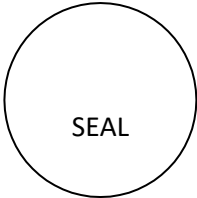
Identification of Minority Business Participation schedule conditional upon scope of contract to be executed

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.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_



Signature: \_\_\_\_\_

**Title:** \_\_\_\_\_

*State of* \_\_\_\_\_, *County of* \_\_\_\_\_

*Subscribed and sworn to before me this* \_\_\_\_\_ *day of* \_\_\_\_\_ *20* \_\_\_\_\_

*Notary Public* \_\_\_\_\_

*My commission expires* \_\_\_\_\_

# Town of Wake Forest --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.

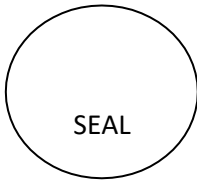
(Name of Project)

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 all elements of the work 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: \_\_\_\_\_

Title: \_\_\_\_\_

State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

**STATE OF NORTH CAROLINA**

**AFFIDAVIT**

**TOWN OF WAKE FOREST**

I, \_\_\_\_\_ (the individual attesting below), being duly authorized by and on behalf of \_\_\_\_\_ (the entity bidding on project hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).
2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).
3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (mark Yes or No)
  - a. YES \_\_\_\_\_, or
  - b. NO \_\_\_\_\_
4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This \_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
Signature of Affiant

Print or Type Name: \_\_\_\_\_

State of \_\_\_\_\_ County of \_\_\_\_\_



Subscribed and Sworn to before me this \_\_\_\_\_ Day of \_\_\_\_\_, 20\_\_\_\_\_

Notary Public: \_\_\_\_\_

(Seal)

My Commission Expires: \_\_\_\_\_



TOWN *of*  
WAKE FOREST

301 S. Brooks Street  
Wake Forest, NC 27587  
t 919.435.9400

[www.wakeforestnc.gov](http://www.wakeforestnc.gov)

[Organization Name]

[Address]

[City, State Zip]

[Date]

Dear [Vendor Name],

We would like to thank you for your work on the [project name]. Below you will find the sales tax verification to be completed for the project. Prior to the official closeout and the issuance of the final payment, the Town of Wake Forest must receive a copy of this document with a notarized signature of an authorized official of your organization.

**Sales Tax Affidavit**

The Town of Wake Forest will not accept any transfer of liability for taxes due on admissions that the lessee has failed to charge and remit to the State of North Carolina or other taxing jurisdictions.

All users of facilities are solely responsible for collecting and remitting any and all applicable sales and use taxes to the North Carolina Department of Revenue and that the Town of Wake Forest assumes no obligation or responsibility for said taxes.

Authorized Official Name: \_\_\_\_\_

Authorized Official Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Notary Public: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



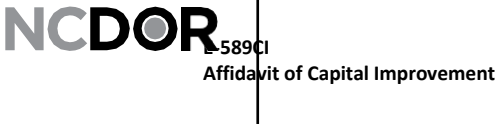
Fiber Optic Communications  
Network Construction

Subscribed and sworn before me this \_\_\_\_\_ day of

\_\_\_\_\_, \_\_\_\_\_  
(date) (year)

Notary Public: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



Form E-589CI, Affidavit of Capital Improvement, is generally required to substantiate that a contract, or a portion of work to be performed to fulfill a contract, is to be taxed for sales and use tax purposes as a real property contract with respect to a capital improvement to real property.

- This affidavit may not be used to purchase building materials, other tangible personal property, or digital property to fulfill a real property contract exempt from sales and use tax.
- A person who willfully attempts, or a person who aids or abets a person to attempt in any manner, to evade or defeat a tax imposed by the Sales and Use Tax Laws, or the payment thereof, shall be guilty of a Class H felony. If there is a deficiency or delinquency in payment of any tax due to fraud with intent to evade the tax, there shall be assessed a penalty equal to 50% of the total deficiency.

