

SELF-PROVISIONED OR LEASED NETWORK SPECIFICATIONS

Applicant: Clinton-Essex BOCES
BEN: 155496
Form 470 #: 270000294
Service Types: Services Provided Over Third-Party Networks
Self-Provisioned Network
C1 Network Maintenance and Operations

Form 470 Contacts:

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1. Procurement Timeline

Task	Due By
Pre-Proposal Meeting / Site Visit	October 8, 2026, 10 am EST
Posting of Pre-Proposal Meeting Summary	October 9, 2026
Deadline to Submit Questions	October 13, 2026, 3 pm EST
Posting of Questions/Clarifications	October 15, 2026
Proposal Submission Deadline	November 13, 2026, 3 pm EST

2. Communications and Questions

- 2.1. All communication with the Applicant regarding this solicitation **must** be emailed and received by the “Deadline to Submit Questions” noted in the “Procurement Timeline.” Questions should be directed to all “Form 470 Contacts” listed above, with the Form 470 Number included in the subject line. Failure to include all “Form 470 Contacts” could result in questions going unanswered. Verbal inquiries are not allowed. Clarifications, when applicable, will be posted as an attachment/addendum to the Form 470. Each Offeror/Respondent is responsible for downloading the current version of the Form 470 and attachments, including any addenda. Applicant reserves the right to ask offerors clarifying questions during the proposal review process.

- 2.2. Contact initiated by an Offeror concerning this solicitation with any other Applicant representative other than those listed as Form 470 contacts is prohibited. Unauthorized contact may result in the offeror's disqualification from this solicitation.

3. Pre-Proposal Meeting

- 3.1. For this solicitation, a pre-proposal meeting is: ☒ Optional
- 3.2. The pre-proposal meeting will be held on October 8, 2026, 10 am EST, at the canopy entrance at Main Campus (John W Harrold Ed Center), 1585 Military Turnpike, Plattsburgh, NY 12901
- 3.3. No additional information will be provided at the meeting. Questions must be submitted via email to the Form 470 Contacts and answers will be posted as an attachment/addendum to the Form 470.

4. Proposal Instructions

- 4.1. Proposals **must** be submitted by the Proposal Submission Deadline in the Procurement Timeline.
- 4.2. Proposals should be emailed to ALL Form 470 Contacts listed above and include the following:
- Applicant name
 - Form 470 number
 - SPIN (Service Provider Identification Number)
 - Offeror's terms and conditions
 - Completed Pricing Attachment
- 4.3. Proposals **must** include **all** costs associated with providing service, including but not limited to:
- Monthly recurring charges (MRC) include any recurring charge related to delivering the services, such as monthly charges for Transport service, basic terminating equipment, etc.
 - Non-Recurring Charges (NRC) include any one-time fee other than special construction charges. This includes but is not limited to installation charges, connection charges, and/or basic terminating equipment charges.
 - Special Construction Charges (SPC) include one-time costs for deploying new fiber or upgrading network facilities for eligible entities. These charges are non-recurring and include the following components: construction of network facilities, design and engineering, and project management. Offerors should provide special construction details sufficient to support E-Rate review, including route feet, cost per foot, and plant mix where applicable.
 - Failure to identify the monthly recurring, non-recurring, and special construction charges will result in the disqualification of the proposal. Respondents are encouraged to provide the estimated taxes and surcharges associated with the service. Submissions indicating that there may be additional MRC, NRC, or SPC related to delivering the services **will be** disqualified.
- 4.4. Proposals **must** be in response to the specific requirements of this solicitation. Offers including a generic listing of services beyond the scope of this solicitation and/or encyclopedic price lists will

be disqualified. SPAM and/or robotic responses will not be considered valid responses and will be disqualified from consideration.

- 4.5. Applicant reserves the right to consider its existing service as a standing proposal and evaluate it against the other submitted proposals.
- 4.6. Proposal pricing should be included in the provided Clinton Essex FY27 C1 Pricing Attachment and be submitted in xls or xlsx format. Any E-Rate ineligible costs should be clearly identified.

5. Service Request

- 5.1 Clinton-Essex BOCES, hereafter referred to as Applicant, is seeking multiple options for proposals to extend their infrastructure for data transport point-to-point services and, when required, maintenance and operations of the network, between the locations listed in the Clinton Essex FY27 C1 Pricing Attachment.
- 5.2 Self-Provisioned network and Leased Dark Fiber solutions **must** include costs for the network maintenance as separately identifiable costs, if proposed. For all other services provided over third-party networks, a turn-key solution with all expected costs **are required**. New services are planned to begin on July 1, 2027, which represents the start of the E-Rate funding year.

