

INVITATION FOR BIDS Bid # 19-01
SHUTESBURY MLP Installation Contract for FTTX Services

Sealed bids for furnishing Outdoor fiber drop installation from pole to home (Network Interface Device) and Inside installation to each subscribing customer will be received at the Office of the Shutesbury MLP, Town Hall, 1 Cooleyville Road, Shutesbury, MA 01072 until the time specified below at which time the bids will be publicly opened and read.

Specifications and bid forms may be obtained at the Office of the Shutesbury MLP Monday through Friday between 9:00 am and 4:00 pm.

Bids will be opened in Shutesbury Town Hall, the Office of the Shutesbury MLP, on February 12, 2019 at 4:00 pm Eastern Daylight Time. Each bid must be accompanied by a bid security deposit consisting of a BID BOND, CASH, or CERTIFIED CHECK issued by a responsible bank or trust company in the amount of 5% of the bid price.

Pre-Bid Conference and Site Visit will be held at the Shutesbury Town Hall located at 1 Colleyville Road, Shutesbury, MA on February 1, 2019 at 12:00 pm (noon). Bidders who cannot attend in person may join by conference call (712) 451-0421 Access Code: 867986. Please let Owner know if you will be attending by phone by notifying the Owner via email broadband@shutesbury.org. If you do not attend this conference please advise the MLP at broadband@shutesbury.org that you intend to submit a bid so that any additional information/addenda can be sent to you as a participating bidder. The Town is not responsible for ensuring that prospective bidders receive any additional information including addendum.

A labor and materials bond in an amount equal to 50% of the total amount of the contract price with a surety company qualified to do business in the Commonwealth of Massachusetts will be required.

All bids for this project as subject to applicable public bidding laws of Massachusetts, including but not limited to G.L. c. 30, section 39M.

Attention is directed to the minimum wage rates to be paid as determined by the Commissioner of Labor and Workforce Development and the weekly payroll record submittal requirements under the provisions of G. L. c. 149, section 26 through 27D inclusive.

Selection of the contractor will be based upon bidder qualifications, including evidence of past performance in similar projects and bid price. The contract will be awarded to the bidder deemed by the awarding authority to be the lowest responsible and eligible bidder.

The bidder agree that its bid shall be good and may not be withdrawn for a period of 60 days after the opening of the bids.

The Bidder by submitting a bid agrees to execute the contract provided in the bids documents in substantially the same form as herein.

The Town reserves the right to wave any informalities, to accept or reject, in whole or in part any or all bids, or take whatever other action may be deemed to be in the best interest of the Town.

The Town of Shutesbury/Shutesbury Municipal Light Plant, Massachusetts

TOWN OF SHUTESBURY MUNICIPAL LIGHT PLANT

1 COOLEYVILLE ROAD
SHUTESBURY, MA 01072



INVITATION FOR BIDS Bid # 19-01

SHUTESBURY MLP Installation Contract for FTTX Services

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1 GENERAL INFORMATION AND INSTRUCTIONS TO BIDDERS

Bid 19-01 – Shutesbury MLP Installation Contract for FTTP Services

The Municipal Light Plant of the Town of Shutesbury, Massachusetts is seeking bids from qualified contractors to install fiber optic drops to all premises that request service off their existing Gigabit Passive Optical Distribution Network. The Shutesbury MLP is installing about 40 miles of fiber passing about 850 premises. It is anticipated that approximately 680 (about 80% or more) will request service drops from the MLP distribution system during 2019. The service offered shall be 1Gbps symmetric GPON with Wireless Router included, and/or phone service to any who request it. **This bid includes the Outdoor fiber drop installation from pole to home (Network Interface Device) NID AND Inside equipment installation to each subscribing customer.** The complete scope of work and contract requirements are described and detailed below and in the referenced material, the "Contract Documents."

The Contractor shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and other things necessary to do all work required for the completion of each item of the Work and the Project as herein specified.

The Work/Project to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of the Work or Project herein.

1.1 Bidders' Representation

- 1.1.1 Each General Bidder (hereinafter called "Bidder") by making a bid (hereinafter called "bid") represents that: Prior to the submission of its proposal, each Bidder shall assume the responsibility for making a careful examination of and becoming fully acquainted with all Contract Documents. The failure or omission by any Bidder to receive or examine any form, instrument, or document, or to visit the site of the work to be performed, to acquaint the Bidder with conditions there existing, shall in no way relieve any Bidder from its obligations with respect to its proposal and any resultant contract/purchase award. Bidder shall be required, at its own expense, to comply with all statutes, regulations, ordinances, and tests that may be applicable.

1.2 Bidders' Qualification

- 1.2.1 Your attention is directed to the attached policy statement on the Minority Business Enterprise Program.
- 1.2.2 Your attention is directed to the payment of prevailing wage rates as set by the Massachusetts Department of Labor and Workforce Development. All bids are subject to prevailing wage and weekly reporting. Wage rates are

subject to the minimum rates per MGL c. 149, sec 26 to 27h inclusive.
These rates are included in the bid documents.

- 1.2.3 The Contractor shall provide worker's compensation insurance as required by Massachusetts Labor Laws and all other insurances as required herein.

1.3 Request for Interpretation

- 1.3.1 Bidder shall promptly notify the Town of Shutesbury Municipal Light Plant (MLP) of any ambiguity, inconsistency or error which it may discover upon examination of the Contract Documents, the local conditions or site.
- 1.3.2 Bidders requiring clarification or interpretation of the Contract Documents shall make an electronic request to the MLP referencing the required section for clarification to the following address:

broadband@shutesbury.org

The MLP will answer such requests if received at least THREE (3) calendar days before the date for receipt of the bids.

- 1.3.3 Any interpretation, correction or change in the Contract Documents shall be made by an Addendum, which will become part of the Contract Documents. The MLP will not be held responsible for any oral instruction.
- 1.3.4 Addenda will be electronically mailed by the MLP to every individual or firm on record as having requested a set of Contract Documents.
- 1.3.5 Failure of the MLP to send, or of any bidder to receive any such interpretation shall not relieve the bidder from any obligations under its bid as submitted and all addenda or interpretations shall become part of the Contract as if fully set forth herein.

1.4 Preparation of Bids

- 1.4.1 Bids shall be submitted as described in section 1.10 .
- 1.4.2 Appropriate blanks on the bid form attachments shall be filled in by typewriting or manually in ink. Failure to fill in information may be regarded as no response and be cause for rejection of the bid.
- 1.4.3 Where so indicated by the makeup of the bid form, sums shall be expressed in both words and figures. In case of discrepancy between the two, the written amount shall govern.
- 1.4.4 No internalizations, alterations, or erasures shall be made on the forms.
- 1.4.5 If additional space is required, it shall be so noted on the Bid Pricing Form (Proposal Form) and included as a supplement attached under the Bidder's letterhead. This attachment shall become part of the Proposal Form. Bids shall state a firm price for the materials, equipment, work and services specified in the Proposal Form, in accordance with the Bid Documents. The MLP specifically reserves the right to reject any Proposal not submitted on the Proposal Form provided

and/or not complying with these instructions.

1.4.6 In addition to the Proposal Form each Bidder MUST submit the following:

Bidders Certification Requirement (statement)

Contractors Certification

Subcontractors Certification

Evidence of Insurance Form

Affirmative Action Plan

References from previous projects of the same size scope or larger

1.4.7 Any deviation from these specifications must be noted with the bid. The bidder shall provide a written basis why the deviation should be considered as acceptable.

1.4.7.1 Exception/Clarifications to Instructions

1.4.7.2 Exceptions/Clarification to Specification

1.5 Bid Deposit and 50% Payment Bond

1.5.1 A 5% Bid Deposit must accompany the bid submittal.

1.5.2 The successful bidder shall be required to furnish a 50% Payment Bond from a Surety Company qualified to do business in the Commonwealth of Massachusetts in the sum of fifty percent of the contract price and which is to be paid for by the Contractor

1.5.3 The bonds shall be executed by a surety company licensed by the Massachusetts State Division of Insurance, with Town of Shutesbury /Shutesbury Municipal Light Plant as the payee. The bond shall be filed through the General Manager within five (5) working days after receipt by the vendor of a copy of the fully executed Contract. (M.G.L. c.30, Section 39M).

1.6 Insurance

1.6.1 Insurance coverage shall be required as defined in the Contract Documents.

1.6.2 A Certificate of Insurance naming Town of Shutesbury/Shutesbury Municipal Light Plant as Additional Insured on Contractor's Business, Automobile Liability and Commercial General Liability must accompany your executed contract.

1.7 Taxes

Town of Shutesbury Municipal Light Plant is exempt from Sales Tax. A certificate of tax exemption will be provided after award to the awarded Contractor.

1.8 Hourly Prices (Where Requested)

1.8.1 Each Bidder shall insert the pricing requested on the bid forms in the appropriate location.

1.8.2 By submitting a Bid the bidder agrees that the bidder's overhead and profit

are included and form a part of the price.

- 1.8.3 The MLP reserves the right to increase or decrease the amount of any class or portion of the work to any location in the project, as may be deemed necessary or expedient by the MLP.
- 1.8.4 An increase or decrease in the quantity for any item shall not be regarded as cause for an increase or decrease in the price, or in the time allowed for the completion of the work, except as provided in the contract.

1.9 Indemnification

The Contractor shall indemnify and hold harmless the MLP and its governing board, officers and employees from all claims, expenses and liability related to construction, use, occupancy, ownership, operation, maintenance or control of facilities related to services to be performed under this agreement.

1.10 Submission of Bids

The following list of requirements shall apply to each filed bid. Bids not meeting all of the requirements for timeliness and security will be rejected; bids not meeting signature and addenda requirements will be rejected prior to checking of bid amounts.

- 1.10.1 The General Bid shall be submitted in a sealed envelope as well to:

*ATTN:Town of Shutesbury/
Shutesbury MLP
Town Hall
1 Cooleyville Road
Shutesbury, MA 01072*

- 1.10.2 Bids must be received no later than 4:00 PM (four o'clock) on February 12, 2019 Eastern Daylight Time.

- 1.10.3 Timely delivery of a bid shall be the full responsibility of the bidder.

- 1.10.4 Bid signatures will be checked. Bids received after the time specified above will not be accepted or considered.

Any bidder may modify his bid by written communication at any time prior to the scheduled closing time for receipt of bids. Any telegraphic communication must be received by the Owner prior to the closing time, and provided further, the Owner must be satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. If written confirmation is not received within two days from the closing time, no consideration will be given to a telegraphic communication.

The communication shall not reveal the bid price but shall provide the addition or subtracting or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is open.

Laws and Regulations: The bidder's attention is directed to the fact that all applicable State

laws, municipal bylaws and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the Contract the same as though written out in full.

By signing the Bid the Bidder agrees to execute the Contract with the Owner in substantially the same form as submitted herein.

Liquidated Damages for Failure to Enter into Contract: The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within 10 days after presentation thereof by the Owner, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid, but the amount forfeited shall not exceed the difference between his/her bid price and the bid price of the next lowest responsible and eligible bidder. In case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the bidder, his/her bid deposit will be returned.

Obligation of Bidder: At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

Information not Guaranteed: All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, conduits and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, conduits or other structures encountered during construction will be the same as those indicated in the Contract Documents. It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Designer, arising from or by reason of any variance which may exist between information made available and the actual subsurface or other structures actually encountered during the installation work.