**Section I. Single Use** (Complete this section to issue the affidavit for a single capital improvement.)

**A** Owner, Tenant, or Real Property Contractor

Address

City State Zip Code

**B** Real Property Contractor (General Contractor or Subcontractor) *Hired to perform capital improvement*

Address

City State Zip Code

Describe capital improvement to be performed:

Project Name

Project Address (where the work is to be performed) City State Zip Code

I certify that, to the best of my knowledge, this affidavit is accurate and complete and that the transaction described to be performed by the Real Property Contractor (General Contractor or Subcontractor identified in box "B") shall be treated as a real property contract with respect to a capital improvement to real property for sales and use tax purposes.

Signature of Authorized Person: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

**Section II. Blanket Use** (Complete this section execute a blanket affidavit.)

**C** Real Property Contractor

Address

City State Zip Code

**D** Real Property Contractor or Subcontractor *Hired to perform capital improvement*

Address

City State Zip Code

**To be completed by the Real Property Contractor identified in Box C.**

I certify that I am a Real Property Contractor who performs capital improvements to real property and all transactions with the real property contractor (subcontractor) identified in box "D" shall be treated as real property contracts with respect to capital improvements for real property for sales and use tax purposes.

Signature of Authorized Person: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



Account Name

Contract Completion Date

_____	_____
Owner/Manager	Value of Contract
_____	_____
Address	Telephone
_____	_____
_____	E-mail
_____	_____

1.3.

Account Name

Contract Completion Date

_____	_____
Owner/Manager	Value of Contract
_____	_____
Address	Telephone
_____	_____
_____	E-mail
_____	_____

1.4.

Account Name

Contract Completion Date

_____	_____
Owner/Manager	Value of Contract
_____	_____
Address	Telephone
_____	_____
_____	E-mail
_____	_____

2. The Contractor has provided services as described in this Request for Bid for the past \_\_\_\_\_ years.



## ATTACHMENT 4



### TOWN of WAKE FOREST

#### CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS ADDENDUM

This **CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS ADDENDUM** (this “*Addendum*”) is entered into by and between \_\_\_\_\_ (name of counterparty) , a \_\_\_\_\_ (type of legal entity) (“*Contractor*”), and The Town of Wake Forest, a municipal corporation of the State of North Carolina (“*Unit*”), and forms an integral part of the Contract (as defined in Section I hereof).

#### ***RECITALS***

**WHEREAS**, on July 14, 2021, Unit has received, either as a Recipient or Subrecipient (as each such term is defined in Section I hereof) a payment from the Coronavirus State Fiscal Recovery Fund (“*State Fiscal Recovery Fund*”) or Coronavirus Local Fiscal Recovery Fund (“*Local Fiscal Recovery Fund*”) and, together with the State Fiscal Recovery Fund, the “*Fiscal Recovery Funds*”) established pursuant to Sections 602 and 603, respectively, of the Social Security Act, as added by Section 9901 of the American Rescue Plan Act of 2021, Pub. L. No. 117-2 (“*ARPA*”) (March 11, 2021); and

**WHEREAS**, Unit intends to pay, in part or in whole, for the cost of the Contract (as defined in Section I hereof) using monies received from the Fiscal Recovery Funds; and

**WHEREAS**, in using such funds, Unit must comply with the terms of ARPA, regulations issued by the U.S. Department of the Treasury (“*Treasury*”) governing the expenditure of monies distributed from the Fiscal Recovery Funds (including, without limitation, the Interim Final Rule (86 Fed. Reg. 26,786 (May 17, 2021) and Final Rule (87 Fed. Reg. 4,338 (Jan. 27, 2022))), the Award Terms and Conditions applicable to the Fiscal Recovery Funds, and such other guidance as the Treasury has issued or may issue governing the expenditure of monies distributed from the Fiscal Recovery Funds (collectively, the “*Regulatory Requirements*”); and

**WHEREAS**, pursuant to the Regulatory Requirements, Unit must comply with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200, other than such provisions as Treasury has determined or may determine are inapplicable to the Fiscal Recovery Funds; and

**WHEREAS**, pursuant to 2 C.F.R. § 200.327, Unit must include within the Contract applicable provisions described in Appendix II to 2 C.F.R. Part 200, each of which is contained in this Addendum; and

**WHEREAS**, Unit shall not enter into the Contract or make any distributions of funds to Contractor using monies from the Fiscal Recovery Funds absent Contractor's agreement and adherence to each term and condition contained herein.