6. Scope of Services

6.1. Wide Area Network

- 6.1.1. Applicant **requires** a minimum of 10 Gbps Wide Area Network (WAN) Transport connections between the Applicant's Internet hub site and the locations listed in the Clinton Essex FY27 C1 Pricing Attachment. Offerors are requested to submit offers for incremental bandwidths from 10 Gbps up to 25 Gbps. To be considered, offers **must** include all listed locations.
- 6.1.2. All proposed solutions **must** be within the specified bandwidth range to be eligible for consideration. In addition to the specified minimum and maximum bandwidths, Offerors are encouraged to offer various bandwidth options within this range. Refer to the Clinton Essex FY27 C1 Pricing Attachment for the requested service levels. If the bandwidths listed are not available, offerors should include their closest comparable service level for consideration.
- 6.1.3. Submissions meeting any of the three (3) numbered criteria **will be** disqualified.
 - 1. Solution does **NOT** offer at least the minimum bandwidth.
 - 2. Solution does **NOT** offer bandwidth dedicated to the applicant but instead, the bandwidth is dependent on the number of other customers on the network or some other factor that does not, generally, guarantee the minimum bandwidth as a committed information rate (CIR).
 - 3. Solution includes caps on data usage or slows speeds based on data usage or other factors.

6.1.4. All solutions **must** terminate service or infrastructure at the demarcation point within the building, generally, the MDF. Solutions that only bring service to the property line but not to the demarcation point will be disqualified. The agreement **must** terminate service at an MDF designated by the Applicant. The Offeror should specify the exact demarcation setup included in the base fees, such as wall-mounted CPE and CAT6a handoff, rack mount patch panel, etc.

6.1.5. Offerors must accept responsibility for site delivery, construction, permitting, pathway, and right-of-way costs required to deliver service.

6.2. **Proposal Options**

Applicant is seeking multiple options for consideration. Respondents may offer one, all, or any number of options. **All respondents must be a registered service provider with USAC, and have a USAC issued 498 ID (formerly Service Provider Identification Number-SPIN).**

6.2.1. **Option 1 - Services Provided Over Third-Party Networks (SPOTPN):**

SPOTPN is defined as broadband service delivered over a service provider or other third party-owned network. This service option is designed to represent all technology neutral third-party transport mediums including Leased Lit Fiber, Leased Dark Fiber, and all other non-fiber options.

6.2.2. **Option 2 - Self-Provisioned Network Construction:**

This service option is for the build-out of an applicant-owned wide area network to the designated locations and includes all eligible special construction charges. Maintenance and Operations costs should be priced separately from special construction charges for Self-Provisioned network.

6.2.3. **Option 3 - C1 Network Maintenance for Leased Dark Fiber or Self-Provisioned Network:**

This service option is for maintenance and operations for Leased Dark Fiber or Self-Provisioned network solutions. Respondents may offer ongoing or on-demand maintenance either themselves or through 3rd party subcontractors. If respondent intends to use 3rd party subcontractors to deliver a part or all of the service, this should be clearly indicated in the response.

6.3. **Solution Specifications**

6.3.1. **Option 1 - Services Delivered Over Third-Party Networks:**

Applicant must have dedicated, symmetrical transport bandwidth of 10 Gbps with Service Level Agreement (SLA) guarantees between the designated endpoints. The proposed solution may be Leased Lit Fiber, Leased Dark Fiber, or any other non-fiber solution provided over third-party networks. The solution must be scalable to 25 Gbps. Price quotes are requested for 36-month and 60-month terms of service with five (5) optional annual renewals. If special construction is necessary, respondents are **required** to separate out pricing for construction from the monthly recurring costs. No increased pricing will be

allowed during the term of the quoted special construction, NRC, and MRC rate. If an increase in bandwidth is requested during the contract period, such increase shall be treated as a modification to the existing agreement and shall not extend the original contract term. As bandwidth needs are steadily rising, respondents are free to offer higher tiers of bandwidth than what is requested to demonstrate their future scalability. Leased Dark Fiber solutions **must** have dedicated transport bandwidth via lease of four (4) strands (2-pair) of dark fiber between the designated endpoints.

