TOWN OF GLASTONBURY

INVITATION TO BID

BID #	ITEM	DATE & TIME REQUIRED
GL-2017-06	Fiber Backbone Cabling Phase 3	10/04/16 @ 11:00 a.m.

The Town of Glastonbury is currently seeking bids for the construction of approximately 1 mile of fiber optic cabling.

Prevailing Wages: The contractor must comply with Section 31-53 of the Connecticut General Statutes as amended, including annual adjustments in prevailing wages

Bid forms may be obtained on the Town's website at www.glastonbury-ct.gov at no charge or at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, CT 06033 (second level).

A non-mandatory pre-bid meeting is scheduled for September 21, 2016 at 9:00 AM at the Academy Building, Meeting Room B, 2143 Main Street, Glastonbury, CT.

The Town reserves the right to waive informalities or reject any part of, or the entire bid, when said action is deemed to be in the best interests of the Town. All Sealed Bids must be submitted to the Office of the Purchasing Agent no later than the time and date indicated. All bids will be publicly opened and read.

An Affirmative Action/Equal Opportunity Employer. Minority / Women /Disadvantaged Business Enterprises are encouraged to bid.

Mary F. Visone
Purchasing Agent

1. Information to Bidders

1.1. General

1.1.1. Sealed bids (**one original and one copy**) on the attached Bid Forms will be received at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, Connecticut 06033 (second level). At the designated time of opening, they will be publicly opened, read, recorded and placed on file.

1.1.2. Whenever it is deemed to be in the best interest of the Town, the Town Manager, Purchasing Agent or designated representative shall waive informalities in any and all bids. The right is reserved to reject any bid, or any part of any bid, when such action is deemed to be in the best interest of the Town of Glastonbury.

1.1.3. The basis of award will be based on the base bid plus the sum of any alternates accepted by the Owner of the lowest qualified and responsible bidder. Bidders shall submit a separate price for each line item as provided for in the Bid Proposal and a base bid total for all items. The price for each alternate will be added to or deducted from the base bid if the Owner selects the alternate.

1.1.4. Bids will be carefully evaluated as to conformance with stated specifications.

1.1.5. The envelope enclosing your bid should be clearly marked by bid number, time of bid, opening and date.

1.1.6. Specifications must be submitted complete in every detail, and when requested, samples shall be provided. If a bid involves any exception from stated specifications, they must be clearly noted as exceptions, underlined, and attached to the bid.

1.1.7. The Bid Documents contain the provisions required for the requested item. Information obtained from an officer, agent, or employee of the Town or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him/her from fulfilling any of the conditions of the Bid.

1.1.8. Each bidder is held responsible for the examination and/or to have acquainted themselves with any conditions at the job site which would affect their work before submitting a bid. Failure to meet this criteria shall not relieve the Bidder of the responsibility of completing the Bid without extra cost to the Town of Glastonbury.

1.1.9. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within sixty (90) days after the actual date of the opening thereof. Should there be reasons why a Bid cannot be awarded within the specified period, the time may be extended by mutual agreement between the Town and the bidder.

1.1.10. Each bid must be accompanied by a bid bond payable to the Town for ten percent (10%) of the total amount of the base bid plus alternates. The bid bond of the successful bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a bid bond. The Town of Glastonbury will not be liable for the accrual of any interest on any certified check submitted. Cashier's checks will not be accepted.

1.1.11. A 100% Performance and Payment bonds are required of the successful bidder. This bond shall cover all aspects of the specification and shall be delivered to the Purchasing Agent prior to the issuance of a purchase order. The Performance and Payment Bonds will be returned upon the delivery and acceptance of the bid items.

1.1.12. The bidder agrees and warrants that in the submission of this sealed bid, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability including, but not limited to blindness, unless it is shown by such bidder that such disability prevents performance of that which must be done to successfully fulfill the terms of this sealed bid or in any manner which is prohibited by the laws of the United States or the State of Connecticut: and further agrees to provide the Human Relations Commission with such information requested by the Commission concerning the employment practices and procedures of the bidder. An Affirmative Action Statement will be required by the successful bidder.

1.1.13. Bidder agrees to comply with all of the latest Federal and State Safety Standards and Regulations and certifies that all work required in this bid will conform to and comply with said standards and regulations. Bidder further agrees to indemnify and hold harmless the Town for all damages assessed against the Town as a result of Bidder's failure to comply with said standards and/or regulations.

1.1.14. All correspondence regarding any purchase made by the Town of Glastonbury shall reference the Town's purchase order number. Each shipping container shall clearly indicate both Town purchase order number and item number.

1.1.15. Bidder is required to review the Town of Glastonbury Code of Ethics adopted July 8th, 2003 and effective August 1, 2003 and revised October 29, 2013 and effective November 28, 2013. Bidder shall acknowledge that they have reviewed the document in the area provided on the bid / proposal response page (BP). The selected Bidder will also be required to complete and sign an Acknowledgement Form prior to award. The Code of Ethics and the Acknowledgement Form can be accessed at the Town of Glastonbury website at www.glastonbury-ct.gov. Upon entering the website click on **Bids & Proposals**, which will bring you to the links for the **Code of Ethics** and the **Acknowledgement Form**. If the Bidder does not have access to the internet a copy of these documents can be obtained through the Purchasing Department at the address listed within this bid / proposal.

1.1.16. A non-mandatory pre-bid meeting is scheduled for September 21, 2016 at 9:00 AM at the Academy Building, Meeting Room B, 2143 Main Street, Glastonbury, CT. It is recommended that bidders attend this meeting.

1.2. Non Resident Contractors (IF APPLICABLE)

1.2.1. Upon award the Town is required to report names of nonresident (out of state) Contractors to the State of Connecticut, Department of Revenue Services (DRS) to ensure that Employment Taxes and other applicable taxes are being paid by Contractors. **A single surety bond for 5% of the entire contract price is required to be filed with DRS by any unverified nonresident prime or general contractor (if awarded) where the contract price for the project is $250,000 or more**. The contractor will be required to promptly furnish to the Town a copy of the **Form AU-968 - Certificate of Compliance** issued by the State of Connecticut, DRS. See State of Connecticut **Notice SN 2012 (2)**.

1.3. Legal Disclosures

1.3.1. Bidder shall include on a sheet(s) attached to its proposal a complete disclosure of all past and pending mediation, arbitration and litigation cases that the bidder or its principals (regardless of their place of employment) have been involved in for the most recent five years. Please include a statement of the issues in dispute and their resolution. Acceptability of Bidder based upon this disclosure shall lie solely with the Town.

1.3.2. Bidder or its principals, regardless of their place of employment, shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable or criminally responsible for any criminal offense or civil action. Bidder shall not be in violation of any State or local ethics standards or other offenses arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

1.4. Addenda/Contact Information

1.4.1. Any technical questions regarding this bid shall be made in writing to Bobby Ashton, Information Technology Manager at bobby.ashton@glastonbury-ct.gov. For administrative questions concerning this proposal, please contact Mary F. Visone, Purchasing Agent at purchasing@glastonbury-ct.gov. All questions, answers, and/or addenda, as applicable will be posted on the Town's website at www.glastonbury-ct.gov. (Upon entering the website click on Bids & Proposals Icon; click the Bid Title to view all bid details and document links). The request must be received at least five (5) business days prior to the advertised response deadline. **It is the respondent's responsibility to check the website for addenda prior to submission of any bid/proposal**.

1.5. Prevailing Wage Rates:

1.5.1. According to the Connecticut Department of Labor, telecom cabling, which includes fiber optic cabling, comes under the category of Electrical Classification.

Wage Rate Determination for this Project from the State of Connecticut is included in the bid documents. Certified payrolls for site labor shall be filled out weekly and submitted monthly to the Town on the correct State form (See Project Manual). The Town reserves the right to, without prior notice, audit payroll checks given to works on site in order to ascertain that wages and fringe benefits are being paid as required by the State of Connecticut. Contractor to comply with Connecticut General Statutes Section 31-53, as amended. Please make special note of the State requirement to adjust wage and fringe benefit rates on each July 1st following the original published rates. These revised rates are available via the internet. See State material attached.

NOTE that bidder is to include in its bid proposal all costs required by such annual increases in the PREVAILING RATES. No Escalation Clauses are to be included in the bidder's proposal and no Escalation Clauses will be in the Contract Agreement. Bidder is to anticipate any future increases and include these costs in its quotation.

Contractor's invoices will not be paid if certified payrolls are incomplete, incorrect or not received in a timely manner.

All Apprentices must be registered with the State of Connecticut and their number shall not exceed the number allowed by law. Otherwise, all workers must be paid at least the Journeyman rate listed including benefits.

Effective July 1, 2009: Any Mechanic, Laborer, or Worker, who performs work in a classification listed on the prevailing wage rate schedule on any public works project covered under C.G.S. Section 31-53, both on site and on or in the public building, must have completed a federal OSHA Safety and Health course within the last 5 years.

The execution of the Contract by the Bidder binds it to all applicable State Labor Laws and Regulations.

All other statutory laws, to the extent they are required to be incorporated into a contract by statute, are hereby deemed fully incorporated herein and in the Contract.

Violation of Prevailing Wage Law requirements may cause Contract to be terminated and the Owner reserves its rights if such termination is required.

1.6. References/Qualifications

1.6.1. Each bid shall also include a description of three (3) projects completed by the bidding company with references to demonstrate successful experience with similar projects. These projects are to include no less than eight miles of fiber optic cabling installed on utility poles for each project.

1.6.2. Any bidder, in order to be considered, shall be engaged primarily in the business of Fiber Optic Cabling with a minimum of five (5) years' experience. Although fiber optic cabling does not require any licensing any conduit work that requires an electrical permit will require a valid electrical license on behalf of the contractor.

IMPORTANT: Failure to comply with general rules may result in disqualification of the bidder.

1.7. Insurance

The Bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Bidder and all of its agents, employees and sub-contractors and other providers of services and shall name the **Town of Glastonbury its employees and agents as an Additional Insured** on a primary and non-contributory basis to the Bidders Commercial General Liability and Automobile Liability policies. **These requirements shall be clearly stated in the remarks section on the Bidders Certificate of Insurance**. Insurance shall be written with Carriers approved in the State of Connecticut and with a minimum Best's Rating of A-VIII. In addition, all Carriers are subject to approval by the Town. Minimum Limits and requirements are stated below:

1) Worker's Compensation Insurance:

- Statutory Coverage
- Employer's Liability
- $500,000 each accident/$500,000 disease-policy limit/$500,000 disease each employee
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

2) Commercial General Liability:

- Including Premises & Operations, Products and Completed Operations, Personal and

Advertising Injury, Contractual Liability and Independent Contractors.
- Limits of Liability for Bodily Injury and Building Damage
  Each Occurrence $1,000,000
  Aggregate $2,000,000 (The Aggregate Limit shall apply separately to each job.)
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

3) Automobile Insurance:

- Including all owned, hired, borrowed and non-owned vehicles
- Evidence of Combined Single Limit of Liability for Bodily Injury and Building Damage: Per Accident $1,000,000
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

The bidder shall direct its Insurer to provide a Certificate of Insurance to the Town of Glastonbury before any work is performed. The awarded Bidder(s) will be responsible to provide written notice to the Owner 60 days prior to cancellation or non-renewal of any insurance policy. The Certificate shall evidence all required coverages including the Additional Insured on the General Liability and Auto Liability policies and Waiver of Subrogation on the General Liability policy. The bidder shall provide the Town copies of any such insurance policies upon request.

1.8. Indemnification

1.8.1. To the fullest extent permitted by law, the Bidder shall indemnify and hold harmless the Town of Glastonbury and its Contractors, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) to the extent arising out of or resulting from the performance of the Bidder's work, provided that such claim, damage, loss or expense is caused in whole or in part by any negligent act or omission by the Bidder, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Bidder to perform or furnish either of the services, or anyone for whose acts the Bidder may be liable.