**NOW THEREFORE**, Contractor and Unit do mutually agree as follows:

### **AGREEMENTS**

- I. Definitions.** Unless otherwise defined in this Addendum, capitalized terms used in this Addendum shall have the meanings ascribed thereto in this Section I.
- a) “*ARPA*” shall mean the American Rescue Plan Act of 2021, Pub. L. No. 117-2, as amended.
  - b) “*Administering Agency*” shall have the meaning specified in 41 C.F.R. § 60-1.3.
  - c) “*Applicant*” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“An applicant for Federal assistance involving a construction contract, or other participant in a program involving a construction contract as determined by regulation of an administering agency. The term also includes such persons after they become recipients of such Federal assistance.”).
  - d) “*Construction Work*” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“[T]he construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.”).
  - e) “*Contract*” shall mean the legal instrument by which Unit, as a Recipient or Subrecipient, shall purchase from Contractor property or services needed to carry out a project or program under a Federal award, and of which this Addendum shall constitute an integral part.
  - f) “*Contractor*” shall mean the entity named as “Contractor” in this Addendum that has received a Contract from Unit.
  - g) “*Federally Assisted Construction Contract*” shall have the meaning specified in 41 C.F.R. §60-1.3, which is provided here for ease of reference: (“[A]ny agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any Federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the government of the United States of America for a grant, contract, loan, insurance, or guarantee under which the applicant itself participates in the construction work.”).
  - h) “*Government*” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“[T]he government of the United States of America.”).

- i) “*Laborer*” or “*Mechanic*” shall have the meaning specified in 29 C.F.R. § 5.2(m), which is provided here for ease of reference (“The term laborer or mechanic includes at least those workers whose duties are manual or physical in nature (including those workers who use tools or who are performing the work of a trade), as distinguished from mental or managerial. The term laborer or mechanic includes apprentices, trainees, helpers, and, in the case of contracts subject to the Contract Work Hours and Safety Standards Act, watchmen or guards. The term does not apply to workers whose duties are primarily administrative, executive, or clerical, rather than manual. Persons employed in a bona fide executive, administrative, or professional capacity as defined in part 541 of [Title 40 of the United States Code] are not deemed to be laborers or mechanics. Working foremen who devote more than 20 percent of their time during a workweek to mechanic or laborer duties, and who do not meet the criteria of [Title 40 of the United States Code], are laborers and mechanics for the time so spent.”).
- j) “*Recipient*” shall mean an entity that receives a Federal award directly from a Federal awarding agency. The term does not include subrecipients or individuals that are beneficiaries of an award.
- k) “*Subcontract*” shall mean any agreement entered into by a Subcontractor to furnish supplies or services for the performance of this Contract or a Subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.
- l) “*Subcontractor*” shall mean an entity that receives a Subcontract.
- m) “*Subrecipient*” shall mean an entity that receives a subaward from a pass-through entity to carry out part of a Federal award; but it does not include an individual that is a beneficiary of such award. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency.
- n) “*Tier*” shall have the meaning indicated in 2 C.F.R. Part 180 and illustrated in 2 C.F.R. Part 180, Appendix II.
- o) “*Unit*” shall have the meaning indicated in the preamble to this Addendum.

## **II. Equal Employment Opportunity**

- a) If this Contract is a Federally Assisted Construction Contract exceeding \$10,000, during the performance of this Contract, Contractor agrees as follows:
  - i. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: 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. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
  - ii. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for

employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

- iii. Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- iv. Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- v. Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- vi. Contractor will furnish to the Administering Agency and the Secretary of Labor all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- vii. In the event of Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or Federally Assisted Construction Contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965. Such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- viii. Contractor will include the portion of the sentence immediately preceding paragraph (a)(i) of this Section II and the provisions of paragraphs (a)(i) through (a)(vii) in every Subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. Contractor will take such action with respect to any Subcontract or purchase order as the Administering Agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Provided, however, that in the event Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the Administering Agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Unit further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if Unit so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

- ix. Unit agrees that it will assist and cooperate actively with the Administering Agency and the Secretary of Labor in obtaining the compliance of Contractors and Subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the Administering Agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the Administering Agency in the discharge of the agency's primary responsibility for securing compliance.
  - x. Unit further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally Assisted Construction Contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractors and Subcontractors by the Administering Agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, Unit agrees that if it fails or refuses to comply with these undertakings, the Administering Agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.
- b. If this Contract is not a Federally Assisted Construction Contract exceeding \$10,000, the provisions of Section I(a) of this Addendum shall not apply.