6.3.2.Option 2 - Self-Provisioned Network Construction:

Applicant requests that respondents propose design and pricing for a Self-Provisioned network solution between the specified hub and each eligible entity location. We are requesting that four (4) strands (two [2] pair) be installed with the intention of lighting four (4) strands (two [2] pair) in the first year, or 10 Gbps equivalent for non-fiber Self-Provisioned solutions. In accordance with USAC rules, the cost of any fiber strands not lit during the funding year **must** be allocated out as ineligible charges. The Applicant desires a fully “turnkey” project so respondents should provide explanation for the Applicant’s involvement in the process including ownership and sourcing of permits, etc. when submitting a Self-Provisioned proposal. Upon final acceptance and payment, all Applicant-funded infrastructure, documentation, and associated warranties shall become the property of the Applicant unless otherwise agreed in writing. A solution should include **all** costs related to the deployment of the proposed circuit.

Self-Provisioned Network Construction Specifications and Project Management:

- The Applicant’s specifications for a newly constructed high-speed network infrastructure are contained in OSP Installation Specifications, in this document.
- Selected respondent and its subcontractors will provide all project management to accomplish the installation of all project work as outlined in this document.
- Project management should include all necessary paperwork and permits including but not limited to rights of way, easements, and pole attachments, if necessary.
- The respondent will provide engineer(s), certified on selected system specifications and procedures to manage all phases of project as outlined in this proposal. This includes ordering and managing the bill of materials as outlined in this document, directing and managing cable placement and restoration, directing and managing splicing crews and providing detailed documentation at the end of the project.
- Selected respondent and its subcontractors will develop a project management plan, which will include a milestone chart. The milestone chart will outline any critical path events and then track these with the appropriate agency/organization whether; selected respondent, subcontractor or the Applicant.

6.3.3.Option 3 - C1 Network Maintenance for Self-Provisioned Network and Leased Dark Fiber

Solutions:

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Leased Dark Fiber Solutions

All dark fiber responses require maintenance as part of the response, even if maintenance is subcontracted out to a third party. In the case of the 3rd party maintenance, the respondent must hold and manage the subcontract and is ultimately responsible for the SLA. It is assumed that the dark fiber network is part of the service provider's more comprehensive fiber infrastructure. The respondent will include only the portion of maintenance that is required to support the Applicant fiber segments versus overall network maintenance. If the fiber serves multiple customers, the maintenance cost should be shared among all the recipients. For leased dark fiber offerings, maintenance costs shall be assumed to be included in the monthly lease fee. Fee structures that separate maintenance costs must explicitly state this and provide itemized costs.

Maintenance for Self-Provisioned

Self-Provisioned responses are not required to include a maintenance response. Respondents who choose to offer maintenance must hold and manage any subcontracted maintenance arrangement and remain ultimately responsible for the SLA. C1 network maintenance may also be offered as a stand-alone service by any offeror, even if the provider is not proposing Self-Provisioned service. Respondents submitting a Self-Provisioned proposal that includes maintenance must price it separately and may not bundle maintenance costs with the Self-Provisioned proposal.

For both leased dark fiber and self-provisioned maintenance, price quotes are requested for a 60-month term of service with five (5) optional annual renewals. Responses for maintenance must include scheduled routine maintenance as a monthly or annual cost as well as unscheduled break/fix maintenance as an annual time and material cost estimate. Explanation of how the annual scheduled and unscheduled maintenance was estimated should be included.

Maintenance Terms and Conditions

Respondents shall maintain the applicable network seven days per week, twenty-four hours per day. Upon notification from the Applicant of a malfunction relating to the applicable network, respondent shall respond to such malfunction within two (2) hours and thereafter proceed to correct the malfunction with reasonable diligence. When pricing maintenance, the respondent should include an overview of maintenance practices including:

- Routine maintenance and inspection
- Scheduled maintenance windows and scheduling practices for planned outages
- Handling of unscheduled outages and customer problem reports

- What service level agreement is included and what alternative service levels may be available at additional cost
- What agreements are in place with applicable utilities and utility contractors for emergency restoration
- Repair of fiber breaks
- Mean time to repair
- Replacement of damaged fiber
- Post repair testing
- Replacement of fiber that no longer meets specifications
- Policies for customer notification regarding maintenance
- Process for changing procedures, including customer notification practices
- Process for moves, adds, and changes
- Process for responding to locate requests