2. General Construction Specifications

2.1. Workmanship, Materials and Employees

2.1.1. Wherever in this contract the word "Engineer" is used, it shall be understood as referring to Bobby Ashton, Information Technology Manager, Town of Glastonbury. Wherever the term Town is used, it shall be understood as referring to Town of Glastonbury. The Town Representative for the Town of Glastonbury is Bobby Ashton, Information Technology Manager.

2.1.2. The entire work described herein shall be completed in accordance with the plans and specifications to the full intent and meaning of the same. Unless otherwise specified, all materials incorporated in the permanent work shall be new and both workmanship and material shall be of good quality. The contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

2.1.3. The wording "furnish", "install", "construct", "furnish and install", or any similar terms, unless specifically noted to the contrary, shall include all labor, materials, water, tools, equipment, light, power, transportation, and any other services required for the completion of the work.

2.1.4. The contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him.

2.2. Superintendent

2.2.1. The contractor shall keep on the work site during its progress, in the absence of the contractor, a competent superintendent. The superintendent shall be acceptable to the engineer and shall fully represent the contractor. All directions given to the superintendent shall be binding as if given to the contractor.

2.3. Preconstruction Meeting

2.3.1. A preconstruction meeting will be held with the Engineer, Town Representative, contractor, and any private utility company prior to commencing any work. The contractor shall arrange the meeting based on a mutually convenient time.

2.4. Permits

2.4.1. Contractor is responsible for obtaining and paying for all permits. Fees for Town permits to be waived. Wetland and flood zone activity permits shall be obtained by the Town.

2.5. Submittals

2.5.1. Submittals for materials are to be submitted with the bid. As built drawings are to be submitted within 30 days of substantial completion of installation work.

2.5.2. Product Data: For each type of product include;

- Provide data sheet with specifications
- Fire Resistance Ratings for products located within building.
- Attenuation per kilometer for all fiber strands
- Attenuation for all fiber optic connectors

2.5.3. As built drawings are to include Strand Layouts with color codes, test results in hard copy, and electronic format.

2.5.4. Submit shop drawings to: Town Representative: Bobby Ashton, Information Technology Manager, bobby.ashton@glastonbury-ct.gov, 2155 Main Street, Town Hall, Glastonbury, CT 06033. (860) 652-7598

2.5.5. Submit full data sheets with performance ratings on all materials referenced as "or equivalent" in the bid document with the bid submission.

2.5.6. A letter of transmittal shall accompany each submittal. If data for more than one section of the specifications is submitted, a separate transmittal letter shall accompany the data submitted for each section.

2.5.7. At the beginning of each letter of transmittal provide a reference heading indicating the following:

Owner's Name:
Project Name:
Contract No.:
Transmittal No.:
Section No._____

2.5.8. If a product deviates from the requirements of the contract documents, contractor shall specifically note each variation in his letter of transmittal with the submittal.

2.5.9. All submittals for approval shall have a title block with complete identifying information satisfactory to engineer.

2.5.10. All shop drawings submitted shall bear the stamp of approval and signature of contractor as evidence that they have been reviewed by contractor. Submittals without this stamp of approval will not be reviewed by engineer and will be returned to contractor. Contractor's stamp shall contain the following minimum information:

Project Name:_____

Contractor's Name:_____
Date:_____

Specifications:

Section:_____

Page No.:_____

Para. No.:_____

Drawing No.:_____of___

Location:_____

Submittal No.:_____

Approved By:_____

2.5.11. A number shall be assigned to each submittal by contractor starting with No. 1 and thence numbered consecutively. Resubmittals shall be identified by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.

2.5.12. Contractor shall initially submit to town representative a minimum of 2 (2) copies of all submittals that are on 8 ½ inch by 11 inch or smaller sheets, and two (2) prints for all submittals on sheets larger than 8 ½ inch by 11 inch.

2.5.13. After engineer completes his review, shop drawings will be marked with one of the following notations:

1. Approved
2. Approved as corrected
3. Revise and resubmit
4. Not approved

2.5.14. If a submittal is acceptable it will be marked "Approved" or "Approved as Corrected". Four prints or copies of the submittal will be returned to contractor.

2.5.15. Upon return of a submittal marked "Approved" or Approved as Corrected", contractor may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.

2.5.16. If a shop drawing marked "Approved as Corrected" has extensive corrections or corrections affecting other drawings or work, engineer may require that contractor make the corrections indicated thereon and resubmit the shop drawings for record purposes. Such drawings will have the notation, "Approved as Corrected – Resubmit".

2.5.17. If a submittal is unacceptable, two copies will be returned to contractor with one of the following notations:

1. "Revise and resubmit"
2. "Not Approve"

2.5.18. Upon return of a submittal marked "Revise and Resubmit", contractor shall make the corrections indicated and repeat the initial approval procedure. The "Not Approved" notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, contractor shall repeat the initial approval procedure utilizing acceptable material or equipment.

2.5.19. Any related work performed or equipment installed without an "Approved" or "Approved as Corrected" shop drawing will be at the sole responsibility of the contractor.

2.5.20. Shop drawings shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. Contractor shall assume the risk for all materials or

2.5.21. Equipment which are fabricated or delivered prior to the approval of shop drawings. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.

2.5.22. Engineer will review and process all submittals promptly, but a reasonable time should be allowed for this, for the shop drawings being revised and resubmitted, and for time required to return the approved shop drawings to contractor.

2.5.23. It is contractor's responsibility to review submittals made by his suppliers and subcontractors before transmitting them to engineer to assure proper coordination of the work and to determine that each submittal is in accordance with his desires and that there is sufficient information about materials and equipment for Engineer to determine compliance with the contract documents. Incomplete or inadequate submittals will be returned for revision without review.

2.6. Property Access:

2.6.1. The contractor shall take all proper precautions to protect from injury or unnecessary interference, and provide proper means of access to abutting property where the existing access is cut off by the contractor.

2.6.2. The contractor shall take all proper precautions to protect persons from injury or unnecessary inconvenience and leave an unobstructed way along the public and private places and travelers, vehicles, and access to hydrants.

2.6.3. The contractor shall make arrangements with the adjacent property owners for such trespass as he may reasonably anticipate in the performance of the work. All such arrangements shall be reported in writing to the engineer.

2.7. Protection of the Public and of Work and Property:

2.7.1. The contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Town from injury or loss arising in connection with the contract.

2.7.2. The contractor shall adequately protect adjacent private and public property.

2.7.3. The contractor shall make good any damage, injury, or loss of his work and to the property of the Town resulting from lack of reasonable protective precautions.

2.8. Existing Improvements:

2.8.1. The contractor shall conduct his work so as to minimize damage to existing improvements. Except where specifically stated otherwise, it will be the responsibility of the contractor to restore to their original conditions, as near as practical, all improvements on public property. This shall include:

2.8.2. Property, within and adjacent to the site of installation, such as shrubs, walks, driveways, fences, etc.

2.8.3. The contractor is responsible for compliance with State laws requiring call-before-you- dig notification prior to initiation of construction activities.

2.8.4. Utility mains, ducts, poles, and services. The contractor is hereby notified that utilities if/where shown on the plans are at approximate locations. These locations are subject to possible errors in the source of information and errors in transcription. The contractor shall make certain of the exact location of all mains, ducts, poles, and services prior to excavation.

2.9. Separate Contracts:

2.9.1. The Town reserves the right to let other contracts in connection with this work. The contractor shall afford other contractor's reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs. Wherever work being done by the Town of Glastonbury forces or by other contractors is contiguous to work covered by this contract, the rights of the various interests involved shall be established by the engineer to secure the completion of the various portions of the work.

2.10. Inspection of work:

2.10.1. The Town shall provide sufficient personnel for the inspection of the work.

2.10.2. The Engineer shall at all times have access to the work whenever it is in preparation or progress, and the contractor shall provide proper facilities for such access and for inspection.

2.10.3. If the specifications or the Engineer's instructions require any work to be specially tested or approved, the contractor shall give the Engineer timely notice of its readiness for inspection and, if the inspection is by another authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be made promptly. If any work should be covered up without approval or consent of the architect, it must, if required by the Engineer, be uncovered for examination and properly restored at the contractor's expense.

2.10.4. Re-inspection of any work may be ordered by the Engineer. If such work is found to be in accordance with the contract documents, the Town shall pay the cost of re-inspection and replacement. If such work is not in accordance with the contract documents, the contractor shall pay such cost.

2.11. Right to Increase or Decrease Work:

2.11.1. The Town shall have the right to increase or decrease the amount of work herein specified as may be required.

2.12. Right of Engineer to Stop Work for Weather Conditions:

2.12.1. Should the work, in the opinion of the Engineer, be in danger by reason of inclemency of weather, or could not be finished in time to prevent such danger, the contractor shall cease operations upon order of the Engineer, and shall not resume them until ordered to do so by the Engineer when the weather conditions are favorable. The contractor shall, upon such orders, discontinue work, remove all materials or appliances for or in use upon the work, and place the streets in proper condition for use by the public during the time the work is suspended as herein provided, without cost to the Town.

2.13. Contractor to be Responsible for Imperfect Work or Materials:

2.13.1. Any unfaithful work or imperfect material which may be discovered before the acceptance and the payment of the work shall be corrected upon the order of the Engineer. The acceptance and payment of the work does not in any manner relieve the contractor of his obligation to construct work in the proper manner and use of materials herein specified.

2.14. Town may Notify Contractor if Work is not Carried on Satisfactorily:

2.14.1. If, in the opinion of the Town or Engineer, the contractor is not proceeding with the work at a sufficient rate of progress so as to finish in the time specified, or has abandoned said work, or is not complying with the terms and stipulations of the contract and specifications, the engineer may serve notice on the contractor to adopt such methods as will insure the completion of the work in the time specified.

2.14.2. If, within five (5) days after the engineer or Town has notified the contractor that his work is not being carried on satisfactorily as before mentioned, the Town shall have the right to annul the contract and manage the work under the direction of the architect, or re-let, for the very best interest of the Town as a new contract, the work under said new contract shall be considered the responsibility of the defaulting contractor.

2.14.3. Additional costs incurred over and above the original contract shall be borne by the performance bond.

2.15. Deductions for Uncorrected Work:

2.15.1. If the engineer deems it inexpedient to correct work that has been damaged or that was not done in accordance with the contract, an equitable deduction from the contract price shall be made therefore.

2.15.2. The contractor shall promptly remove from the premises all materials condemned by the engineer as failing to meet contract requirements, whether incorporated in the work or not, and the contractor shall promptly replace and re-execute his own work in accordance with the contract and without expense to the Town, and shall bear the expense of making good all work by other contractors destroyed or damaged by such removal or replacement.

2.15.3. If the contractor does not remove such condemned work and materials as promptly as possible after written notice, the engineer may remove them and store the materials at the expense of the contractor.

2.16. Cleaning Up:

2.16.1. The contractor must remove all debris of every description as the work progresses and leave the surroundings in a neat and orderly condition to the satisfaction of the engineer. Upon completion, and before acceptance and final payment, the contractor shall remove from the site all equipment, surplus material, rubbish and miscellaneous debris and leave the site in a neat and presentable condition.

2.17. Royalties and Patents:

2.17.1. The contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town of Glastonbury harmless from loss on account thereof, except that the Town of Glastonbury shall be responsible for all such loss when a particular manufacturer, product, or process as specified by the Town of Glastonbury.

2.18. Contract

2.18.1. A purchase order from the Town including all the terms of this offering will comprise the contract for this project.

2.19. Warranty

2.19.1. The contractor shall warranty all materials and labor for this project to meet or exceed stated specifications for a period no less than five years. Contractor shall specify warranty period on the bid form and enclose with their bid details regarding the warranty.

