

Dakota County Fiber Optic Network

LT-0000017 DC-HA-DC Judicial to DCTC along Hwy 55 & 42

Request for Bids

ISSUED: August 11th, 2025

BIDS DUE: September 12th, 2025

MAIL BIDS TO:

Dakota County Information Technology Department
Attention: Dan Ferber
1590 Highway 55
Hastings, Minnesota 55033
OR

DELIVER BIDS TO:

Dakota County Information Technology Department
Attention: Dan Ferber
1590 Highway 55
Hastings, Minnesota 55033

MANDATORY PRE-BID MEETING:

August 26th, 2025, at 2:00 PM

Please contact Roni Woods @ rwoods@logisMN.gov or 763-543-2673
for Teams meeting invite no later than August 25, 2025.

Prepared by:
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(763) 543-2653
jroggenkamp@logisMN.gov

BIDDING REQUIREMENTS

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SECTION 00015 – LIST OF DRAWINGS

Attachment A	Fiber Segments by color
Attachment B	Engineered Design by Mi-Tech Services

SECTION 00100 – ADVERTISEMENT FOR BIDS**- ADVERTISEMENT FOR BIDS -
DAKOTA COUNTY
MINNESOTA****DAKOTA COUNTY FIBER OPTIC NETWORK**

Sealed bids will be received by the Information Technology Department of Dakota County at 1590 Highway 55, Hastings, MN 55033 until 2:00 p.m. on September 12th, 2025 or via email to Dan Ferber at dan.ferber@co.dakota.mn.us. Copies of the Bid Form, Contract Documents, and Plans and Specification can be requested via email through contacting Dan Ferber at dan.ferber@co.dakota.mn.us.

A Mandatory Pre-Bid Meeting will be held through Teams at 2:00 pm August 26th, 2025.

The bids must be submitted on the Bid Form provided in accordance with the Contract Documents, Plans and Specifications as prepared by:

LOGIS
5750 Duluth Street
Golden Valley, MN 55422

Required Qualifications: By submitting the Bid, the Bidder certifies as to meeting the following requirements:

1. Has completed three (3) or more projects of at least 80% of the size or value of the work being proposed where the type of work is similar to that being proposed.
2. Can provide a minimum of three (3) similar project references from within the last two (2) years. These references must accompany the Bid response and must include project description, point of contact, mailing address, and telephone number.
3. Maintains a minimum of twelve (12) full-time fiber installers.
4. Has access to all necessary equipment, organizational capacity and technical competence necessary to do the work properly and expeditiously.
5. Maintains a permanent place of business in the State of Minnesota.
6. Provides sworn financial statement upon request, which evidences the Bidder has adequate financial resources to complete the work being proposed, as well as all other work the Bidder is presently under contract to complete.
7. Is bondable for the terms of the proposed contract.
8. Has a record of satisfactorily completing past projects. Criteria that will be considered in determining satisfactory completion of projects by the Contractor will include the following:
 - a. Completed contracts in accordance with Contract Documents.
 - b. Diligently pursued execution of the work and completed contracts according to the established time schedule.
 - c. Fulfilled guarantee requirements of the Contract Documents.

Each bid must be clearly identified as **“BID FOR DAKOTA COUNTY AREA FIBER OPTIC NETWORK”** and shall show the name and address of the bidder. A certified or cashier’s check payable to Dakota County or satisfactory bid bond executed by the bidder and a license surety company in an amount not less than five percent (5%) of the total bid shall accompany each bid as a guarantee that if the bid is accepted the bidder shall execute a written proposed contract and furnish the required bonds within ten days after the award of the contract. The Contractor is responsible for the delivery of the bid via mail to the attention of Dan Ferber, Dakota County Information Technology Department, 1590 Highway 55, Hastings, MN 55033 or in person.

Dakota County reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, non-responsive, unbalanced, or conditional bids. The County also reserves the right to waive any informalities, to award the contract in whole or in part, and to award to the bidder the County determines is in the County’s best interest.

Dakota County hereby notifies all bidders that businesses submitting bids will not be subjected to discrimination based on race, color, sex, sexual orientation, age, religion, ancestry, handicap, public assistance, marital or national origin.

SECTION 00200 – INSTRUCTIONS TO BIDDERS

1.01 DEFINITIONS

A. The following terms may be used within this document:

When used in these Specifications and Contract, the following terms (or if pronouns in place of them are used) shall be interpreted as to intent and meaning as follows:

1. **BID:** The written Bid of the Bidder on the form furnished for the work contemplated.
2. **BID BOND:** The security furnished by the Bidder as a guarantee of good faith to enter into a contract with Dakota County if the work is awarded to that Bidder.
3. **BID FORM:** The approved prepared form on which the Bidder submits the proposal for the work contemplated.
4. **BIDDER:** Any individual, firm, or corporation submits a Bid for the Work.
5. **CONTRACT:** The agreement covering the performance of the work, and the furnishing of materials for the construction of the project. The contract represents the entire agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The contract documents shall include the Agreement between Dakota County and the Contractor (hereinafter referred to as the Agreement), the General and Supplemental Specifications and Special Provisions (hereinafter referred to as "Specifications"); Dakota County Instructions to Bidders; addenda to bidding requirements, if any; Contractor's Bid, Bid Forms; drawings; plans, addenda issued prior to execution of the Contract; other documents listed in the Agreement and Modifications issued after execution of the Contract; and any other documents listed in the Contract Documents enumerated above. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, or (3) a written order for a minor change in the work issued by the Engineer or the County. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Engineer and the Contractor, (2) the County and a Subcontractor or a Sub- subcontractor, or (3) between any persons or entities other than the County and Contractor. The Engineer shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Engineer's duties.
6. **CONTRACTOR:** The individual, firm or corporation with whom the County contracts.
7. **ENGINEER:** David Asp, (651-438-4271) email: david.asp@co.dakota.mn.us
8. **FINAL COMPLETION:** When all the Work has been performed to the requirements of the Contract, except for those items arising from the provisions of warranty, and is so certified.

9. **FINAL COMPLETION DATE:** The date as specified in the Section 00310 of this specification.
10. **INSPECTOR:** An authorized representative of the County or the Engineer assigned to make any or all necessary inspections of the work performed, and the materials furnished by the Contractor.
11. **INTERIM MILESTONE:** A point in time, or duration, representing the completion of key or important intermediate event(s) in the life of a project.
12. **LABORATORY:** The testing laboratory which must be approved by the Engineer or the County to inspect and determine the suitability of materials.
13. **PERFORMANCE/PAYMENT BONDS:** A form or security executed subsequent to award by a successful Bidder that guarantees the proper performance of the Contract, the payment of debts to persons furnishing services or materials on account of the Contract work, and the payment of certain other responsibilities of the Contractor. These bonds are provided by the Contractor prior to the Contract execution by the County.
14. **PLANS:** All approved drawings or reproductions of drawings pertaining to the construction of the work and appurtenances.
15. **SPECIFICATIONS:** The directions, provisions and requirements contained herein, together with all written agreements made or to be made, pertaining to the method and manner of performing the work, or to the quantities and qualities of materials to be furnished under the contract.
16. **SUBCONTRACTOR:** The individual, firm or corporation undertaking the execution of a part of the work under the terms of the contract by virtue of an agreement between an individual firm or corporation and the Contractor subject to the approval of the County. It does not include one who furnishes material only.
17. **SUBSTANTIAL COMPLETION:** When specific aspects of the Work have been completed as defined in the Special Provisions.
18. **SUBSTANTIAL COMPLETION DATE:** The date as specified in the Special Provisions in a completion date contract.
19. **SURETY:** The individual or corporate body which is bound with and for the Contractor for the acceptable performance of the Contract and for the Contractor's payment of all obligations pertaining to the work.
20. **WORK:** The term "Work" means the services or duties required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided by the Contractor to fulfill the Contractor's obligations.
21. **WRITTEN NOTICE:** Written Notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended or if delivered at or sent by registered mail to the last known business address.
22. **OWNER:** Refers to Dakota County.

23. OSP: Refers to Outside Plant.
24. CONSULTANT: Refers to LOGIS.
25. SYSTEM: Refers to a group of interacting or interrelated or interdependent elements forming a whole; a functionally related group of elements.
26. STANDARDS: Refers to a requirement, method, procedure, or recommendation (guideline) defined by a group, organization, association, or committee intending to govern or provide guidelines for work that has been referenced herein this Bid package. If an actual standard does not exist, then an accepted and generally common industry practice will apply as if it is a true standard.
27. AS REQUIRED: The term 'As required' shall mean that the Contractor shall provide the quantity of said item that is necessary to fulfill the intent of the specifications. The County and the Consultant will reserve the right to make the final determination of necessary quantities to provide for a complete system.

1.02 EXAMINATION OF SITE AND DOCUMENTS

- A. Plans and Specifications are on file in the Dakota County Information Technology Department. Additional information may be obtained from that office. Bidders shall use complete sets of Plans, Specifications, Special Provisions and Contract Documents in preparing their bids. Dakota County assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of these documents. In making copies of these documents available, Dakota County does not confer a license or grant permission for any other use of the documents other than for the purpose of obtaining bids on the work.
- B. Bidders must familiarize themselves with all ordinances and statutes pertaining to public improvements and examine and determine for themselves the location and nature of the proposed work, and the amount and character of the labor and materials required therefore, and the difficulties which may be encountered.
- C. Bidders shall examine all documents, existing OSP infrastructure and shall visit the site(s) and record their own investigations, and shall inform themselves of all conditions under which the Work is to be performed at the site(s) of the Work, the structure of the ground, the obstacles which may be encountered, all of the conditions of the documents, including supervision of the Work, requirements of temporary environmental controls, the time of completion, furnishing a list of subcontractors, and all other relevant matters which may affect the Work or the bid process.
- D. Failure to make the examination shall not result in any Change Order requests.
- E. The Bidder shall base the bid on materials complying with the plans and specifications and shall list all materials where the bid form requires.

1.03 DELIVERY OF BID

- A. An original bid can be emailed to Dan Ferber at dan.ferber@co.dakota.mn.us or three (3) copies shall be submitted. If not emailed the original hard copy if delivered and each subsequent copy shall be organized in a three-ring binder. Each copy shall include all documents, specifications, drawings, and papers to be considered in the bid evaluation. The original bond or security shall be included with the original bid document. Each copy and the original document shall be placed into a separate sealed envelope that shall be marked to indicate the following:

1. The name and address of the Bidder
2. The name of the project and location
3. Due date of Bid
4. The nature of the Bid or project number
5. The bid sealed envelope shall be addressed as follows:

Original for time/date stamp and Three (3) Copies:
Dakota County Area Network Project Information Technology Department Dakota County Administration Center 1590 Highway 55 Hastings, MN 55033

Bids shall be submitted on the Bid Form that is bound into the Specifications. In order to ensure consideration, the bid shall be enclosed in a sealed envelope addressed to the Information Technology Department and clearly marked to the title of Project and the date and time of the bid opening.

- B. Each bid must contain the full name or names and post office address of the bidder or bidders, and any person signing any bid as agent of another, or of a firm, must furnish legal evidence of authority to do so.
- C. More than one bid from an individual, firm, partnership or corporation under the same or different names will not be considered. Evidence that any bidder is interested in more than one bid for the same work will cause rejection of all such bids. Collusion between the bidders will be considered sufficient cause for the rejection of all bids so affected. A party who has quoted prices to a bidder is not thereby disqualified from quoting prices to other bidders or submitting a direct bid.
- D. If a bidder has failed to carry out previous contracts satisfactorily or a bidder's lack of experience or equipment necessary for the satisfactory completion of the project, the County may deem the bidder to be unqualified to perform the Work.

- E. Unless otherwise specifically provided in the specifications for the improvement, bids must be made upon each and every item on the blank Bid Form.
- F. Telegraphic bids will not be considered. Modifications to bids already submitted will be allowed if received prior to the time specified in the "Invitation for Bids." Modifications shall be submitted as such and shall not reveal the total amount of either the original or revised bids.
- G. Whenever alternate bids are called for, specifying the use of several different classes of material or types of improvement for the same work, all bidders are requested to submit prices for use of each of the several classes of material or types of improvement as specified. The material to be used or the type of improvement to be adopted will be selected by the County after the proposals have been opened and read.

1.04 ADDENDA

- A. Any explanation regarding the meaning or interpretation of contract drawings, specifications, special provisions, or other contract documents must be requested in writing and received at least five (5) days prior to the date for receipt of bids as indicated in the Invitation to Bid. Any such explanations or interpretations shall be made in the form of addenda to the documents and shall be furnished to all bidders, who shall submit all addenda with their bids. Oral explanations and interpretations made prior to the bid opening shall not be binding.
- B. No substitutions will be considered prior to receipt of the bids unless a written request for approval has been received by the consultant at least three (3) days prior to the time of receipt of the bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation.

The County's decision of approval or disapproval of a proposed substitution shall be final. If approval of a substitution is made prior to receipt of bids, such approval will be set forth in an addendum. Addenda will be posted on Dakota County's "Request for Bid, Proposals & Information" web site, but no addenda will be issued later than two (2) days prior to the date for receipt of bids except an addendum withdrawing the request for bids or one which includes a postponement of the date for receipt of bids.

C. Requests for clarifications and substitutions should be sent to:

Justin Roggenkamp
LOGIS
5750 Duluth Street
Golden Valley, MN 55422
jroggenkamp@logisMN.gov

A copy of the request should also be forwarded to:

Dan Ferber
Dakota County Information Technology Department
1590 Highway 55
Hastings, MN 55033
dan.ferber@co.dakota.mn.us

D. Questions may not be directed to other County personnel or any other parties.

1.05 CAPITAL AND EQUIPMENT

Bidders must present satisfactory evidence that they are familiar with the class of work specified, and that they have the necessary capital, tools, machinery and other equipment necessary to conduct the work and complete the improvement within the time specified in a good and workmanlike manner and to the satisfaction of the Engineer and County staff.