7. Special Construction

- 7.1. Refer to USAC's Fiber Summary Overview for costs eligible as special construction and other considerations related to the construction of new network facilities: <https://www.usac.org/E-Rate/applicant-process/before-you-begin/fiber-summary-overview/>

8. General Terms for All Proposals

8.1. Description of Proposal

8.1.1. Respondents will provide a description of their proposal for all services and solutions.

8.1.2. Description will include an overview of the proposal, any deviations from the requested architecture, design or requirements, assumptions made, and other detail Applicant may find useful or necessary (or could differentiate the solution from a competing proposal).

8.2. Timeline

8.2.1. For each response, respondents **must** include a timeline for bringing all sites online.

8.2.2. Proposals requiring little to no special construction should be able to bring the site online by the July 1 start of the funding year.

8.2.3. For solutions requiring special construction, a schedule of bringing the site online should be

included with an explanation of how this timeline shifts if the date of the E-Rate funding commitment shifts.

8.3. Demarcation

8.3.1. Solutions bringing service to the property line but not to the demarcation point will be disqualified.

8.3.2. Respondents should specify specific demarcation setup included in base fees, e.g. wall mounted CPE and CAT6a handoff, rack mount patch panel, etc.

8.4. Network Diagram

8.4.1. For each response, respondents **must** include a network diagram displaying the path to be used to serve each desired endpoint.

8.5. References

8.5.1. For each response, the offeror must provide three (3) references from current or recent customers (preferably K-12) with projects equivalent to the size of Applicant.

8.5.2. If the offeror responds to more than one option (e.g. Leased Lit Fiber service as well as Leased Dark Fiber), provide three (3) references for each.

8.6. E-Rate Program Integrity Assurance (PIA) Review

8.6.1. If their solution is chosen, respondents are required to promptly provide Applicant with any information being requested as part of PIA review.

8.6.2. Offerors may assist applicants with preparing funding requests or responding to PIA questions and may speak directly with PIA reviewers.

8.6.3. For all responses that include special construction, the respondent agrees to, by submitting its proposal to produce all construction labor, construction materials and other cost information requested during PIA review.

8.7. Required Notice to Proceed and Funding Availability

8.7.1. Applicant will follow the purchasing policies of the Applicant Board and requirements and procedures of the FCC's E-Rate program as administered by the Universal Service Administrative Company to be eligible for all available funding.

8.7.2. The implementation of any associated contracts resulting from this competitive bid process will be dependent on the Applicant's issuance of a written Notice to Proceed.

8.7.3. Receipt of E-Rate funding notification shall not constitute a Notice to Proceed. The Applicant reserves the right to allow the contract to expire without implementation if sufficient funding, including any applicable state matching funds for special construction projects, is

not secured.

8.8. Non-Appropriation

8.8.1. Offerors must accept that Applicant obligations are contingent on appropriation and availability of funds and may be reduced or terminated without penalty if funds are unavailable.

9. Evaluation Criteria

These criteria are to be utilized in the evaluation of offers to be considered. Individual criteria have been assigned a weight to reflect relative importance. Offerors are encouraged to provide details in their proposals that address the following criteria.

9.1. **Services Provided Over Third-Party Networks, Leased Dark Fiber, Self-Provisioned Network Construction, and C1 Maintenance**

% Weight	Criteria
40%	E-Rate eligible recurring and one-time circuit costs¹
25%	Prior experience ²
10%	Complete Proposal Solution ³
10%	Technical Merit / Capability ⁴
15%	Ability to support requirements of this solicitation ⁵

9.2. **Criteria Explanation**

9.2.1. E-Rate eligible costs: the total cost of ownership for the eligible components of the proposed service. Total cost of ownership considers all one-time and recurring costs. Note that E-Rate eligible costs refers to the pre-discount cost of the solution, not the post-discount portion of costs that are the responsibility of the Applicant. This criterion must be the highest weighted per E-Rate program rules.

9.2.2. Prior experience: Applicant's previous experience with the vendor, including performance history and quality of past service.

9.2.3. Complete proposal submission: Proposals concisely address Applicant's requirements, as set forth in the solicitation.

9.2.4. Technical Merit / Capability: Ability of the proposed solution to meet the scope, specifications, and requirements of this solicitation

9.2.5. Ability to support requirements of this solicitation: proposed solution clearly meets Applicant's requirements and needs.