3. Special Conditions

3.1. Notice to Contractor

3.1.1. Intent of Contract: The intent of the Contract is to prescribe a complete work or improvement that the Contractor undertakes to do, in full compliance with the specifications, plans, special provisions, proposal, and Contract. The Contractor shall perform all work in close conformity with the Route Plan, Fiber Strand Layout, and other data shown on the plans or as modified by written orders, including the furnishing of all materials, implements, machinery, equipment, tools, supplies, transportation, labor, and all other things necessary to the satisfactory prosecution and completion of the project.

3.2. Communications

3.2.1. All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.

3.2.2. Any notice to, or demand upon, the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may, from time to time, designate) in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

3.2.3. All papers required to be delivered to the Town shall, unless otherwise specified in writing to the Contractor, be delivered to the Town Representative, Attn: Bobby Ashton, 2155 Main Street, Glastonbury, CT 06033, and any notice to, or demand upon, the Town shall be delivered at the above address in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office or to such other representatives of the Town, or to such other address as the Town may subsequently specify in writing to the Contractor for such purpose.

3.2.4. Any such notice shall be deemed to have been given as of the time of actual delivery or, In case of mailing, when the same should have been received in due course of post or, in the case of telefax, at the time of actual receipt, as the case may be.

3.3. Partial Use of Improvements

3.3.1. The Town may, at its election, give notice to the Contractor and place in use those sections of the work that have been completed, inspected and can be accepted as complying with the Contractor Documents and if, in its opinion, each such section is reasonably safe and fit for the use and accommodation for which it was intended, provided:

3.3.2. The use of such sections of the work shall not materially impede the completion of the remainder of the work by the Contractor.

3.3.3. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

3.3.4. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or to poor workmanship.

3.3.5. The period of guarantee shall not begin until the date of the final acceptance of all work required under this Contract.

3.4. Work By Others

3.4.1. Private utilities, contractors, developers or other parties may be expected to be working within the Contract area during this Contract. It shall be the responsibility of the Contractor to coordinate his work with the work being done by others in order that the construction shall proceed in an efficient and logical manner. The Contractor shall have no claim or claims whatever against the Town, the Engineer, or other parties due to delays or other reasons caused by the work by others or his failure to coordinate such work.

3.5. Contractor's Work & Storage Area

3.5.1. The Contractor shall contact the Town to determine if any specific locations will be designated, or gain its approval prior to using any area for storage of equipment, materials and trailers during the period of this Contract. The Contractor shall confine his work/storage area to the limits as designated or approved and shall be responsible for the security of the work/storage area. Upon completion of the Contract, the Contractor shall remove all equipment and materials, except as otherwise specified, and restore the site to its original condition as approved by the Engineer and at no cost to the Town.

3.6. Disposal Area

3.6.1. The Tryon Street Bulky Waste Facility will be available to the Contractor, at no charge, for disposal of materials that are accepted at that facility. The Contractor is required to abide by the terms of operations of the disposal facility.

3.7. Dust Control

3.7.1. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust.

3.8. Maintenance

3.8.1. The Contractor shall be held responsible to the Town for maintenance for a minimum of five years following completion of all work under this Contract with respect to defects, settlements, etc.

3.9. Protection Of Existing Utilities

3.9.1. Before starting any excavation, the Contractor shall submit to the Technical Representative plans or details showing the proposed method the Contractor will use to support and protect

all existing utilities during construction. The furnishing of such plans and details shall not serve to relieve the Contractor of any responsibility for the proper conduct of the work.

3.9.2. There will be no extra payment for submitting plans or details for supporting and protecting all existing utilities during construction. No disruption to the operation of existing utilities is allowed without the written consent of the Town obtained a minimum of a week in advance.

3.10. Time for Completion/Notice to Proceed

3.10.1. The work under this Contract shall commence upon a negotiated time with the Town and in conjunction with the completion of Pole Make Ready work to be performed by the Utility Companies. Completion will be a mutually agreed upon date.

3.10.2. Once Pole Make Ready work is complete Contractor will submit a project schedule for review and approval by the Town.

3.11. Liquidated Damages

3.11.1. None for this project

3.12. Schedule of Drawings

3.12.1. None for this project

3.13. Changes in the Work

3.13.1. The Town reserves the right to perform portions of the work in connection with these plans and specifications. The reduction in the work to be performed by the Contractor shall be made without invalidating the Contract. Whenever work is done by the Town contiguous to other work covered by this Contract, the Contractor shall provide reasonable opportunity for the execution of the work and shall properly coordinate his work with that of the Town.

3.13.2. Any changes in the work will be approved in advance by the Town and be based on unit costs established at time of bid. Any other changes will be negotiated with the Town with a 15% maximum mark up.

3.13.3. The Fiber Optic Route is subject to changes based on findings and recommendations by the Utility Pole Owners. These changes could adjust the cable distance to be installed. The Bid Submission page will include a price option for additions/reductions in cable distance to be installed.

3.14. Removal and Storage of Materials and Structures

3.14.1. All salvable materials, including topsoil, gravel, fill materials, etc. and pipe, wire, surge protection, etc. that are not to remain in place or that are not designated for use in the work

shall be carefully removed by the Contractor and stored at such places as directed by the Engineer.

3.14.2. All salvable materials removed and stored shall remain the property of the Town. The Engineer shall determine the materials or structures that are to be salvaged.

3.15. Prosecution And Progress

3.15.1. The Contractor shall give the Technical Representative a seven-day advance written notice of construction activities that will alter traffic patterns that result in lane shifts, temporary closures of lane(s), or lane reductions. This advance notification will allow the Town to publish news releases and/or provide public radio announcements to inform the public of revised traffic patterns or possible traffic delays. Failure of the Contractor to provide such timely notice shall be considered a breach of Contract and will subject the Contractor to stop work orders until such time as the seven-day notice has been satisfied.

3.16. Payments

3.16.1. Progress payments will be made on a monthly basis. No provisions are made for billing for materials not in place.

4. Detailed Construction Specifications

4.1. Executive Summary

The Town of Glastonbury will be expanding the existing Fiber Optic Network with eight different segments to provide connectivity to new buildings. The work scope of these segments are independent of each other and may be completed at different times based on funding for each of the segments

Special notice to Contractors:

- The cable being specified is an enhanced single mode fiber cable with a lower attenuation. See the enclosed cable specifications for details.
- Fiber termination locations vary to each site and are documented in the Descriptions of Fiber Segments section.

Information on the fiber stand layouts for each fiber segment is documented in Attachment A.

4.2. Detailed Specifications

4.2.1. Fiber optic Cable Plant

4.2.1.1. This cable-plant will utilize the Cable lashed to a separate Messenger technique.

4.2.2. Cable Installation Guidelines

4.2.2.1. Placement of the cable itself on the utility poles shall be made in accordance with NESC and Bellcore guidelines for separation from existing power and communications attachments to the poles at locations on each pole as specified by the bolt hole location on the Pole Data Sheet provided by the Pole owner. The fiber optic cables will be installed on the Utility Poles in the Municipal Gain Space, which is defined as the top of the Communications Gain and 40" below the lowest electrical gain. If sufficient space is not available for a compliant attachment the installation contractor must bring this unavailability of space to the attention of the Town of Glastonbury so that the Pole Owners can be notified (and consequently space made available or a waiver issued). Note that the Municipal Gain may be moved to a different location on the pole by the pole owners.

4.2.2.2. The cable plant shall be installed in the municipal gain section of utility poles or conduits along the route. On poles, this is typically the top communications gain. Wherever the fiber optic cable is installed in underground or other conduit, it shall be installed within a 1.25” ID or larger inner-duct that the contractor must install in the conduit if existing inner-duct is not available. In situations where the underground conduit is less than 2.5” in diameter then innerduct is not required, but only one cable can utilize such conduit space unless noted in the appropriate building layout page.

The applicable NESC, BICSI, and Bellcore requirements and guidelines for pole attachments shall be applied in the installation of the cable plant both on utility poles and in underground ducts. All attachment hardware and messaging materials shall meet NESC Grade "B" requirements. When placing cable in new conduits a new pull rope for future installation will be installed at the same time.

4.2.2.3. The utility company will provide a data sheet on each pole that will tell exactly where our attachment is to be installed. The contractors work will include drilling any applicable holes and installing the appropriate anchor devices.

4.2.2.4. Cable lashing will meet the following requirements;

- Cables installed over roadways or railways will be double lashed.
- Multiple cables lashed together to the messenger will be double lashed.
- Lashed cable will have a maximum of twelve inch interval between wire lashes.
- Lashing wire will be terminated at each pole with a lashing wire clamp.

4.2.2.5. Cable routed through building walls into the building interior shall be placed in plenum-rated interior-grade inner-duct and routed to its final interior destination (e.g., distribution frame).

4.2.2.6. If Exterior rated fiber optic cable extends into the interior space of a building from its point of entrance more than 50' then conversion to a plenum rated cable will be required.

4.2.2.7. All cable will have a label attached to it at each utility pole identifying the cable as Town of Glastonbury Fiber Optic cable and this label shall be visible at ground level in compliance with the Pole Attachment Agreements in force with the Pole Owners.

4.2.3. Removal of abandoned Facilities

4.2.3.1. Not Applicable.

4.2.4. Aerial Storage Loops

4.2.4.1. A 150-foot aerial storage loop of fiber optic cable for repairs and other future use shall be installed in the cable plant approximately every 1,500 feet and at every major street intersection (with a minimum of one storage loop in each fiber segment), using an aerial lash-back approach and centered either on a specific pole or on the nearest suitable pole (e.g., a storage loop may not be installed over a crossing street; installation of a storage loop over a driveway is to be avoided as well). An in-line storage device (e.g., a set of 2 "snowshoes") that is in compliance with the cable manufacturer's recommendations and requirements shall be used for each aerial

storage loop. Locating storage loops near wherever a connection to a future network site is anticipated and four way intersections that might be subject to vehicular accidents is preferred.

4.2.5. Grounding (Bonding)

4.2.5.1. All Equipment with conductive material must be grounded ("bonded") in compliance with NESC guidelines.

4.2.6. Intra-Segment Cable Continuity

4.2.6.1. Each segment of fiber cable that is installed between building endpoints and defined cable spice points outlined in this document shall be continuous without any additional splicing.

4.2.7. Exterior Installation

4.2.7.1. Exterior installation of the fiber optic cable shall include, where necessary, penetrating the exterior masonry wall of a building at the segment endpoint in a manner compliant with the building code of the Town of Glastonbury, and inserting said cable. Penetration is defined as drilling or boring to gain access into the building, and it shall include installing sleeves and sealing for weatherproofing and traffic control protection as per local building and traffic control codes.

4.2.8. Interior Installation

4.2.8.1. Interior installation and routing of the fiber optic cable shall include all internal wall penetrations and sleeves (e.g., internal conduits and leaders). Plenum-grade inner-duct shall be used from the exterior wall penetration up to the specified communications room (distribution frame) within the building at the segment endpoint. Note: Unless otherwise specified, 50 feet of fiber optic cable shall be stored in the communications room for future repairs and modifications. This excess of fiber optic cable shall be rolled into a 36-inch-diameter coil and tie-wrapped, and then secured to the nearest wall by means of a removable strap such as a tie-wrap.

4.2.9. Termination and Splicing of Fiber Strands

4.2.9.1. The selected contractor shall perform all terminating of the fiber strands at the interior location of the networking end-equipment (i.e., distribution frame) within each segment- endpoint building. At a given site each fiber strand that actually serves networking end-equipment in that building shall be fusion-spliced to a factory-prepared SC SMF connector pigtail. SC Connectors are to meet or be less than .5dB loss. Those fiber strands that are not SC terminated shall simply remain unconnected (i.e., "unterminated") or be spliced to other strands based on the strand layout

drawings in Attachment A. All splices are to be fusion type and should meet or be less than .1 dB loss.

4.2.10. Readiness of Utility Poles and Conduits for Cable Attachment

4.2.10.1. Prior to commencement of cable-plant installation, the Town of Glastonbury shall work with the pole owners to facilitate adequate space on the utility poles in the Municipal Gain for connection of the Fiber Plant.