1.06 BID GUARANTEE

- A. Each bid shall be accompanied by a money order, certified check, or bid bond payable to the order of Dakota County in an amount not less than five percent (5%) of the total amount of the bid. No bid will be considered unless accompanied by such deposit.
- B. In case alternate bids are called for providing for the use of several different classes of materials or types of improvement for the same work, one deposit in the amount of five percent (5%) of the total amount of the highest bid will be sufficient for all bids.
- C. As soon as a contract is awarded, all deposits shall be returned to the bidders, except that of the three lowest bidders, which shall be retained until the contract has been signed and the bonds of the Contractor have been filed, approved, and accepted which shall be within ten (10) days of notice of award of the contract.
- D. If the successful bidder fails to enter into such contract in accordance with the accepted bid or shall fail to furnish the required bond within ten (10) days from notice of award, the bidder's deposit shall be forfeited to Dakota County as liquidated damages.
- E. The next lowest responsive bid shall be then considered the successful bid, and, at the discretion of the County, the contract may be awarded to the bidder submitting that bid.

1.07 NON-COLLUSION STATEMENT



The bidder hereby affirms that he or she is the bidder, a partner of the bidder, or an officer or employee of the bidding corporation with authority to sign on its behalf. The bidder also affirms that the attached bid has been compiled independently and without collusion or agreement or understanding with any other vendor. The bidder also affirms that the contents of this bid have not been communicated by the bidder or its agents to any person not an employee or agent of the bidder.

1.08 INDEMNIFICATION

- A. The bidder agrees that if the contract is awarded to the bidder, the bidder shall defend, indemnify, and hold harmless the County and its officials, agents, and employees against any and all claims, liabilities, damages, losses, expenses, or judgments asserted against, imposed upon, or incurred by the County and its officials, agents and employees that, either directly or indirectly, arise out of or result from the performance of services under the contract, except those claims, liabilities, damages, losses, expenses, or judgments that the bidder can establish arose directly from the negligence or misconduct of the County.
- B. The bidder also agrees that if the contract is awarded to the bidder, the bidder shall take all reasonable precautions for the safety of all employees on the site and shall provide reasonable protection to prevent damage or loss to the property on the site or properties adjacent thereto and to work, materials, and equipment under the bidder's control.
- C. If the contract is awarded to the bidder, the bidder shall submit a certificate to the County warranting that the bidder is in full compliance with Minnesota Statutes, Section 176.181 Sub d. 2 (Workers' Compensation) and shall submit such insurance, if requested, in the specifications. Certificates of insurance as detailed in the general conditions must be submitted to the County before any work may begin under the contract. All such certificates shall state that the insurance company shall give the County thirty (30) days' written notice of cancellation, non-renewal, or any material change in the policy.

1.09 CONSIDERATION OF BIDS

- A. All properly identified bids received on time will be opened publicly and will be read aloud.
- B. The County shall have the right to reject any and all bids, reject a bid not accompanied by the required check or security, reject a bid which is in any way incomplete or irregular, and to waive informalities.
- C. The County will award the contract to the lowest responsible bidder, which will be based on factors pertinent to the matter which may include the following:
 - 1. The bidder's adherence to all conditions and requirements of the bid specifications
 - 2. The total bid price
 - 3. Alternate bids prices
 - 4. The bidder's general reputation and experience

5. Evaluation of the bidder's ability to service the County
 6. Prior knowledge of and experience with the bidder
 7. The needs and requirements of the County
 8. The bidder's ability to meet delivery requirements
 9. All maintenance costs and warranty provisions.
- D. Unless otherwise stated in the specifications, the County reserves the right to award the contract in whole or in part, whichever is in the best interests of the County. All tied bids shall be resolved in a manner which is in the best interests of the County. The County reserves the right to waive informalities in the bid and to award to the bidder the County determines is in the County's best interest.
- E. Base bid prices must be valid for 60 days from bid due date.
- F. All alternate prices must be valid for one (1) year from bid due date.
- 1.10 CONTRACT TERM
- The term of the contract shall commence on the date the contract is signed by the County. The contract expiration date shall be the date stated in the contract or upon completion of all the terms stated in the contract.
- 1.11 INCURRING COSTS
- The County is not liable for any costs incurred with replying to these specifications.
- 1.12 CONTRACTOR QUALIFICATIONS
- A. By submitting the bid, the Bidder certifies as to meeting the following requirements:
1. Has completed three (3) or more projects of at least 80% of the size or value of the division of work being bid and the type of work completed is similar to that being bid. If a greater magnitude of experience is deemed necessary, other than size or value of the work, such requirements will be described in the appropriate technical section of these specifications.
 2. Has access to all necessary equipment and has organizational capacity and technical competence necessary to do the work properly and expeditiously.
 3. Maintains a permanent place of business in the State of Minnesota.
 4. Maintains a minimum of twelve (12) full-time installers.
 5. Provides sworn financial statement upon request, which evidences the Bidder has adequate financial resources to complete the work being proposed, as well as all other work the Bidder are presently under contract to complete.
 6. Is bondable for the terms of the proposed contract.

7. Has a documented safety program with a history of satisfactory past performance.
 8. A minimum of three (3) like job references from within the last two (2) years are required to accompany Bid response and must include job description, point of contact, mailing address, and telephone number.
 9. Has a record of satisfactorily completing past projects. Criteria that will be considered in determining satisfactory completion of projects by the Contractor will include:
 - a. Completed contracts in accordance with the Contract Documents.
 - b. Diligently pursued execution of the Work and completed contracts according to the established time schedule.
 - c. Fulfilled guarantee requirements of the Contract Documents.
- B. The County will make such investigations as is deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the County all such information and data for this purpose as the County may request. Before award of contract can be approved, the County shall be satisfied that the Bidder involved meets the above requirements. The County reserves the right to reject the bid if the evidence submitted by, or investigation of, the Bidder fails to satisfy County that the Bidder is responsible and qualified to carry out the obligations of the contract and to complete the work contemplated therein.

1.13 BID OPENING

The official opening of the bids will occur at the appointed time and place as designated in Section 00310. Bidders are not required to be present at the bid opening. Information revealed publicly at that time will include only Bidder name and address, total cost amounts of base bid and alternates, and whether the bid is considered complete and qualified with regard to the required response format.

1.14 BID ACCEPTANCE

The County reserves the right to accept or reject any or all bids and waive formalities or irregularities in the process. A bid once submitted shall be deemed final and binding on the Bidder and shall constitute an option with County to enter into a contract upon the terms set forth in the bid. All base bid prices must be valid for 60 days from bid due date. All alternate bid prices must be valid for one (1) year from bid due date.

1.15 COMMENCEMENT AND COMPLETION

The successful Bidder must agree to coordinate the work schedule with the County and commence the work on or before a date to be specified in a written "Notice to Proceed" and to fully complete all the work by November 14th, 2025.

1.16 PERFORMANCE AND PAYMENT BONDS

The successful Bidder will be required to produce a performance bond and a separate Labor and Material Payment Bond each in the amount of 100% of the contract, which will cover the faithful performance of the Contract, and payment of all labor, mechanics, subcontractors, and material. These bonds shall be submitted before any project work may commence and shall be in force until completion of the contract and acceptance of the work by the County, and for thirty (30) days following completion. The performance bond shall be furnished by a corporate surety company that is authorized to do business in the State of Minnesota and is acceptable to the County (subject to the approval of the County Attorney as to form).

1.17 COMPLIANCE WITH LAWS/STANDARDS

The successful Bidder shall abide by all Federal, State, and local laws, statutes ordinances; rules and regulations now in effect or hereinafter adopted pertaining to this Contract or to the facilities, programs, and staff for which the successful Bidder is responsible.

1.18 DEFAULT

- A. Force Majeure: Neither party shall be held responsible for delay or failure to perform when such delay or failure is due to any of the following unless the act or occurrence could have been foreseen and reasonable action could have been taken to prevent the delay or failure: fire, flood, epidemic, strikes, wars, acts of God, unusually severe weather, acts of public authorities, or delays or defaults caused by public carriers, provided the defaulting party gives notice as soon as possible to the other party of the inability to perform.
- B. Inability to Perform: The successful Bidder shall make every reasonable effort to maintain staff, facilities, and equipment to deliver the services to be purchased by the County. The successful Bidder shall immediately notify the County in writing whenever it is unable to; or reasonably believes it is going to be unable to provide the agreed upon quality and quantity of services. Upon such notification, the County shall determine whether such inability requires a modification or cancellation of this Contract.
- C. Duties to Mitigate: Both parties shall use their best efforts to mitigate any damages that might be suffered by reason of any event-giving rise to a remedy hereunder.

SECTION 00310 – PRELIMINARY SCHEDULES

Pre-Bid Meeting via TeamsAugust 26th, 2025, at 2:00pm
Bid Due Date.....September 12th, 2025, at 2:00pm
Bid Opening* September 12th, 2025, at 2:00pm
Anticipated Bid Award Date..... September 19th, 2025.
Estimated Commencement of Work** September 29th, 2025
Final Completion Date..... November 28th, 2025

* Information revealed publicly at bid openings will include only bidder name and address, total cost amounts of base bid and alternates, and whether the bid is considered complete and qualified regarding the required response format.

** Work commences on or before a date to be specified in written “Notice to Proceed” and Contractor will fully complete all the work by November 28th, 2025.

SECTION 00410 – BID FORM**1.01 BIDDER'S QUALIFICATIONS AND SUPPORT CAPABILITIES****A. Information about the Bidder**

1. Company Name _____
2. Legal Name (if different) _____
3. Number of Years in Business _____
4. Number of years installing systems similar to this bid _____
5. Contact Person _____
6. Full Mailing Address _____

7. Telephone Number _____
8. Fax Number _____
9. Email Address _____
10. Name and Phone Number of Bonding Company _____

11. Number of Full-Time Employees _____
12. Number of technical/installation personnel (minimum of 2) _____
13. Names and titles of personnel who would work on this project (attach brief experience listings for each focusing on similar projects):

14. Name of person who would be Project Manager for this project (attach experience listing with similar projects):

B. Qualifications and Requirements

No exceptions may be taken to the following:

1. If more than one (1) Bidder or company is involved in the installation and/or support after installation, there must be a Prime Contractor. This Prime Contractor assumes responsibility for all other entities involved.
2. List Prime Contractor here: _____
3. The response must include a statement from all involved Bidders agreeing that the configuration will work as specified and that all Bidders will work to resolve any problems during the installation process at no additional cost to the client. Write a statement below.

C. Experience and Existing Customers

1. How many similar systems has the Bidder installed within 200 miles of the Owner? How many statewide? How many nationwide?

Area _____ Statewide _____ Nationwide _____

D. Workload

1. How many installations of this type are currently underway by your company?

2. How many projects do you estimate your company will be doing concurrently with this project? _____

E. References

To be a qualified Bidder, the Bidder must include below three (3) references for similar projects. Preference will be given to Bidders with references for projects of similar size and complexity. **References will be contacted – please verify information before submitting.** All references will be called. Please inform your contacts that a 10-15-minute call may be anticipated.

1. Reference 1

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Fax Number _____

Secondary Contact Person _____

Telephone Number _____

Fax Number _____

Dates of Installation _____

Description of System _____

_____2. Reference 2

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Fax Number _____

Secondary Contact Person _____

Telephone Number _____

Fax Number _____

Dates of Installation _____

Description of System _____

3. Reference 3

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Fax Number _____

Secondary Contact Person _____

Telephone Number _____

Fax Number _____

Dates of Installation _____

Description of System _____

F. Subcontractors/Partners

1. The applicable terms and provisions of the contract documents shall bind every subcontractor. Further information about subcontractors may be requested prior to award.
2. Identify all subcontractors or partners used for any purposes. Failure to disclose subcontractors/partners may lead to disqualification. Include separate sheet(s) labeled "Subcontractors/Partners" if necessary.

a. Business Name	Years' Experience	Function	Minority Status
------------------	-------------------	----------	-----------------

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

G. References for Subcontractors/Partners

Include below two (2) references for EACH subcontractor (duplicate this page if needed for multiple subcontractors). Again, preference will be given to Bidders with references for implementations at organizations most similar to the client.

1. Reference 1

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Fax Number _____

Dates of Installation _____

Description of System _____

2. Reference 2

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Fax Number _____

Dates of Installation _____

Description of System _____

H. Service After Installation

1. How many service personnel trained in maintaining the proposed system does Bidder employ in the client's area? Please indicate location closest to the client.

Service Personnel _____

Location _____

2. List names and job titles of service personnel who would be assigned to this customer after installation:

3. Provide the address of Bidder's service center(s) closest to the client:

Company _____

Address _____

Telephone Number _____

4. Who will maintain parts inventory? At what location?

Company _____

Address _____

Telephone Number _____

5. What critical component parts are kept in stock at this location?

6. What response time can Bidder supply in an emergency situation?

Phone Response: _____ hours On-site response _____ hours

7. What response time does Bidder offer in a non-emergency situation?

Phone Response: _____ hours On-site response _____ hours

I. PRICE SUMMARY

To: Dakota County

We _____ (a joint venture)
 _____ (a corporation)
 _____ (a partnership)
 _____ (an individual)
 (Cross out inapplicable)

Of _____
 Street City County State Zip

Hereby agree to execute the proposed contract and to furnish a satisfactory Surety Bond in the amount specified within ten (10) days of offering, and to provide all labor and material required for the construction of the project designated above, for the prices hereinafter set forth, in strict accordance with the Contract Documents prepared by LOGIS, 5750 Duluth Street, Golden Valley, MN 55422 for Dakota County and dated September 22nd, 2025.

BASE BID: ALL WORK required to fully complete the project in accordance with the Contract Documents, for the sum of _____ Dollars.

(\$ _____)

COMMENCEMENT AND COMPLETION OF CONTRACT WORK

The undersigned agrees, if awarded the contract, to commence the Contract work on or before a date to be specified in a written Notice to Proceed, and to complete the work within the time dictated in the Instructions to Bidder.

ADDENDUM RECEIPT

We acknowledge receipt of the following Addenda:

Addendum No. _____ Date _____
 Addendum No. _____ Date _____
 Addendum No. _____ Date _____
 Addendum No. _____ Date _____
 Addendum No. _____ Date _____

Prior to signing, Bidder's attention is directed to the Instructions to Bidders to avoid the possibility on invalidating this bid.

By signing this bid for, such action certifies that the Bidder has personal knowledge of the following:

1. That said Bidder has examined the drawings and specifications, carefully prepared the bid form, and has checked the same in detail before submitting said bid; and that said bidder, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.
2. That all of said work will be performed at the Bidder's own proper cost and expense, that the Bidder will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications, and at the time dictated in the contract.