### **III. Copeland "Anti-Kickback" Act**

- a) Contractor and any Subcontractors performing work under the Contract shall comply with 18 U.S.C. § 874. Unit shall report all suspected or reported violations to the Department of the Treasury.

### **IV. Contract Work Hours and Safety Standards Act**

- a) *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.

- b) *Violation; Liability for Unpaid Wages; Liquidated Damages.* In the event of any violation of the clause set forth in Section IV(a) (Overtime Requirements) above, 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 Section IV(a) (Overtime Requirements) above, in the sum of \$27 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 Section IV(a) (Overtime Requirements) above.
- c) *Withholding for Unpaid Wages and Liquidated Damages.* Unit 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 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 Section IV(b) (Violation; Liability for Unpaid Wages; Liquidated Damages) of this section.
- d) *Subcontracts.* Contractor or Subcontractor shall insert in any Subcontract the clauses set forth in Sections IV(a) through IV(d) and also a clause requiring the Subcontractors to include these clauses in any lower Tier Subcontracts. Contractor shall be responsible for compliance by any first Tier Subcontractor or lower Tier Subcontractor with the clauses set forth in Sections IV(a) through IV(d).
- e) *Payroll and Records.* Contractor or Subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the Contract for all Laborers and Mechanics, including guards and watchmen, working on the Contract. Such records shall contain the name and address of each such employee, Social Security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Records to be maintained under this provision shall be made available by Contractor or Subcontractor for inspection, copying, or transcription by authorized representatives of the Department of the Treasury and the Department of Labor, and Contractor or Subcontractor will permit such representatives to interview employees during working hours on the job.
- a) *Exceptions.* None of the requirements of Section IV of this Addendum shall apply if this Contract is a Contract (1) for transportation by land, air, or water; (2) for the transmission of intelligence; (3) for the purchase of supplies or materials or articles ordinarily available in the open market; or (4) in an amount that is equal to or less than \$100,000.

#### **V. Rights to Inventions Made under a Contract or Agreement**

- a) The Government reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use for "Government purposes", any subject data or copyright described below.<sup>11</sup> "Government purposes," means use only for the direct purposes of the Government.

Without the copyright owner's consent, the Government may not extend its Federal license to any other party.

- i. Any subject data developed under the Contract, whether or not a copyright has been obtained; and
  - ii. Any rights of copyright purchased by Contractor using Federal assistance funded in whole or in part by the Department of the Treasury.
- b) Unless Treasury determines otherwise, a Contractor performing experimental, developmental, or research work required as part of this Contract agrees to permit Treasury to make available to the public, either (1) Department of the Treasury's license in the copyright to any subject data developed in the course of the Contract, or (2) a copy of the subject data first produced under the Contract for which a copyright has not been obtained. If the experimental, developmental, or research work, which is the subject of this Contract, is not completed for any reason whatsoever, all data developed under the Contract shall become subject data as defined herein and shall be delivered as the Government may direct.
- c) Unless prohibited by North Carolina law, upon request by the Government, Contractor agrees to indemnify, save, and hold harmless the Government, its officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, resulting from any willful or intentional violation by Contractor of proprietary rights, copyrights, or right of privacy, arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under the Contract. Contractor shall be required to indemnify the Government for any such liability arising out of the wrongful act of any employee, official, or agent of the Contractor.
- d) Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.
- e) Data developed by Contractor and financed entirely without using Federal assistance provided by the Federal Government that has been incorporated into work required by the underlying Contract is exempt from the requirements herein, provided that Contractor identifies those data in writing at the time of delivery of the Contract work. The Contractor agrees to include these requirements in each Subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance.
- f) For the purposes of this Section V, "subject data" means "recorded information, whether or not copyrighted, that is delivered or specified to be delivered as required by the Contract." Examples of "subject data" include, but are not limited to "computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information, but do not include financial reports, cost analyses or other similar information used for performance or administration of the Contract."