4.2.10.2. It shall be the responsibility of the selected installation contractor to coordinate the deployment of his installation services personnel in conjunction with the utility companies' performance of any "make-ready" work upon which the aforesaid installation contractor is relying. Awareness of unusual delays due to inability to coordinate with the utility companies must be brought to the attention of the Town of Glastonbury immediately.

4.2.11. Testing of the Installed Cable Plant

4.2.11.1. The installation contractor shall conduct appropriate testing of the installed cable plant to assure the continuity of all fibers and their viability as conductors of optical signals and to demonstrate performance of the fiber optic cable to manufacturer's specification. Referring to Section 4.4.1 of this Specification, the installation contractor shall:

- perform standard bi-directional, dual-wavelength Optical Time Domain Reflectometry (OTDR) testing on all SC-terminated fiber strands;
- perform dual-wavelength OTDR testing on the unterminated fiber strands; and
- perform dual-wavelength OTDR testing on the spliced-and-passed-through fiber strands end-to-end (i.e., across multiple segments).

4.2.11.2. Segment length and end-to-end attenuation must be measured. Losses shall be no greater than:

- .35 dB per kilometer at 1310 contributed by the cable itself
- .25 dB per kilometer at 1550 contributed by the cable itself
- 0.1 dB for each fusion splice
- 0.5 dB per connector pair

4.2.11.3. The installation contractor shall provide to the Town of Glastonbury a written and electronic report on all test results.

4.2.11.4. All fiber discontinuities and damage shall be repaired by the contractor via fusion splicing (and weatherproof containment of outdoor splices), at no additional expense to the Town of Glastonbury. While broken fibers are not expected in a professionally executed cable-plant installation, reasonableness dictates that at most one broken-and-repaired fiber shall be tolerated per segment. The results of all tests shall be

conveyed, in printed or electronic format, to the Town of Glastonbury for approval and acceptance.

4.3. Descriptions of Fiber Segments

4.3.1. The new fiber extensions will include eight network segments. Each segment will be treated as a standalone project and will be priced separately.

4.3.2. Fiber Segment Facilities Barn – Water Pollution Control Building

This segment will include two fiber cables. Each run should be priced separately.

Origin: Academy Building Server Room
Termination Equipment: Rack mount fiber panel

Destination(s): Facilities Barn and Water Pollution Control Operations Building
Termination Equipment: Wall Mount Fiber Panel at Facilities Barn and rack mount fiber Panel at Water Pollution Control Operations Building

Fiber Cable Size: 24 Strands to each building, with 12 strands terminated in each building.

Estimated Distance: Academy to Facilities Barn – 600 feet, Academy to WPC – 1,100 feet.

Cable Path Description: Majority of path will be underground conduits. A new section of conduit will need to be installed by contractor from hand hole outside of the Academy building into the tunnel system in the floor of the building, see picture below. (Note: confined Space). A conduit will also need to be installed in a wall that connects the tunnel to the plenum space above the ceiling in the IT space adjacent to the server room. There is a picture where the wall mount panel will be mounted in the facilities Barn below.

At the Water Pollution Control building the cable will need to be run through a series of existing conduits that originate at the Automatic Gate Controller at the entrance to the WPC and extends into the Electrical room in the Operations building. A small section of metal conduit will be needed to connect from the Comm 1 cabinet in the electrical room to the data rack in the electrical room. The conduits that will be used in the WPC are as follows;

1. Conduit P69 from Automatic Gate to Manhole EMH4. Note: it will be necessary to connect 3" conduit stub to Conduit P69. See Picture below.
2. Spare Conduit from EMH4 to EMH6
3. Spare Conduit from EMH6 to Signal Control Box on wall in WPC Basement, See Picture below.

4. Existing 3” Aluminum Conduit from Signal Control Box on wall to Large Junction Box Directly below Electrical Room. Note: This conduit has some existing fiber cables.
5. Existing 4” Conduit that connects Junction box to Comm 1 cabinet in electrical room. Note: this conduit has some fiber cables in it.

Note: See Attachment A for fiber strand layout

Facilities Barn Path Pictures

ion Path Pictures

4.3.3. Fiber Segment Chestnut Hill Rd to Transfer Station

Origin: Splice Enclosure RC6 at Chestnut Hill Rd
Termination Equipment: Tyco Splice Enclosure

Destination(s): Transfer Station Office

Conduit Junction at Automatic Gate

Signal Control Box in Basement of Operations Building

Termination Equipment: Wall Mount Fiber Panel

Fiber Cable Size: 12 Strands

Estimated Distance: Enclosure to Transfer Station – 3,200 feet

Cable Path Description: The path will aerial fiber cable. The section from the fiber enclosure on Chestnut Hill Rd to the last pole used on New London Turnpike will be lashed onto an existing messenger. From the last pole on New London Turnpike to the pole outside the Transfer Station Operations building new messenger cable will need to be installed. All of the prep work by the utility companies is complete.

Cable Terminations: Strands 1 through 12 of the new cable at the Fiber Enclosure will be spliced on to strands 1 through 12 that route to the existing panel in the Vehicle Maintenance Building. Install a new WCH-04P wall mount panel at the Transfer Station Office and terminate strands 1 through 12.

4.3.4. Fiber Segment Oak Street Traffic Signal Cabinet

Origin: new Splice enclosure on Fiber Cable running from Glastonbury High School to Town Hall
Termination Equipment: Span Mount fiber enclosure

Destination(s): Oak Street Traffic Cabinet
Termination Equipment: Wall Mount Fiber Panel

Fiber Cable Size: 12 Strands

Estimated Distance: Fiber Enclosure on New London Turnpike to traffic cabinet – 300 feet to 1,800 feet depending on location of fiber enclosure

Cable Path Description: Install a splice enclosure on the 96 strand fiber cable at the best location along New London Turnpike near the Oak Street Intersection. Perform a ring cut splice on the fiber cable and terminate 12 strands of fiber from the Town Hall side to a drop cable that will be routed from the enclosure to the traffic cabinet. There is storage slack at a snowshoe pair at the intersection of Hubbard Street and New London Turnpike.

Note: See Attachment A for fiber strand layout

4.3.5. Fiber Segment Housing Authority Office

Origin: Fiber Enclosure at Harris Street and House Street between pole 113 and 114
Termination Equipment: Span Mount Fiber Enclosure

Destination(s): Housing Authority Office
Termination Equipment: Wall Mount Fiber Panel

Fiber Cable Size: 12 Strands

Estimated Distance: Fiber Enclosure at Harris Street to Housing Authority Office – 1,600 feet

Cable Path Description: The path will be aerial fiber cable. The entire path will require a messenger cable. The Utility companies have already prepared the Utility Poles. At the Housing Authority Office the cable will route underneath the building in a crawl space.

Splicing: Additional splicing will be required at two enclosures in the existing fiber network. Splicing of six strands at the Griswold Street and Main Street splice of strands 19-24 from Naubuc School and 25 – 30 from Fire Company 1 splice, and splicing of six strands of fiber in the Fire Company one enclosure at Main Street and Pratt Street for stands 25-30 from Griswold Street Intersection to strands 7-12 from Fire Company 1.

Panel Connectors at Naubuc School and Fire Company one will need to be installed to complete the connections of the newly spliced fiber cabling.

Note: See Attachment A for fiber strand layout

4.3.6. Fiber Segment PD Annex to Clark House

Origin: PD Annex building
Termination Equipment: Wall mount fiber panel

Destination(s): Clark Building Utility Room
Termination Equipment: Wall Mount Fiber Panel

Fiber Cable Size: 12 Strands

Estimated Distance: PD Annex to Clark House – 850 feet

Cable Path Description: This segment of cable will require installation of conduit from the existing hand hole between the PD Annex and the Glastonbury Ambulance building. There are two potential paths for the new conduit. The contractor can select the route they determine would be the best route to take. A fiber cable will be routed from the PD Annex to the Clark House in the conduit system.

4.3.7. Fiber Segment Town Hall to Knox Lane Community Building

Origin: Academy Demarc Room Rack
Termination Equipment: Rack mount fiber panel

Destination(s): Knox Lane Community Room Demarc Area, Fiber Cable to Buttonball Lane
Termination Equipment: Wall Mount Fiber Panel, Tyco Span Mount Fiber enclosure

Fiber Cable Size: 24 Strands

Estimated Distance: Town Hall to Button Ball cable strand – 7,000 feet. Cable at Hubbard Lane to Knox Lane Community Building – 900 feet

Cable Path Description: The cable path will be aerial from the Academy Building to the Buttonball fiber cable with the exception of existing conduit between the Academy demark and the utility pole across the street, and the Utility Pole at the property edge of Knox lane and the Knox Lane Community center. A fiber enclosure will be installed at the Knox Lane location with a 12 strand drop fiber cable run to the Community Building.

Note that you will need to dig up the conduit at the utility pole at Hubbard St and Knox Lane and install a sweep 90 to bring the conduit to the pole above the ground surface. You will also have adjust the conduit where it comes to the ground surface at the community building as right now it is against the foundation of the building.

4.3.8. Fiber Segment Fiber Enclosure at Knox Lane to Glastonbury Historical Society

Origin: Tyco Fiber Enclosure at Knox Lane
Termination Equipment: Splice Enclosure in Fiber Enclosure Unit

Destination(s): Glastonbury Historical Society Building
Termination Equipment: Wall Mount Fiber Panel, Span Mount Fiber enclosure

Fiber Cable Size: 24 Strands

Estimated Distance: < 1,000 ft

Cable Path Description: The cable path will be aerial from the fiber enclosure on Hubbard Street in front of Knox Lane to the Historical Society building on the Hubbard Green. The cable will enter the back of the structure and route to a upstairs office area through the attic.

4.4. Materials lists for cable-plant

4.4.1. Description of Fiber Optic Strands

4.4.1.1. The fiber optic cable for this project will be exclusively single mode fiber cable. Note that the cable specified is an enhanced fiber cable with lower attenuation specifications.

4.4.1.2. A germania-doped silica core surrounded by a concentric silica glass cladding shall comprise each optical fiber. The fiber shall be a matched clad design manufactured by the outside vapor deposition process (OVD). Each optical fiber refractive index profile shall be step indexed.

4.4.1.3. Each fiber shall be proof tested by the fiber manufacturer at a minimum of 100 kpsi (0.7 GN/m²). The fiber shall be coated with a dual acrylate protective coating and the coating shall be in physical contact with the cladding surface. The single-mode fiber shall meet EIA/TIA-492CAAB, "Detail Specification for Class lVa Dispersion-Unshifted Single-Mode Optical Fibers with Low Water Peak," and ITU-T G.652.C, "Characteristics of Single-Mode Optical Fiber Cable." Fiber shall have a mode field diameter of 9.20 ± 0.40 µm at 1310 nm and 10.40 ± 0.50 µm at 1550 nm. Fiber core-clad concentricity shall be = 0.5 µm. Fiber cladding diameter shall be 125.0 ± 0.7 µm. Fiber cladding non-circularity shall be = 0.7%. Fiber coating diameter shall be 245 ± 5 µm.

4.4.1.4. The attenuation specification shall be a maximum value for each cabled fiber at 23 ± 5°C on the original shipping reel. The cabled fiber attenuation for Loose Tube and Ribbon cable constructions shall be < 0.35 dB/km at 1310 nm and <0.25 dB/km at 1550 nm. For Tight Buffered constructions the cabled fiber attenuation shall be = 0.65 dB/km at 1310 nm and = 0.5 dB/km at 1550 nm. The attenuation at the water peak (1383 nm) shall not exceed the 1310 nm attenuation value. The cabled fiber shall be capable of operating in the 1360 nm to 1480 nm water peak region.