Bid Security: Each bid and sub-bid must be accompanied by bid security in the form of a certified check, a bid bond, cash or a treasurer's or cashier's check, payable to the Owner, in the amount of five (5%) per cent of the value of the bid. Such security of general bidders will be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining securities will be returned promptly after the Owner and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to the

selected contractor within 30 days, Saturdays, Sundays and holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

Right to Reject Bid: The Owner reserves the right to waive any informalities in bids and to reject any and all bids should the Owner deem it to be in the public interest to do so.

The Owner may also reject bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations or similar irregularities.

Statutes Regulating Competitive Bidding: Any bid which does not comply with the provisions of G.L. c. 30, section 39M as amended, need not be accepted and the Owner may reject every such bid.

Wage Rates: Prevailing Wage Rates as determined by the Commission of Department of Labor and Workforce Development under the provision of G. L. c. 149, section 26 to 27G inclusive, as amended, apply to this project. It is the responsibility of the bidder, before bid opening. To request any additional information on Prevailing Wage Rates for those tradespeople who may be employed for the proposed work under this contract.

Contractor Records: the Contractor shall comply with the provisions of G.L. c. 30, section 39R concerning Contractor records.

Insurance: The Contractor shall carry and continuously maintain until completion of the Contract, insurance as specified in the Contract and in such form as shall protect him/her performing work covered by this Contract, and the Town of Shutesbury and its employees, agents and officials from all claims and liability for damages for bodily injury, including accidental death and for property damage, which may arise from operations under this Contract. The Town shall be named as an additional insured. The Contract covenants and agrees to hold the Town and its employees, agents and officials harmless from loss or damage due to claims for bodily injury or death and/or property damage arising from, or in connection with, operations under this Contract.

1.11 Withdrawal of Bids

- 1.11.1 Any bid may be withdrawn prior to the time designated for the receipt of bids.
- 1.11.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.
- 1.11.3 Each bid submitted at the time designated for the receipt of bids shall be valid for a time period of sixty (60) days.

1.12 Award

- 1.11.4 The Contract will be awarded to the lowest responsive/responsible and eligible bidder.
- 1.11.5 The Shutesbury MLP reserves the right to reject any or all bids, or to accept any bid that

in the opinion of the MLP may be in the best interest of the Town.

- 1.11.6 As used herein, the term “lowest responsive/responsible and eligible bidder” shall mean the General Bidder whose bid is the lowest of those Bidders possessing the skill, ability and integrity necessary to the faithful performance of the work and who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.
- 1.11.7 The lowest proposed “Total Bid Price” will be used to select the winning bid, but the actual final Contract Price will be determined by exactly how many services get requested and installed. The Bid Pricing Form is based on a 100% subscription rate, but it might actually be as much as 20% lower than that if not all residents take service. **The actual final Contract Price will therefore be somewhat lower than the Contractor’s proposed Bid Price**, but it will be based on the Contractor’s unit pricing to precisely determine the total amount to be paid.

1.13 Pre-Bid Conference

Pre-Bid Conference will be held February 1st at 12:00 PM (noon) at the Shutesbury Town Hall at 1 Cooleyville Road, Shutesbury, MA. Bidders who cannot attend in person may join by conference call (712) 451-0421 Access Code: 867986 . Please let us know if you will be attending by phone by notifying us over email. If you do not attend this conference please let the MLP know at broadband@shutesbury.org that you intend to submit a bid so that any additional information /addenda can be sent to you as a participating bidder.

2 SCOPE OF SERVICES AND QUALITY REQUIREMENTS

2.1 Network Overview

When this contract commences the fiber distribution network will be substantially complete. Approximately 75% of distribution fiber will be terminated in the Town's Equipment Hut, currently under construction at the Town Hall.

GPON 1 x 16 splitters will be installed in a rack in the Hut.

Approximately 25% of distribution fiber will be terminated in a pole-mounted Fiber Distribution Hub (FDH), in the northern segment of Town, near Lake Wyola.

GPON 2 x 16 splitters will be installed in FDH (initial input signal will be single GPON source).

All potential subscribers are to be fed from an aerial strand-mounted Commscope Multiport Service Terminals (MST)

For a full design scheme in DWG format, including proposed premise drop design please see the CAD files, available here: <https://umass.box.com/v/ShutesburyFiberDesign>

2.2 Scope of Work Summary

2.2.1 The Contractor shall be responsible for installing a fiber service connection ("Drop") to each subscriber address, with one end terminating at MST.

2.2.2 Contractor shall be responsible for installing a Network Interface Device (NID), an ONT and a WiFi Router along with the interconnecting patch cables and cords as described herein.

2.3 Proposed Installation Process

2.3.1 Installation Process

The following section describes the process of installations and customer contact requirements.

For the initial Signup our Internet Service Provider will be soliciting subscribers commencing in March 2019. They will issue Service Work Orders to the Drop Contractor with specific information such as:

- I. Subscriber Name
- II. Subscriber Contact details
- III. Subscriber Address
- IV. Signed permission to: enter property, and ultimately to install cable and attach NID to premises.
- V. Some General Information about the service: all aerial, underground, new conduit dig, existing conduit, etc.

2.3.2 OUTDOOR INSTALLATION WORK SUMMARY AND PROCESS

- i. Connect the drop-fiber cable into the **MST** designated for that service location. Aerial drop fiber shall be securely fastened and supported on the pole.
- ii. The Aerial Drop Fiber shall maintain a minimum 12 ft clearance above any driveways and a minimum 11.5 ft anywhere else.

- iii. The Aerial Drop Fiber shall be overlashed in those sections of its pathway that include a support strand which will have been provided by others. (Refer to the Town Fiber Distribution Maps for locations of MST's and poles).
- iv. At side of house, the Aerial Drop Fiber shall be securely supported by a hardware attachment approved by manufacturer for aerial fiber applications.
- v. Install **NID**, to be mounted at the approved location on the outside of the premises. NID shall be mounted on premises neatly and securely per manufacturer's recommendations, or 36" on center above grade. Secure vertical drop cable neatly between building attachment and the NID.
- vi. Extend drop fiber from MST, via aerial and or underground duct, and fusion splice an SC APC connector to be plugged into the **NID**. If pre-connectorized fiber drop cable is proposed, install the excess drop cable neatly and securely into a device designed for the purpose.
- vii. **Duplexes** get **one drop with two fibers** and one connector for each apartment.
- viii. All products shall be installed in strict conformance with their manufacturer's installation instructions.
- ix. At the MST end, the Aerial Drop Fiber shall be securely fastened and supported on the pole.
- x. The Aerial Drop Fiber shall maintain a minimum 12 ft clearance above any driveways and a minimum 11.5 ft anywhere else.
- xi. The Aerial Drop Fiber shall be overlashed in those sections of its pathway that include a support strand which will have been provided by others. Often the MST is a few poles along the roadway. (Refer to the Town Fiber Distribution Maps for precise locations of all MST's and utility and service poles).
- xii. At house location, the Aerial Drop Fiber shall be securely supported by a hardware attachment to house designed for the task.
- xiii. The Drop Fiber shall be securely and neatly fastened between attachment point and the NID.
- xiv. NID shall be mounted on premises neatly and securely, as per manufacturer's recommendations, or 36" on center above grade.
- xv. Refer to Diagram "AERIAL to UNDERGROUND SCHEMATIC"
- xvi. Specifications for underground fiber drop cable placement are in Addendum A
- xvii. For underground fiber drop cables, provide an **As-Built site map** showing where exactly the duct has been buried, diagramed with precise reference distances to reference points such as permanent structures.

Exception:

- a. Exception- In small number of homes where the existing phone or spare conduit terminates in basement, install NID inside of basement.
- b. In limited locations, the **MST** is mounted in a **pedestal**, and not on pole.

2.3.3 For Outdoor Installations (curb to NID) for all installation situations with no consultation indicated the Contractor can proceed with installation.

“No Consultation” situations will be:

- All aerial installations where the homeowner has given permission for the installation
- All underground installations utilizing a spare, existing conduit where the homeowner has given permission for the installation
- All underground installations utilizing an existing conduit that is currently occupied by telephone cables (rod and rope)

For all other Outdoor Installations (curb to NID), requiring underground construction Contractor shall contact subscriber and arrange site visit to inspect each service request location with the homeowner present. This applies for any situation where the homeowner has requested a consult, or any new conduit installation is to happen.

- i. In consultation with Homeowner) for each request, the Contractor shall sketch and estimate cost of new conduit work.
- ii. Have Homeowner sign estimate, clearly noting “Subscriber Billed Costs” for any requested installation upgrades (See section 2.3.4).
- iii. Submit estimate to the MLP Project Manager (PM) for approval.

2.3.4 TRENCHING REQUIREMENTS

In addition to requirements shown in Addendum A, Contractor shall be responsible for:

- DigSafe mark-out
- Review Trenching Plan with the Subscriber
- Ask Subscriber about the locations of septic field, known buried power lines, satellite dish cabling, irrigation and watering systems, drain pipes, etc.
- Take photos of any trenching work, both open and completed and submit records to MLP.

2.3.3 OUTDOOR INSTALLATION PAYMENT PROCESS

The Shutesbury MLP shall be billed for all outdoor installation work, labor and material. In order to **minimize the cost to the Town**, if premises that have underground utilities can be served by an aerial fiber Service Drop, that shall be the proposed installation method to be proposed. If the Subscriber wants to upgrade the aerial Drop Service Plan to an underground service, they should negotiate and pay the Contractor for the additional cost. If the subscriber requests upgrades to the lowest-cost option for installation, such as a request to go around a prized flower bed or other landscaping feature, those additional costs should be noted on the work order as “Subscriber costs.”

2.3.4 INSIDE INSTALLATION

After the fiber installation has been completed to the NID on a premise, the Contractor will contact the Subscriber (homeowner) to make an appointment for the inside installation. Coordinate installs and light up with the Internet Service Provider. This is especially important if customer has

contracted for a POTS phone service so coordination of porting over phone number can happen on installation day.

2.3.5 INSIDE INSTALLATION WORK SUMMARY AND PROCESS

- i. The NID shall be connected by fiber jumper to an indoor **ONT (see materials list below for specifications on all Contractor provided materials)**.
- ii. The ONT shall be connected by a Cat6 jumper to an indoor **Router/Wireless AP** device.
- iii. Standard install includes 50 ft. basement (or ground floor) installation from NID. Customer must provide power outlet within 6 ft. of the ONT and router and accessible (drop) ceiling in basement or unfinished. If a power circuit needs to be extended so that ONT and Router have **dedicated receptacles** (if none is conveniently available), the customer will be responsible for arranging for an electrician.
- iv. Contractor shall evaluate each installation, and provide a work order to the homeowner on installation day for approval and signing. If work is required (or requested by the homeowner) above the Standard Installation the additional Subscriber Costs should be clearly noted on the work order so that the customer can approve it prior to work beginning. The Contractor will bill the homeowner directly for any work performed above the Standard Indoor Installation.
- v. Test, verify and document performance as specified in Contract Requirements. Provide clear pictures as specified.