(Firm Name)

(Area Code & Telephone Number)

(Seal, if bid is by a corporation)

(Signature of Bidder)

(Date)

SECTION 00500 – COUNTY GENERAL CONDITIONS OF THE CONTRACTOR FOR CONSTRUCTION

PART 1 – GENERAL

1.01 GOVERNING CLAUSE

- A. The Governing General Conditions for the Contract of Construction shall be hereafter referred to as the “General Conditions.”
- B. The Supplementary Conditions shall take precedence in all cases of conflicting requirements.
- C. Those portions of the General Conditions that are not altered, modified, amended, or rescinded by the Supplementary Conditions, shall remain in full force and effect as published.

1.02 BID FORM

- A. All bids must be made in ink upon the blank form of bid included in the Specifications and should give a unit price for each item, extended totals for the items, and totals as indicated for the work, and must be signed and acknowledged by the bidder, in accordance with the directions in the form of the bid. In order to ensure consideration, the bid shall be enclosed in a sealed envelope addressed to the County Information Technology Department and clearly marked as to the time and date of the bid opening and the nature of the project. The legal status of the bidder must be stated in the bid. A corporation bidder must name the state in which its articles of incorporation are held. A partnership must give the full names and addresses of all partners.
- B. When a firm submits a bid, the individual names of all its members shall be written out and shall be signed in full; but the signers may, if they choose, describe themselves in addition, as doing business under a firm name and style.
- C. If a corporation submits a bid, the bid must be signed in the name of, and under the seal of, the corporation by a duly authorized officer or agent of the corporation. The corporate address must also be included. Such an officer or agent must present legal evidence stating their lawful authority to sign said bid. In the event that any corporation organized and doing business under the laws of a foreign state is the successful bidder, such corporation shall present evidence that it is authorized to do business in the State of Minnesota before the contract is executed. After bidders have submitted bids, they shall not withdraw or cancel such bid and all sums deposited with such bid may be held by the County until all bids submitted have been canvassed, a contract awarded and executed, and the required bonds and insurance furnished and approved.

- D. The acceptance of the bid will be a notice in writing signed by a duly authorized representative of Dakota County. The acceptance of the bid shall bind the successful bidder to execute the Contract within ten (10) days and to be responsible for liquidated damages as provided for execution of Contract and damages for failure to execute. The rights and obligations provided for in the Contract shall become effective upon the parties only with its formal execution by Dakota County.
- E. The County reserves the right to reject any or all bids or to accept the bid deemed in the best interest of the County. Without limiting the generality of the foregoing, any bid which is incomplete, obscure, or irregular may be rejected; any bid having erasures or corrections in the price sheets, which have not been initialed by the contracting officer executing the bid, may be rejected; any bid which omits a bid on any one or more items in the price sheet may be rejected; any bid in which unit prices are obviously unbalanced may be rejected; any bid accompanied by an insufficient or irregular bid bond may be rejected.

1.03 PLANS AND SPECIFICATIONS

- A. The Plans for this improvement and the Specifications accompanying them shall be considered as a whole, and anything shown or called for in one and omitted in the other is as binding as if called for or shown by both. Figure dimensions shall in all cases be used in preference to scale dimensions. Any work not herein specified which may be implied as included in this improvement shall be done by this Contractor without extra pay. Special provisions and detail plans are intended to modify and shall take precedence over the standard plans and standard specifications. In case of conflict between plans and specifications, the specifications shall govern.
- B. All work shall be completed in accordance with the Specifications and Plans, and in compliance with the laws of the State of Minnesota and the ordinances of Dakota County as far as applicable.

1.04 EXAMINATION OF PLANS AND SPECIFICATIONS

- A. Before submitting a bid, all Contractors must carefully examine the plans and specifications and judge for themselves the difficulties which may arise on the site of the work.
- B. After the time set for opening the bids, no bidder may, without the consent of the County, withdraw their bid or claim extra compensation or damages for any error or omission made by said bidder in preparing the bid.
- C. In the event of discrepancies between the prices stated in the bid, in unit prices and the extensions thereof, the unit prices shall be controlled. The prices are to include the furnishing of all materials, plants, equipment, tools, and all other facilities and the performing of all labor and services necessary or proper for the completion of the work, except such as may be otherwise expressly provided in the Contract documents.

1.05 INTERPRETATIONS AND CHANGE ORDERS

- A. No oral interpretation shall be made to any bidder as to the meaning of any of the Contract documents, or to modify any of the provisions of the Contract documents. Every request for an interpretation shall be made in writing and addressed and forwarded to the Engineer and the County. The County will not be responsible for any other explanation or interpretation of the Plans and Specifications.
- B. If unforeseen conditions require a change in the dimensions of a structure, location of underground utilities or structures, or major variations of a similar nature from the original plans, necessitating exceeding the reasonable limits, as defined in paragraph 00500.1.07 of these Specifications, or being of the nature of a substantial departure from the original Plans, such work shall be covered by a change order. The change order is to set forth in complete detail the nature of the change and reasons, therefore. The compensation to be paid the Contractor and whether it is an addition or a reduction with respect to the original contract costs is to be covered in detail. Should additional or supplemental drawings be required, they will be furnished by the Engineer or the County.

1.06 MATERIALS

- A. All materials shall be new unless recyclable materials are practicable and appropriate. Both the workmanship and material shall be of good quality. Dakota County requires that any contractor or subcontractor that bids any materials for any part or parts of a project, **MUST** include in the bid, products or construction items made with recycled materials, whenever and wherever possible, practical and appropriate, so long as those materials meet all performance requirements; state and local codes; will not compromise the quality, health and safety, or the operation and integrity of the project.
- B. If both recycled and non-recycled products are bid, the County may, after comparing quality, performance and cost, give preferential consideration to materials with recycled content or non-recycled content. If recycled products are to be bid, it shall be brought to the Engineer for approval prior to bid submission.
- C. The source of supply of materials to be used shall be approved by the Engineer or the County before delivery is started. The approval of the source of any material will stand only as long as the material itself conforms to the specifications.
- D. Only materials conforming to the requirements of these specifications shall be used in the work. The source of the material shall not be changed at any time without written approval of the Engineer or the County. The Contractor may be required at any time to furnish a complete statement of the origin, composition and manufacturer of any or all material required in the work, or to submit samples of the same.

- E. Materials shall be stored so as to insure the preservation of their quality and fitness for the work and such materials, even though approved before storage, shall be subject to test and must meet the requirements of these specifications at the time it is proposed to use them in the work. Materials shall be stored in a manner that will facilitate inspection.
- F. The portion of the County right-of-way not required for public travel may, with the consent of the County Right of Way Manager, be used for storage purposes and for the placing of the Contractor's plant and equipment; but any additional space required, unless otherwise stipulated, shall be provided by, and at the expense of, the Contractor.
- G. All materials, supplies, and articles furnished shall, whenever so specified and otherwise wherever practicable, be the stock products of recognized reputable manufacturers.
- H. From the commencement of the work until the completion of the same, the Contractor shall be solely responsible for the care of the work covered by this Contract and for the materials delivered at the site intended to be used in the work and all injury or damage to the same from whatever the cause, shall be made good at the Contractor's expense before the final estimate is made. The Contractor shall provide suitable means of protection for and shall protect all materials intended to be used in the work. The Contractor shall take all necessary precautions to prevent injury or damage to the work in progress of construction by flood, freezing or from inclemency's of the weather at any and all times and only approved methods shall be used for this purpose.
- I. All materials not conforming to the requirements of these specifications shall be considered as defective and all such materials, whether in place or not, will be rejected and shall be removed immediately from the right-of-way, unless otherwise permitted. No material which has been rejected - the defects on which have been corrected or removed - shall be used until approval has been given.
- J. If the Contractor does not remove such condemned work and material within a reasonable time fixed by written notice, the County may remove them and may store the materials at the expense of the Contractor. If the Contractor does not pay the expense of such removal within ten days thereafter, the County may, upon ten days written notice, sell such material at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.
- K. The Contractor shall promptly remove from the premises all material condemned by the County or the Engineer as failing to conform to the Contract, whether incorporated in the work or not and the Contractor shall replace and re-execute their own work in accordance with the Contract Documents without expense to the County and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.
- L. When tests of materials are necessary, such tests shall be made at the expense of the County unless otherwise provided. The Contractor shall afford such facilities as the Engineer, or the County may require for collecting and forwarding samples and shall not use the materials represented by the samples until tests have been made and the materials

have been found to satisfy the requirements of these specifications. The Contractor in all cases shall furnish the required samples without charge. Retesting of materials that fail the first test shall be at the Contractor's expense.

1.07 ESTIMATE OF QUANTITIES

- A. The schedule of quantities, although stated with as much accuracy as is possible in advance, is approximate only and is assumed solely for the purpose of comparing bids. The quantities on which payments will be made to the Contractor are to be determined by measurements of the work actually performed by the Contractor as specified in said contract.
- B. The County reserves the right to increase or decrease, within reasonable limits, any of the quantities shown. The term "reasonable limits" shall mean a twenty-five (25) percent increase or decrease in the quantities on any one contract item. In the event the actual quantities differ more than the reasonable limits, an equitable revision of the unit price shall be made when requested by either the County or the Contractor. These twenty-five (25) percent limit does not apply to items specifically excluded or listed as optional by the County, or to minor contract items.

1.08 OTHER CONTRACTS

The County may award other Contracts for additional work and the Contractor shall cooperate fully with such other Contractors and adjust his/her work to that provided under other contracts as may be directed by the Engineer or the County.

1.09 SCHEDULING AND CONSTRUCTION PROGRESS

A. General

- 1. For purposes of the Work under the Contract, the Contractor shall prepare and submit a Project Schedule ("Project Schedule") and Weekly Look Ahead Schedules ("WLA Schedules"), as further provided herein. The intent of the scheduling requirements is to provide a quantitative measure for performance and actual progress throughout the life cycle of the project.
- 2. The Project Schedule and the WLA Schedules (hereinafter collectively referred to as the "Schedules") to be submitted shall represent a practical plan to complete the Work by the Final Completion Date or within the permitted Working Days, whichever is applicable under the Contract, and shall convey the Contractor's intent in the manner of prosecution and progress of the Work.

The scheduling and execution of the Work in accordance with the Contract Documents are the responsibility of the Contractor. The Contractor shall involve and coordinate all Subcontractors and material Suppliers in the development and

updating of the Schedules. The submittal of the Schedules shall be understood to be the Contractor's representation that the Schedules meet the requirements of the Contract Documents and that the Work will be executed in the sequence and duration indicated in the Schedules.

B. Project Schedule

1. Project Schedule Format and Content

- a. The Project Schedule shall be computer produced in the Critical Path Method (CPM) format, utilizing project scheduling software such as Microsoft Project, or other equivalent software as approved by the Engineer.
- b. The Project Schedule shall be submitted in a time-scaled bar-chart (Gantt) format with logic lines shown on sheets no smaller than 11 inches wide by 17 inches long or larger than 22 inches by 34 inches long. An activity report in a tabular form showing the following information shall be submitted with bar-chart: activity ID, description, duration, early start, early finish, late state, late finish, predecessors, successors, constraints, percent complete, remaining duration and any other factors necessary such as those used to convert calendar days to Working Days for a Working Day contract.
- c. The Project Schedule shall show Work tasks, percentage completed, progress bars, the phasing, staging, and sequencing of Work activities, Substantial and Final Completion, any Interim Milestones, start and finish dates, and other breakdowns as required by the Engineer or the County.
- d. Descriptions of scheduled activities shall include sufficient detail to identify the Work that is to be accomplished. Activity durations shall be expressed in whole days. Work that is to be performed by Subcontractors or other contractors or agencies shall be clearly defined.
- e. The Project Schedule shall meet any Interim Milestone dates or Substantial and Final Completion Dates that may be required by the Special Provisions and shall not extend beyond the contract completion time.
- f. The Project Schedule shall accommodate and consider seasonal restrictions (asphalt availability, planting dates, etc.), concrete curing/calendar days, acquisition of permits, lengthy lead-time orders for material and equipment, any project specifics as required by the Engineer or the County, and weather conditions.
- g. All schedule submittals shall include a minimum of three copies.
- h. The first Project Schedule submitted by the Contractor will be reviewed for format, as well as content. The Engineer may require format changes. Once the format has been approved, all subsequent Project Schedules shall be submitted in the approved format.

2. Submission and Updating of Project Schedules

- a. The Contractor shall submit a preliminary, written Project Schedule at the Pre-construction Conference. The Contractor shall submit a final Project Schedule incorporating all comments one week after the Pre-construction Conference.
 - b. The Project Schedule must be received and approved by the Engineer and the County prior to the initiation of any work by the Contractor. If the Project Schedule has not been received by the Engineer by the 8th day after the Notice of Contract Approval, Working Days will be assessed, and work will not be permitted.
 - c. The Project Schedule shall be updated by the Contractor as required by the Engineer or the County.
3. Weekly Look Ahead Schedule (“WLA Schedule”)
- a. The Project Schedule shall be supplemented on a weekly basis by the submission of a WLA Schedule. WLA Schedules shall be submitted by the Contractor at the end of each week, or at such other time of the week as determined by the Engineer or the County.
 - b. The WLA Schedule shall include those Work activities that are scheduled to begin or are in progress for the next three weeks and shall be submitted to the Engineer.
 - c. Progress Payments may be withheld if the WLA Schedule is not received. Receipt of a progress payment does not relieve the Contractor of the responsibility to provide the WLA Schedule.

1.10 DELAYS AND EXTENSION OF TIME

A. General

The Contractor herewith specifically waives claims for damages for any hindrance, delay, or acceleration (except for accelerations described in Paragraph 00500.11D) (1), below). In lieu of such claims, the Contractor will be granted reasonable extensions of time for “excusable delays”, as determined by the Engineer or the County, and the County will not claim liquidated damages for the periods of such extensions.