4.4.1.5. The attenuation due to 100 turns of fiber around a 50 ± 2 mm diameter mandrel shall not exceed 0.05 dB at 1310 nm and 0.05 dB at 1550 nm. The attenuation due to 100 turns of fiber around a 60 ± 2 mm diameter mandrel shall not exceed 0.05 dB at 1625 nm. There shall be no point discontinuities greater than 0.05 dB at 1310 nm and 1550 nm. The maximum dispersion shall be =3.5 ps/(nm•km) from 1285 nm to 1330 nm and shall be =18 ps/(nm•km) at 1550 nm. The cabled fiber shall support Gigabit Ethernet (GbE) operation according to the 1000BASE-LX (1310 nm) specifications up to 5000 m in accordance with the GbE standard. The cabled fiber shall support laser-based 10 Gigabit Ethernet (10GbE) operation according to the 10GBASE-LX4 (1300 nm region), 10GBASE-L (1310 nm) and 10GBASE-E (1550 nm) specifications for distances of 11.2 km, 10 km and 40 km, respectively.

4.4.1.6. The cabled optical fiber shall support industry-standard multi-gigabit Fibre Channel physical interface specifications.

4.4.2. Description of Fiber Cable

4.4.2.1. Cable shall be all-dielectric, stranded loose-tube design with dry waterblocking for outdoor duct and aerial installations in fiber counts from two to 288. Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding." The fibers shall be colored with ultraviolet (UV) curable inks. Buffer tubes shall be made from polypropylene. Each buffer tube shall contain a water swellable yarn or water blocking element for water blocking protection. The water-swellable yarn or water blocking element shall be non-nutritive to fungus, electrically non-conductive, and homogeneous. It shall also be free from dirt or foreign matter. This yarn or water blocking element will preclude the need for other water blocking material; the buffer tube shall be gel free. The optical fibers shall not require cleaning before placement into a splice tray or fan out

kit. The buffer tube shall be manufactured to a nominal diameter of 2.5mm or 3.0 mm, regardless of fiber count, to reduce the number of required installation and termination tools.

4.4.2.2. Buffer tubes containing fibers shall be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-B. Buffer tube colored stripes shall be inlaid in the tube by means of co extrusion when required. The nominal stripe width shall be 1 mm. Buffer tubes in a hybrid cable (cable containing more than one type of fiber) shall contain only one fiber type. Identification of fiber types in a hybrid cable shall correspond to fiber core diameter (or mode field diameter) from smallest to largest in accordance with TIA/EIA-598-B. Buffer tubes shall be stranded around the dielectric central member using the reverse oscillation stranding process. Two polyester yarn binders shall be applied contra helically with sufficient tension to secure each buffer tube layer to the dielectric central member without crushing the buffer tubes. The binders shall be non hygroscopic, non wicking, and dielectric with low shrinkage. Water swellable yarn(s) shall be applied longitudinally along the central member during stranding. For dual-layer cables, a second (outer) layer of buffer tubes shall be stranded over the original core to form a two-layer core. A water swellable tape shall be applied longitudinally over both the inner and outer layer. The water-swellable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter. Cable shall be comprised of water-swellable yarns and/or tapes, dielectric strength members (as required), ripcord(s) and an MDPE jacket containing carbon black to provide ultraviolet light protection while inhibiting the growth of fungus.

4.4.2.3. Cable jacket shall be marked with the manufacturer's name, month and year of manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code® (NESC®), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white, with the exception that cable jackets containing one or more coextruded white stripes, which shall be printed in light blue. The height of the marking shall be approximately 2.5 mm. Cable shall contain reverse oscillation lay (ROL) markings as needed. Cable shall have a storage temperature range of -40° to 70°C, an installation temperature range of -30° to 70°C, and an operating temperature range of -40° to 70°C. Cable shall have a short-term tensile rating of 2700 N. No fiber strain shall occur over the service life of the cable when subjected to a maximum, long-term tensile rating of 890 N.

4.4.2.4. Cable shall meet the functional requirements of Rural Utilities Service (RUS) 7 CFR 1755.900 and be fully compliant with ICEA S-87-640. Manufacturer shall be ISO 9001 and TL 9000 registered. Cable manufacturer shall have a minimum of 20 years in manufacturing optical fiber cable in order to demonstrate reliable field performance. Cable shall be Corning Cable Systems part number 024EU4-T4100D20 for 24 strand cable or 048EU4-T4100D20 for 48 strand cable or equivalent. Note that this an enhanced fiber cable with 12 strands per tube.

4.4.3. Description of Pole Mount Hardware and Messenger

4.4.3.1. Pole mount hardware must be approved for use on the selected Fiber Optic Aerial cable. All attachment hardware and messaging materials shall meet NESC Grade "B" requirements. All hardware must meet Bellcore, NESC, and BICSI standards and recommendations. All metal components must be appropriately treated for corrosion resistance such as hot dipped galvanizing. In order to satisfy existing cable separation requirements for existing cables mounted on the utility poles located on Main Street it will be necessary to re-use the existing steel support brackets and messenger or provide functionally equivalent replacements.

4.4.3.2. Messenger cable must be able to support up to 4 fiber optic cables with strand counts of 144 strands each at every location.

4.4.4. Description of Aerial Storage Devices

4.4.4.1. Set of 2 "snowshoes" and associated mounting h/w for aerial storage of 150 feet of Fiber Cable that meets or exceeds NESC Grade "B" requirements.

4.4.5. Description of Fiber Cable Termination/Splice Housings

4.4.5.1. Rack Mount Housings shall be mountable in an EIA-310 compatible 465- or 592 mm rack. Housings shall be available in both 1U ,2U and 4U sizes. One EIA rack space or panel height (denoted as 1U) is defined as being 44.45 mm in height. The unit shall meet all applicable design requirements listed in ANSI/TIA/EIA-568, ANSI/TIA/EIA-942, and the polymer compounds flammability requirements of UL 94 V-0. Manufacturer shall be ISO 9001 and TL 9000 registered. Housings shall be manufactured using 16-gauge aluminum or equivalent for structural integrity. All joints shall be welded and finished in a workman-like manner. Installation fasteners shall be included and shall match the housing color. The unit shall include a clamshell-type cable clamping mechanism to provide cable strain-relief.

The front and rear doors shall be lockable when used with an optional key lock kit. The Connector Housings shall have a labeling scheme that complies with ANSI/TIA/EIA-606. The housings shall be available with factory-installed connectorized cable stubs in multiple cable and connector types. The housing shall have the ability to accommodate fusion splicing with additional hardware. The housing shall be 16 inches deep for extra cable routing.

The 1U housing shall be Corning Cable Systems part number PCH-01U or equivalent, and shall have a removable top lid for easier access. For the 1U housing, the housing shall be Corning Cable Systems part number PCH-01U.

The splice tray holder required for pigtail splicing is PC1-SPLC-04R and shall hold (4) Type 2R or (2) Type 4R splice trays.

The 2U housing shall be Corning Cable Systems part number PCH-02U or equivelant, and shall have integrated jumper routing guides. The splice tray holder required for pigtail splicing is PC2-SPLC-6SR and shall hold (6) Type 2S and (3) Type 4S splice trays.
The 4U housing shall be Corning Cable Systems part number PCH-04U or equivalent, and shall have integrated jumper routing guides. The splice tray holder required for pigtail splicing is PC4-SPLC-12SR and shall hold (12) Type 2S and (6) Type 4S splice trays.

4.4.5.2. Wall-Mountable Connector Housings shall be available for cross-connecting or interconnecting purposes. The units shall provide for direct connectorization or pigtail splicing. The Wall-Mountable Connector Housing shall be available in 2-, 4-, 6-, and 12-connector panel versions to provide for varying fiber counts.

The unit shall meet the design requirements of ANSI/TIA/EIA-568 and the polymer compounds flammability requirements of UL 94 V-0. Manufacturer shall be ISO 9001 and TL 9000 registered. Housings shall be manufactured using 16-gauge aluminum or equivalent for structural integrity and shall be finished with a powder coat for durability.

The 2P Connector Housing shall have metal doors. The 4P through 12P housings shall have a tinted polycarbonate jumper door(s) and a metal main door covering the splice/cable strain-relief area. The Connector Housings shall have a labeling scheme that complies with ANSI/TIA/EIA-606. The connector housings shall be available with factory-installed connectorized cable stubs in multiple cable and connector types. Brackets shall be available that allow rack mounting of the Wall-Mount Housings. An optional offset bracket kit shall be available that allows mounting the housing away from the wall to give space for cable routing behind the unit.

Wall-Mountable Connector Housing (WCH) shall be Corning Cable Systems part number WCH-02P, WCH-04P, WCH-06P, or WCH-12P or equivalent for 2-, 4-, 6-, or 12-panel versions respectively.

If the product to be supplied is other than the Corning product listed a sample product must be submitted for approval before installation.

4.4.6. Splice Bracket for Fiber Optic Housing

4.4.6.1. Splice Bracket equivalent to Corning PC4-SPLC-12SR. (one per splice Tray) for rack mount applications or WCH-SSH-4-12 for wall-mount applications.

4.4.7. Splice Tray for Fiber Optic Housing

4.4.7.1. Splice Tray equivalent to Corning M67-048. (one per 12 strand Loose Tube)

4.4.8. Description of Fiber Connector Panel

4.4.8.1. Fiber Optic Twelve Port Panel with six Duplex SC connectors and pigtails, equivalent to Corning CCH-CP12-59-P03RH. (one per splice Tray)

4.4.9. Description of Outside Plant Closures

4.4.9.1. The SCF splice closures shall be available in canister (butt) and in-line styles to fit most applications. All end-caps feature two express ports for uncut feeder cables. Mechanical Seal drop ports allow for rapid and easy installation during initial build or future expansions.

4.4.9.2. The Splice Closure Housing shall be non-metallic. It shall be resistant to solvents, stress cracking and creep. The housing materials shall also be compatible with chemicals and other materials to which they might be exposed in normal applications. The optical fiber closure shall be capable of accepting any optical fiber cable commonly used in interoffice, outside plant and building entrance facilities. As an option, the ability to double the cable capacity of an installed canister splice closure by use of a kit shall be available. Such a conversion shall not disturb existing cables or splices.

4.4.9.3. Encapsulation shall not be required to resist water penetration. The splice closure shall be re-enterable. The closure end-cap shall be capable of accepting additional cables without removal of the sheath retention or strength-member-clamping hardware on previously installed cables or disturbing existing splices. The optical fiber splice closure shall provide a clamping mechanism to prevent pistoning of the central member or strength members and to prevent cable sheath slip or pullout. The splice closure shall have appropriate hardware and installation procedures to facilitate the bonding and grounding of metal components in the closure and the armored cable sheath. The cable bonding hardware shall be able to accommodate a copper conductor equal to or larger than 6 AWG.

4.4.9.4. Aerial splice closures shall have available the necessary hardware to attach and secure the closure to an aerial strand. The closure shall accommodate splice trays suitable for single- fiber, single fiber heat-shrink, mechanical or ribbon heat-shrink splices. The small splice closure shall accommodate up to 72 single- fiber splices or 144 ribbon fiber splices using 12-fiber ribbons. The medium-sized closure shall accommodate up to 288 single-fiber splices or 432 ribbon-fiber splices. The large closure shall accommodate up to 480 single-fiber splices or 864 ribbon-fiber splices. The installation of the splice closure shall not require specialized tools or equipment, other than those normally carried by installation crews.

4.4.10. Description of Outdoor Inner-duct

Inner-duct, exterior-grade, 1.25" I.D. Length in feet.

4.4.11. Description of Indoor Inner-duct

Inner-duct, interior-grade, plenum-rated, 1.25” I.D. Length in feet

4.4.12. Description of Risers

PVC riser, 4” ID

4.4.13. Description of Cable Ties

Nylon cable ties for use with Aerial Storage Device, 11.5” length, 50-lb strength, binds up to 3” bundle, weather- and UV-resistant, equiv. to Panduit P/N PLT3S-C0. Use 200 ties per 300' of stored cable.