## **VI. Clean Air Act and Federal Water Pollution Act**

- a) *Clean Air Act.* Contractor agrees to comply with all applicable standards, orders and regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. Contractor agrees to report each violation to Unit and understands and agrees that Unit will, in turn, report each violation as required to the U.S. Department of the Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each Subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by Treasury.

- b) *Federal Water Pollution Control Act.* Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq. Contractor agrees to report each violation to Unit and understands and agrees that Unit will, in turn, report each violation as required to assure notification to the U.S. Department of the Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each Subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by Treasury.

## **VII. Debarment and Suspension**

- a) Due to its receipt of Fiscal Recovery Funds, Unit is a participant in a nonprocurement transaction (defined at 2 C.F.R. § 180.970) that is a covered transaction pursuant to 2 C.F.R. § 180.210 and 31 C.F.R. § 19.210. Therefore, this Contract is a lower-Tier covered transaction for purposes of 2 C.F.R. Part 180 and 31 C.F.R. Part 19 if (1) the amount of this Contract is greater than or equal to \$25,000 (2 C.F.R. § 180.220(b)(1); 31 C.F.R. § 19.220(b)(1)); (2) the Contract requires the consent of an official of the Department of the Treasury (2 C.F.R. § 180.220(b)(2); 31 C.F.R. § 19.220(b)(2)); or (3) this Contract is for federally-required audit services (2 C.F.R. § 180.220(b)(3); 31 C.F.R. § 19.220(b)(3)).
- b) **If this Contract is a covered transaction as set forth in Section VII(a) above, Contractor hereby certifies as of the date hereof that Contractor, Contractor's principals (defined at 2 C.F.R. § 180.995), and the affiliates (defined at 2 C.F.R. § 180.905) of both Contractor and Contractor's principals are not excluded (defined at 2 C.F.R. § 180.935) and are not disqualified (defined at 2 C.F.R. § 180.935). If any of the foregoing persons are excluded or disqualified and the Secretary of the Treasury has not granted an exception pursuant to 31 C.F.R. § 19.120(a), (1) this Contract shall be void, (2) Unit shall not make any payments of Federal financial assistance to Contractor, and (3) Unit shall have no obligations to Contractor under this Contract.**
- c) Contractor must comply with 2 C.F.R. Part 180, Subpart C, and 31 C.F.R. Part 19, and must include a requirement to comply with these regulations in any lower-Tier covered transaction into which it enters. This certification is a material representation of fact relied upon by Unit and all liability arising from an erroneous representation shall be borne solely by Contractor.
- d) If it is later determined that Contractor did not comply with 2 C.F.R. Part 180, Subpart C and 31 C.F.R. Part 19, in addition to remedies available to Unit, the Government may pursue available remedies, including but not limited to suspension and/or debarment.

## **VIII. Byrd Anti-Lobbying Amendment**

- a) Contractor certifies to Unit, and Contractor shall cause each Tier below it to certify to the Tier directly above such Tier, that it has not used and will not use Federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Contractor shall, and shall cause each Tier below it, to disclose any lobbying with non-Federally appropriated funds that takes place in connection with obtaining any Federal award. Such disclosures (to be set forth on Standard Form-LLL contained in 31 C.F.R. Part 21, Appendix B) shall be forwarded from Tier to Tier up to the Unit which will, in turn, forward the certification(s) to the Department of the Treasury. Contractor shall cause the language of this Section VIII(a) to be included in all Subcontracts. This certification is a



material representation of fact upon which Unit has relied when entering into this Contract and all liability arising from an erroneous representation shall be borne solely by Contractor.

- b) **Contractors that bid or apply for a contract exceeding \$100,000 (including this Contract, if applicable) also must file with Unit the certification in Attachment 1 to this Addendum, which is attached hereto and incorporated herein.**
- c) **Contractor also shall cause any Subcontractor with a Subcontract (at any Tier) exceeding \$100,000 to file with the Tier above it the certification in Attachment 1 to this Addendum, which is attached hereto and incorporated herein.**

**IX. Procurement of Recovered Materials**

- a) Section IX(b) shall apply if (1) this Contract involves the purchase of an item designated by the Environmental Protection Agency (“EPA”) in 40 C.F.R. Part 247 that exceeds \$10,000, or (2) the total value of such designated items acquired during the Unit’s preceding fiscal year exceeded \$10,000.
- b) In the performance of the Contract, Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot (1) be acquired competitively within a timeframe providing for compliance with the Contract performance schedule, (2) meet Contract performance requirements; or (3) at a reasonable price. Information about this requirement, along with the list of EPA-designated items, is available at EPA’s website. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