2.3.6 ADDITIONAL REQUIREMENTS

- i. Provide “CORI checks” for all indoor installers for the safety of our residents.
- ii. All installation shall be neat, tidy, secure and robustly serviceable, with **professional workmanship** and comply with generally observed “best practices”.
- iii. Installation must comply with all applicable or relevant Local, State and Federal Codes and **Contract Requirements**.
- iv. All building penetrations shall be sealed with materials designed for the purpose. Any damage to premises shall be patched and repaired.
- v. Cables shall be installed neatly and securely, with adequate support and fastened every 3 feet (minimum) with clips expressly designed for the purpose.
- vi. In locations where the installed fiber cable might be subject to physical disturbance or damage, install cable in innerduct or conduit to provide mechanical protection.
- vii. After the service installation is complete, perform all specified testing and documentation (see requirements below), show the subscriber that the WiFi works by connecting an owner mobile device to the Internet – simply by opening any web server application on owner device.
- viii. Test and verify the subscriber phone service if new or after number porting.

2.3.7 INDOOR INSTALLATION PAYMENT PROCESS

Provide on a bi-weekly basis a list of all installed homes and send an invoice to the MLP for the standard installation fee unit cost. Send an individual bill to the homeowner for any costs above the standard installation.

2.4 Pricing

Bid must be filled out **COMPLETELY**. All fields requiring Hourly Pricing, Unit Pricing, Lump Sum, etc. must be complete. All titles listed must be used in proposal and in billing once the bid is awarded. All response sheets must not be altered, only forms supplied by or on behalf of the MLP will be accepted and evaluated with the bid proposal.

2.4.1 Work Week

Normal work week will be forty hours. The work week may include any combinations of hours with the most common being:

4 - 10 hour days or 5 - 8 hour days

Normal working hours may be scheduled on any day of the week Sunday – Saturday. Weekend hours may be required for coordinated ONT installation access with subscribers.

2.5 Term of Contract

2.5.1 The term of this contract will be for one (1) year, with an option for the MLP to renew the agreed upon contract items.

2.6 MATERIALS SPECIFICATIONS

All Materials will be provided by the Contractor.

Aerial Drop Fiber shall be REALFLEX UNIVERSAL OH FLAT DROP CABLE, Commscope #FHD-HP1C in suitable lengths to minimize slack storage, for proposals of pre-connectorized drop cable (both ends). Equivalent Commscope #FHD-H01C shall be used for proposals that include field splicing of SC-APC connector at NID.

The Underground Duct shall be SINGLE MICRODUCT FUTUREPATH 12.7/10 MM RIPCORD W/#20 TRACER DURALINE# 10010132

Underground Drop Fiber installed in duct shall be REALFLEX 5 DROP CABLE Commscope #FHD-H01K-xxxxF and of suitable lengths to minimize slack storage.

The **NID** shall be Commscope Fiber Boss PB06-B or equivalent, subject to approval.

Proposals that specify drop cable pre-terminated on both ends will be considered, and must include a proposed NID and plan for excess slack.

The SC APC Fiber Connector shall **meet** IEC 61754-4, TIA 604-3-B and FOCIS-3 standards

From NID to ONT install SC/APC to SC/APC SM ruggedized pre-connectorized optical jumper in an appropriate length up to 50 ft for the Basic Install.

The Cat 6 jumper cable from ONT to WiFi Router shall be made by Belden or **approved** equal.

2.7 TESTING AND DOCUMENTATION REQUIREMENTS

For fiber drop cable with field-prepared, fusion-spliced connector, splice loss result to be provided to Owner, and shall be less than 0.01dB.

Light source power meter test with active GPON port: After connecting fiber drop to MST, utilize wavelength selective power meter to record downstream optical 1490nm and 1550nm signal levels at input to NID, using EXFO PON PPC-350 , or similar equipment. Repair or replace any components that do not pass tests.

All results must be documented and submitted with the **work order, in format approved by Owner and ISP**. All work must conform to all applicable city, state, local, NESC, NEC codes and ordinances and Contract Requirements.

3 BID PRICING SHEETS

PART A: OUTSIDE INSTALLATION (MST to NID)

Work Operations: Clean/Scope/Connect the drop-fiber cable into the MST designated for that service location. Install exterior NID device and dropwire attachment hardware, on side of dwelling at location near existing Telco facility entrance. Extend drop fiber from MST, via aerial and/or underground duct, and fusion splice an SC APC connector to be plugged into the NID. All materials to be provided by the vendor, including NID.				
Item	Aerial Installations	Estimated Quantity	Units	Unit Cost (1 unit)
1	Unit Base Rate per premise ¹ drop cable up to 150' (616 premises x 150' = 92400 drop feet)	616	Premises	
2	Additional footage >150'	36972	foot	
Note there are 380 estimated drop wire service poles involved for these 616 aerial installations.				
Underground Installations				
	New Underground Conduit	113	Premises	
	Estimated Total footage	46963	feet	
4	Machine Plow HDPE microduct - 12"-18" depth		foot	
5	Machine Trench (6-12"wide), place HDPE microduct - 12"-18" depth		foot	
6	Machine Bore under roadway or driveway, pull HDPE microduct - 12"-18" depth		foot	
	Existing Underground Conduit (telcomm occupied)	59	Premises	
	Estimated Total footage	12661	feet	
7	Rod/rope existing conduit/pull fiber drop (existing live phone dropwire)		foot	
8	Removal/re-installation of copper phone drop with new fiber drop cable		foot	
	Existing Underground Conduit (empty spare conduit)	36	Premises	
	Estimated Total footage	10355	feet	
9	Road/rope existing conduit pull fiber drop (existing empty spare conduit)		foot	
10	Police Details (road-crossings) To be coordinated and paid by Contractor (and recharge the Town.) Please see police detail information in attachments.			
Outside Instructions/Notes:				
<ul style="list-style-type: none"> Bids must be submitted with line item pricing for installation of FTTP service drops for all Items, and all subject to the Contract Requirements: 				
<ul style="list-style-type: none"> Item 1- Service Drop Fixed Fee Aerial - shall encompass all labor, equipment and material costs that are fixed relative to cable pathway length, including aerial placement of cable, slack loops, NID installation, splicing / connectorization, cable termination, aerial fiber drop cable, and mobilization. This Fixed Fee shall cover the complete outside installation for premises up to 150 feet cable length from MST to NID and that do NOT require any new trenching or microducting or sharing existing conduit. ¹Duplex housing units shall use 2-fiber drop cable, counted at 1.5 units 				
<ul style="list-style-type: none"> Item 2 - Aerial Path Installation (beyond the 150 ft) - shall encompass all labor, equipment material charges for installation of service drop cable along any aerial segment of the path between a NID and an optical fiber terminal port, measured on a per linear foot basis. 				
<ul style="list-style-type: none"> Items 4, 5, 6 - New Underground Installation (Microduct) - shall encompass all labor, equipment material charges for installation of service drop cable along any underground segment of the path between a NID and an optical fiber terminal port requiring new microduct / conduit placement, underground drop cable, including pull tape and tracer wire installation required. 				
<ul style="list-style-type: none"> Item 7, 8, 9 - Existing Underground Installation (existing/spare) - shall encompass all labor, equipment material charges for installation of service drop cable along any underground segment of the path between a NID and an optical fiber terminal placed in existing conduit, to include any rodding and roping, pull tape installation, underground drop cable, and tracer wire installation required. 				

PART B: INSIDE INSTALLATION (NID to Router)

	Quantity	Units	Unit Cost
<p>Contractor to provide the fiber jumper NID to ONT, Cat6 patch cable ONT to Router, mounting hardware, miscellaneous materials, labor and setup.</p> <p>-SMLP will provide only the ONT and router.</p> <p>-Standard install includes up to 50 ft. basement cabling from NID. Customer must provide power outlet within 6 ft. of the ONT and Router. Basement or crawlspace must be unfinished and/or have accessible drop ceiling in place.</p> <p>-Additional work such as install of 2nd RJ45 outlet, extending CAT6 and router to a second floor, etc. would need to be quoted, accepted/signed by homeowner, and billed directly to the homeowner.</p> <p>-Coordinate install schedule and activate ONT with the ISP (Crocker). Especially important if customer has contracted for a POTS phone service so coordination of porting over phone number can happen on installation day)</p>	850	Premises	
Cutover existing phone wiring to ONT RJ-11 port		Phone Line	
Labor per hour (beyond standard installation above, as requested by homeowner) TECHNICIAN		HOURLY	

These numbers assume a 100% take rate. We will only have 75 - 85% of homes take service likely.

Note that in the premise report exact distances are not given for "standard drops" of less than 150 ft for either aerial or underground. The report simply assumes 150' for each of them. So footages estimates are conservative on the high side due to this assumption

Some installations are "combination drops" where the drop might include both underground and aerial installation at the same premise.

Unit quantities specified in the Bid Form are based on an **total best guess estimates**, to allow Contractor to gauge the approximate scope of the total work involved.

4 CERTIFICATION OF PRIME/SUB CONTRACTOR FOR CONSIDERATION OF ELIGIBILITY

REQUIRED TO BE RETURNED WITH YOUR BID

4.1 Bidders' Certification Requirement

The bidder hereby certifies that it shall comply with the minority manpower ratio and specific action steps contained in the Supplemental EEO Anti Discrimination & Affirmative Action Plan attached hereto, including compliance with the minority contractor compliance specified in Section V of said Supplement. The contractor receiving the award of the contract shall be required to obtain from each of its subcontractors and submit to the contracting or administering agency prior to the performance of any work under said subcontractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in the Appendix EEO.

TAX CERTIFICATION – MASS. G.L.C. 62 C s. 49A

I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

Print- Name of person signing bid

Signature

Company

Title

Street Address

City, State, Zip code

4.2 Contractors' Certification

A contractor will be not eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

CONTRACTORS' CERTIFICATION

_____ certifies that :
Contractor

Contractor tends to use the following listed construction trades in the work under the contract

- ☐ Fiber Optic Splicing
- ☐ Installation of Fiber Optic Cable
- ☐ Hardware and Strand Pole Line Construction
- ☐ Underground Conduit Construction
- ☐ Fiber Optic Cable Pulling or Blown in Conduit
- ☐ Fiber Optic Cable Testing and Certification

; and

Will comply with the minority manpower ratio and specific affirmative action steps contained herein; *and*

Will obtain from each of its subcontractors and submit to the contracting or administering agency prior to the award of any subcontract certification required by these bid conditions.

(Signature and title of authorized representative of contractor)

4.3 Subcontractors' Certification

*Required to be returned with your bid if a sub-contractor will be used on this project

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the Prime Contractor the following certification, which will be deemed a part of the resulting contract:

SUBCONTRACTORS' CERTIFICATION

_____ certifies that:
Subcontractor

Subcontractor tends to use the following listed construction trades in the work under the contract

- ☐ Fiber Optic Splicing
- ☐ Installation of Fiber Optic Cable
- ☐ Hardware and Strand Pole Line Construction
- ☐ Underground Conduit Construction
- ☐ Fiber Optic Cable Pulling or Blown in Conduit
- ☐ Fiber Optic Cable Testing and Certification

; and

Will comply with the minority manpower ratio and specific affirmative action steps contained herein; and

Will obtain from each of its subcontractors, prior to the award of any subcontract under this subcontract, the subcontractor certification required by these bid conditions.