10. Contract Term and Modifications

- 10.1. Services are needed effective July 1, 2027. If the service cannot be guaranteed by this date, this **must** be indicated in the proposal, along with an estimated timeline for when the service will be available.
- 10.2. For offers of recurring services, 36 and 60 month pricing with five (5) optional twelve (12) month renewals will be considered.
- 10.3. All contracts for leased services should permit bandwidth increases during the term. Any such increases, including those during optional renewal periods, will be treated as modifications to the existing agreement rather than new agreements and, therefore, will NOT extend the contract's term.
- 10.4. All contracts for leased services should include a provision allowing for early termination of circuits without penalty if a location is closed by the Applicant.
- 10.5. All contracts for leased services should include a clause allowing additional sites to be added at the existing MRC for the duration of the agreement, with the Applicant covering any one-time charges related to adding the new site to the network. Any additional sites added will have the same end date as the main agreement.
- 10.6. No increases to the proposed service pricing shall be permitted during the term of the agreement except for government-imposed taxes, fees, or regulatory surcharges.
- 10.7. Offerors proposing equipment whose prices may increase depending upon new U.S. government tariffs imposed on imports are encouraged to (a) identify such products in their offers, and (b) propose an acceptable methodology for limiting price adjustments over the life of the contract.
- 10.8. Subject to contract restrictions, services may be reevaluated for cost-effectiveness at any time during the life of the agreement including renewal periods.

11. E-Rate Specific Considerations/Information

- 11.1. FCC rules require service providers to offer discounted SPI billing. The applicant requires SPI discount method for these services. Offerors that are unable to provide SPI billing will be deemed non-responsive and excluded from further consideration.
- 11.2. Per USAC E-Rate rules, cost of eligible goods/services will be the highest valued criterion in the evaluation process; however, other criteria with a lesser value may also be considered.
- 11.3. Offerors proposing a temporary equipment loan for product demonstration and/or evaluation purposes are required to clearly state that such loans are of limited duration. Product demos extending beyond thirty (30) days must be explicitly authorized by both parties and provided at a fair market rate.

- 11.4. By submitting a proposal on the requested services herein, the offeror certifies its proposed services and/or products comply with Parts 47 Section 54.9 and 54.10 of the FCC rules which prohibits the sale, provision, maintenance, modification, or other support of equipment or services provided or manufactured by Huawei, ZTE, or any other covered company posing a national security threat to the integrity of communications networks or the communications supply chain. See <https://www.usac.org/about/reports-orders/supply-chain/> for more details.
- 11.5. As required by Section 54.500(f) of Part 47 of the Code of Federal Regulations all bids in response to this RFP must offer the lowest corresponding price (LCP) which is defined as the lowest price that a service provider charges to nonresidential customers who are similarly situated to a particular E-Rate applicant (school, library, or consortium) for similar services. See <https://www.usac.org/E-Rate/service-providers/step-2-responding-to-bids/lowest-corresponding-price/> for more details.

12. Additional Considerations/Information

- 12.1 Applicant is subject to preference to NYS OGS Contracted Vendors. Public works and purchase contracts for public schools in New York State are governed by the procurement provisions of the State's General Municipal Law. Public Schools may also purchase equipment and services under publicly bid centralized procurement contracts administered by the State's Office of General Services (OGS).
- 12.2 The language in this solicitation has been standardized: "must," "shall," "mandatory," and "required" indicate mandatory specifications that the Applicant expects in the proposed solution. Proposals failing to meet these will be disqualified. "Should" and "may" indicate desirable specifications. A mandatory requirement may be waived if all respondents fail to meet a mandatory requirement.
- 12.3 Applicant reserves the right to waive any irregularities or informalities in the proposals received.
- 12.4 Applicant reserves the right to award all, part or none of the services requested and reserves the right to reject any or all proposals without liability or obligation. This procurement does not obligate Applicant until a valid agreement and/or valid Purchase Order is executed.
- 12.5 Applicant may, at its sole discretion, extend the due date for the submission of proposals and any extensions shall be done via an addendum posted in the E-Rate Productivity Center (EPC).
- 12.6 Offeror submissions are subject to open records requests and, as such, the records will be released in accordance with those policies. Offerors are encouraged to mark pages as "Proprietary" or "Confidential" as appropriate, but the entire submission may not be marked as such. Identifying information as "Proprietary" or "Confidential" does not guarantee that the information will not be released but will be considered in determining whether the information is required to be released in accordance with the open records policies. Any claim

of confidentiality must be clearly identified and justified in accordance with applicable state public records laws. Generally, pricing is not exempt from being publicly released.