4.5. Maintenance And Protection of Traffic

4.5.1. Description: Unless other provisions are made on the plans or in the Special Conditions, the Contractor shall keep the roadway open to traffic for the full length of the project and shall provide a sufficient number of travel lanes and pedestrian pathways to move that traffic ordinarily using the roadway. The travel lanes and pedestrian pathways shall be drained and kept reasonably smooth and in suitable condition at all times in order to provide minimum interference with traffic and consistent with proper execution of the work.

Suitable ingress and egress shall be provided at all times where required for all intersecting roads and for all abutting properties have legal access.

4.5.2. Construction Methods: When a scheme for maintenance of traffic that may include detours is shown on the plans or approved by the Legal Traffic Authority, this shall govern unless an alternate scheme acceptable to the Engineer is offered by the Contractor at no additional cost. If no scheme is shown on the plans or described in the Special Conditions of the Contract and the Contractor wishes to deviate from the provisions of maintaining traffic as described in this Section, the Contractor must submit, and the Engineer may approve, a schedule showing a proposed sequence of operations and a compatible method of maintaining traffic.

4.5.3. Traffic Signs and Barricades: The Contractor will furnish signs, barricades, traffic cones, and traffic delineators to forewarn traffic of the construction. The Contractor will also provide such safety measures, pavement markings, warning devices, and signs as

deemed necessary to safeguard and guide the traveling public through detours ordered by the Engineer or included in the approved scheme for maintenance of traffic. Signs and barricades will be delivered adjacent to the project and traffic cones and delineators will be provided when required, at no cost to the Town. The Contractor shall erect, maintain, move, adjust, relocate and store these signs, barricades, traffic cones, and delineators when, where, and in accordance with the "Manual on Uniform Traffic Control Devices", or as directed by the Engineer.

The use of unauthorized or unapproved signs, barricades, traffic cones, or traffic delineators will not be permitted.

The Contractor shall keep all signs in proper position and clean and legible at all times. Care shall be taken so that weeds, shrubbery, construction materials or equipment, and soil are not allowed to obscure any sign, light, or barricade. Signs that do not apply to existing conditions shall be removed or adjusted so that the legend is not visible to approaching traffic.

4.5.4. Failure to Provide: Should the Contractor fail to perform any of the work required under this Section, the Town may perform, or arrange for others to perform, such work. In such cases, the Town will deduct from monies due or to become due the Contractor, all expenses connected therewith.

4.5.5. Basis of Payment: Maintenance and Protection of Traffic will be paid for at the Contract Lump Sum price for "Maintenance and Protection of Traffic". This price shall include all costs for labor, equipment, and services involved in the erection, maintenance, moving, adjusting, relocating and storing of signs, barricades, traffic cones, and traffic delineators furnished by the Contractor, as well as all cost of labor and equipment involved in the maintenance of traffic lanes and detours ordered or included in the approved scheme for maintenance of traffic.

NOTE: The Town of Glastonbury CHIEF OF POLICE, acting in the capacity of the LEGAL TRAFFIC AUTHORITY, shall be the sole and final authority for the Maintenance and Protection of Traffic.

4.6. Traffic Person

4.6.1. General: This item shall conform to Section 9.70 TRAFFICPERSON, of the Form 816. (Attachment B)

4.6.2. Description: Add the following to the first paragraph of Section 9.70.01(Attachment B)

"Trafficpersons shall consist of uniformed flaggers meeting acceptable criteria or extra duty officers of the Glastonbury Police Department. The Contractor shall provide Uniformed Flaggers meeting the requirements of this specification as required for safe traffic operations in the project area. Extra-duty police officers will be used only when specifically required by the Police Chief, as the Legal Traffic Authority, who will make

this determination based on the Contractor's proposed operations, traffic volumes, and traffic conditions."

"All work under this item shall be paid only for the duration of the Contract as contained in the Special Conditions under 'Time for Completion/Notice to Proceed' and for any time extensions granted in writing by the Town. Payment for police officers required after the duration of the Contract and approved time extensions shall be made directly by the Town and such costs deducted from future payments due the Contractor."

4.6.3. Basis of Payment: Replace Section 9.70.05 (See Attachment B) with the following:

"There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles shall be considered included in the general cost of the item.

1. Uniformed Flagger: Uniformed flaggers will be paid for at the contract unit price per hour for "Trafficperson (Uniformed Flagger)" as listed in the bid proposal, which price shall include all compensation, insurance benefits, and any other cost or liability incidental to the furnishing of the trafficpersons ordered." The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

When the trafficperson consists of Town of Glastonbury Police Officers, the Contractor shall provide the invoices from such work to the Engineer and the Town will pay these invoices directly. Under these circumstances, the Contractor will be reimbursed only for the 5% markup on the actual cost of police services under this line item.

5. Bid Proposal

ITEMS REQUIRED WITH SUBMISSION OF BID PROPOSAL:

The following bid checklist describes items required for inclusion with the above-referenced bid proposal package. It is provided for the convenience of the bidders and, therefore, should not be assumed to be a complete list.

_____1. Included Bid Bond as per Section 1.1.10 of the Information for Bidders.

_____2. Included Disclosure of Past and Pending Mediation, Arbitration, and Litigation cases against the Bidder or its Principals as per Section 1.3.1 of the Information for Bidders.

_____3. Included Qualifications Statement as per Section 1.6.1 of the Information for Bidders.

_____4. Checked Town web site for Addenda and acknowledged on page 40.

_____5. The proposal has been signed by a duly authorized representative of the company.

_____6. Any technical or descriptive literature, drawings, Product data sheets or proposal samples that are required have been included with the bid.

_____7. Acknowledged Code of Ethics on page 40.

_____8. Clearly marked envelope with Company Name and Address, Bid Number, Date, and Time of opening.

_____ 9. The proposal is mailed or hand-delivered in time to be received no later than the designated opening date and time. Late responses are NOT accepted under any circumstances. Faxed responses are not accepted. Please allow enough time if mailing your proposal.

_____ 10. Provide one original and one copy of the Bid Response.

_____ 11.Warranty Information is enclosed.

TOWN OF GLASTONBURY * 2155 MAIN STREET * GLASTONURY * CT

BID / PROPOSAL NO: GL-2017-06 **DATE DUE:** 10-04-16

DATE ADVERTISED: 09-09-16 **TIME DUE:** 11:00 AM

NAME OF PROJECT: FIBER BACKBONE CABLING PHASE 3

In compliance with this Invitation to Bid, the Bidder hereby proposes to provide goods and/or services as per this solicitation in strict accordance with the Bid Documents, within the time set forth therein, and at the prices submitted with their bid response.

It is the responsibility of the Bidder to clearly mark the outside of the bid envelope with Company Name and Address, the Bid Number, Date and Time of Bid Opening, and it also **THE RESPONSIBILITY OF THE BIDDER TO CHECK THE TOWN'S WEBSITE BEFORE SUBMITTING BID FOR ADDENDA POSTED PRIOR TO BID OPENING.**

THE BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA AS REQUIRED:

Addendum #1_____(Initial/Date) Addendum #2_____ (Initial/Date) Addendum #3_____(Initial/Date)

NON-COLLUSION STATEMENT:
By submission of this bid, the Bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization that this bid has been arrived at independently without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

CODE OF ETHICS:
I/We have reviewed a copy of the Town of Glastonbury's Code of Ethics and agree to submit a Consultant Acknowledgement Form if I/We are selected. Yes_____ No_____*

*Bidder is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any bid or proposal where the Bidder has not agreed to the above statement.

Respectfully submitted:

Print Name, Title of Individual	**Doing Business as (Trade Name)**
Signature of Individual	**Street Address**
Date	**City, State, Zip Code**
E:mail Address	**Telephone Number / Fax Number**

Base Bid: **Lump Sum Total**

1. **Install Fiber Cable Segment Facilities Barn** $ _____

2. **Install Fiber Cable Segment WPC** $ _____

3. **Install Fiber Cable Segment Transfer Station** $ _____

4. Maintenance and Protection of Traffic - in accordance With Section 4.5 of the Detailed Construction Specifications $ _____

5. Traffic Person (Uniformed Flagger)
In Accordance with Section 4.6 of the Detailed Construction Specifications EST. HRS 50 hrs $_____/HR $ _____

6. **Total Base Bid: (Items 1 through 5)** $ _____
Numeric Amount

_____
Written Base Bid Amount

Alternates:

1. Install Fiber Cable Segment Oak Street Traffic Cabinet ADD $ _____

2. Install Fiber Cable Segment Housing Authority Office ADD $ _____

3. Install Fiber Cable Segment Clark House ADD $ _____

4. Install Fiber Cable Segment Knox Lane ADD $ _____

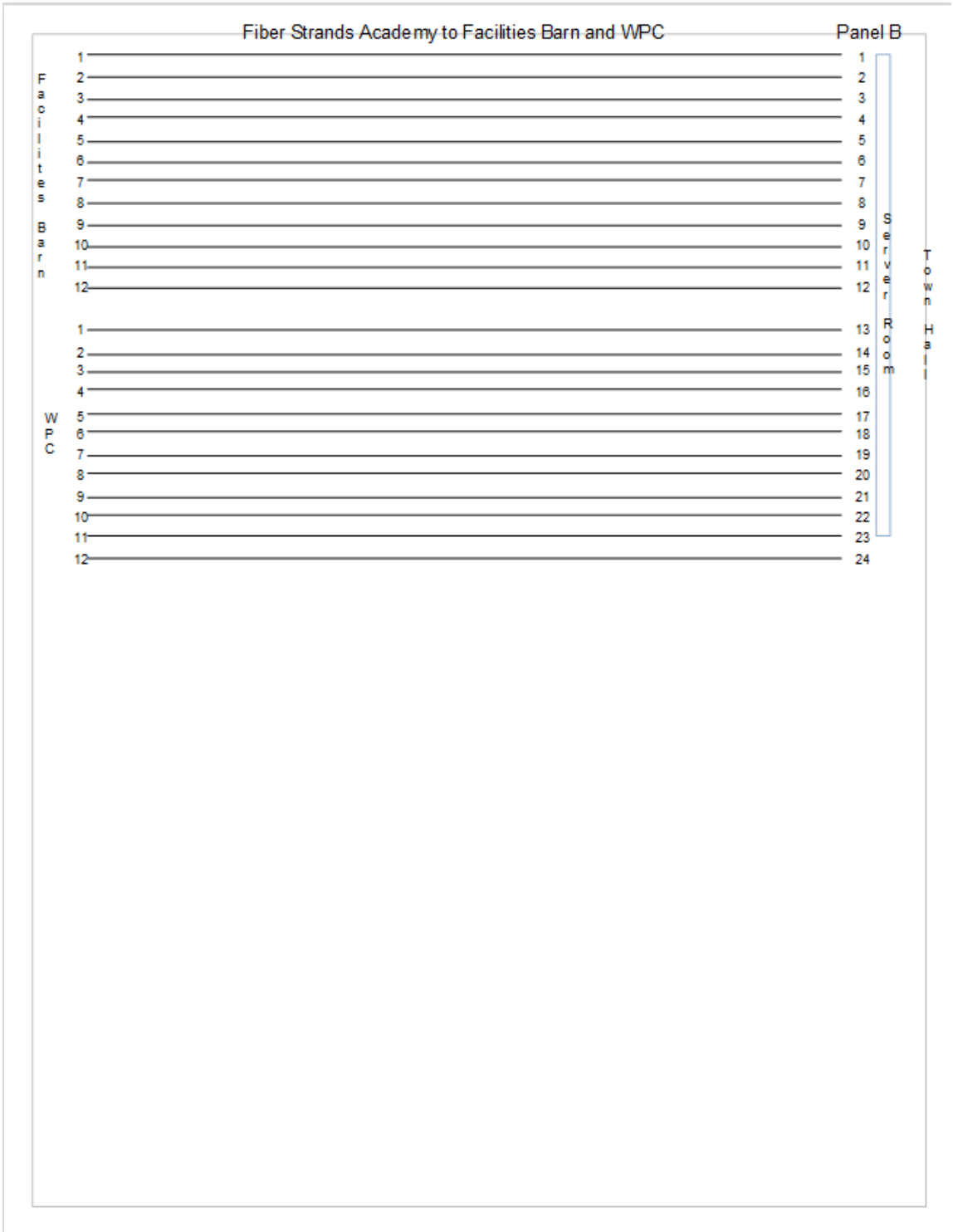
5. Install Fiber Cable Segment Glastonbury Historical Society ADD $ _____