(Signature and title of authorized representative of subcontractor)

In order to ensure that the said subcontractor's certification becomes a part of all subcontracts under the prime contract, no signature shall be executed until an authorized representative of the Administrative Agency administering this project has determined, in writing, that the said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

4.4 Evidence of Insurance Coverage Form

CERTIFICATE OF INSURANCE

Contractor's Name: _____ RE: _____

Address: _____

Bid Title: _____

Bid Date: _____

Signature: _____ Tel. No.: _____

The Town of Shutesbury Municipal Light Plant requires contractors with whom it does business to provide the MLP with a certificate of insurance evidencing their insurance coverages.

Please send a copy of this form to your insurance broker/agent or insurance company.

The following certificate MUST COMPLY with our insurance requirements, which are as follows:

Prior to the start of the Work, the Contractor shall procure and maintain in force Workers Compensation Insurance, Employers' Liability Insurance, Business Automobile Liability Insurance, Commercial General Liability Insurance (CGL), and Builder's Risk insurance. The CGL policy shall include coverage for liability arising from premises, operations, independent contractors, products- completed operations, personal injury and advertising injury, contractual liability, and broad form property damage. The primary CGL coverage and the Builder's risk policies shall also name the Owner as an additional insured on a primary basis for liability arising out of the Work. Upon execution of the Agreement, the Contractor shall provide the Owner with certificates of the insurance coverage required for all of the coverage herein specified. The Contractor's Employers' Liability, Business Automobile Liability, and Commercial General Liability policies, as required in this Subparagraph 10.3.1, shall be written with at least the following limits of liability, on an occurrence and primary, non-contributory, basis.

Employers' Liability Insurance

- | | | |
|----|-------------|---|
| a. | \$1,000,000 | Bodily Injury by Accident Each Accident |
| b. | \$1,000,000 | Bodily Injury by Disease Policy Limit |
| c. | \$1,000,000 | Bodily Injury by Disease Each Employee |

Business Automobile Liability Insurance

- | | | |
|----|-------------|---------------|
| d. | \$1,000,000 | Each Accident |
|----|-------------|---------------|

Commercial General Liability Insurance

- | | | |
|----|-------------|-----------------|
| e. | \$1,000,000 | Each Occurrence |
|----|-------------|-----------------|

- f. \$5,000,000 General Aggregate
- g. \$5,000,000 Products/Completed Operations Aggregate
- h. \$1,000,000 Personal and Advertising Injury Limit

Builder's Risk Insurance

- i. \$1,000,000 Each Occurrence

The comprehensive general liability insurance must also specify that its coverage will be primary to the Town of Shutesbury Municipal Light Plant for claims arising out of our contractual relationships.

The Town of Shutesbury Municipal Light Plant MUST be named as additional insured on the comprehensive general liability, umbrella/excess liability and pollution liability insurance policies.

The certificate must evidence any dedicatees (other than auto physical damage deductibles) or self-insurance retentions that apply to all required insurance coverages.

The insurance companies underwriting all required coverages must maintain a Best's Rating of at least A-: Class V.

The cancellation clause of the certificate of insurance must read as follows:

"Should any of the above described policies be cancelled, not renewed, change materially in amount of coverage or changed in insuring form, the issuing company will give 30 days prior written notice to the below named Certificate Holder."

A COPY OF YOUR CERTIFICATE OF INSURANCE ATTACHED TO THIS FORM MUST
ACCOMPANY YOUR BID RESPONSE.

5 ADDITIONAL BID REQUIREMENTS

REQUIRED TO BE RETURNED WITH YOUR BID

5.1 Requirements and Information

5.1.1 Introduction

Consideration of Eligibility as a Prime/Sub Contractor is required for projects put out to bid by the MLP. This application is only to be completed by bidders that wish to be considered as eligible prime/sub contractors.

An Application for Eligibility is not required for:
Ordinary (non-filed) sub-bids

5.1.2 Requirements for Consideration

1. Your firm or principal must demonstrate proven experience of at least 10 years in the category of work for which consideration is sought under the described bid information.
2. You must provide proof of OSHA Approved Line Clearance Training.
3. Your firm must have an established bonding capacity with minimum single and aggregate project limits in excess of \$1,000,000 and \$5,000,000 with a surety that is licensed to do business in the Commonwealth of Massachusetts and is on the most recent list of approved sureties issued by the United States Department of the Treasury.
4. Your firm must be able to demonstrate its ability, through its Owner, Supervision, workforce, and equipment, to satisfactorily complete the work under this specification with regard to safety, productivity, quality, and customer service.

****Please Detach the Previous Section and retain it for your Records****

5.2 Application

In filling out this application, be sure to answer all questions and include all required information.

Failure to answer any question or comply with any directive contained in these forms may result in denial of certification.

Check next to each item and ensure that the following are included:

- ☐ Application for Consideration (Section II).
- ☐ Copy of Current State Office of Minority and Women Business Assistance (SOMWBA) Certificate, if applicable (Section II (A)(4)).
- ☐ Most recent Massachusetts Corporation Annual Report or Massachusetts Foreign Corporation Annual Report if an out of state firm (Section II (A)(8)) or LLC Annual Report if an LLC (Section II (A)(8)), and, for new applicants, please include Articles of Organization or Massachusetts Foreign Corporation Certificate if an out of state firm (Section II (A)(8)) or Certificate of Organization if a Limited Liability Company (LLC) (Section II (A)(8)).
- ☐ Resumes of all Principal and Supervisory Personnel (Section II (B)).
- ☐ Applicable licenses and certifications for any personnel anticipated to be used in the duration of this contract.
- ☐ Original letter from Bonding Agent or Surety Company addressed to Town of Shutesbury Municipal Light Plant confirming single project and aggregate limits in excess of \$1,000,000, and the name of the surety (Section II (D)(1)).
- ☐ Most Recent Year Ending CPA-Reviewed or Audited Financial Statement (Section II (D)(2)).
- ☐ Workers Compensation Insurance Binder or Policy and verification of your firm's Experience Modification Rating (EMR) (Section II (D)(4)), if applicable.

DO NOT SUBMIT BINDERS OR INCLUDE SUPERFLUOUS MATERIALS

5.3 Bidder Background Information

Category Sheet

Company Name: _____

Address: _____

Telephone: _____

Fax: _____

E-Mail Address: _____

Submitted by: _____

Date: _____

Check all categories of work from the list below for which you have had recent pertinent experience.

Categories of Work:

- ☐ Fiber Optic Splicing
- ☐ Installation of Fiber Optic Cable
- ☐ Hardware and Strand Pole Line Construction
- ☐ Underground Conduit Construction
- ☐ Fiber Optic Cable Pulling or Blown in Conduit
- ☐ Fiber Optic Cable Testing and Certification

Date received: _____

5.4 Historical Data/Organization

1. Indicate the exact name by which your firm is known:
2. How many years has your firm been in business under its present business name?
3. Indicate all other names by which your firm has been known and the length of time known by each name:
5. Is your firm currently certified by the state office of minority and women business assistance (SOMWBA) as an MBE, WBE, or MWBE? ☐ yes ☐ no
If yes, please provide a copy of your firm's current SOMWBA certificate.
5. My firm is a: (check one)
☐ Corporation ☐ Limited Liability Company
☐ Sole Proprietorship ☐ Partnership ☐ Business Trust

If a corporation or LLC, list or enclose the following:

6. State of Incorporation:
7. Date of Incorporation:
8. Enclose your firm's most recent Massachusetts Corporation Annual Report or Massachusetts Foreign Corporation Annual Report if an out of state firm or LLC Annual Report if a Limited Liability Company (LLC). For new applicants, please include Articles of Organization or Massachusetts Foreign Corporation Certificate if an out of state firm or Certificate of Organization if an LLC.

If a sole proprietorship, partnership, or business trust list or enclose the following:

9. Name of proprietor, principal partners, or principal officers:
10. State in which organized:
11. Date business was initiated/organized:
12. Type of partnership (e.g. 50/50, etc.):
13. If a sole proprietorship, include a copy of business certificate as filed with town clerk of town where business is located.

14. If a partnership, include a copy of business certificate as filed with the clerk of the city or town where partnership is located. Also, attach a copy of the partnership's articles of formation or partnership agreement.
15. If a business trust, include a copy of declaration of business as filed with the secretary of the commonwealth.

5.4.1 Personnel

Enclose resumes of all officers, partners, principal individuals and other key personnel in your firm. Information must include:

- i. educational background
- ii. construction experience
- iii. number of years with this firm
- iv. names of all other firms in which the individual now has or has in the past had a financial interest or decision-making responsibility.
- v. licenses held - individual and corporate (attach copies)

5.4.2 Organizational Experience

1. List all trades in which your firm customarily engages with its own employees:
2. What percentage of work does your firm customarily perform with its own employees?

5.4.3 Bonding, Financial Data, and Workers' Compensation

1. Attach an original letter from your bonding agent addressed to Town of Shutesbury Municipal Light Plant, confirming single and aggregate limits and providing name of Surety Company. The single and aggregate limits must be in excess of \$100,000. Please note: the surety company must be licensed to issue bonding in the Commonwealth of Massachusetts by the Division of Insurance and must be on the most recent list of approved sureties issued by the United States Department of the Treasury.
2. Attach the most recent, complete year-ending **reviewed** or **audited** statement of financial condition prepared by a certified public accountant (CPA), including balance sheet, income statement, statement of cash flows, notes, and the most recent CPA-prepared mid-year financial statement. **Year-ending CPA-compiled statements are not acceptable**; however, mid-year statements may be CPA-compiled. Applicants that have parent companies, affiliates, or subsidiaries must provide a stand-alone financial statement that pertains solely to the applicant; in such cases if no CPA-reviewed or CPA-audited financial statement is available, the applicant may provide an in-house generated report, provided it includes a balance sheet, statement of income, and reviewed or audited statement of the parent company.

3. State the highest dollar volume of all construction work you have completed during any twelve month period within the past five years \$_____. During what twelve-month period was this work completed? _____ - _____.
Attach a CPA-prepared document confirming this information. Note: in lieu of this information, you may use your CPA-prepared financial statement as confirmation.
4. Attach a copy of your firm's Workers Compensation Insurance policy or binder and please ensure that it indicates your firm's Experience Modification Rating (EMR).

5.4.4 Highest Value Projects Experience

Indicate the two highest value single similar contracts completed by your firm within the past five years including start and end dates, names, addresses, and telephone numbers of owners, designers, and general contractors (or their representatives). When listing requested Categories of Work, refer to categories from Section 5.3 of this application. If a contract included more than one Category of Work for which your firm seeks eligibility, and the work was performed by your firm's own employees, please provide dollar breakdowns attributable to each category of work separately. .

Highest Single Project:

Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state): _____

Start / End dates: _____ / _____

- Owner: _____

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

Second Highest Project:

Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state): _____

Start / End dates: _____ / _____

- Owner: _____

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

5.4.5 Projects in Progress

List all **similar contracts** your firm has in process on this date that have a value of at least \$25,000. Do not list projects with contract values of less than \$25,000. If your firm has more than ten (10) projects in process on this date, please restrict your list to the ten oldest contracts still in process. **Information on randomly selected projects is not acceptable.** Answer all questions. When listing requested Categories of Work, refer Section 5.2 for categories of this application and list all relevant categories of work which your firm performed with its own employees for each project. With respect to single contracts involving multiple categories of work, **provide a dollar breakdown attributable to each category listed.** Attach additional sheets, if necessary.

1. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____ / _____

- Owner: _____

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

2. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____ / _____

- Owner: _____

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

3. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

4. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

5. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:
Category 1) _____
\$ _____
Category 2) _____
\$ _____
Category 3) _____
\$ _____
Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____
Contact Person:

Telephone Number: _____
Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____
Complete Mailing Address:

6. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:
Category 1) _____
\$ _____
Category 2) _____
\$ _____
Category 3) _____
\$ _____
Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____
Contact Person:

Telephone Number: _____
Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____
Complete Mailing Address:

Project Title: _____

Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____ / _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

7. Project Title: _____

Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____ / _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

8. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

9. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

- Construction Manager, General Contractor, or Designer:

Contact Person: _____

Telephone Number: _____

Complete Mailing Address: _____

5.4.6 Completed Projects

List all similar construction projects having a value of at least \$25,000, which your firm has completed within the past five years or the ten most recent projects completed within the past five years that were at least \$25,000. Do not list projects with contract values less than \$25,000. **Information on randomly selected projects is not acceptable.** Note: when listing requested Categories of Work, refer to categories from Section 5.2 of this application. List all relevant categories of work that your firm performed with its own employees for each project. With respect to single contracts involving multiple categories of work, **provide a dollar breakdown attributable to each category listed.** Attach additional sheets, if necessary.

1. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____
\$ _____
Category 2) _____
\$ _____
Category 3) _____
\$ _____
Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____
Contact Person:

Telephone Number: _____
Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

2. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____
\$ _____
Category 2) _____
\$ _____
Category 3) _____
\$ _____
Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____
Contact Person:

Telephone Number: _____
Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____
Complete Mailing Address:

Telephone Number: _____
Complete Mailing Address:

3. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

4. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

5. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

6. Project Title: _____
Enter all appropriate Category(s) of Work (from Page 5) and include a dollar breakdown for each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

7. Project Title: _____
Enter all appropriate Category(s) of Work (from
Page 5) and include a dollar breakdown for
each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or
Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

8. Project Title: _____
Enter all appropriate Category(s) of Work (from
Page 5) and include a dollar breakdown for
each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or
Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

9. Project Title: _____
Enter all appropriate Category(s) of Work (from
Page 5) and include a dollar breakdown for
each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or
Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

10. Project Title: _____
Enter all appropriate Category(s) of Work (from
Page 5) and include a dollar breakdown for
each category:

Category 1) _____

\$ _____

Category 2) _____

\$ _____

Category 3) _____

\$ _____

Total Contract Amount: \$ _____

- Project Location (city & state):

Start / End dates: _____/ _____

- Owner: _____

Contact Person:

Telephone Number: _____

Complete Mailing Address:

- Construction Manager, General Contractor, or
Designer:

Contact Person:

Telephone Number: _____

Complete Mailing Address:

Regarding the information you supplied in Sections 5.2.5, 5.2.6, and 5.2.7:

Is your firm or any individual who owns, manages or controls your firm affiliated with any owner, designer or general contractor named in Sections 5.2.5, 5.2.6, and 5.2.7 either through a business or family relationship? (Check one) ☐ yes ☐ no

Are any of the contact persons named in Sections 5.2.5, 5.2.6, and 5.2.7 affiliated with your firm or any individual who owns, manages or control your company, either through a business or family relationship? (Check one) ☐ yes ☐ no

If you have answered yes to either question, please explain. Attach additional sheets, if necessary.

5.4.7 General Performance

Answer the following questions by using your cursor to click YES or NO. Information is to cover the past five years prior to the date of submission of this application.

If you answer YES to any question, on a separate page provide a complete explanation. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
1. Has your firm been terminated on any contract prior to completing a project or has any officer, partner or principal of your firm been an officer, partner or principal of another firm that was terminated or failed to complete a project?	<input type="checkbox"/>	<input type="checkbox"/>
2. Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has your firm failed or refused to complete any punch list work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
4. Has your firm filed for bankruptcy, or has any officer, principal or individual with a financial interest in your current firm been an officer, principal or individual with a financial interest in another firm that filed for bankruptcy?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has your surety taken over or been asked to complete any of your work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
6. Has a payment or performance bond been invoked against your current firm, or has any officer, principal or individual with a financial interest in your current firm been an officer, principal or individual with a financial interest in another firm that had a payment or performance bond invoked?	<input type="checkbox"/>	<input type="checkbox"/>
7. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	<input type="checkbox"/>	<input type="checkbox"/>
8. Has any subcontractor filed a demand for direct payment with an awarding authority for a public project on any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>

9. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
10. Have there been any deaths of an employee or others occurring in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>
11. Has any employee or other person suffered an injury in connection with any of your projects resulting in their inability to return to work for a period in excess of one year?	<input type="checkbox"/>	<input type="checkbox"/>

5.4.8 Legal or Administrative Proceedings; Compliance with Laws

Please answer the following questions. Information is to cover all judicial and administrative proceedings arising prior to the date of submission of this application.

The term “administrative proceeding” as used in this application for certificate of eligibility includes (i) any action taken or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code, legal, or contractual requirement, except for those brought in state or federal courts, or (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal or contractual requirement.

If you answer yes to any question, on a separate page provide a complete explanation of each proceeding or action and any judgment, decision, fine or other sanction or result. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgment or decision was entered, fines or penalties imposed, etc.).

	YES	NO
1. Are there any judicial proceedings (other than criminal proceedings) pending or that have been concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to the procurement or performance of any construction contract, including but not limited to actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have any criminal proceedings been brought or have there been any convictions against your firm or a principal or officer or anyone with a financial interest in your firm relating to any of the following offenses: fraud, graft, embezzlement, forgery, bribery, falsification or destruction of records, receipt of stolen property, or environmental offenses?	<input type="checkbox"/>	<input type="checkbox"/>
3. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a violation of state or federal procurement laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
4. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a violation of state or federal laws regulating campaign contributions?	<input type="checkbox"/>	<input type="checkbox"/>
5. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a violation of chapter 268A of the Massachusetts General Laws?	<input type="checkbox"/>	<input type="checkbox"/>
6. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a violation of any state or federal law regulating prevailing wages?	<input type="checkbox"/>	<input type="checkbox"/>

Legal or Administrative Proceedings; Compliance with Laws (continued)

	YES	NO
7. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a violation of any state or federal law regulating hours of labor, unemployment compensation, minimum wages, overtime pay, equal pay, child labor or worker's compensation?	<input type="checkbox"/>	<input type="checkbox"/>
8. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>
9. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer or anyone with a financial interest in your firm relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations or occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>
10. Have any proceedings been brought by any municipal, state or federal agency to debar or suspend your firm or any principal or officer or anyone with a financial interest in your firm from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
11. Has your firm been denied certification, been decertified or debarred for any reason by any state or federal agency?	<input type="checkbox"/>	<input type="checkbox"/>
12. Has your firm been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety? Note: this information may be obtained from OSHA's Web Site at www.osha.gov	<input type="checkbox"/>	<input type="checkbox"/>
13. Has your firm been sanctioned for failure to achieve DBE/MBE/WBE goals, workforce goals, or failure to file certified payrolls on any public projects?	<input type="checkbox"/>	<input type="checkbox"/>

5.4.9 Certification (notarization required)

The undersigned _____ hereby certifies:

(Print name)

That I am an owner or principal of _____,
(Company name)

and that all answers and all statements contained in the attached application for certificate of eligibility are true and correct. Providing false or misleading information or failure to provide all required information will be considered grounds for denial, decertification and/or debarment. I attest to the accuracy of all information contained in this application and verify that the information submitted is in fact accurate and true, under oath.

Signed and Sworn under the Pains and

Penalties of Perjury. Dated at _____

This _____ day of _____, 20__.

By (signature): _____

Print name: _____

Title or position: _____

_____ ss. _____
(county) (state)

Before me, _____,
personally appeared and (notary public)

known to me to be _____, based (name of officer)
on satisfactory evidence which was his/her driver's license and
acknowledged that he/she is authorized to execute the foregoing and that
its execution is his/her free act and deed and the free act and deed of the

firm.

_____ My commission

expires: _____ (notary public
signature)

(print name)

Attachment A—(1) Certificate As to Corporate Bidder; (2) Certificate as to Payment of State Taxes; (3) Certificate of Non-collusion; and (4) Certificate of Fair labor practices

(1) CERTIFICATE AS TO CORPORATE BIDDER

I, _____ certify that I am the _____ of the corporation named as Bidder in the Bid included herein, that _____, who signed said Bid on behalf of the Bidder was then _____ of said corporation, that I know his signature, that his signature thereon is genuine and that said Bid was duly signed, sealed and executed for and in behalf of said corporation by authority of its governing body.

(Corporate Seal)

(Secretary-Clerk)

Dated:_____

(3) CERTIFICATE AS TO PAYMENT OF STATE TAXES

Pursuant to M.G.L. Ch. 62C, sec. 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

Social Security Number or
Federal Identification Number

Signature of Individual or Corporate
Name

By: _____
Corporate Officer (if applicable)

(3) CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

(Name of person signing bid or proposal)

(Name of Business)

(4) CERTIFICATE OF FAIR LABOR PRACTICES

The undersigned certifies under penalties of perjury that in accordance with Section 504 of the (Federal) Rehabilitation Act of 1973 and 31 Code of Federal Regulations, Part 51, his/her company does not discriminate on its employment, procurement and marketing activities on the basis of race, creed, color national origin, sex, handicap or age.

(Name of person signing bid or proposal)

(Name of Business)

Addendum A

GENERAL SPECIFICATIONS AND STANDARDS

GENERAL REQUIREMENTS

- 1.1 PERMITS - Contractor shall obtain and track the status of all permits needed to construct the project. The Contractor shall work closely with the OWNER to determine the necessary Right of Entry and permits.
- 1.2 PROJECT MANAGER - for the Contractor shall be required to meet with each agency, along with representatives from the OWNER, and collect any necessary information from the agencies for design and permit submittal. These meetings will commence no later than two weeks after the "Notice to Proceed" is given to the Contractor.
- 1.3 REDLINE DRAWINGS - Contractor shall provide As-Built drawings in Portable Document Format (PDF) as well as 11x17 paper copies to the OWNER. The Contractor shall update actual construction progress as applicable on redline drawings during construction. Such drawings shall be available to the OWNER for review throughout the project.

CONSTRUCTION SPECIFICATIONS

2.1 MATERIALS AND EQUIPMENT

All materials and equipment shall be new and shall be applied, installed, connected, erected, utilized, cleaned and conditioned in accordance to OWNER specifications and the specific standards specified in the following sections. All conduits and cable shall be plugged or capped during the construction process and upon completion to prevent any intrusion of silt, water, or foreign substances into the infrastructure. Contractor shall abide by the following acceptable practices to complete the installation.

2.2 PLOWING (preferred)

2.2.1 Plowing innerduct includes the hauling of innerduct from storage area to work location and any handling required to properly install (via direct burying) the innerduct in the ground to a minimum depth of 12 inches (12-18" typical). This Work includes coordination with utility owners in locating their facilities prior to the installation of the innerduct.

2.2.2 The plowing equipment shall be subject to the approval OWNER and respective Authorities of having jurisdiction over roadway and railroad right-of-way.