B. Excusable/Non-excusable Delays

1. “Excusable Delays” are delays from occurrences that materially delay the progress of the Contractor on the Work, and that are not the result of the Contractor’s own actions or inaction or that are not within the Contractor’s control. Delays that result from the following non-inclusive list of occurrences are **not** considered Excusable Delays:
 - a. Incorrect assumptions or estimates made by the Contractor in the preparation of its bid (e.g. the underestimation by the Contractor of its production rates)
 - b. Delays in the Contractor’s submission of Contract documents, insurance and bonding documents, Schedules, and other submissions required of the Contractor
 - c. Deficient scheduling or project management
 - d. Inadequate or ill-timed provision of staffing, machinery or materials
 - e. Construction mistakes and/or the correction of incorrect Work
 - f. Equipment problems
 - g. Failure of the Contractor to reasonably prevent and minimize drainage impacts on exposed soils
 - h. Failure to prosecute and complete the work per the Schedules
 - i. Failure to follow the plans, specifications, or other provisions of the Contract
 - j. Review and approval/rejection of shop drawings, samples and product data
 - k. Subcontractor scheduling problems
 - l. Shutdowns due to improper Work, or otherwise due to the Contractor’s operation
 - m. The Contractor’s own procedures, timing, and method of conducting the Work, or other actions or inaction that cause or contribute to delays in the prosecution of the Work.

C. Extensions of Time

1. Extensions to be Granted for Excusable Delay

Upon the determination of the Engineer or the County that an Excusable Delay has occurred, the Engineer or the County shall grant an appropriate extension of time to the Substantial Completion Date, to the Final Completion Date, to Interim Milestones, or to the number of Working Days, as applicable. The extension shall be for a period as the Engineer, or the County shall determine to be reasonable under the circumstances.

2. Process for Obtaining Extensions

- a. If the Contractor believes that it may have encountered or may be encountering an event of Excusable Delay, or an event that may require it to accelerate construction, the Contractor shall notify the County within 48 hours of such event.
- b. If the Contractor desires an extension of time for the event of delay/acceleration, the Contractor shall submit a written request for time extension within seven (7) calendar days of the delay/acceleration event. Oral requests for or notifications of a requested extension are not acceptable and will not be considered. The request for time extension shall contain justification for the need for such extension so that the Engineer or the County can determine whether an extension of time under the provisions of the Contract is reasonable, justified, and necessary.
- c. After receipt of such justification and supporting evidence, the Engineer or the County will review the facts and advise the Contractor, in writing, of the granting or denial of the requested extension.
- d. If the Contractor fails to provide the notices and requests required herein within the indicated timeframes, the Contractor shall not be entitled to an extension of time, nor shall any claim for delay or acceleration based on the associated event be valid.

3. Non-Availability of Extensions for Certain Delays and Length of Certain Extensions

- a. Delays in activities that do not impact the critical path of the Work, as shown on the Schedules, will not be the basis for an extension.
- b. The granting of an extension for an Interim Milestone shall not be the basis of an extension to the Substantial Completion Date, the Completion Date, Working Days, or other Interim Milestones, unless the Engineer or the County determines that such additional extensions are appropriately related and necessary.
- c. A delay caused to the Contractor by any suit or other legal action against the County will entitle the Contractor to an equivalent extension of time for the affected work, unless the period of such delay exceeds ninety (90) days. When such period is exceeded, the County will, upon request by the Contractor in writing, either terminate the Contract, in part or total, or grant a further extension of time, whichever may at that time appear most desirable to both parties.

D. Delay/Acceleration Claims; Attorney's Fees

1. Accelerations Not Involving Delay. There may be circumstances, not involving any events of actual delay, under which the County desires to accelerate the completion of the Work to dates that are earlier than those originally outlined in the Contract. In such cases, the County will notify the Contractor in writing of the need to accelerate the Work. Additional compensation for any such County directed acceleration would be negotiated by the parties and handled through a Work Order or Change Order.
2. Voluntary Accelerations. Compensation will not be provided for voluntary acceleration by the Contractor or the inability of the Contractor to voluntarily accelerate the Work.
3. No Oral Agreements to Accelerate or for Extensions of Time. All requests and approvals of extensions of time for claimed delays shall be in writing as provided herein; requests and extensions not in writing shall not be valid. Additionally, oral agreements between the County and the Contractor with respect to acceleration shall be of no effect.
4. Attorney's Fees. The Contractor will be responsible for payment of the County's Attorney's fees if the Contractor initiates a lawsuit for a delay or acceleration claim and the claim is not sustained.

1.11 FAILURE TO COMPLETE WORK ON TIME

- A. Should the Contractor fail to complete the work on or before the original date set forth for completion in the Contract, or on or before the corrected date as granted by extensions of time for completion, the County may permit the Contractor to proceed and in such case there shall be deducted from any monies due (or that may become due the Contractor) a sum as specified in the Special Provisions for each and every calendar day, exclusive of Sundays and Holidays, that the work shall remain uncompleted. This sum shall be considered and treated, not as a penalty but as the cost of field and office engineering, inspection and liquidated damages.
- B. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the County of any of its rights under the Contract.
- C. Neither by the taking over of the work by the County nor by the termination of the Contract, shall the County forfeit the right to recover liquidated damages from the Contractor or surety thereof for failure to complete the Contract.
- D. If the Contractor fails to prosecute the work properly or fails to perform any provisions of the Contract; the County, after three days written notice to the Contractor, may without prejudice to any other remedy the County may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

1.12 ABANDONMENT OF THE WORK

- A. If the Contractor abandons the work for any cause other than failures of the County to make monthly progress payments or refuses to comply with the provisions of the Plans and Specifications, the County has the right to notify the Contractor's surety to complete the work in accordance with the aforesaid Plans and Specifications. In the event no liens or claims have been filed and the County fails to make progress payments, the Contractor has the option, of ceasing operations until payments are resumed by notifying the County of such intentions to cease operations for this cause.
- B. Should the Contractor abandon the work, fail or refuse to complete the work embraced in this contract, or fail to pay just claims for labor and materials, the County reserves the right to charge against the Contractor all additional legal, engineering or other costs caused by such abandonment, failure or refusal. The legal costs will also include the County's cost of prosecuting or defending any suits in connection with such abandonment, failure or refusal and nonpayment of claims wherein the County is made co-defendant, and the Contractor agrees to pay all costs, including reasonable attorney fees.

1.13 PAYMENT PROCEDURES

- A. Terms: Unless stated otherwise in the contract between the County and the Contractor, the County will pay the Contractor on a monthly basis for work completed, based on inspection and sign-off by the County or County's Agent, up to ninety percent (90%) of the total contract amount. The remaining ten percent (10%) will be paid upon Final Acceptance.
- B. Application: Payments to the Contractor will only be made after the Contractor has issued the proper Application for Payment. Pay request must be on the County's supplied AIA form(s). Contractor's Application for Payment must be provided:
 - 1. On AIA Document G702 with AIA G703 support pages
 - 2. In accordance with Division 1 General Conditions
 - 3. In accordance with governing AIA Document A201, Seventeenth Edition, 2007
- C. The County or County's representative must review and sign the Contractor's Application for Payment prior to payment being issued.
- D. The Contractor's payments will not be processed if any of the following conditions exist:
 - 1. Contractor's submittals not provided or current as required herein
 - 2. Contractor's work not in compliance with the specification
 - 3. Application for payment has not been submitted on the proper form and with required support documentation.

1.14 CONTRACTOR, ENGINEER, INSPECTOR RELATIONSHIPS

The Contractor will be responsible for planning the construction means, controls, techniques, sequences, schedules, procedures, construction safety and materials; however, these factors shall be done in coordination and cooperation with the Engineer. All phases of the project shall proceed in accordance with OSHA safety requirements. The presence of the Engineer, County staff, or authorized representatives thereof on the job site shall not release the Contractor of this responsibility or hold the Contractor harmless for the quality of workmanship or defects in materials. The Engineer shall have the authority to decide questions which arise about quality and acceptability of materials furnished and work performed.

1.15 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall furnish all necessary machinery, tools, labor and material required, and shall fully complete the work in accordance with the plans, specifications and detail drawings for the price bid. The entire work to be performed under the Contract for this improvement is at the Contractor's risk, and they assume the responsibility for all damages to the work or to contiguous property. The Contractor shall have charge of and be responsible for the entire improvement until its completion and acceptance. It shall be the Contractor's responsibility to always maintain all stages of work in a safe and suitable condition, including nights, weekends, and holidays. The Contractor shall make observations of the work during such periods as are necessary to insure proper care of the work. The Contractor shall be liable for any defects, which may appear, or be discovered on the work prior to the termination of the guarantee period.
- B. The Contractor shall designate one person who shall have charge of the job and to whom the Inspector shall give guidance as to the intent of the plans and specifications. If any person employed on the work shall refuse or neglect to obey the directions of the Engineer or the County, or duly authorized representative thereof, in anything relating to the work, or shall appear to be incompetent, disorderly or unfaithful, employee shall, upon the request of the Engineer or the County, not be employed on any part of the remaining work.
- C. The Contractor shall submit schedules, which show the order in which the Contractor proposes to carry on the work, with dates at which the Contractor will start the several parts of the work, and estimated dates of completion of the several parts. These schedules shall be submitted at such times as may be reasonably requested by the Engineer or the County for approval.
- D. Precautions shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws and building and construction codes shall be observed. Machinery, equipment, and all hazards shall be guarded in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable laws.

1.16 PROTECTION OF THE WORK & TRAFFIC SIGNING

- A. The Contractor shall furnish, erect, and maintain proper construction signing as necessary to protect the Work and the public. All signing methods, materials, and maintenance shall be in accordance with Dakota County and the State of Minnesota Traffic Engineering Standards.
- B. The Contractor shall furnish and erect items such as barricades, fences, lights and signs, and shall provide watchmen and take other precautionary measures for the protection of persons and property as necessary. The Contractor is responsible for Twenty-four (24) hour maintenance of all traffic control devices throughout the project area for the duration of Work activity. Excavations in or adjacent to public streets shall be securely protected so as to prevent access by small children. Barricades and construction signing shall have a reflective surfacing per Manual of Uniform Traffic Control Devices. A sufficient number of barricades and warning devices shall be used for the necessary effectiveness for keeping vehicles from being driven on or into the Work areas in which traffic is not authorized.
- C. When a detour is necessary, the County shall designate its route and the Contractor shall furnish, post, and maintain detour and other construction guide signs of the type and sizes as required.
- D. All construction signing materials, devices, and processes shall be in compliance with Dakota County standards and the latest version of the Manual of Uniform Traffic Control Devices as adopted by the State of Minnesota. Placement and removal of construction signing shall be properly coordinated with the other work processes. The Contractor is responsible for the construction signing, placement and maintenance and the timely removal upon project completion.
- E. At all shaft sites and on all open cut work, the Contractor shall provide and maintain free access to fire hydrants, water and gas valves, manholes and similar facilities. Gutters and waterways shall be kept open or other satisfactory provisions made for the removal of storm water.
- F. The Contractor shall provide at its own cost and expense all methods for adequately draining the work and shall assume full responsibility and liability for damage to persons or property resulting from such damage. No separate compensation will be paid for sub-drains, or other methods of draining, but the cost will be merged with such contract pay items as are provided in the Bid and Contract.
- G. No trees shall be cut except upon the written permission of the County. Trees adjacent to the work shall be protected from all damage by the construction operations.

1.17 DAMAGE TO EXISTING IMPROVEMENTS

- A. All damage done to existing improvements during the progress of this improvement shall be repaired by the Contractor under the direction of the Engineer or the County. Such repairs shall be made according to the requirements of the Standard Specifications of the County for various types of improvements or classes of work required.
- B. The Contractor shall be entirely responsible for the protection of all improvements that are not designated by the Engineer to be removed for proper construction of the project.

1.18 PROTECTION AND RESTORATION OF PROPERTY

- A. Where the work passes over or through private property, the County will secure right-of-way or easements. The Contractor shall not receive any extra compensation or be entitled to any extras because of delay on the part of the County in obtaining right-of-way or easements.
- B. The Contractor shall not enter upon private property for any purpose without previously obtaining permission of the County. The Contractor shall be responsible for the preservation of and shall use every precaution to prevent damage to all trees, shrubbery, plants, lawns, fences, culverts, bridges, pavements, driveways, sidewalks, etc.; all water, sewer, gas lines; all conduits; all overhead pole lines or appurtenances thereof; and all public or private property along or adjacent to the work.
- C. The Contractor shall notify the proper representatives of any public utility, corporation, and company or individual, not less than forty-eight hours in advance of any work which might interfere with the operation on their property along or adjacent to the work. The Contractor shall be responsible for all damages or injury to property of any character resulting from any act, omission, neglect or misconduct in the manner or method of executing the work, or due to the Contractor's non-execution of the work, or at any time due to defective work or materials. The Contractor shall restore or have restored at its own cost and expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or make good such damage from injury in a manner acceptable to the County or the Engineer. If the Contractor fails to restore such property or make good such damage or injury, the Engineer or the County may, upon forty-eight hours' written notice under ordinary circumstances and without notice when a nuisance or hazardous condition results, proceed to repair, rebuild or otherwise restore such property as may be determined necessary, and the cost thereof will be deducted from any monies due to the Contractor under this Contract and if not so deducted, the Contractor will be obligated to forthwith reimburse the County for the cost thereof.

- D. Prior to construction, the Contractor shall obtain field locations or other assistance as may be required to determine the existence and location of gas lines and other private utilities as well as public utilities of the County, or the cities, or the State which may be underground or overhead within street and highway right-of-way or within easements and which may be interfered with under this Contract.
- E. The County has attempted to include all available information that it has as to subsurface conditions, structures and utilities; surface materials and structures; and overhead structures on the plans to assist the bidder in properly evaluating the amount and character of the work that might be required. Such information is given, however, as the best information available to the County, and is not guaranteed. The Contractor, by careful examination, including contacting locators for utility companies and digging in advance of construction as necessary, shall satisfy itself as to the nature and location of the work; the character of equipment and facilities needed preliminary to and during the prosecution of the work; the general and local conditions; the exact location of existing facilities; and all other matters which can in any way affect the work under this Contract.
- F. Aerial photographs, contour maps and other information may be available at the Engineer's Office for examination by the bidders.
- G. The Contractor shall not claim or be entitled to receive compensation for any damages sustained by reason of the inaccuracy or the omission of any of the information given on the drawings, relative to the surface, overhead, or underground structures or by reason of such Contractor's failure to properly protect and to maintain such structures.
- H. The Contractor shall exercise extreme care in crossing or working adjacent to all utilities and shall be responsible to protect and maintain its operation during the time the work is in progress. The Contractor shall restore, at its own expense, any public structures such as water mains, water connections and appurtenances, sewers, manholes, catch basins and sewer connections which are damaged or injured in any way by the Contractor's acts.
- I. The Contractor shall indemnify and save the County harmless from any suit or expense claim brought for or on account of any damage, maintenance, removal and/or replacement, or relocation of mains, conduits, pipes, poles, wires, cables or other such structures of private utility firms, or corporations, whether underground or overhead, that may be caused or required by the Contractor during the time the work is in progress. However, in cases where the alignment, as shown on the plans, coincides with the existing location of either an overhead or underground privately-owned utility so that, in the opinion of the Engineer, the relocation of said utility is required to complete the installation, the County shall provide for such relocation.