**X. Prohibition on Contracting for Covered Telecommunications Equipment or Services**

- a) *Definitions.* Unless otherwise defined in this Contract, capitalized terms used in this Section IX shall have the meanings ascribed thereto in this Section IX(a):
  - i. “*Backhaul*” means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).
  - ii. “*Covered Foreign Country*” means the People’s Republic of China.
  - iii. “*Covered Telecommunications Equipment or Services*” means: (a) telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities); (b) for the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities); (c) telecommunications or video surveillance services provided by such entities or using such equipment; or (d) telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a Covered Foreign Country.

- iv. “*Critical Technology*”<sup>20</sup> means (1) defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations; (2) items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled (a) pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or (b) for reasons relating to regional stability or surreptitious listening; (3) specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities); (4) nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material); (5) select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or (6) emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. § 4817).
- v. “*Interconnection Arrangements*” means arrangements governing the physical connection of two or more networks to allow the use of another’s network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.
- vi. “*Roaming*” means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.
- vii. “*Substantial or Essential Component*” means any component necessary for the proper function or performance of a piece of equipment, system, or service.
- viii. “*Telecommunications Equipment or Services*” means telecommunications or video surveillance equipment or services, such as, but not limited to, mobile phones, land lines, internet, video surveillance, and cloud services.

b) *Prohibitions.*

- i. Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232 and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after August 13, 2020, from obtaining or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.
- ii. Unless an exception in Section X(c) applies, Contractor and any Subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds (including, without limitation, Fiscal Recovery Funds) received from a Federal government to:
  - 1. Procure or obtain any equipment, system, or services that uses Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system, or as Critical Technology of any system;

2. Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system, or as Critical Technology of any system;
3. Enter into, extend, or renew contracts with entities that use Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system, or as Critical Technology as part of any system; or
4. Provide, as part of its performance of this Contract, any Subcontract, any contractual instrument, or any equipment, system, or service that uses Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system or as Critical Technology as part of any system.

*c) Exceptions.*

i. This clause does not prohibit Contractor or Subcontractors from providing:

1. A service that connects to the facilities of a third-party, such as Backhaul, Roaming, or Interconnection Agreements; or
2. Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

ii. By necessary implication and regulation, the prohibitions also do not apply to:

1. Covered telecommunications equipment that:

- a. Is not used as a Substantial or Essential Component of any system; and
- b. Is not used as Critical Technology of any system.

2. Other telecommunications equipment or services that are not considered Covered Telecommunications Equipment or Services.

*d) Reporting Requirement*

i. In the event Contractor identifies, during contract performance, covered Telecommunications Equipment or Services used as a Substantial or Essential Component of any system, or as Critical Technology as part of any system, during Contract performance, or if Contractor is notified of such by a Subcontractor at any Tier or by any other source, Contractor shall report the information in paragraph (d)(2) of this Section X to Unit, unless procedures for reporting the information are elsewhere established in this Contract.

ii. Contractor shall report the following information to Unit pursuant to paragraph (d)(1) of this Section X:

1. Within one business day from the date of such identification or notification: contract number; order number(s), if applicable; supplier name; supplier unique entity identifier (if

known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

2. Within ten business days of submitting the information in paragraph (d)(2)(i) of this Section: any further available information about mitigation actions undertaken or recommended. In addition, contractor shall describe the efforts it undertook to prevent use or submission of Covered Telecommunications Equipment or Services, and any additional efforts that will be incorporated to prevent future use or submission of Covered Telecommunications Equipment or services.
- e) Subcontractor. Contractor shall cause to be inserted the substance of this Section X, including this paragraph (e), in all Subcontracts and other contractual instruments relating to the performance of this Contract.