2.2.3 The equipment and construction methods used by the Contractor shall be such as to cause minimum displacement of the soil. The slot made in the soil by the cable plows shall be closed immediately by tamper or by other suitable means.

2.2.4 Damage to banks, ditches, and roads caused by the equipment shall be immediately repaired and restored to original condition to the satisfaction of the Jurisdictional Authorities.

2.2.5 Where cable is buried near the edge of pavements, the Contractor shall take particular care to avoid damaging the pavement. If such damage does occur, repairs shall be made immediately to restore to original condition to meet the requirements of the Jurisdictional Authorities and at minimum within 10 business days thereafter.

2.2.6 The Contractor shall promptly repair any damage to fences, lawns, shrubbery, drives and any other property damaged during construction to original condition.

2.2.7 The start pits, finish pits, and pits at points of intersections will be excavated in advance of plowing. Utility crossings will be exposed prior to start of plowing operations. The Contractor shall exercise care in the use of trenching equipment and shovels in joining slots and/or trenches to other slots/trenches to be certain that the cable is not damaged.

2.3 GRASS/SOD TRENCH INSTALLATION

2.3.1 Where plowing is unfeasible, Contractor shall excavate as required (i.e. machine trench, hand dig, etc.) to install ducts as indicated in the Contract Drawings as applicable to allow a minimum of twelve inches (12") (typ. 12"-16") of cover to top of conduit below finished grade, or as specified on the Contract Drawings and/or permits. The installation shall be complete with removal and disposal of excavated materials or materials not suitable for backfill and the installation of the conduit.

2.3.2 Restoration shall include the placement of select fill or clean backfill compacted. Clean backfill is defined as existing native soil containing material that is free of debris and contains no cobbles greater than one-half inch (1/2") in diameter. The Work may also include shoring, bracing, road bore connections, and all other operations necessary to complete the installation.

2.3.3 Trenches shall be kept as straight as practical. The bottom of the trench shall be smooth and free from any sharp edges. The trench shall be kept clear of debris and loose rock. All changes in trench grade shall be less than one foot (1') per ten feet (10').

2.3.4 In applications where HDPE ducts are installed, Contractor shall install the ducts to prevent excessive waving of the ducts within the trench. Contractor shall tension the ducts to prevent waving in the trench prior to backfilling. Conduits shall be installed in such a manner as to keep conduit configuration consistent. Conduits shall be bound along the trench line every ten feet (10') to maintain this configuration and minimize spiraling.

2.3.5 Fiber Optic warning tape shall be installed 10 inches (10") above buried facilities in open trench construction.

2.3.6 Contractor shall have the full responsibility to ensure tie-ins and duct couplings be made to ensure elevations remain as straight as possible and that the duct and conduit joints provide an airtight seal. Contractor shall furnish duct couplers to achieve this requirement.

2.3.7 All trench sections must be closed at the end of each working day. Contractor shall restore the surface conditions to original or better conditions or as required by the Jurisdictional Authorities.

2.3.8 Contractor shall furnish and install 10 gauge insulated locate wire within all trench line excavations leading into access points in absence of embedded conduit tracer wire (typically in Microduct applications) . Locate wire shall be installed as described and as shown on the typical details in Exhibit D.

Tracer wire can be pulled and co-located within conduit during cable installation. Routing of all tracer toner cabling shall be brought to pedestal fixture and grounding bar. Proper grounding shall be installed to provide sufficient conductivity for locating equipment.

2.3.9 Contractor shall in his pre-construction survey determine soil conditions. Rock conditions shall be determined jointly by the OWNER representative and Contractor prior to project commencement determine conditions and any change request in unit pricing.

2.3.10 Contractor shall notify The OWNER of areas where minimum cover requirements cannot be met. Contractor shall ensure that locations with minimum cover are protected by such means as to cover conduit with one-fourth inch ($\frac{1}{4}$ ") steel plates, concrete slurry, or both.

A complete set of pictures shall be taken by Contractor showing conduit placement and depth be each trench segment and cataloged prior to backfill of all trench and submitted.

2.4 PAVEMENT TRENCH INSTALLATION (Roadway, Driveway)

2.4.1 Contractor shall excavate as necessary to install ducts as specified on the construction documents or as specified on the Contract Drawings. The installation shall be completed by saw cutting the roadway surfaces, removing and disposing of excavated pavement and excess excavated material and installing the conduit.

2.4.2 Restoration shall include the placement of select fill or clean backfill and compacted. Road cuts for crossing driveways and roadway, intersections and alike will be at a preferred 2" opening. In these cases, restoration will be made by Stirling Lloyd (GCP Applied Technologies) application. In the event a 2" clean cut cannot be maintained due to existing road and or driveway conditions, a sawed cut back to 12" shall be made and asphalt will be employed. An emulsifier will be applied per specification to each cut edge.

Final pavement specifications will adhere to no more than a $\frac{1}{4}$ " deviation at grade surface per linear square foot.

Clean backfill is defined as existing native soil containing material that is free of debris and contains no cobbles greater than one-half inch ($\frac{1}{2}$ ") in diameter. The Work may also include shoring, bracing, road bore connections, and all other operations necessary to complete the installation.

Contractor should be knowledgeable of City Highway Department requirements as all restorations will be made to City specifications.

2.4.3 Temporary pavement restoration shall be required when vehicular traffic shall be

present prior to final pavement restoration. Final pavement restoration shall be governed by the Jurisdictional Authorities. Final asphalt restoration shall typically include roto-milling to remove existing asphalt six inches (6") on each side of the trench. Final restoration shall be completed within 10 business days from original cut opening.

Final concrete restoration shall typically include replacing the concrete to match the existing roadway or sidewalk cross-section. Final restoration shall be completed within 10 business days from original opening.

2.4.4 Trenches shall be kept as straight as practical. The bottom of the trench shall be smooth and free from any sharp edges. The trench shall be kept clear of debris and loose rock. All changes in trench grade shall be less than one foot (1') per ten feet (10'). Conduits shall be placed in the excavation as straight as practical.

2.4.5 In applications where HDPE ducts are installed, Contractor shall install the ducts to prevent excessive waving of the ducts within the trench. Contractor shall tension the ducts to prevent waving in the trench prior to backfilling. Conduits shall be installed in such a manner as to keep conduit configuration consistent. Conduits shall be bound along the trench line every ten feet (10') to maintain this configuration and minimize spiraling.

2.4.6 Fiber Optic warning tape shall be installed ten inches (10") above facilities in open trench construction.

2.4.7 Contractor shall have the full responsibility to ensure tie-ins and duct couplings be made to ensure elevations remain straight as possible and that the duct and conduit joints provide an airtight seal.

2.4.8 Driveways, lanes, or roadways when required to be open cut, shall be opened just prior to the conduit placing. In no case shall the driveway, lane, or roadway be left impassable at the end of each workday. The general public safety is paramount and appropriate steps shall be taken to ensure safety at all times. Where a drive or roadway must be left open for traffic, Contractor must provide the material and method required to allow for movement of traffic.

2.4.9 Trenches shall be promptly backfilled with select material and placed so that final grade is restored to original grade to ensure no hazard to vehicular, animal or pedestrian traffic. No trenches shall be left open overnight. Upon approval all open trenches shall be properly guarded or barricaded to prevent damage or injury.

2.4.10 In areas inaccessible to tamping type rollers where compaction is required, a mechanical tamper of a size suitable for the Work involved shall be used. Pneumatic tampers shall be operated at pressures no less than those recommended by the manufacturer.

2.4.11 Contractor shall furnish and install 10 gauge insulated locate wire within all trench line excavations leading into access points. Locate wire shall be installed as described and as shown on the typical details.

2.4.12 Contractor shall in his pre-construction survey determine soil conditions. Rock conditions shall be determined jointly by the OWNER representative and Contractor prior to project commencement determine conditions and any change request in unit

pricing.

2.4.13 Contractor shall notify the OWNER of areas where minimum cover requirements cannot be met. Contractor shall ensure that locations with minimum cover are protected by such means as to cover conduit with one-fourth inch ($\frac{1}{4}$ ") steel plates, concrete slurry, or both.

2.4.14 A complete set of pictures shall be taken by Contractor showing conduit placement and depth be each trench segment and cataloged prior to backfill of all trench and submitted

2.5 BORE INSTALLATION (where necessary)

2.5.1 Boring where necessary when plowing trenching methods are impractical shall be completed with the excavation of bore launching and receiving pits, any required shoring, any required rock removal, and the installation of the conduit at a depth no less than 36" inches (36") of cover. Maximum depth of bore installation shall not exceed eight feet (8'). Bore installation shall include pushing, boring, or simultaneously boring and pushing casing pipes and duct under roads, exit ramps, railroad tracks, driveways, sidewalks, trees, environmentally sensitive areas and other features indicated on the Contract Drawings where applicable or as directed by Jurisdictional Authorities. Acceptable methods of boring include jack boring, dry auger boring, and directional boring.

2.5.2 Duct shall be installed in locations as shown on the Contract Drawings. Contractor shall plan all bores as not to exceed fifteen degrees (15°) of bends in the duct. Bore pits shall be placed to conform to regulations mandated by the Jurisdictional Authorities as necessary.

2.5.3 Before boring, Contractor shall check all obstructions and clearances. All existing utilities and facilities shall be located and remain open until the bore has been completed.

2.5.4 No bore pits or potholes shall be left open overnight. Upon approval, all open bore pits or potholes shall be properly guarded or barricaded to prevent damage or injury.

2.5.5 Contractors' bore operator and navigator shall maintain communication at all times. When visual obstruction or distance precludes un-aided verbal communication, the operator and navigator shall utilize radio communication devices. An additional third person that has a clear view of the entire operation shall be used, wherever practical without creating an additional safety hazard.

2.5.6 The boring operator shall have full control of the direction of the boring tool at all times. Shallow, misdirected, unsuccessful bores and voids shall be abandoned and completely at Contractor's expense. Under no circumstances shall the Contractor be allowed to cut or disturb pavement or asphalt, or excavate within the relative limits of any roadway surface to retrieve any lost boring apparatus.

2.5.7 All ends of bore casing shall be sealed using non-shrink grout. All conduits shall be capped, sealed watertight and shall be well marked to accommodate locating. All bore pits shall be dewatered.

2.5.8 Restoration shall include the placement of select fill or clean backfill compacted in

eight- inch (8") lifts. Clean backfill is defined as existing native soil containing material that is free of debris and contains no cobbles greater than one-half inch (1/2") in diameter. The Work may also include shoring, bracing, road bore connections, and all other operations necessary to complete the installation. Surfaces shall be restored to original or better condition or as mandated by the Jurisdictional Authorities.

2.5.9 Contractor is to use proper dewatering and containment methods for removal and disposal of bore water and any and all additives for wall stabilization.

2.5.10 Setup of directional boring equipment must be made in a manner to minimize damage to the surrounding area. Emphasis shall be placed on setup locations to ensure that the equipment, debris, and/or bore water overflow do not encroach onto private property or public drainage systems. Contractor shall be responsible for disposing of all waste.

2.5.11 All directional boring equipment shall have electrical protective devices to protect the operators from electrical shock. The OWNER requires that these devices not be circumvented in any way and that all protective safety equipment is worn or used by all required individuals. Anyone not wearing or using protective equipment shall not approach or touch the directional drilling equipment.