Unit Price for Additions/Reductions:
Installed Cabling due to route changes as per section 3.13.3 $ _____/foot installed

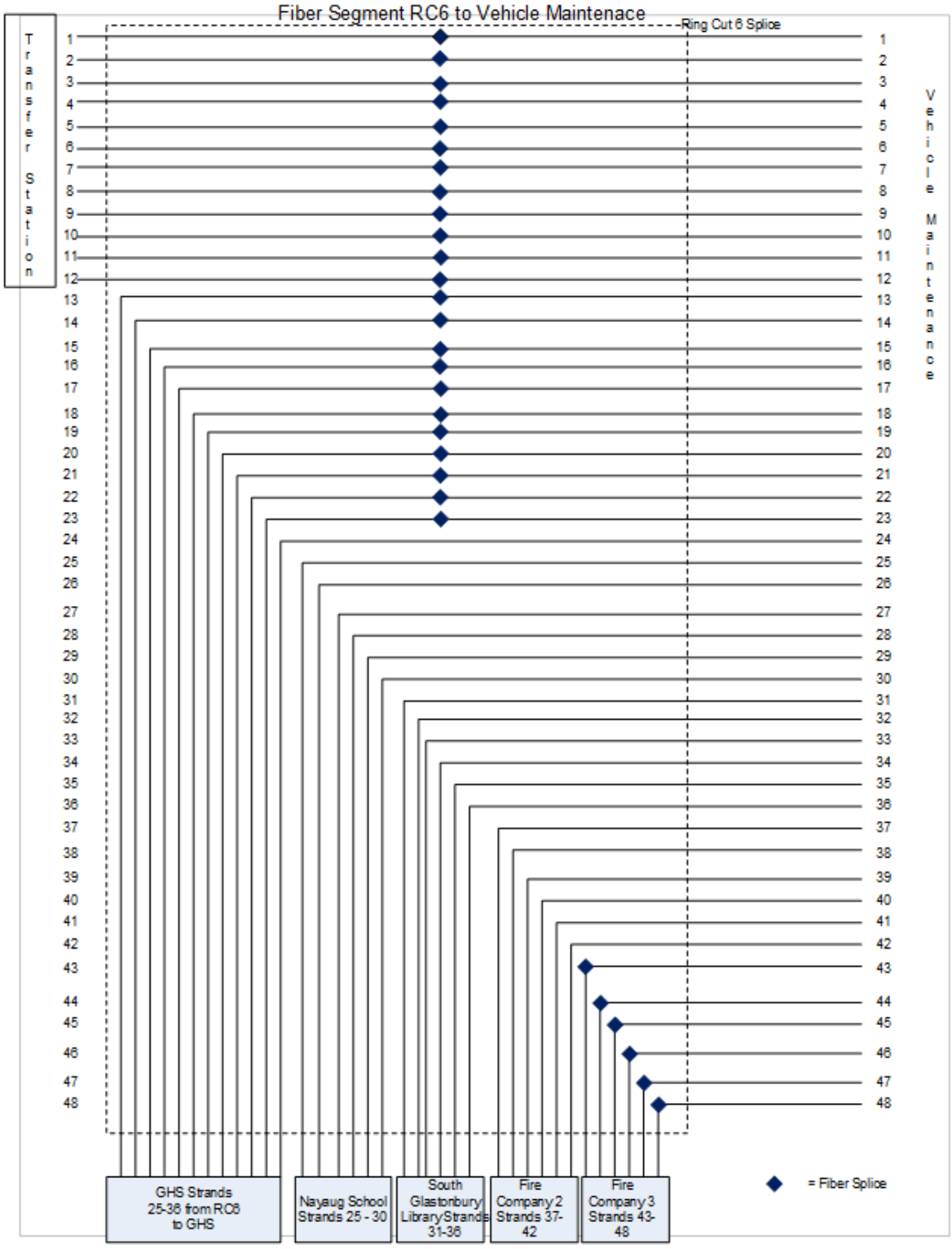
Name of Bidder: _____

Attachment A

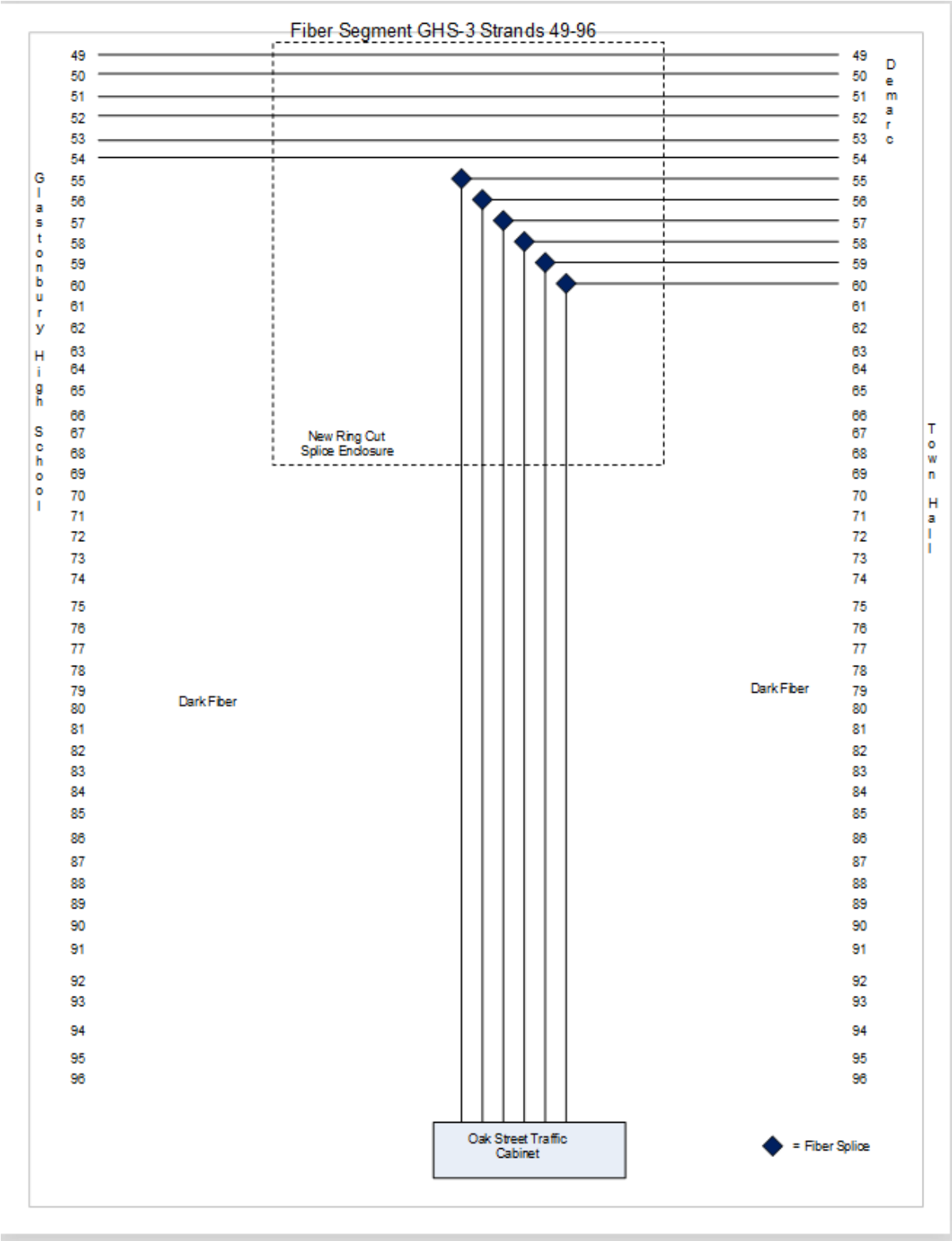
Strand Layouts Facilities Barn and WPC



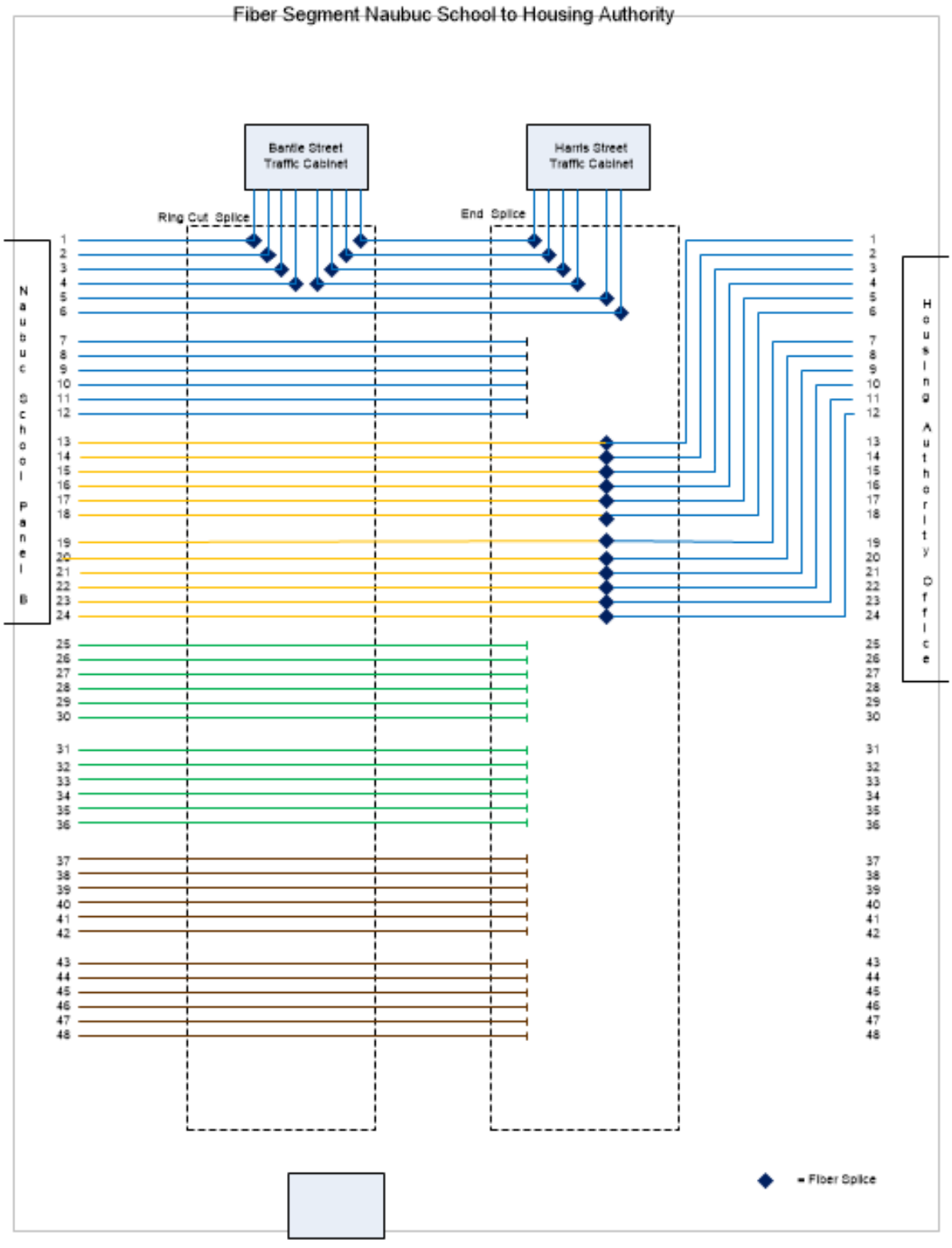
Strand Layout Transfer Station



Strand Layout Oak Street Traffic Cabinet



Strand layout Naubuc School to Housing Authority



Attachment B – Connecticut DOT Form 816

Connecticut Department of Transportation

Standard Specifications for

Roads, Bridges

And

Incidental Construction

SECTION 9.70

TRAFFICPERSON

9.70.01—Description: Under this item the Contractor shall provide the services of Trafficpersons of the type and number, and for such periods, as the Engineer approves for the control and direction of vehicular traffic and pedestrians.