1.19 CONTRACTOR'S PRIVILEGES IN STREETS, ALLEYS, AND RIGHTS-OF-WAYS

- A. For the performance of the Contract, the Contractor will be permitted to occupy such portions of the streets or alleys, or other public places, or other rights-of-ways, as shown on the plans, or as permitted by the County or the State or. A reasonable number of tools, materials, and equipment for construction purposes may be stored in such space, but not more than is necessary to avoid delays in the construction. Excavated and waste materials shall be piled or stacked in such a way as not to interfere with spaces that may be designated to be left unobstructed and shall not inconvenience occupants of adjoining property. Other contractors of the County may, for all purposes required by their contracts, enter upon the work and premises used by the Contractor, and the Contractor shall give to other contractors of the County all reasonable facilities and assistance for the completion of adjoining work. The area occupied by the Contractor shall be restored to its original condition and the cost of restoration shall be incidental. Any additional ground desired by the Contractor shall be provided by, and at the expense of, the Contractor.
- B. Where railway tracks or such highways are to be crossed, the Contractor shall observe all the regulations and instructions of the Railway Company and Department of Transportation as to the methods of doing the work, or precautions for safety of property and the public. All negotiations with the Railway Company and Department of Transportation, except for the easement, shall be made at the Contractor's expense. The Contractor will not be paid direct compensation for such railway or highway crossing unless so provided in the Special Provisions and Bid. The County may elect to obtain the permit, and the Contractor shall be so notified.

1.20 WORK IN STORMS

- A. The Engineer and the County shall have the right to stop work during rain or snowstorms and all freshly placed work, unless otherwise protected, shall be protected by canvas or other suitable covering in such a manner as to prevent running water from coming in contact with it. Sufficient covering shall be provided and kept ready for this purpose. The Contractor will not be entitled to extra compensation for work so stopped or delayed by the Engineer or the County.
- B. Work shall be done at night only in case of emergency and only upon the direction of the Engineer or the County. The Engineer and the County have the right to order work to be carried on at night, if in the Engineer's or the County's opinion, it is in the best interest of the County. Work performed after dark shall be adequately illuminated and suitable and sufficient lighting facilities shall be provided for this work. No extra compensation will be allowed the Contractor for work under this item.

1.21 USE OF EXPLOSIVE

If it is necessary to use explosives in the performance of the work, the Contractor shall take out permits and comply with all the laws, ordinances and regulations governing same. The Contractor shall fully protect all completed works as well as all overhead, surface, or underground structures and shall be liable for any damage done to the work or to other structures on public or private property and injuries sustained by persons by reason of the use of explosives during Contractor's operations. Explosives shall be handled, used and fired only by experienced personnel. All explosive supplies shall be safely stored and protected in an approved manner. All such storage places shall be marked clearly "DANGEROUS – EXPLOSIVES." Caps or other exploders shall not be stored at the place where dynamite or other explosives are stored.

1.22 NOISE ELIMINATION

The Contractor shall always eliminate noise to as great an extent as possible. Air compressing plants shall be equipped with silencers and the exhausts of all gasoline motors or other power equipment shall be provided with mufflers in accordance with current government regulations.

1.23 WATER

The Contractor shall decide with the proper government officials and/or private parties for obtaining any water which may be needed.

1.24 SANITARY PROVISIONS

- A. The Contractor shall comply with all laws, rules and regulations of the State and Local Health Authorities and shall take the necessary precautions to avoid unsanitary conditions.
- B. Suitable sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided and maintained by the Contractor.

1.25 FOSSILS

If any fossils or treasure or other unusual or valuable geological formations or archeological remains are found in the progress of excavating, such fossils, treasure or samples of geological formations shall be carefully preserved by the Contractor who shall convey such items to a State or Federal Agency concerned with their preservation and study. These items shall become the property of said State or Federal Agency.

1.26 RIGHT TO USE IMPROVEMENT

The County shall have the right to use fiber optic network prior to the final completion of the whole work, but the use of any part or portion of this improvement by Dakota County does not alter the Contractor's obligations to complete the work and does not signify completion of or acceptance of Contractor's work.

1.27 MONUMENTS AND STAKES

- A. The Contractor shall not disturb any monuments or stakes found on the line of this improvement until ordered by the Engineer or the County. The Engineer or the County will furnish and set all new monuments or stakes required along the line of this improvement, but the Contractor will be responsible for their protection.
- B. In case the Contractor disturbs any monument or stake without orders from the County, the Contractor will be charged the cost of the replacement survey and other work required to relocate the same.
- C. The Contractor shall give two working days written notice when requiring the services of the Engineer for laying out any portion of the work.

1.28 INSPECTION

- A. The Contractor shall not begin the construction of any part of this improvement until the County has been notified in writing of the Contractor's intention to do so, stating the time when work is to commence. Such notice shall be at least forty-eight (48) hours prior to the time when actual work is to commence. In the event a Contractor temporarily leaves a job for more than two consecutive working days, the Contractor shall submit such notice upon return to work.

The Contractor shall keep the County and the Engineer advised as to work schedule. Any work performed at times or places outside of the established work schedule shall be regarded as contrary to and outside of the terms of this Contract and the Engineer, the County or an authorized representative thereof may order such work torn out or removed and replaced without obligation on the part of the County to pay for the same.

- B. Whenever the Engineer or the County assigns an Inspector to a project, it shall be the duty of the Inspector to inspect the construction of the improvement and all materials used on the improvement to determine if the work is proceeding in accordance with the contract documents.
- C. No material of any kind shall be used on any part of this improvement until it has been inspected and approved by the Engineer, the County or the Inspector. All rejected materials shall be removed from the line of this improvement by the Contractor within two working days after its rejection.
- D. Instructions given by the Inspector shall be respected and executed by the Contractor, but no Inspector shall have the power to waive the obligations of the Contractor to furnish good material or to do good work, as herein specified. Whenever improper materials are being used, or improper work is being done, the Inspector shall have the authority to suspend operations until corrective measures are taken.

- E. Failure to condemn any inferior material or work at the time of its use on construction shall not be construed as an acceptance of the same, but the Contractor shall upon notice from the Engineer or the County at any time prior to the final acceptance of the improvement immediately tear out, remove and properly reconstruct, at the Contractor's own cost, any portion of this improvement which the Engineer or the County may decide to be defective and the Contractor will be held wholly responsible for the safety, proper construction and protection of the entire improvement until the same has been finally accepted and paid for by the County.
- F. The Contractor shall furnish, without cost to the County, all samples of material for testing purposes that may be required by the Engineer.
- G. The Engineer or the County will make final inspection of all work included in the Contract or any portion thereof, as soon as practicable after written notification by the Contractor that such work is nearing completion. If such work is not acceptable to the Engineer or the County at the time of inspection, the Engineer or the County will advise the Contractor in writing as to the particular defects to be remedied before such work can be accepted. If, within a period of ten (10) days after such notification, the Contractor has not taken steps to speedily complete the work as directed, the Engineer or the County may without further notice and without in any way impairing the Contract, make such other arrangements as the Engineer or the County may deem necessary to have such work completed in a satisfactory manner. The cost of completing such work shall be deducted from any monies due, or which may become due the Contractor on the Contract.

1.29 ASSIGNMENT OF CONTRACT

- A. No portion of the Contract shall be sublet, assigned, or otherwise disposed of except with the written consent of the County. Requests for permission to sublet, assign, or otherwise dispose of any portion of the Contract shall be in writing and accompanied by the written consent of the surety. Written consent to sublet, assign, or otherwise dispose of any portion of the Contract shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the Contract. All subcontractors shall be regarded as agents of the Contractor and the latter shall be responsible for all work and material furnished and any indebtedness incurred by such agents.
- B. The Contractor agrees that it must pay any subcontractor within ten (10) days of the prime contractor's receipt of payment from the County for undisputed services provided by the subcontractor. The Contractor agrees that it must pay interest of one and one-half percent (1.5%) per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor. The minimum monthly interest penalty payment for an unpaid balance of One Hundred Dollars (\$100) or more is Ten Dollars (\$10). For an unpaid balance of less than \$100, the prime contractor shall pay the actual penalty due to the subcontractor. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

1.30 FORFEITURE OF CONTRACT

- A. If at any time the Engineer or the County is of the opinion that the Work is unnecessarily delayed and will therefore not be finished within the prescribed time, the Engineer or the County shall notify the Contractor, in writing, to that effect. If the Contractor does not within five (5) days thereafter take such measures as will, in the judgment of the Engineer or the County, insure the satisfactory completion of the Work, the County may then notify the said Contractor to discontinue all Work under the Contract for this improvement, and the Contractor shall immediately respect such notice and stop Work, and cease to have any rights to the possession of the grounds.
- B. The County may thereupon re-let said contract or employ such forces as it deems advisable to complete the work, and charge the cost of all labor and materials necessary for such completion to the said Contractor, and the amount so charged shall be deducted and paid by the County out of such monies as may be then due, or afterwards become due, to the said Contractor, under and by virtue of the Contract for this improvement.
- C. In case such amount so paid by the County is less than the sum which would have been payable to the Contractor if the Contract has been fulfilled by such Contractor, then the Contractor shall be entitled to receive the difference, and in case such amount is greater, the said Contractor shall pay to the County the amount of such excess so due. If the Contractor shall assign the Contract for this improvement without the written consent above required, or shall abandon the work thereon, or shall neglect or refuse to comply with these specifications and the instructions of the Engineer or the County relative thereto and with the ordinances of the County; the County Board shall have the right to annul and cancel said Contract and to re-let the work, or any part thereof, and such annulment shall not entitle the Contractor to any claim for damages on account thereof, nor shall it affect the right of the County to recover damages which may arise from such failure.

1.31 INJUNCTIONS

If by reason of any court proceedings, instituted by any third party or by the County, affecting, directly or indirectly, the construction or completion of any portion or portions of this improvement, the Contractor or the County shall be unable to construct or complete said portions of the work, and if in consequence thereof it shall, at the discretion of the County, be impractical to construct or complete any other portion or portions thereof, the Contractor shall, and does hereby waive any and all claims for damages because of such inability to complete the improvement as planned.

The Engineer and the County shall have the right to report such improvement as completed and file a final estimate thereof as provided for in the full completion of other improvements in the County, and the Contractor shall accept in full payment of the work upon said improvement, and as a cancellation of the Contract thereof, a sum of money determined in strict accordance with the Contractor's bid for the Contract, on the basis of the work actually completed up to the time of stopping thereof.

1.32 DISPUTES AND LITIGATION

- A. Any questions arising between the Inspector placed upon the work by the Engineer or the County and the Contractor or Superintendent or Foreman as to the meaning and intent of any part of the Plans or Specifications for this improvement shall be immediately brought to the attention of the Engineer and the County and will be adjusted by the Engineer or the County.
- B. Failure on the part of the Engineer or the County or the authorized representatives thereof, to discover and condemn or reject bad or inferior work or materials shall not be construed as an acceptance of any such work or material, or the part of the improvement in which the same may have been used.
- C. To prevent disputes and litigation, the Contractor agrees that the Engineer shall determine the volume and quality of the several kinds of work embraced in these improvements. The Engineer shall decide all questions relative to the execution of the work and the interpretation of the Plans and Specifications.

1.33 PERFORMANCE AND PAYMENT BONDS

The Contractor shall furnish within ten (10) days after notice of acceptance of the Bid, two bonds; a performance and payment bond each in the amount of the full contract price, in compliance with State statutes to guarantee the faithful performance of the Contract and the payment of all labor, mechanics, subcontractors and material. The performance bond shall cover a minimum period of one year after acceptance by the County, as respects faulty workmanship and materials. The performance bond and payment bond shall be furnished by a corporate surety company authorized to do business in the state of Minnesota and acceptable to the County subject to the approval of the County Attorney as to form.

1.34 CONTRACTOR'S INSURANCE

- A. The Contractor shall not commence work under this Contract until all insurance required under this article has been obtained and copies of certificates required by this article are submitted. If insurance certificates are not submitted with Contractor's bid, certificates must be delivered to Doug Gross, Dakota County Financial Services Department, 1590 Highway 55, Hastings, MN 55033. The Contractor shall not allow any subcontractor to commence work until the insurance has been obtained and certificates are submitted to the Financial Services Department at the address above.

Certificates

Certificates evidencing that all required insurance policies have been obtained shall be included with Contractor's bid or delivered to the Dakota County Financial Services Department, Attention Doug Gross. The certificates shall be executed by the insurer and shall expressly stipulate that the policies are non-cancelable until after thirty days' notice in writing to the County.

The canceling company and/or the replacing company shall be responsible for all work completed prior to the cancellation of policies. All insurance policies and certificates shall be submitted prior to the execution of the Contract and shall be subject to the approval of the County.