2.5.12 Prior to beginning any directional drilling operations, the navigation system shall be calibrated on a daily basis at minimum. Calibration shall be accomplished according to manufacturer specifications. Contractor shall establish and maintain a calibration log on site.

2.5.13 No items attached to the backside of the reamer shall be allowed without the use of a free- moving swivel to eliminate the rotation of trailing stem. When adding additional stem or attachments where the addition/attachment is not within sight of the bore machine operator, all power providing any movement to stems shall be disengaged and the stems at the boring rig shall be locked down. Power shall only be reinstated after the item being attached to the stem is securely connected and all personnel are clear of moving components.

2.5.14 Contractor shall have the full responsibility to ensure tie-ins and duct couplings be made to ensure elevations remain straight as possible and that the duct and conduit couplers provide an airtight seal.

2.5.15 Contractor shall furnish and install 10 gauge insulated locate wire within all bore and trench installations leading into access points. Locate wire shall be installed as described and as shown on the typical details.

2.5.16 Contractor shall in his pre-bid survey determine soil conditions. Rock conditions shall be determined jointly by the OWNER representative and Contractor prior to project commencement determine conditions and any change request in unit pricing.

2.5.17 Contractor shall notify the OWNER of areas where minimum cover requirements cannot be met. Contractor shall ensure that locations with minimum cover are protected by such means as to cover conduit with one-fourth inch (1/4") steel plates, concrete slurry, or both. This material and installation cost shall be borne by Contractor.

A complete set of pictures shall be taken by Contractor showing conduit placement and depth be each trench segment and cataloged prior to backfill of all trench and submitted.

2.6 RODDING, ROPING AND INNERDUCT INSTALLATION

2.6.1 Contractor shall determine the integrity of existing sections of conduit prior to installation of any pull line. If applicable, Contractor shall proof the existing conduit run as per Section 2.9, Proofing Duct.

2.6.2 Once a determination has been made that the conduit run is successful, Contractor shall “rope” the existing conduit run with a pull line or mule tape..

2.6.3 Contractor shall provide enough manpower to sufficiently manage and supervise all installations.

2.6.4 Contractor shall use caution through the entire rodding, roping and installation process to avoid damaging any existing conduits, innerducts, cables, or other previously existing plant.

2.6.5 Microfiber cable installations within microduct shall be blown in per cable and conduit manufacturers specification and should not be pulled or pushed.

2.6.6 Contractor shall install Jet-line or equivalent in rigid conduit systems or ducts to facilitate cable placement. Contractor shall record wall-to-wall distances on the Red Line Drawings.

2.6.7 Upon completion of muletape/Jet-line installation, all ducts shall be plugged with duct plugs/caps and muletape/Jet-line shall be tied off. Once cable has been installed, a simplex duct plug shall be installed.

2.7 UNDERGROUND FIBER OPTIC CABLE INSTALLATION.

2.7.1 Contractor shall install fiber optic cable in the conduit system as specified in the Work, on the Contract Drawings, and in accordance with the manufacturer’s recommendations.

2.7.2 Contractor shall maintain comprehensible two-way radio communication among crewmembers at all times during fiber optic cable installation.

2.7.3 The OWNER is providing the Contractor the option to blow, jet microfiber or pull the standard fiber optic cable for installation in rigid conduit systems. Should Contractor choose to install the cable by pulling, Contractor shall be responsible for furnishing and installing pull rope.

2.7.4 Contractor shall, to the best of their ability, install the fiber optic cable in the most consistent manner throughout the duct system. This shall include, but is not limited to, installation within the same color or location of duct as per the design drawings. Any lack thereof, contractor will document ducts used by cable type and size.

2.7.5 Contractor is responsible for the protection of fiber optic cable until acceptance by the OWNER of the installed, spliced and tested cable from the Contractor. This includes, but is not limited to, storage of the cable prior to installation, overnight protection because the entire cable was not installed prior to stopping Work for the day, and during transportation to the jobsite.

2.7.6 Contractor shall leave slack as noted on Contract Drawings and as needed for on-going operations and maintenance of the network. All cable slack shall be neatly coiled and secured with black electrical tape.

2.7.7 Contractor shall label all cable tags with a permanent marker. Labels shall include the count of fiber and any requested OWNER information.

2.7.8 Contractor shall furnish and install simplex duct plugs upon cable installation. Duct plugs shall be installed to ensure watertight seal between the cable and the conduit.

2.7.9 Contractor shall avoid bends of small radii and twists that may damage the fiber optic cable. During installation, Contractor shall not bend cable in a radius less than twenty (20) times the outside diameter of the cable unless more stringent guidelines are recommended by the manufacturer. Contractor shall utilize pulleys, sheaves, radius wheels, or other devices to meet this requirement.

2.7.10 Contractor shall utilize cable lubrication to reduce pulling tension using Polywater F, or an approved equal.

2.7.11 Contractor shall install the cable into the conduit system without splices in the fiber optic cable except where noted on the Contract Drawings.

2.7.12 Any and all damages to the cable caused by or discovered by Contractor shall be immediately reported to the OWNER. Upon notification, the OWNER will instruct Contractor as to action necessary for cable repair or replacement.

2.7.13 Contractor shall dispose of all reels in an appropriate manner. Contractor shall also supply sufficient maintenance cable for restoration of the network. Contractor shall properly dispose of any cable determined to be "unusable".

2.8 FIBER OPTIC SPLICING AND TESTING

2.8.1 Splicing of fiber optic cable shall only occur at locations approved by OWNER, or within NID.

2.8.2 All Fiber Splicing Technicians shall be certified and approved by the splicing equipment manufacturer.

2.8.3 Contractor shall splice the fiber optic cable in accordance with the manufacturer's recommendations.

2.8.4 Contractor shall confirm, prior to splicing, that the information indicated by the splice assignment sheets is correct and consistent with what the Contractor actually encounters in the field. If any information is absent or incorrect on the splice drawings, it is the Contractor's responsibility to notify the OWNER and obtain the correct information.

2.8.5 Contractor shall inspect all splicing equipment prior to splicing activities to insure the equipment is in good, clean working condition. Contractor shall calibrate the splicing equipment as recommended by the manufacturer. The OWNER reserves the right to inspect the splicing equipment and to request the Contractor to calibrate and/or clean the equipment upon inspection.

2.8.6 All fibers are to be fusion spliced and organized, placed and secured in the splice enclosure equipment approved by the OWNER. Where applicable, a heat oven shall be used to heat shrink all sleeves. A heat gun that is hand applied shall not be permitted. Care must be exercised to prevent damage to exposed fibers by overheating. The acrylic coating should not be removed beyond the areas that will be covered by the heat shrink sleeves.

2.9 FIBER ACCEPTANCE TESTING

2.9.1 Contractor shall follow the specifications set forth in “Fiber Optic Splicing”, and “Power (Insertion) Loss Testing”, for OWNER's Acceptance of the fiber system. This section shall identify the final deliverables Contractor shall supply to the OWNER in order to receive acceptance of the fiber system.

Contractor shall submit the results from End-to-End Power Meter Testing to the OWNER for review. Contractor will record the measured values of power transmitted and power received at the 1310nm and 1550nm wavelengths. This will be accomplished utilizing the EXFO FOT-930 OLTS or similar EXFO compatible OLTS and provide hard copy and electronic report formatted by EXFO Fast Reporter 2 analysis software.

Contractor shall submit one (1) copies of the test results in paper format and one (1) copy in electronic format. The OWNER shall review this data and provide the Contractor with a list of deficiencies. Contractor shall then work in an expeditious manner to repair all of the deficiencies.

2.13.4 The bi-directional fiber loss calculations recorded on the End-to-End Power Meter Test Results form will be the guideline by which the OWNER will accept or reject work.

2.13.4.1 Contractor shall be responsible for providing test data on OWNER-approved forms.

2.10 POWER (INSERTION) LOSS TESTING (Distribution)

2.10.1 When working on terminated fibers or as directed by the OWNER, Contractor shall test the fiber optic cable using two (2) self-contained optical power meters. Insertion loss testing shall be performed at 1310nm and 1550nm for Standard Single Mode Fiber.

2.10.2 Contractor shall provide the results from the insertion loss test on the OWNER's End-to- End Power Meter Results form. All information must be filled out on the form including location of “from” and “to” test sites and reference loss at both locations, as well as the Contractor and operator information.

2.10.3 Contractor shall calculate the net span loss of the fiber under test in the field by subtracting the source reference reading of the equipment from the far end test power meter reading. Contractor shall be responsible to verify that the absolute value of the span loss of any given fiber is within the OWNER's maximum calculated allowable loss budget. These loss budgets are calculated using actual recorded loss data of the fiber optic cable plus estimated losses due to splices, IFC pigtails, and connectors. If a fiber exceeds the budgeted loss, Contractor shall analyze the OTDR traces to troubleshoot the fiber optic span and immediately correct the deficiencies.

2.10.4 Contractor shall perform the insertion loss test bi-directionally with the average of the loss in the two directions used for the OWNER's fiber system acceptance. However, no uni- directional span loss shall exceed ten percent (10%) of the Maximum Calculated Allowable Budget as specified on the End-to-End Power Meter Test Results form.

2.11 OVERHEAD FIBER OPTIC CABLE INSTALLATION.

2.11.1 Aerial (Pole Line) Requirements:

Clearances shall be in accordance with industry standards (NESC) and all pole owner specifications and guidelines as well as local codes and requirements.

- 2.11.2 The maximum pulling tensions and minimum bending radius shall not be violated at any time during installation and shall be monitored at all times during new cable installation.
- 2.11.3 Lashing machines shall NOT be pulled with a vehicle at ANY time.
- 2.11.4 Fiber optic cables shall be smoothly installed. Loose lashing or excessive twisting or weaving of cable around messenger shall be cause for rejection.
- 2.11.5 The bending radius shall not exceed cable manufacturers specifications.
- 2.11.6 Aerial cable shall be attached to the poles and buildings using proper supporting attachments. Aerial cable shall enter the buildings through a raceway (conduit) with an approved service head that must be properly grounded and attached to the building. All building entries shall be coordinated with the OWNER and the Facility Owner.
- 2.11.7 Aerial drop cables may be self-supporting or over-lashed to other plant as approved by the OWNER.
- 2.11.8 For all fiber optic cable installations, the Contractor shall meet all requirements set forth in the TIA-758-A Standard, "Customer-owned Outside Plant Telecommunications Infrastructure Standard", Telcordia SR-1421 Blue Book – Manual of Construction Procedures" and other standards specified herein. In the event that this standard conflicts with the requirements of the OWNER, then the more stringent requirements shall apply.

UNDERGROUND CONSTRUCTION SPECIFICATIONS

New Conduit

2.12 MICRODUCT

In areas determined that no existing conduit is available for use, planning details the installation of a microduct single and multicell HDPE conduit. Contractor to provide all materials. This installation type supports multi cable installations for distribution, drop and MST cabling types. Duraline microduct is approved by Owner for these installations and shall be the following conduit types. Equivalent products are subject to Owner approval.

- 1- Cell (Drop Only)
 - SINGLE MICRODUCT FUTUREPATH 12.7/10 MM RIPCORD W/#20 TRACER DURALINE# 10010132 42" REEL 5000'

Contractor will be required to create bonding grid across tracer wire for contiguous tracing by cable location equipment. See bonding detail.