On a weekly basis, the Contractor shall inform the Engineer of their scheduled operations for the following week and the number of Trafficpersons requested. The Engineer shall review this schedule and approve the type and number of Trafficpersons required.

If the Contractor changes or cancels any scheduled operations without prior notice of same as required by the agency providing the Trafficpersons, and such that Trafficperson services are no longer required, the Contractor will be responsible for payment at no cost to the Department of any show-up cost for any Trafficperson not used because of the change. Exceptions, as approved by the Engineer, may be granted for adverse weather conditions and unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

Trafficpersons assigned to a work site are to only take direction from the Engineer.

Trafficpersons shall consist of the following types:

State Police Officers: State Police Officers shall be uniformed off-duty sworn Connecticut State Police Officers. Their services will also include the use of official State Police vehicles and associated equipment.

State Police Officers will be used on all limited access highways. State Police Officers will not be used on non limited access highways unless specifically authorized in writing by the Engineer. State Police Officers with official State Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites. On limited access highways, the Engineer may determine that State Police Trafficpersons will be utilized for regional work zone traffic safety and enforcement operations in addition to project-related work zone assignments.

Uniformed Municipal Police Officers: Uniformed Municipal Police Officers shall be sworn Municipal Police Officers or Uniformed Constables who perform criminal law enforcement duties from the Municipality in which the project is located. Their services will also include an official Municipal Police vehicle when requested by the Engineer. Uniformed Municipal Police Officers will be used on all non limited access highways. If Uniformed Municipal Police Officers are unavailable, other Trafficpersons may be used when authorized in writing by the Engineer.

Uniformed Municipal Police Officers and requested Municipal Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites.

Uniformed Flagger: Uniformed Flaggers shall be persons who have successfully completed flagger training by the ATSSA, National Safety Council or other programs approved by the Engineer. A copy of the Flagger's training certificate shall be provided to the Engineer before the Flagger performs any work on the project. Services of Uniformed Flaggers shall include the following equipment: garments (including high visibility headgear) so as to be readily distinguishable as a Flagger in accordance with Standard 6E-2 of the MUTCD, and these specifications, and a STOP/SLOW paddle that is at least 18 inches (450 millimeters) in width with letters at least 6 inches (150 millimeters) high, mounted on a handle of sufficient length so that the bottom of the sign will be 6 feet (1.8 meters) above the ground, and conforms to Standard 6E-3 of the MUTCD and catalog number 387-80-9950 of the Catalog of Signs CDOT.

Uniformed Flaggers will only be used on non limited access highways when authorized in writing by the Engineer. Uniformed Flaggers will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations.

General: Uniformed Law Enforcement Personnel being used as Trafficpersons may conduct motor vehicle enforcement operations in and around work areas as directed and approved by the Engineer.

Trafficpersons shall wear a high visibility safety garment that complies with OSHA, MUTCD, ASTM Standards and the following:

Uniformed Law Enforcement Personnel shall wear the high visibility safety garment provided by their law enforcement agency. If no high visibility safety garment is provided, the Contractor shall provide the law enforcement personnel with a garment meeting the requirements stated below for the Uniformed Flaggers' garment.

Uniformed Flagger: The base material for the safety garment shall be a fluorescent color of orange, yellow, or strong yellow-green. The garment shall have vertical and horizontal stripe markings of contrasting color to the base material to enhance noticeability of the wearer. These markings shall be made of retroreflective or combination of retroreflective and non-retroreflective materials. The retroreflective material shall be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and shall have a minimum width of 5/8 inch (15 millimeters). A minimum area of 40 square inches (25800 square millimeters) of retroreflective material must be visible when the garment is viewed from either the front or back and a minimum area of 12 square inches (7740 square millimeters) of retroreflective material must be visible from any other normal observation angle. The safety garment shall have the words "Traffic Control" clearly visible on the front and rear panels (minimum letter size 2 inches (50 millimeters).

Worn/faded safety garments that are no longer highly visible shall not be used. The Engineer shall direct the replacement of any worn/faded garment at no additional cost to the State.

A Trafficperson shall assist in implementing the traffic control specified in the Maintenance and Protection of Traffic contained elsewhere in these specifications or as directed by the Engineer. Any situation requiring a Trafficperson to operate in a manner contrary to the Maintenance and Protection of Traffic specification shall be authorized in writing by the Engineer.

Prior to the start of operations on the project requiring the use of Trafficpersons, a meeting will be held with the Contractor, Trafficperson agency, and Engineer to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used on the project.

In the event of an unplanned, emergency, or short term operation, the Engineer may approve the use of properly clothed, non-certified Trafficpersons until such time as a certified Trafficperson may be obtained. In no case shall this temporary use exceed 8 hours for any particular operation.

9.70.04—Method of Measurement: Only Trafficperson services approved by the Engineer will be measured for payment. Services of Trafficpersons will be measured for payment by the actual number of hours for each person rendering services in accordance with these specifications. Services of Trafficpersons utilized by the Contractor for which the Engineer did not approve and deems not necessary for the proper completion of the project or at locations where traffic is unnecessarily restricted by the Contractor's method of operation, will not be measured for payment.

The minimum hours of payment for each Trafficperson supplied by a law enforcement agency or Trafficperson subcontractor in any one day shall be four hours. No Uniformed Trafficperson shall work more than twelve hours in any one day. In case such services are required for more than twelve hours, the Contractor may request additional Trafficpersons. In cases where the Trafficperson is an employee on the Contractor’s payroll, payment for the Trafficperson will be made only for those hours when the Contractor’s employee is performing Trafficperson duties.

Travel time charged by State Police Officers, up to one hour per day, will be measured for payment. No travel time will be allowed or paid for Uniformed Municipal Police Officers or Uniformed Flaggers.

Safety garments and STOP/SLOW paddles will not be measured for payment.

9.70.05—Basis of Payment: The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

"Trafficperson" will be paid for at the actual hourly rate charged for Trafficperson services (monthly statement or receipted bills) by the entity which actually provided the service which have been approved by the Engineer plus a 5% markup. In situations where the Uniformed Flagger is an employee on the Contractor’s payroll, payment will be made in accordance with Article 1.09.04(a) of the Standard Specifications. Use of a

Municipal police vehicle requested by the Engineer will be paid at the actual rate charged by the Municipality plus a 5% markup. The rate charged by the Municipality for use of a Uniformed Municipal Police Officer and/or an official Municipal Police vehicle shall not be greater than the rate it normally charges others for similar services.

There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles will be considered as being included in the general cost of the Contract.

ATTACHMENT C – PREVAILING WAGE RATES

Minimum Rates and Classifications for Building Construction

ID# : B 22615

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: GL-2017-06
Project Town: Glastonbury
State#:
FAP#:

Project: Fiber Backbone Cabling Phase III

CLASSIFICATION	Hourly Rate	Benefits
1a) Asbestos Worker/Insulator (Includes application of insulating materials, protective coverings, coatings, & finishes to all types of mechanical systems; application of firestopping material for wall openings & penetrations in walls, floors, ceilings	35.75	28.82
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	37.15	27.56

As of: **Monday, August 29, 2016**

2) Boilermaker	35.24	25.01
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	33.48	29.16 + a
3b) Tile Setter	34.30	24.15
3c) Terrazzo Mechanics and Marble Setters	31.69	22.35
3d) Tile, Marble & Terrazzo Finishers	26.43	20.59
3e) Plasterer	33.48	29.16

As of: **Monday, August 29, 2016**

Project: Fiber Backbone Cabling Phase III

------LABORERS------

4) Group 1: Laborers (common or general), acetylene burners, carpenter tenders, concrete specialists, wrecking laborers, fire watchers.	28.55	18.90
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofer/mixer/nozzleman (Person running mixer and spraying fireproof only).	28.80	18.90
4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	29.05	18.90
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections) P6 and P7 rate is $26.80.	28.80	18.90
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	29.30	18.90

As of: **Monday, August 29, 2016**

4e) Group 6: Blasters, nuclear and toxic waste removal.	31.55	18.90
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	29.55	18.90
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	28.38	18.90
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	27.86	18.90
4i) Group 10: Traffic Control Signalman	16.00	18.90
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	32.00	24.42

As of: **Monday, August 29, 2016**

Project: Fiber Backbone Cabling Phase III

5a) Millwrights	32.47	24.84
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	38.65	24.42+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	49.00	29.985+a+b
-----LINE CONSTRUCTION----		
Groundman	24.99	6.25%+11.81
Linemen/Cable Splicer	45.43	6.25%+20.70

As of: **Monday, August 29, 2016**

8) Glazier (Trade License required: FG-1,2)	35.58	20.15 + a
9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.22	31.99 + a
----OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer 2 drums or over, front end loader (7 cubic yards or over), work boat 26 ft. and over and Tunnel Boring Machines. (Trade License Required)	38.55	23.55 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	38.23	23.55 + a
Group 3: Excavator; Backhoe/Excavator under 2 cubic yards; Cranes (under 100 ton rated capacity), Grader/Blade; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	37.49	23.55 + a

As of: **Monday, August 29, 2016**

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper).	37.10	23.55 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	36.51	23.55 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine.	36.51	23.55 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	36.20	23.55 + a
Group 7: Asphalt roller, concrete saws and cutters (ride on types), vermeer concrete cutter, Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrell).	35.86	23.55 + a
Group 8: Mechanic, grease truck operator, hydroblaster; barrier mover; power stone spreader; welding; work boat under 26 ft.; transfer machine.	35.46	23.55 + a

Group 9: Front end loader (under 3 cubic yards), skid steer loader regardless of attachments, (Bobcat or Similar): forklift, power chipper; landscape equipment (including Hydroseeder).	35.03	23.55 + a
Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	32.99	23.55 + a
Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	32.99	23.55 + a
Group 12: Wellpoint operator.	32.93	23.55 + a
Group 13: Compressor battery operator.	32.35	23.55 + a
Group 14: Elevator operator; tow motor operator (solid tire no rough terrain).	31.21	23.55 + a

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	30.80	23.55 + a
Group 16: Maintenance Engineer/Oiler.	30.15	23.55 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	34.46	23.55 + a
Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	32.04	23.55 + a
------PAINTERS (Including Drywall Finishing)------		
10a) Brush and Roller	32.02	20.15

10b) Taping Only/Drywall Finishing	32.77	20.15
10c) Paperhanger and Red Label	32.52	20.15
10e) Blast and Spray	35.02	20.15
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	40.62	29.71
12) Well Digger, Pile Testing Machine	33.01	19.40 + a
13) Roofer (composition)	34.12	18.58

14) Roofer (slate & tile)	34.62	18.58
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	36.00	34.51
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	40.62	29.71
------TRUCK DRIVERS------		
17a) 2 Axle	28.83	21.39 + a
17b) 3 Axle, 2 Axle Ready Mix	28.93	21.39 + a

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17c) 3 Axle Ready Mix	28.98	21.39 + a
17d) 4 Axle, Heavy Duty Trailer up to 40 tons	29.03	21.39 + a
17e) 4 Axle Ready Mix	29.08	21.39 + a
17f) Heavy Duty Trailer (40 Tons and Over)	29.28	21.39 + a
17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	29.08	21.39 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	41.37	20.77 + a

19) Theatrical Stage Journeyman	25.76	7.34

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Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $3.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

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Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

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

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

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