#### **XI. Domestic Preferences for Procurements**

- a) As applicable, and to the extent consistent with law, Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products or materials Produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other Manufactured Products. Contractor shall cause any Subcontractors to include the requirements of this Section XI in any Subcontracts.
- b) For purposes of this Section XI, the following terms shall mean:
  - i. “*Produced in the United States*” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coating, occurred in the United States.
  - ii. “*Manufactured Products*” means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

#### **XII. Solicitation of Minority and Women-Owned Business Enterprises**

- a) If Contractor intends to let any Subcontracts, Contractor shall (1) place qualified small and minority businesses and women’s business enterprises on its solicitation lists; (2) assure that small and minority businesses, and women’s business enterprises are solicited whenever they are potential sources; (3) divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women’s business enterprises; (4) establish delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women’s business enterprises; (5) use the services and assistance, as appropriate, of the Small Business Administration, the Minority Business Development Agency of the Department of Commerce, and the North Carolina Office for Historically Underutilized Businesses.
- b) For the purposes of Section XII(a), an entity shall qualify (1) as a “minority business” or “women’s business enterprise” if it is currently certified as a North Carolina “historically underutilized business”

under Chapter 143, Section 143-128.4(a) of the N.C. General Statutes (hereinafter G.S.), and (2) as a “small business” if it is independently owned and operated and is qualified under the Small Business Administration criteria and size standards at 13 C.F.R. Part 21.

**XIII. Access to Records**

- a) Contractor agrees to provide Unit, the Department of the Treasury, the Treasury Office of Inspector General, the Government Accountability Office, and the Comptroller General of the United States, or any authorized representatives of these entities access to any records (electronic and otherwise) of Contractor which are directly pertinent to this Contract to conduct audits or any other investigation. Contractor agrees to permit any of the foregoing parties to reproduce such records by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
- b) Contractor agrees to retain all records covered by this Section XIII through December 31, 2031, or such longer period as is necessary for the resolution of any litigation, claim, negotiation, audit, or other inquiry involving the Contract.

**XIV. Conflicts of Interest; Gifts and Favors**

- a) Contractor understands that (1) Unit will use Fiscal Recovery Funds to pay for the cost of this Contract, and (2) the expenditure of Fiscal Recovery Funds is governed by Conflict of Interest Policy of the Unit, the Regulatory Requirements (including, without limitation, C.F.R. § 200.318(c)(1)), and North Carolina law (including, without limitation, G.S. § 14-234(a)(1) and G.S. § 14-234.3(a)).
- b) Contractor certifies to Unit that as of the date hereof, to the best of its knowledge after reasonable inquiry, no employee, officer, or agent of Unit involved in the selection, award, or administration of this Contract (each, a “Covered Individual”), no member of a Covered Individual’s immediate family, no partner of a Covered Individual, and no organization (including Contractor) which employs or is about to employ a Covered Individual, has a financial or other interest in or has received a tangible personal benefit from Contractor. Should Contractor obtain knowledge of any such interest or any tangible personal benefit described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to Unit in writing.
- c) Contractor certifies to Unit that it has not provided, nor offered to provide, any gratuities, favors, or anything of value to an officer, employee, or agent of Unit. Should Contractor obtain knowledge of the provision, or offer of any provision, of any gratuity, favor, or anything of value to an officer, employee, or agent described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to Unit in writing.

**XV. Assurances of Compliance with Title VI of the Civil Rights Act of 1964**

- a) Contractor and any Subcontractor, or the successor, transferee, or assignee of Contractor or any Subcontractor, shall comply with Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from excluding from a program or activity, denying benefits of, or otherwise discriminating against a person on the basis of race, color, or national origin (42 U.S.C. § 2000d et seq.), as implemented by the Department of the Treasury’s Title VI regulations, 31 C.F.R. Part 22, which are herein incorporated by reference and made a part of this Contract. Title VI also provides protection to persons with “Limited English Proficiency” in any program or activity receiving federal financial

assistance, 42 U.S.C. § 2000d et seq., as implemented by Treasury's Title VI regulations, 31 C.F.R. Part 22, and herein incorporated by reference and made a part of this Contract.

**XVI. Other Non-Discrimination Statutes.** Contractor acknowledges that Unit is bound by and agrees, to the extent applicable to Contractor, to abide by the provisions contained in the federal statutes enumerated below, and any other federal statutes and regulations that may be applicable to the expenditure of Fiscal Recovery Funds:

- a) The Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§ 3601 et seq.), which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;
- b) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;
- c) The Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101 et seq.), and Treasury's implementing regulations at 31 C.F.R. Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and
- d) Title II of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. §§ 12101 et seq.), which prohibits discrimination on the basis of disability under programs, activities, and services provided or made available by state and local governments or instrumentalities or agencies thereto.