2.13 CONDUIT DEPTHS

Trench depths will achieve a minimal depth of 24" of cover across all conduit installations, treebelt, roadway, driveway, sidewalk, and public way. Trench depths on private property will achieve a minimal 12" of cover. Any deviation from placement depths specified due to unforeseen circumstances must be reviewed and granted by OWNER project management. As-built plans must show deviation at all paths affected.

2.14 CABLE INSTALLATION

Cable Installation will follow conduit installation by design. Microfiber cabling will be employed for use within conduit systems and requires air jet or blown in cable installation as described per manufacturer's specifications. OWNER has selected OFS Fiber Optic MiDia FX Microfiber cabling for all fiber installations.

2.5 COMPRESSION FITTINGS

Compression fittings will be used for union connections on microduct junctions. Number of union connections should be kept to a minimum. All microduct connection fittings will be supplied by OWNER.

ADDITIONAL SPECIFICATIONS

3.1 DIGSAFE NOTIFICATIONS

Contractor will be responsible for all excavation pre-marking, coordination of affected facility owners as may be required and dig safe notifications. Contractor will be required to maintain markings throughout duration of project, and removal of all flag markings and removable marking materials upon completion of excavation.

3.2 POLICE DETAILS

Police details where required will be coordinated by CONTRACTOR . The OWNER Project Manager will work with contractor representative to determine where needed in advance of work commencement. Police detail billing will be direct to CONTRACTOR for this project is part of contractor scope. Please see Police Details Addendum.

3.3 AS-BUILT DOCUMENTATION CONDUIT

Contractor will provide all as-built documentation that details:

1. Final conduit path and depth of placement.
2. Details of all cable facilities and routing if deviated from original FTTH design.

3.4 RESTORATION

Restoration to all affected areas of construction shall be warranted as follows:

Grass and tree belt areas;	period of 3 months in season
	6 months out of season
Concrete;	period of 6 months
Asphalt;	period of 12 months <u>3.5 RISER</u>

POLES

URD conduit or protective riser guard to be installed at URD riser (service) pole and shall continue to placement of OWNER strand attachment. Conduit should extend and be secured to support strand messenger and run horizontal to 3ft. Adequate cable slack should be coiled and secured at this point for future splice enclosure installation.

3.6 VAULTS AND SERVICE PEDESTAL INSTALLATION AND CONDUIT CONNECTIONS

At vault and pedestal co-locations, (2) - 2" PVC sleeves will be installed to provide a cross connect between these fixtures. One conduit shall be designated for MST tail cable management and one for drop cables management from pedestal to vault. Excess cable for all drop tails up to 25 Ft can be managed and maintained within vault.

POLICE DETAIL ADDENDUM

Shutesbury Police Detail Information

Our town policy regarding roadside construction is required at the discretion of our Police Chief. On the map below you will see all of the highlighted roads and road portions where police detail would be required for public safety during construction. Whenever a truck is in the road for the highlighted roads on the attached map, a police detail should be present. Details are not needed if the trucks and equipment are off the road within a driveway.

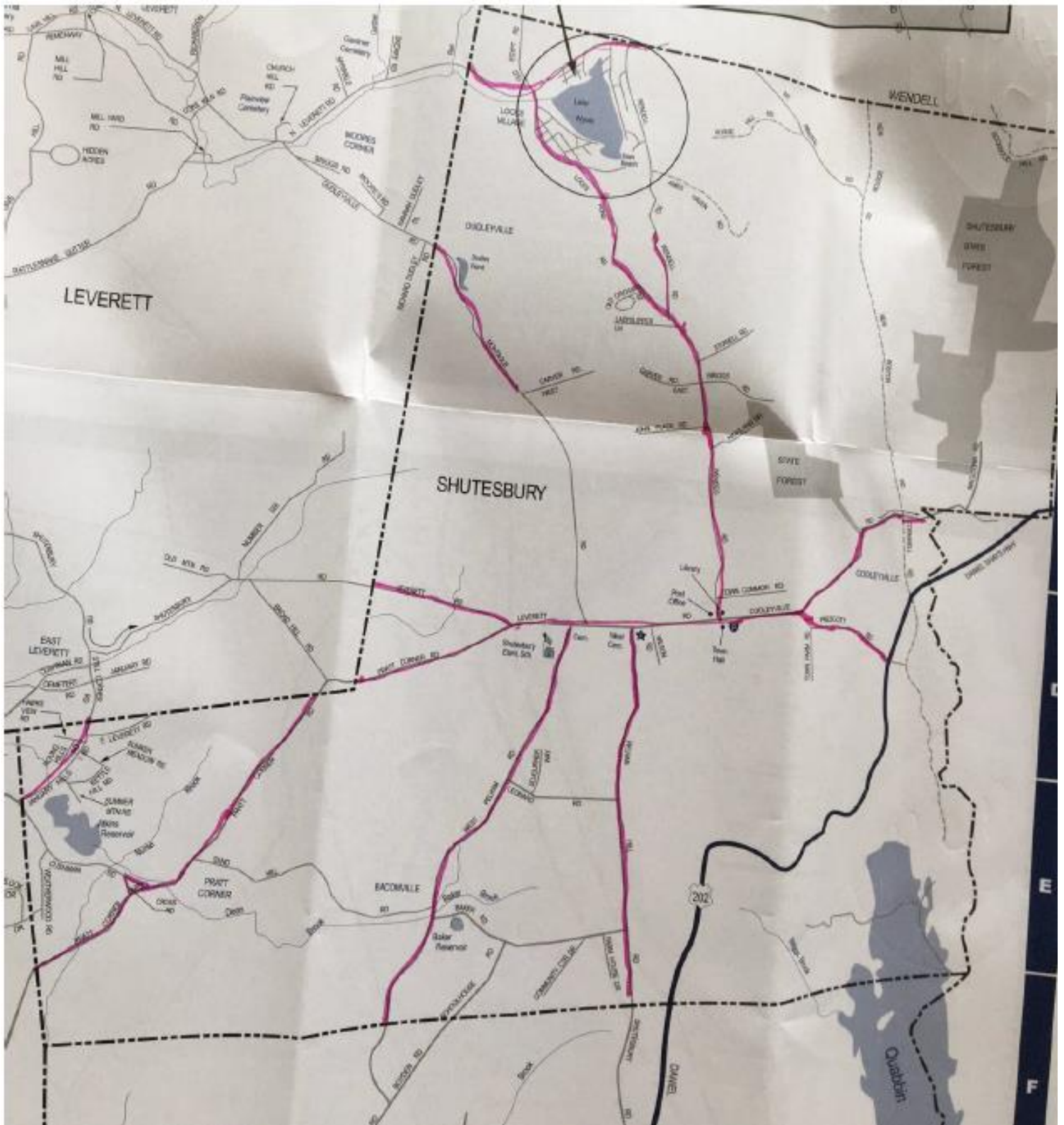
This highlighted map was generated in cooperation with our police chief.

The current Outside Work Detail contract for the Shutesbury Police Department stipulates a rate of \$45/hr plus a 10% admin fee for a total of \$49.50 per hour. Shifts are 4 or 8 hours. Partial shifts are not permitted and overtime is required for detail over 8 hours. A copy of Article XVII outlining the Private Duty Details per our town contract is copied below.

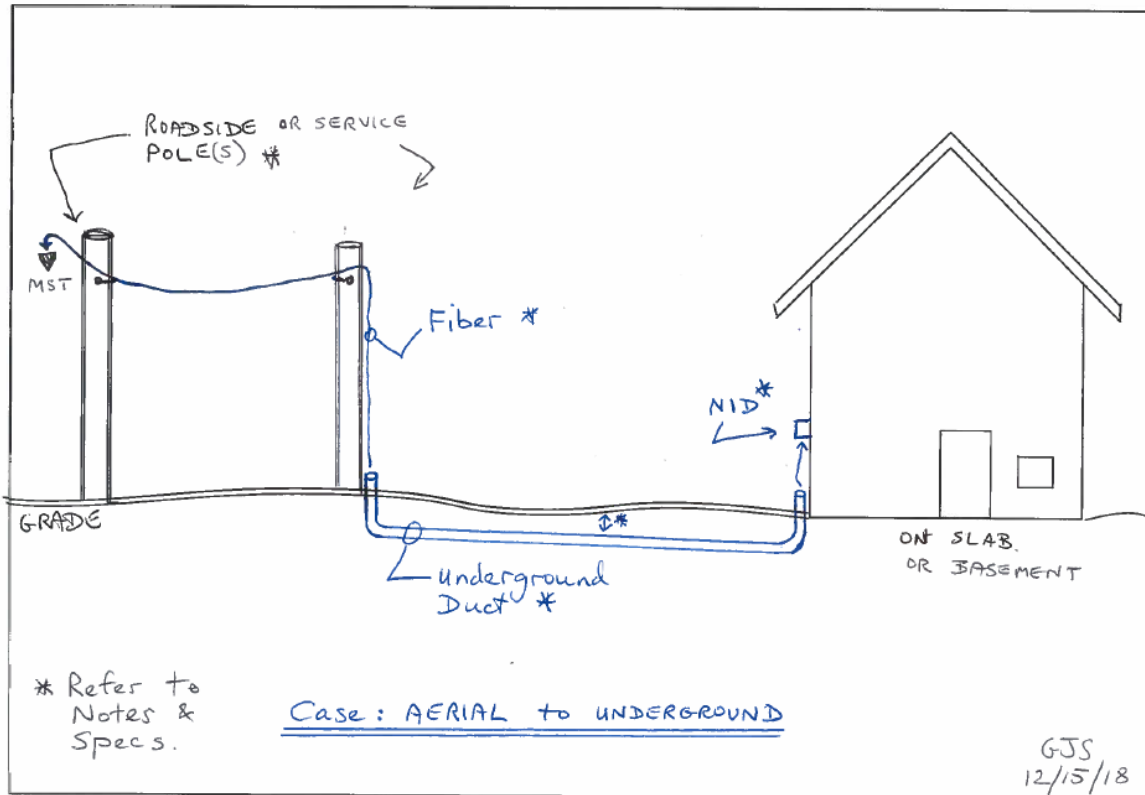
ARTICLE XVII

PRIVATE DUTY DETAILS

Paragraph 170. A private duty detail shall mean police work requested by a private person or organization or by a Town of Shutesbury Department other than the Police Department which the Chief of Police in his sole judgment shall determine cannot be performed by police officers as a part of their regular duty (normal or overtime). The Chief of Police shall assign all private duty details to police officers only during hours when such officers are not on such regular duty. Police officers performing such private duty details shall be paid by the Employer within one pay period, upon the Town's receipt of payment for the outside work detail. For all details including Alcoholic Beverage or Construction (but excluding Town force account or Town construction), the following rates will apply. An additional ten percent (10%) administrative fee will be billed by and payable to the Town. Private duty detail rate will be paid at time and one-half the detail rate for all work performed on Sundays and Holidays. An officer working a Private Duty Detail will be paid a guaranteed four (4) hour minimum. An officer working more than four (4) hours but less than eight (8) hours shall be guaranteed eight (8) hours, with the exception that town-funded details are exempt from this provision.



AERIAL to UNDERGROUND SCHEMATIC



ALL AERIAL SCHEMATIC