- B. Contractor agrees to provide and always maintain during the term of this Contract such insurance coverages as are indicated herein and to otherwise comply with the provisions that follow. Such policy(ies) of insurance shall apply to the extent of, but not as a limitation upon or in satisfaction of, the Contract indemnity provisions. The provisions of this section shall also apply to all Subcontractors, Sub-subcontractors, and Independent Contractors engaged by Contractor with respect to this Contract, and Contractor shall be entirely responsible for securing the compliance of all such persons or parties with these provisions.
- C. Workers Compensation. Contractors shall obtain Workers' Compensation insurance in compliance with all applicable statutes including an All States or Universal Endorsement where applicable. Such policy shall include Employer's Liability coverage in an amount no less than \$500,000. If Contractor is not required by Statute to carry Workers' Compensation Insurance, Contractor agrees: (1) to provide County with evidence documenting the specific provision under Minn. Stat. § 176.041 which excludes Contractor from the requirement of obtaining Workers' Compensation Insurance; (2) to provide prior notice to County of any change in Contractor's exemption status under Minn. Stat. § 176.041; and (3) to hold harmless and indemnify County from and against any and all claims and losses brought by Contractor or any subcontractor or other person claiming through Contractor for Workers' Compensation or Employers' Liability benefits for damages arising out of any injury or illness resulting from performance of work under this Contract. If any such change requires Contractor to obtain Workers' Compensation Insurance, Contractor agrees to promptly provide County with evidence of such insurance coverage
- D. Commercial General Liability Insurance. "Commercial General Liability Insurance" coverage (Insurance Services Office form title), providing coverage on an "occurrence" rather than on a "claims made" basis, which policy shall include, but not be limited to, coverage for Bodily Injury, Property Damage, Personal Injury, Contractual Liability (applying to this Contract), Independent Contractors, "XC&U" and Products-Completed Operations liability (if applicable). Such coverage may be provided under an equivalent policy form (or forms), so long as such equivalent form (or forms) affords coverage which is at least as broad. An Insurance Services Office "Comprehensive General Liability" policy which includes a Broad Form Endorsement GL 0404 (Insurance Services Office designation) shall be considered to be an acceptable equivalent policy form.

Contractor agrees to maintain at all times during the period of this Contract a total combined general liability policy limit of at least \$1,500,000 per occurrence and aggregate, applying to liability for Bodily Injury, Personal Injury, and Property Damage, which total limit may be satisfied by the limit afforded under its Commercial General Liability policy, or equivalent policy, or by such policy in combination with the limits afforded by an Umbrella or Excess Liability policy (or policies); provided, that the coverage afforded under any such Umbrella or Excess

Liability policy is at least as broad as that afforded by the underlying Commercial General Liability policy (or equivalent underlying policy).

Such Commercial General Liability policy and Umbrella or Excess Liability policy (or policies) may provide aggregate limits for some or all of the coverages afforded thereunder, so long as such aggregate limits have not, as of the beginning of the term or at any time during the term, been reduced to less than the total required limits stated above, and further, that the Umbrella or Excess Liability policy provides coverage from the point that such aggregate limits in the underlying Commercial General Liability policy become reduced or exhausted. An Umbrella or Excess Liability policy which "drops down" to respond immediately over reduced underlying limits, or in place of exhausted underlying limits, but subject to a deductible or "retention" amount, shall be acceptable in this regard so long as such deductible or retention for each occurrence does not exceed the amount shown in the provision below.

- E. Contractor's liability insurance coverage may be subject to a deductible, "retention" or "participation" (or other similar provision) requiring the Contractor to remain responsible for a stated amount or percentage of each covered loss; provided, that such deductible, retention or participation amount shall not exceed \$25,000 each occurrence.
- F. Such policy(ies) shall name Dakota County, its officers, employees and agents as Additional Insureds thereunder.
- G. Automobile Liability. Business Automobile Liability insurance covering liability for Bodily Injury and Property Damage arising out of the ownership, use, maintenance, or operation of all owned, non-owned and hired automobiles and other motor vehicles utilized by Contractor in connection with its performance under this Contract. Such policy shall provide total liability limits for combined Bodily Injury and/or Property Damage in the amount of at least \$1,500,000 per accident, which total limits may be satisfied by the limits afforded under such policy, or by such policy in combination with the limits afforded by an Umbrella or Excess Liability policy(ies); provided, that the coverage afforded under any such Umbrella or Excess Liability policy(ies) shall be at least as broad with respect to such Business Automobile Liability insurance as that afforded by the underlying policy. Unless included within the scope of Contractor's Commercial General Liability policy, such Business Automobile Liability policy shall also include coverage for motor vehicle liability assumed under this contract.

Such policy, and, if applicable, such Umbrella or Excess Liability policy(ies), shall include Dakota County, its officers, employees and agents as Additional Insureds thereunder.

- H. Additional Insurance. Dakota County shall, at any time during the period of the Contract, have the right to require that Contractor secure any additional insurance, or additional feature to existing insurance, as Dakota County may reasonably require for the protection of their interests or those of the public. In such event, Contractor shall proceed with due

diligence to make every good faith effort to promptly comply with such additional requirement(s).

- I. Evidence of Insurance. The contractor shall promptly provide Dakota County with evidence that the insurance coverage required hereunder is in full force and effect prior to commencement of any work. At least 10 days prior to termination of any such coverage, Contractor shall provide Dakota County with evidence that such coverage will be renewed or replaced upon termination with insurance that complies with these provisions. Such evidence of insurance shall be in the form of the Dakota County Certificate of Insurance, or in such other form as Dakota County may reasonably request and shall contain sufficient information to allow Dakota County to determine whether there is compliance with these provisions. At the request of Dakota County, Contractor shall, in addition to providing such evidence of insurance, promptly furnish Contract Manager with a complete (and if so required, insurer-certified) copy of each insurance policy intended to provide coverage required hereunder. All such policies shall be endorsed to require that the insurer provide at least 30 days' notice to Dakota County prior to the effective date of policy cancellation, nonrenewal, or material adverse change in coverage terms. On the Certificate of Insurance, Contractor's insurance agency shall certify that he/she has Error and Omissions coverage.
- J. Insurer: Policies. All policies of insurance required under this paragraph shall be issued by financially responsible insurers licensed to do business in the State of Minnesota, and all such insurers must be acceptable to Dakota County. Such acceptance by Dakota County shall not be unreasonably withheld or delayed. An insurer with a current A.M. Best Company rating of at least A:VII shall be conclusively deemed to be acceptable. In all other instances, Dakota County shall have 15 business days from the date of receipt of Contractor's evidence of insurance to advise Contractor in writing of any insurer that is not acceptable to Dakota County. If Dakota County does not respond in writing within such 15-day period, Contractor's insurer(s) shall be deemed to be acceptable to Dakota County.
- K. Noncompliance. In the event of the failure of Contractor to maintain such insurance and/or to furnish satisfactory evidence thereof as required herein, Dakota County shall have the right to purchase such insurance on behalf of Contractor, which agrees to provide all necessary and appropriate information therefor and to pay the cost thereof to Dakota County immediately upon presentation of invoice.
- L. Loss Information. At the request of Dakota County, Contractor shall promptly furnish loss information concerning all liability claims brought against Contractor (or any other insured under Contractor's required policies), that may affect the amount of liability insurance available for the benefit and protection of Dakota County under this section. Such loss information shall include such specifics and be in such form as Dakota County may reasonably require.
- M. Release and Waiver. Contractor agrees to rely entirely upon its own property insurance for recovery with respect to any damage, loss or injury to the property interests of Contractor. Contractor hereby releases Dakota County, its officers, employees, agents, and others acting on their behalf, from all claims, and all liability or responsibility to Contractor, and to anyone claiming through or under Contractor, by way of subrogation or otherwise, for

any loss of or damage to Contractor's business or property caused by fire or other peril or event, even if such fire or other peril or event was caused in whole or in part by the negligence or other act or omission of Dakota County or other party who is to be released by the terms hereof, or by anyone for whom such party may be responsible.

- N. The contractor agrees to effect such revision of any property insurance policy as may be necessary in order to permit the release and waiver of subrogation agreed to herein. Contractor shall, upon the request of Dakota County, promptly provide a Certificate of Insurance, or other form of evidence as may be reasonably requested by Dakota County, evidencing that the full waiver of subrogation privilege contemplated by this provision is present; and/or, if so requested by Dakota County, Contractor shall provide a full and complete copy of the pertinent property insurance policy(ies).

1.35 LABOR

- A. None but competent labor shall be employed on this work. Wherever mechanical work is required, it shall be performed by skilled labor.
- B. The Project Supervisor or other person directing the work shall be competent and shall provide regular status updates to the Engineer and the County to enable the Engineer to properly discharge his duties and shall furnish any help necessary to facilitate the inspection of materials and the work.
- C. The Contractor will not be allowed added compensation for any work performed on Saturdays, Sundays, or legal holidays.

1.36 INDEPENDENT CONTRACTOR

Nothing herein is intended or should be construed in any manner as creating or establishing the relationship of co-partners between the Contractor and the County or as constituting the Contractor as the agent, representative or employee of the County for any purpose or in any manner whatsoever. The Contractor is to be and shall remain an independent contractor with respect to all services performed under this contract. The Contractor shall secure at its own expense all personnel required to perform the work required by this contract. Any and all personnel of the Contractor or other persons while so engaged, and any and all claims whatsoever on behalf of any such person or personnel arising out of employment or alleged employment including, without limitation, claims of discrimination against the Contractor, its officers, agents, contracts or employees shall in no way be the responsibility of the County; and the Contractor shall defend, indemnify and hold the County, its officers, agents and employees harmless from any and all such claims regardless of any determination of any pertinent tribunal, agency, board, commission or court. Such personnel or other persons shall not require nor be entitled to any compensation, rights or benefits of any kind whatsoever from the County, including, without limitation, tenure rights, medical and hospital care, sick and vacation leave, Workers' Compensation, Unemployment Compensation, disability, severance pay, and PERA.

1.37 NON-DISCRIMINATION CLAUSE

- A. The County hereby notifies all bidders that no one will be subjected to discrimination on the basis of race, color, creed, religion, ancestry, national origin, sex, disability, age, marital status, or status with regard to public assistance.
- B. If the contract is awarded to the bidder, the bidder shall adhere to the following County Policies.
 - 1. In the hiring of common or skilled labor for the performance of any work under the contract, or any subcontract, no contractor, material supplier, or vendor, shall, by reason of race, creed, or color, discriminate against the person or persons who are citizens of the United States or resident aliens who are qualified and available to perform the work;
 - 2. No contractor, material supplier, or vendor, shall, in any manner, discriminate against, or intimidate, or prevent the employment of any person or persons identified in clause (1) of this section, or on being hired, prevent, or conspire to prevent, the person or persons from the performance of work under the contract on account of race, creed, or color;
- C. The Contractor agrees to comply with the Americans with Disabilities Act (ADA) and agrees to hold harmless and indemnify the County from costs, including but not limited to damages, attorney's fees and staff time, in any action or proceeding brought alleging a violation of ADA. Dakota County does not discriminate on the basis of disability in the admission or access to, or treatment or employment in, its services, programs, or activities.

1.38 COUNTY POLICY COMPLIANCE

As a condition of being awarded this Contract, the Contractor will require each of its agents, officers and employees to abide by Dakota County policies prohibiting sexual harassment, firearms and smoking, as well as all other reasonable work rules, safety rules or policies always regulating the conduct of persons on County property while performing duties pursuant to this Contract. A violation of any of these policies or rules constitutes a breach of the Contract and sufficient grounds for immediate termination of the Contract by the County.

1.39 PREVAILING WAGE

Prevailing wage is the minimum hourly wage employers must pay certain workers who work on construction and public works projects where state dollars are used to fund the construction. The prevailing wage includes the employer's cost of benefits.

1.40 AIR AND WATER POLLUTION

- A. Wherever a bituminous mixing plant, aggregate crusher or similar operation is to be conducted, the Contractor shall be acquainted with the state and local conditions and regulations pertaining to air pollution before commencing operations.

- B. The Contractor shall take all necessary precautions and actions to prevent pollution of both flowing and impounded waters of the State with any particulate or liquid matter that may be harmful to fish and wildlife or detrimental to public use of the water. Construction operations, including operations in borrow pits or waste areas and construction of haul roads, shall be scheduled and conducted so as to minimize soil erosion and prevent silting or muddying of public waters.

1.41 GUARANTEE

- A. The Contractor is responsible for any and all defects in workmanship and materials which may arise from the work furnished by the Contractor for a period of one year from the date of project completion. Upon written notice by the Engineer or the County, the Contractor shall immediately repair or replace without expense to the County any faulty work or materials and damage done by reason of same during the guarantee period.
- B. Should the Contractor fail to make repair or replace defective work or materials within a period of thirty (30) days of such notification after written notice has been given such Contractor, the County may replace these parts, charging the expense of same to the Contractor.

1.42 DRILLING OF TEST HOLES

Any person drilling test holes within the area of this project must secure a permit for such test holes from the County/the State/the City. The Contractor must also notify all utility companies of the Contractor's intention to drill so that the Contractor will become informed on the location of all underground utilities.

1.43 EXAMINATION OF BIDS

- A. All bids submitted will be available for examination by interested parties, immediately following the bid opening.
- B. All bids will be placed in the custody of the Dakota County Information Technology Department until the Contract for the project has been awarded.
- C. After the award of a contract to the lowest responsible bidder, the information in all bids received is considered public, with the exception of any trade secret information as designated within the bid documents. If the County rejects all bids, all data other than the public data remains non-public until a rebidding that results in a contract award or a determination by the County to terminate the selection process.
- D. Once the bids become public information, they are available for examination by interested parties. Each interested party is requested to initial each page reviewed, indicating that the bid was examined.

1.44 RESPONSIBLE CONTRACTOR CERTIFICATION

RESPONSIBLE CONTRACTOR CERTIFICATE

(Applies to all prime contracts in excess of \$50,000)

A responsible contractor is defined in Minnesota Statutes §16C.285, subdivision 3. Any prime contractor or subcontractor who does not meet the minimum criteria listed in Minnesota Statutes §16C.285, subdivision 3, or who fails to verify that it meets those criteria, is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project.

A false statement under oath verifying compliance with any of the minimum criteria shall render the prime contractor or subcontractor making the false statement ineligible to be awarded a construction contract for the project and may result in termination of a contract previously awarded to a prime contractor or subcontractor that makes a false statement regarding minimum criteria.

When requested, a prime contractor shall submit to Dakota County copies of the signed verifications of compliance from all subcontractors of any tier pursuant to Minnesota Statutes §16C.285, subdivision 3, clause 7.

By signing this statement, I, _____ (typed or printed name),
_____ (title) certify that I am an owner or officer or authorized
representative of the company and do verify under oath that my company is in compliance with
each of the Responsible Contractor minimum criteria listed in Minnesota Statutes §16C.285.