**XVII. Termination for Cause or Convenience**

The Unit, by written notice, may terminate this contract, in whole or in part, when it is in the Unit's interest. If this contract is terminated, the Unit shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

The Unit may, by written notice of default to the Contractor, terminate this contract in whole or in part if the Contractor fails to:

- i. Deliver the supplies or to perform the services within the time specified in this contract or any extension;
- ii. Make progress, so as to endanger performance of this contract; or
- iii. Perform any of the other provisions of this contract.

The Unit's right to terminate this contract may be exercised if the Contractor does not cure such failure within 10 days (or more if authorized in writing by the Unit) after receipt of the notice from the Unit specifying the failure.

If the Unit terminates this contract in whole or in part, it may acquire, under the terms and in the manner the Unit considers appropriate, supplies or services similar to those terminated. However, the Contractor shall continue the work not terminated.

If this contract is terminated for default, the Unit may require the Contractor to transfer title and deliver to the Unit any (1) completed supplies, and (2) partially completed supplies and materials, parts, tools, dies, jigs, fixtures, plans, drawings, information, and contract rights (collectively referred to as "materials" in this clause) that the Contractor

has specifically produced or acquired for the terminated portion of this contract. Upon direction of the Unit, the Contractor shall also protect and preserve property in its possession in which the Unit has an interest.

The Unit shall pay contract price for completed supplies delivered and accepted. The Unit may withhold from these amounts any sum the Unit determines to be necessary to protect the Unit against loss because of outstanding liens or claims of former lien holders.

The rights and remedies of the Town in this clause are in addition to any other rights and remedies provided by law or under this contract.

**XVIII. Administrative, Contractual, or Legal Remedies**

The Contractor shall, in a satisfactory and proper manner in accordance with industry standards, complete all obligations and duties as stipulated in this Agreement. Failure of the Contractor to perform or deliver required work, services, or reports under this Agreement may result in the withholding of payments by the Unit to the Contractor. Breach of contract disputes will be decided by arbitration, if the parties mutually agree, or in a North Carolina court of competent jurisdiction.

The Contractor understands that failure to meet the requirements under this Agreement may result in withdrawal of other state or federal funds that may have been made available to the Contractor.

**XVIX. Miscellaneous**

- a) **Increasing Seat Belt Use in the United States.** Pursuant to Executive Order 13043, 62 Fed. Reg. 19216 (Apr. 18, 1997), Unit encourages Contractor to adopt and enforce on-the-job seat belt policies and programs for its employees when operating company-owned, rented or personally owned vehicles.
- b) **Reducing Text Messaging While Driving.** Pursuant to Executive Order 13513, 74 Fed. Reg. 51225 (Oct. 6, 2009), Unit encourages Contractor to adopt and enforce policies that ban text messaging while driving.

**XX. Conflicts and Interpretation.** To the extent that any portion of this Addendum conflicts with any term or condition of the Contract expressed outside of this Addendum, the terms of this Addendum shall govern.

**CONTRACTOR:**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**UNIT:**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

# ATTACHMENT 5

**TITLE VI APPENDMENT for \_\_\_\_\_ [Contractor Name]**

This contract amendment is made and entered into as of the \_\_\_ day of \_\_\_\_\_, 20\_\_\_, by the Town of Wake Forest ("Town") and \_\_\_\_\_ ("Contractor"), organized and existing under the laws of the State of North Carolina.

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

(1) **Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Town of Wake Forest (hereinafter, "Town") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, national origin, sex, religion, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) **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 Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

(4) **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or 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 Town to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Town as appropriate and shall set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Town shall impose such contract sanctions as it or the Town may determine to be appropriate, including, but not limited to:

- (a) withholding of payments to the contractor under the contract until the contractor complies, and/or
- (b) cancellation, termination, or suspension of the contract, in whole or in part.

(6) **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Town may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Town to enter into such litigation to protect the interests of the Town, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.



\*The Contractor has read and is familiar with the terms above:

\_\_\_\_\_  
Contractor's Initials

\_\_\_\_\_  
Date