13. Appendix A: OSP Installation Specifications

Material Requirements

- Material will comply with those standards as established by UL or NEMA and shall be commercial grade. All materials will be new and free from defects.
- Selected contractor and its subcontractors will provide all material management to ensure that the project remains on track according to the project milestones,
- All due caution will be exercised in transporting and off-loading all materials to prevent any damage during shipping or placement. Any damage to any materials after their initial receipt and inspection by the respondent will be the sole responsibility of the respondent, who will replace such damaged hand holes at no additional expense to the Applicant.
- If a buried proposal, conduit shall comply with applicable code and industry standards for underground telecommunications infrastructure. EMT (Electrical Metallic Tubing) offers must be multi-duct with at least three innerducts. EMT fitting shall be gland or set screw type, and each conduit shall be equipped with a graduated pull tape or rope.
- If a buried proposal, unless specified by right-of-way owner, crossings will be two conduits, PVC-Sch 40 or better.
- If a buried proposal, the exact requirements for location and type of conduit within the building shall be verified with building owner.
- If a buried proposal, all Hand Holes shall be approved, 45,000 lb. load rated CDR or comparable enclosures on roadways and railways, and pedestrian rated hand holes for non-roadways and railways.
- If a buried proposal, large-radius sweeps shall be provided where required for offset or change in direction of conduit. Bend radius rating of the cable must be adhered to for all conduit bends, pull boxes, and hand holes.
- Fiber can be single-mode or multi-mode with the following specifications:
 - If Single Mode:
 - TU-T G.652.C/D compliant
 - Maximum Attenuation @ 1310nm: 0.34 dB/km
 - Maximum Attenuation @ 1385nm: 0.31 dB/km
 - Maximum Attenuation @ 1550nm: 0.22 dB/km
 - If Multimode:
 - OM3 (50/125) *Laser Optimized* 1500/-/500 MHz·km
 - Connector types should be LC unless otherwise specified by the Applicant.
 - Any warranties associated with the fiber and any other outside plant materials must revert to the Applicant as the owner upon completion of construction

Specifications

Survey

- Comply with all ordinances and regulations. Where required, secure permits before placing or excavating on private property, crossing streams, pushing pipe or boring under streets and railways. Pre-survey shall be done prior to each job.
- If a buried proposal, respondent will locate underground lines of third parties in cable route area

Permits and Traffic Control

- The respondent must adhere to all applicable laws, rules and requirements and must apply for permits to place infrastructure per specification per county or city ordinance applicable to where the infrastructure is being placed.
- All traffic control, in accordance with local, state, county, or permitting agency laws, regulations, and requirements, will be the respondent's responsibility. The respondent's construction schedule will take into consideration sufficient time for the development and approval of a traffic control plan.

Tracer Wire Installation

- If a buried proposal, tracer wire shall be placed with all conduit installed unless armored or traceable cable is used. The respondent will provide the tracer wire and shall install, splice and test (for continuity) the tracer wire. If the tracer wire is broken during installation, the wire should be repaired and tested for continuity after repair.
- If a buried proposal, for multi-duct installation, install a 5/8" X 8" copper clad ground rod in the hand-hole located on public right-of-way. Place a #12 insulated copper locate wire from the ground rod to the fiber optic termination room or to the outside of the building directly below the pull box and terminate on one side of an insulated indoor/outdoor terminal block to the master ground bar in the fiber optic termination room or place a ground rod on the outside of the building. Locate block in an accessible location. This is for "locate purposes only," not for grounding purposes. Note on as-built where ground is placed and tag located wire as "locate wire."

Depth of Burial (If a buried proposal)

- Except where otherwise specified, the cable shall be placed to a minimum depth of 36" along roadways and 24" on private property. Greater cable depth will be required at the follow locations:
 - Where cable route crosses roads, the cable shall be placed at a minimum depth of 48" below the pavement or 36" below the parallel drainage ditch, whichever is greater, unless the controlling authority required additional depth, in which case the greatest depth will be maintained.
 - Where cable crosses existing sub-surface pipes, cables, or other structures: at foreign object crossings, the cable will be placed to maintain a minimum of 12" clearance from the object or the minimum clearance required by the object's owner, whichever is greater.