(Name of the person, partnership or corporation submitting this proposal)

(Business address)

Signed: _____
(Owner, officer or authorized representative)

Date

PART 2 – PRODUCT

NOT USED

PART 3 – EXECUTION

NOT USED

SECTION 00510 – SUPPLEMENTARY CONDITIONS

The following Amendments modify, delete, and/or add to the "General Conditions of the Contract for Construction." Where any Article, paragraph or subparagraph in the referenced General Conditions is supplemented by one of the following paragraphs, the provisions of such Article, paragraph or subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any Article, paragraph or subparagraph of the referenced General Conditions is not supplemented, amended, voided or superseded by any of the following paragraphs, the provisions of such Article, paragraph or subparagraph not so amended, voided or superseded shall remain in effect.

- A. References in writing or representations by depiction of materials, services, or operations within the specification documents and or Bid package binds the Contractor to provide and install such items, services, and operations without additional charge to County. Exceptions will be noted by the acronym (NIC) Not In Contract or (OFE) Owner Furnished Equipment. If this notation does not appear, then the Contractor shall assume the need to provide the item in question.
- B. The Contractor will receive no allowances or additional compensation because of omissions in work due to the Contractor's unfamiliarity or misunderstanding of the Bid package details or construction documents.
- C. The drawings and specifications documents form a part of the contract and shall be considered as part of and incorporated into the contract.
- D. The submission of Bids shall be deemed evidence of the Contractor's knowledge, review and examination of construction documents, drawings, specifications, and addenda issued for this project. No allowances or additional compensation will be provided due to Contractor's unfamiliarity with any portion.
- E. Verbal direction will not be considered binding and in no event supersedes or amends written documents, specifications or contract documents. Only written directions will be binding on the Contractor, County, or Engineer.
- F. All notifications required of the Contractor to the County or to the Engineer must be presented in writing.
- G. In the event of an inconsistency or discrepancy between parts of the Bid package, the Contractor will be bound by the discrepancy clause herein.
- H. The Contractor is responsible for determining the completeness of the bid package contents it receives. Example: compare the Table of Contents against the package contents and look for missing page numbers in bid copy.
- I. The Bidder agrees not to hold the County or Engineer responsible for simple typos, minor omissions, misspelling of words, or other specification inconsistencies, where reasonable persons, familiar with the type of work specified herein, would understand the scope as though such conditions did not exist.

SECTION 270430 – COMMUNICATIONS CABLE AND EQUIPMENT

Unless noted otherwise, “Contractor” shall refer to the Telecommunication Contractor.

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and provision of the Contract, including the General and Supplementary General Conditions, and Special Conditions, apply to this section.
- B. Applicable standards are as follows:
 - 1. ANSI/IEEE C2 - National Electrical Safety Code
 - 2. NFPA 70-2008 - National Electrical Code
 - 3. TIA/EIA Standards
 - 4. IEEE/ANSI 142-1982 - Recommended Practice for Grounding of Industrial and Commercial Power Systems
 - 5. EIA 445 Fiber Optic Test Procedures (FOTP)

1.02 SUMMARY OF WORK

- Phase 1 – From handhole #15 at Fahey Ave S to handhole #34 at General Sieben Dr (Tower)
 - Handhole Installs –
 - Install (11) 24x36x36 pull vault handholes over existing network conduit/fiber.
 - Install (1) new 30x48x36 hand hole
 - Replaced (2) existing HH with new 30x48x36 handholes
 - Install (14) Tri-view test stations (Max height 36").
 - Install (14) 8' Ground Rods in new HH's.
 - Remove/Dispose of existing 48F from handhole #21 to handhole #34.
 - Install a 288F as shown in the engineered drawings.
 - **Green Spool 288F** from the existing handhole #15 on Hwy 55 & Fahey Ave S to HH #21 on Hwy 55 & Mississippi Trail.
 - Leave 100' slack coils attached to the sidewall in each hand hole.
 - **Blue Spool 288F** from HH21 to HH 34 at General Sieben Dr (existing tower)
 - Leave 100' slack coils attached to the sidewall in each hand hole.
- Phase 2 (after splicing cutover by others) – From handhole #1 at Vic's Crane to handhole #21 at Fahey Ave. S.
 - Handhole Installs –
 - Install (5) 24x36x36 pull vault handholes
 - Install (1) new 30x48x36 hand hole
 - Replaced (1) existing HH with new 30x48x36 handholes
 - Install (7) Tri-view test stations (Max height 36").
 - Install (7) 8' Ground Rods in new HH's.
 - Remove/Dispose of existing 48F from handhole #1 to handhole #15.
 - Install a 288F as shown in the engineered drawings.

- **Purple Spool 288F** from the existing handhole #1 at Vics Crane to HH #15 on Hwy 55 & Fahey Trail
 - Leave 100' slack coils attached to the sidewall in each hand hole.

1.03 SUBMITTALS

A. Submittals at bid opening time

For evaluation, bid submittals shall include five (5) sets of the items described below:

Drawings shall provide details of proposed system and work to be provided. These include fiber route, locations of proposed handholes and splice point, connectivity diagram and other details required to demonstrate that the system has been coordinated and will function properly as a system.

B. Submittals after award of contract

Specification sheets (cut sheets) of all proposed equipment. Submit five (5) copies of each submittal.

1.04 COUNTY-FURNISHED MATERIALS

- A. The County will furnish the Contractor (at no expense to the Contractor) the following materials for the Contractor to install fiber optic cables, HDPE conduit, hand holes, duct plugs, trace wire, tri-view test station, couplers and ground rods.
- B. The materials and electrical equipment as described above will be furnished to the Contractor at the Dakota County Transportation Signal Shop, 2800 160th Street W., Rosemount, Minnesota 55086. The Contractor shall request these County-furnished materials at least thirty (30) calendar days in advance of the time the Contractor needs them on the project.
- C. The Contractor shall further notify LOGIS (telephone 763-543-2673) at least three (3) normal working days in advance of each time the Contractor intends to pick up materials. The Contractor shall pick up the County-furnished materials at the above specified location and shall transport them to the job site using sufficient means to not damage the equipment.

1.05 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor is required to install, document, and test all systems (procedures are outlined in following sections).
- B. All work for Dakota County shall comply with the requirements of the authorizing agency Right-of-Way Management Standards and Directives.
- C. The Contractor shall be responsible for establishing grades and elevations, checking all interference, and shall verify all dimensions and locations in the field.

- D. The Contractor shall specifically note that the provided diagrams are intended to only indicate in diagram format the extent, general character, and locations of work included. The exact routing of the duct shall be determined by the existing structural conditions and other obstructions.
- E. The locations of equipment, conduits, etc., as shown on the diagrams, are correct to the extent permitted by the scale of the diagrams but are subject to such modifications as may be found necessary or desirable at the time of installation to meet any structural conditions. Such changes shall be made by the Contractor without extra charge, subject to approval of the Owner.
- F. The Contractor shall be responsible for fully coordinating all of the various parts of the work included under this document, and such other work of this contract as it may affect the installation, throughout the various phases of construction and before the ordering or fabrication of the various parts of the work, so as to ensure compliance with the drawings and specifications, and as necessary to provide the installations complete and in satisfactory operating condition.
- G. It shall be the responsibility of the Contractor to verify the locations of all equipment such as existing handholes, existing conduits and such other apparatus.
- H. The Contractor shall be responsible for providing locating services for outside plant fiber optic cable to others, until Final Acceptance of the project.
- I. The Contractor will be required to provide notification and receive approval to all occupancies on selected route as to project purpose, scope, start and end dates, and contact for further information or problems.

PART 2 – PRODUCTS

2.01 UNSPECIFIED EQUIPMENT AND MATERIAL

Any item of equipment or material not specifically listed in the materials list and required to provide a complete and functional fiber optic system installation shall be provided at a level of quality consistent with items provided by the County.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine areas and conditions under which the new exterior telecommunication pathways are to be installed.
- B. Verify field measurement and pathway routing conditions.
- C. Beginning of exterior telecommunication pathway installation indicates Contractor acceptance of existing conditions.

3.02 DIRECTIONAL BORING OPERATIONS

All directional boring operations are subject to the following conditions:

1. The machine operator shall follow all current OSHA regulations, including the use of grounding mats and other safety measures.
2. The machine operator shall have control over the direction of the boring tool.
3. The bore crew must have, in their possession, a copy of the permit authorizing the company to perform work, and a copy of the approved drawing and specifications for the bore work location.
4. When possible, the Contractor shall mark the proposed running line and bore head location. Mark the proposed running line every 5' to 10', using a longitudinal line; mark the actual location with a white paint spot at the end of each stem push. Only white paint is approved for this use.
5. The bore is not allowed to deviate more than six (6) inches from the proposed marked running line, and the ends of the bore must be at the designated depth.
6. Slurry use shall be kept at a minimum and only used for head lubrication and/or spoils return. The Contractor shall calculate anticipated slurry use and monitor slurry use during the bore operation to determine slurry loss into the surrounding soil.
7. Slurry must be contained during the bore operation and must be removed prior to backfilling, with dry dirt.
8. During pull back, the mandrels shall be not more than two inches larger than the diameter of the duct or casing.
9. Shallow bores or other unsuccessful bores shall be abandoned and filled.
10. The bore operation shall be stopped if any damage occurs to a road surface and it shall remain inactive until corrective measures are taken. The Contractor is liable for any damage done to the right-of-way or structures.
11. Auger heads are not allowed more than six inches ahead of the casing being inserted.
12. Bore stems and cutting heads may have to be left in the ground if they cannot be retrieved through the bore hole. Open excavation to retrieve the parts is not allowed.
13. When boring near creeks and streams, silt fences shall be properly installed to prevent disturbed soil from flowing into the waterways and remain in place after the bore has been completed.
14. Bores shall not be located beneath trees without specific permission in writing from the County Engineer.
15. Crossing location with the County-owned utilities shall be windowed.

3.03 EXCAVATION AND TRENCHING REQUIREMENTS



- A. Make trench sides as nearly vertical (max depth is 48") as practical except where sloping of sides is allowed.
- B. Remove all rock, boulders, hard material, unstable material, and yielding and unsatisfactory materials within the limits indicated for trench excavation and dispose of off the site. Notify the Owner's Representative immediately in writing if it becomes necessary to remove such materials beyond the trench limits. Where excavations are deeper or wider than the trench limits in order to remove unsuitable materials, they shall be refilled with approved borrowed material.
- C. Existing concrete or granite curb encountered in excavation shall be temporarily supported or replaced in kind. Bituminous lip curb shall be disposed and replaced in kind.
- D. Excavation operations adjacent to and below existing structures and utilities shall be done manually. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until approval for backfill is granted by the Owner's Representative. Report damage to utility lines or subsurface construction immediately to the Consultant.
- E. Use appropriate traffic control as specified in the associated permits that the Contractor is to obtain.
- F. Keep excavated materials and construction equipment and materials a safe distance back from the edge of excavations to avoid overloading the sides of the trench and to prevent slides or cave-ins.
- G. Grade areas around trench as necessary to prevent surface water from flowing into excavations.
- H. Walkway and grassed areas left backfilled at the end of the workday shall be enclosed with snow fence until restored to grade. Roadway trenches shall not be re-opened to traffic unless either a road plate capable of sustaining HS-20 loading is in place or temporary gravel is placed to bring the trench area to finish grade.
- I. Keep excavated materials out of the gutter lies and other surface water runoff paths.
- J. Sweep tracked sediment or soils off streets daily.

3.04 CUTTING PAVEMENT

- A. Where trench excavation occurs in paved areas, saw cut existing pavement to obtain sound, vertical edges one foot wider than the indicated trench width on each side of the trench. When the saw cut is within two feet of an existing joint or curb, remove pavement to the existing joint or curb or as required by the County, etc.

- B. Existing pavements and base course beyond the indicated lines for trench excavation which have been disturbed, damaged or undermined shall be restored or replaced by the Contractor to match existing pavements and base course or as requested by the County, etc.

3.05 BACK FILLING

- A. Construct backfill in two operations (initial and final) as indicated and specified in this section. Initial backfill shall be select backfill material placed in 6-inch maximum loose lifts to one foot above conduit or duct unless otherwise specified. Bring up evenly on each side and along the full length of the conduit or duct structure. Ensure that no damage is done to the conduit or duct structure, or its protective coating or as required by the County, etc.
- B. Place the remainder of the backfill (final backfill) in 6-inch maximum loose lifts to the bottom of the sub-grade, unless otherwise specified. Compact each loose lift before placing the next lift. Do not backfill where the material in the trench is muddy, except as authorized or as required by the County, etc.
- C. Provide a minimum cover from final grade of 42 inches for fiber ducts unless otherwise indicated on the Drawings or as required by the County, etc.
- D. Where settlement occurs in trenches and pits due to improper compaction, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation or as required by the County, etc.
- E. The Contractor shall coordinate back filling with testing of utilities. Testing for the following shall be complete before final back filling: water distribution, sanitary sewer, steam compressed air, fuel oil, and refrigeration systems.

3.06 COMPACTION

Use hand-operated, plate-type, vibratory or other suitable hand tampers in areas not accessible to larger rollers or compactors. Avoid damaging pipes and protective pipe coatings. Compact material in accordance with local code unless otherwise specified. If necessary, alter, change, or modify selected equipment or compaction methods to meet compaction requirement and meet requirements of the County, etc.

3.07 PROTECTION OF EXISTING UTILITIES, STRUCTURES AND NEW WORK

- A. Excavation, backfill and compaction operations shall be done in such a manner to prevent cave-ins of excavations or the undermining, damage or disturbing of existing utilities and structures or of new work. Backfill shall be placed and compacted to prevent future settlement or damage to existing utilities and structures and new work and meet requirements of the County, etc.
- B. Any damage due to excavation, back filling or settlement of the backfill, or injury to persons or damage to property occurring as a result of such damage shall be the

responsibility of the Contractor. All costs to repair such damage, in a manner satisfactory to the Owner's Representative, shall be borne by the Contractor at no additional expense to the Owner and meet the requirements of the County, etc.

- C. Protect newly back filled areas and adjacent structures, slopes, or grades from traffic, erosion settlement, or any other damage. Repair and re-establish damaged or eroded grades and slopes and restore surface construction prior to acceptance. Protect existing storm drain inlets from water-borne soil and meet requirements of the County, etc.