Highway, Railroad, and Other Bored Crossings (If a buried proposal)

- All crossings of state or federal highways and railroads right-of-way shall be made by boring and placing a pipe casing. The cable shall be placed through the pipe casing. Country road and other

roadways shall be bored, trenched, or plowed as approved by the appropriate local authority.

- All work performed on public right-of-way or railroad right-of-way shall be done in accordance with requirements and regulations of the authority having jurisdiction there under.
- Respondent shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn.
- Where the cable route crosses railroad right-of-way, the cable shall be placed at a minimum depth of 60" below the railroad surface or 36" below the parallel drainage ditch, whichever is greater, unless the controlling authority requires additional depth, in which case the greatest depth will be maintained.

Cable Markers (If a buried proposal)

- Cable markers shall be placed within 48 hours of cable installation. Unless the right-of-way or property owner specifies otherwise, cable markers shall be placed at all change in directions, splices, fence line crossings, at road and stream crossings, and other points on the route not more than 1,000 feet apart.
- In addition, on highway right-of-way, the markers shall be located at the highway right-of-way line. Markers shall always be located so that they can be seen from the location of the cable.

Hand Holes (If a buried proposal)

- Hand holes will be placed in accordance with standard industry practice following the specifications provided in the construction plans, typical drawings, and detail drawings. Special attention and planning must be exercised to ensure accessibility by other groups after construction has been completed.
- All hand holes unless otherwise stipulated by the drawings will be buried with 12" to 18" of cover at final grade.
- Immediately after placement, the soil around and over the hand hole will be tamped and compacted. Should any washouts occur, the respondent will be responsible for correcting the problem immediately without additional cost to the Applicant.
- After cable placement, all ducts will be sealed.
- All splice hand holes/manholes will be grounded
- A minimum of 100' coil of cable shall be left in each hand hole/building for splicing use.

Splicing (both buried and aerial)

- Fiber to fiber fusion splicing of optical fibers at each point including head ends is required.
- Complete testing services, such as end to end, reel testing, and splice loss testing, ORL, power meter/laser source testing and WDM testing is required.
- Splice loss shall meet commercially reasonable industry standards for the proposed fiber type and installation method. Splice loss acceptance testing will be based on the fusion splicer's splice loss estimator.
- All cables to buildings shall be fusion spliced within a minimum of 50' of entering a building at a location to be determined by the owner with an existing single mode fiber and terminated at customer's rack.

Aerial Plant

- Applicant is open to aerial fiber runs using existing utility poles, but respondent must adhere to pole owners' requirements for clearances, spans, grounding, guys, and attachments.

Testing Cable (both buried and aerial)

- The respondent shall be responsible for on-reel verification of cable quality prior to placement.
- Completed test forms on each reel shall be submitted to the Applicant.
- Respondent assumes responsibility for the cable after testing. This responsibility covers all fibers in the cable.
- The respondent shall supply all tools, test equipment, consumables, and incidentals necessary to perform quality testing.
- The cable ends shall be sealed upon completion of testing.
- In addition to splice loss testing, selected respondent will perform end-to-end insertion loss testing of single-mode fibers at 1310 nm and 1550 nm from one direction for each terminated fiber span in accordance with TIA/EIA-526-7 (OFSTP 7). For spans greater than 300 feet, each tested span must test to a value less than or equal to the value determined by calculating a link loss budget.

Restoration (both buried and aerial)

- All work sites will be restored to as near their original undisturbed condition as possible, all cleanup will be to the satisfaction of the Applicant and any permitting agencies.
- Respondent shall provide a brief description of restoration plan in the response, with the expectation that a more detailed restoration plan will be delivered prior to construction begins.
- Work site restoration will include the placement of seed, mulch, sod, water, gravel, soil, sand, and all other materials as warranted.
- Backfill material will consist of clean fill. Backfilling, tamping, and compaction will be performed to the satisfaction of the Applicant, the representative of any interested permitting agency, and/or the railroad representative.
- Respondent will be responsible for any restoration complaints arising within one year after the Applicant's final acceptance.
- Excess material will be disposed of properly.
- Debris from clearing operations will be properly disposed of by the respondent/subcontractors as required by permitting agencies or the railroad. Railroad ties, trees, stumps or any foreign debris will be removed, stacked, or disposed of by the respondent as per requirements by other interested permitting agencies, and/or the Applicant.
- Road shoulders, roadbeds, and railroad property will be dressed up at the end of each day. No payment for installation will be permitted until cleanup has been completed to the satisfaction of the any permitting agencies, and/or the Applicant.
- Site clean-up will include the restoration of all concrete, asphalt, or other paving materials to the satisfaction of the other interested permitting agencies, and/or the Applicant.

Documentation (both buried and aerial)

As-built drawings will include:

- Fiber cable routes

- Drawings, site drawings, permit drawings, and computerized design maps and electronically stored consolidated field notes for the entire route must include:
 - Verification of as-built and computerized maps
 - Splicing locations
 - Optical fiber assignments at patch panels
 - Optical fiber assignments at splice locations
 - Installed cable length
 - Date of installation
 - Aerial installation documents should include
 - Pole attachment inventories
 - Pole attachment applications
 - Pole attachment agreements between respondent and other utilities
 - GPS points of reference for utility poles
 - Photo images of poles to which fiber is attached
 - Underground installation documents should include
 - Conduit design and detailing
 - Manhole detailing
 - Preparation of all forms and documentation for approval of conduit construction and/or installation,
- Fiber details will include:
 - Manufacturer
 - Cable type and diameter
 - Jacket type: single-mode
 - Fiber core and cladding diameter
 - Fiber attenuation per kilometer
 - Fiber bandwidth and dispersion
 - Index of refraction
- OTDR documentation will include:
 - Each span shall be tested bi-directionally from endpoint to endpoint.
 - Each span's traces shall be recorded and mapped. Each splice loss from each direction and the optical length between splices as well as any of the information required by Span Map.
 - Reel acceptance
 - Individual fiber traces for complete fiber length
 - Paper and computer disk records of all traces
 - Losses of individual splices
 - Anomalies
 - Wavelength tests and measurement directions
 - Manufacturer, model, serial number, and date of last calibration of OTDR
- Power Meter documentation will include:
 - Total link loss of each fiber
 - Wavelengths tested and measurement directions
 - Manufacturer, model, serial number, and date of last calibration for all equipment used

References, Standards, and Codes

Specifications in this document are not meant to supersede state law or industry standards. Respondents shall note in their response where their proposal does not follow the requested specification to comply with state law or industry standard. The following standards are based upon the Customer-Owned Outside

Plant Design Manual (CO-OSP) produced by BICSI, the Telecommunications Distribution Methods Manual (TDMM) also produced by BICSI, ANSI/TIA/EIA and ISO/IEC standards, and NEC codes, among others.

It is required that the respondent be thoroughly familiar with the content and intent of these references, standards, and codes and that the respondent be capable of applying the content and intent of these references, standards, and codes to all outside plant communications system designs executed on the behalf of the Applicant.

Listed in the table below are references, standards, and codes applicable to outside plant communications systems design. If questions arise as to which reference, standard, or code should apply in a given situation, the more stringent shall prevail. As each of these documents are modified over time, the latest edition and addenda to each of these documents is considered to be definitive.

Table 1 — References, Standards, and Codes

Standard/ Reference	Name/ Description
BICSI CO-OSP	BICSI Customer-Owned Outside Plant Design Manual
BICSI TDMM	BICSI Telecommunications Distribution Methods Manual
BICSI TCIM	BICSI Telecommunications Cabling Installation Manual
TIA/EIA - 758	Customer-Owned Outside Plant Telecommunications Cabling Standard
TIA/EIA - 568	Commercial Building Telecommunications Cabling Standard
TIA/EIA - 569	Commercial Building Standard for Telecommunication Pathways and Spaces
TIA/EIA - 606	The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
TIA/EIA - 607	Commercial Building Grounding and Bonding Requirements for Telecommunications
TIA/EIA - 455	Fiber Optic Test Standards
TIA/EIA - 526	Optical Fiber Systems Test Procedures
IEEE 802.3 (series)	Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit Ethernet Standard
NEC	National Electric Code, NFPA
NESC	National Electrical Safety Code, IEEE
OSHA Codes	Occupational Safety and Health Administration, Code of Federal Regulations (CFR) Parts 1910 - General Industry, and 1926 - Construction Industry, et al.