3.08 RESTORATION

- A. The Contractor is responsible for repairs to any streets, sidewalks, grass areas, etc., which must be trenched or otherwise disturbed in the process of installation.
- B. All sidewalks, streets, alleyways and landscaping shall be replaced to its original condition or better.
- C. All areas disturbed by the construction activities in public rights-of-ways shall be restored and seeded per the specifications of the governing authority.
- D. Improved landscape, lawns, shrubs, and hedge removed or damaged shall be replaced. Lawns shall be repaired by re-sodding with like grasses. Replacement bushes/shrubs/grasses will be planted at the correct time of the year for the species.
- E. The contractor shall promptly repair or replace any other property damaged during construction.
- F. Sidewalks
 - 1. All sidewalks shall be constructed using the same backfill and compaction procedures used for street opening.
 - 2. Unless unusual conditions exist, sidewalk panels, which are cut into for construction, shall be replaced with full panels. New or prior construction saw cuts are not considered as panel ends. Sidewalk panels end at score lines, curbs, boulevards or property lines. If curb is part of the sidewalk panel, the curb shall also be replaced.
 - 3. The Contractor shall take care in removing sidewalk panels. If adjacent panels are chipped, the Contractor will be required to replace them.
 - 4. Any pedestrian ramp removed shall be replaced to the current Cities, County and ADA standards. Please note that this may involve removal and replacement of additional curb and gutter and/or sidewalk panels that were disturbed by the fiber optic installment. The Contractor shall ensure compliance with current regulations. Newly installed pedestrian ramps that do not meet current ADA standards will need to be removed and replaced at the Contractor's expense.

G. Road Restoration

1. The Contractor shall properly replace or cause to be replaced all pavement cut into and disturbed by the Contractor in compliance with local Municipal Codes, and in the manner and following the specifications required by the Cities and County Engineers.
2. The Contractor shall comply with the Cities and County Codes and standards.
3. In the event of the Contractor's failure to do so, the Cities or County may replace such pavement or employ another contractor to do so, at the expense of the Contractor, such expense to be deducted from the final payment.
4. In addition, the Cities and County may take such civil action as provided by law, including, but not limited to, imposition of penalties or other relief as provided for herein.

3.09 WORK WITHIN BUILDINGS

- A. If cable taken into a building is not in a metal conduit, it shall be terminated within fifty feet (50') of the point of entry into the structure. If the termination point (telecommunications room) is located further than 50' from the point of entry into the structure, metal ridged conduit shall be installed from the building penetration point all the way to a telecommunication room.
- B. Any cable that shall be properly sealed and tested at building entrance.
- C. At each building entrance, a maintenance loop of fiber 4 feet in diameter and 10 to 15 feet in length must be installed.

3.10 CUTTING AND PATCHING

- A. Where it is necessary to do any cutting and patching, no cutting of beading walls, beams, etc. shall be done without the approval of the Owner's Representative. All patching, finishing, etc. shall match the surroundings. All cutting and patching shall be done by workmen skilled in the trades.
- B. Holes through concrete and masonry in new and existing structures shall be cut with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills shall not be allowed, except where permitted as required by limited working space.
- C. Holes shall be located so as not to affect structural sections such as beams.
- D. Holes shall be laid out in advance. The Owner's Representative shall be advised, prior to drilling through structural sections, for determination of proper layout.
- E. Floor, exterior wall, and roof seals shall be watertight. Walls and floors that are cored for installation of conduit shall be sleeved with steel tubing, grouted, and the space between the conduit and sleeve filled as specified herein.

- F. Conduits shall extend one-inch minimum above finished floor.

3.11 FIRE STOPPING

- A. Structural Penetrations: Where conduits, wireways, busducts, and other electrical raceways pass through fire partitions, fire walls or walls and floors, install a firestop that provides an effective barrier against the spread of fire, smoke and gases. Firestop material shall be packed tight and completely fill clearances between raceways and openings.
- B. All penetrations of firewalls must be approved by the Owner before any penetrations are made. The Contractor shall provide satisfactory sleeving and fire caulking both inside and outside of that sleeving. If existing sleeving is to be utilized, it will be the responsibility of the Contractor to fire caulk inside the sleeving.
- C. The Contractor is responsible for adhering to the following standards:
 - 1. Conduit penetrations through fire-rated or smoke walls: Completely seal around the conduit penetration with Hilti FS 601 fire-rated sealant or equal Tremco or 3M.
 - 2. Conduit sleeves through fire-rated or smoke wall: Completely seal around the conduit penetration with Hilti FS 601 fire-rated sealant or equal Tremco or 3M. Completely seal the inner opening of the conduit sleeve with fire wool packing and Hilti FS 611A intumescent firestop sealant.
 - 3. Cable bundles through fire-rated or smoke walls (without sleeves): Completely seal openings with Hilti FS 611A intumescent firestop sealant, or equal Tremco or 3M.
 - 4. Cable tray penetrations through fire-rated or smoke walls: Completely seal openings with Hilti FS 635 (trowelable type) or equal Tremco or 3M.
- D. A submitted response to these specifications assumes that all firestopping will be provided as specified. The firestop manufacturer's specifications and instructions shall be submitted with the final documentation.

3.12 GROUNDING

- A. Use a sheath grounding unit to ground the outer shield and armor of the fiber-optic cables at the building's entrances to a building existing ground infrastructure.
- B. Clean each grounding component with 300-grit emery cloth before bonding and apply a mineral-oil-based oxide inhibitor to the bond area.
- C. Install sheath grounding units for all fiber-optic cable ground locations in splice handholes. In the fiber-optic splice handhole, only one sheath grounding unit is needed between the splice enclosure and the ground rod. Sheath-grounding unit shall be used on each fiber-optic cable entering/exiting the splice enclosure. Each fiber optic cable sheath shall be connected to a test station. The sheath grounding unit shall:

1. Connect to the cable armor.
 2. Be designed for below grade use and have a No. 6 AWG stranded copper lead wires.
- D. The Contractor shall apply an oxide inhibitor over bonded connections to ground rods. The oxide inhibitor shall provide an airtight seal around the conductor and ground rod.
- E. The Contractor shall bond the ground conductor to the ground rod by one of three methods: compression bond, exothermic welding, or irreversible compression bond.
- F. The Contractor shall achieve an irreversible compression bond by:
1. Using a hydraulic press with a connector die.
 2. Using a solid copper connector with a run for a 0.625-inch ground rod and a tap for the specified ground conductor.
 3. Using connectors that can accommodate a conductor range from No. 6 solid copper through 500 Kcmil.
 4. Using connectors that are pre-filled with an antioxidant compound and are strip sealed.

3.13 SUPPORT AND ANCHORS

- A. The Contractor shall exercise judgment when supporting equipment. If support methods are questionable or not available, the Contractor shall call it to the attention of the Engineer prior to installation.
- B. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, beam clamps, spring steel clips.
- C. Install hangers and supports, sleeves and fasteners in accordance with approved printed manufacturers' installation procedures, and as specified.
- D. Coordinate all affected trades and all aspects of the electrical work, including installation of raceways and wiring as necessary to interface installation of supporting devices with other work.
- E. Install hangers and supports, and attachments to properly support raceways, equipment and accessories from building structure.

3.14 DUCT INSTALLATION

- A. The primary method of installation of the High-Density Polyethylene is directional boring. The duct shall be joined at the "tie-in" locations using metal couplers designed to thread the two ends of HDPE conduits together. These couplers shall provide a pull-proof connection of the duct.

- B. The depth at which the buried duct shall be placed will vary with local conditions. HDPC duct should be buried a minimum depth of:

Location	Depth
Minimum cover in soil	42 in.
Minimum cover under draining ditches	42 in.
Minimum cover under railroads	140 in. below top of rail
Minimum cover at roadway crossing	60 in.
Minimum cover in rock	36 in.

- C. When crossing unimproved roads, streets and alleys that may later be paved or hard surfaced, the cable should be placed at a depth that retains sufficient cover following permanent grading of the road. The Contractor shall coordinate with Dakota County the depth of each street crossing.
- D. When crossing railroad tracks, HDPE conduits shall be placed into "3 SDR 11 conduits.
- E. During construction, the end of the ducts shall be plugged to prevent water washing mud into the duct.
- F. The Contractor shall seal the watertight ends of all ducts at each handhole.
- G. The Contractor shall seal openings around ducts that pass through handhole walls with a silicone sealer for a waterproof seal.
- H. The Contractor shall proof all conduit sections prior to installation of the fiber cable to ensure conduit integrity. After proofing of the duct, measurements will be taken to verify the length of the installed conduit.
- I. The Contractor shall leave a pull tape in the conduit with the cable after installation.
- J. The Contractor shall leave a pull rope in all empty conduits after installation.
- K. Install a trace wire in all empty conduits consisting of one #12 steel or copper wire.

3.15 OUTDOOR FIBER SPLICE ENCLOSURE

- A. This work shall consist of installing an Outdoor Fiber Splice Enclosure at the splice handholes. The locations of the splice handholes are shown on the drawings
- B. Mounting the Outdoor Fiber Splice Enclosure in the splice vault requires an L-bracket to be constructed to fit the opening to the splice handhole. The objective of this L-bracket is to keep the splice enclosure off the floor of the handhole.
- C. Fusion type splices shall be utilized. Mechanical splices shall be prohibited.
- D. Fiber optic cable splicing is allowed in locations denoted in the drawings. Additional locations shall require the approval of the Engineer and the County.

- E. The Contractor shall adhere to the fiber optic cable manufacturer's methods, commendations, materials, and techniques for splicing.
- F. All splicing equipment shall be in good working order, properly calibrated, and meet all industry standards and safety regulations.
- G. The fiber optic cable preparation, splice enclosure installation, and splicing shall be accomplished in accordance with industry standards.
- H. Mechanical stress and splicing locations shall be minimized by training the fiber optic cable into final position, concurrently observing the minimum bending radii of the fiber optic cable. The minimum bending radii of the fiber optic cable shall be 20 times the diameter of the cable or as per the manufacturer's requirements, whichever is greater.
- I. Cleanliness and freedom from contamination shall be strictly observed with respect to splicing materials and joint construction. Upon completion of the splicing operation, all waste material shall be deposited in suitable containers, removed from the job site, and disposed of in an environmentally acceptable manner.

3.16 CABLE SLACK

- A. All other handholes used for installation assistance shall contain one hundred feet (100') of cable slack in each hand hole.
- B. At handholes, cable slack should be placed vertically in a hole.
- C. This excess slack shall provide added cable for restorations or reconfigurations without digging up large parts of the cable system.

3.17 UNDERGROUND ENCLOSURES (HANDHOLES)

- A. Handholes shall be placed at strategic splice and installation assistance locations or as required by environmental and/or existing topographical conditions. The handholes shall be placed when the bends equal or exceed 90-degrees, within or the section length of conduit exceeds 1200 feet. Two sizes of boxes to be used are: 24"W x 36"L x 36"D and 30"W x 48"L x 36"D.
 - 1. Handholes shall be placed with a long dimension in line with the fiber run.
 - 2. The larger handholes (30"x 36" x 48") are designed for use as splice and cable slack storage locations. The intermediate size (24" x 36" x 36") is designed to assist in the cable placing operation.
 - 3. The location of the handholes shall be away from traffic conditions and be easily accessible for maintenance. Installation of the handholes shall be such that water drainage will continue after installation.

4. The handholes shall be placed on 8-inch deep (minimum) rock/gravel bottom contained by wire mesh that allows drainage from the box and secures the rock/gravel in place to solidify the base of the handhole.
5. Ground rods shall be installed in all handholes that will contain fiber cable splices.
6. Near each handhole, the fiber optic cables sweep up to meet the conduit entrance to the Vault. Take care not to exceed minimum bend radius.
7. Clean all Vaults after installation. All areas shall be cleaned including the flange that the cover rests on and the bolt holes for the cover.
8. All conduits entering or exiting the handholes will be sealed to prevent the movement of water through the duct.

3.18 BURIED WARNING TAPE

When trenching is involved or required by certain conditions (i.e., customer or citizen request, topographical reasons or as directed by the State or City forces), the use of warning tape is required. A bright orange (preferably "ULCC" orange) warning tape with a minimum width of three inches shall be buried approximately one foot below the existing grade. As a minimum, the tape should be marked "WARNING-OPTICAL CABLE." The tape shall be placed directly above the conduit to alert any excavator of the presence of an underground facility.

3.19 CABLE MARKER POST & TEST STATIONS

- A. Fiber Optic cable marker posts shall be placed at all handhole locations (except on paved streets and sidewalks in city environments)
- B. Fiber Optic marker post shall not obstruct access for pedestrians, cyclists or vehicles.
- C. Fiber Optic cable marker post shall also be placed in logical locations for building entrances and any point where a 90 degree change in fiber optic cable direction occurs.
- D. All OSP signage must be in compliance with local, DOT and/or jurisdiction requirements. These requirements will vary across each jurisdiction. Always check with jurisdiction to determine proper placement.
- E. Fiber Optic marker posts & Test stations should be installed at a maximum height of 38 inches.
- F. The TriGrip Anchor Flaps™ shall be extended prior to burial of the post. Soil shall be compacted during placement of marker post.

3.20 BONDING, GROUNDING AND TRACE WIRE

- A. For the purpose of protecting against the introduction of lightning or foreign power onto the cable network, all shielded cable must conform to grounding practices.

- B. All metallic cable elements at splice points and building entrance must be bonded and grounded to the building metal structure according to manufacturer specifications.
- C. For the purpose of locating plastic duct Copper wire #12 AWG Solid Tracer Wire should be used as a minimum and placed with every linear foot of duct placed, regardless the type of construction.
- D. Locate marker posts (Tri-View test stations), flush mount finks, and all other tracer access points will be connected to the tracer/ground wire for necessity of location of buried facilities.

3.21 INSTALLATION PRACTICES FOR FIBER OPTIC CABLE

- A. Fiber optic cable is a high-capacity transmission medium with qualities and characteristics, which can be degraded when it is subjected to excessive pulling tension, sharp bends, and crushing forces.
- B. The maximum pulling tension for armored cable is 2,700 Newtons (600 lbs.).
- C. Maximum long-term crush forces for armored cable are 100N/cm (57.1 lb./in.).
- D. The minimum bend radius for an armored cable during installation and following installation over the life span of the cable must be 20 times (20 x) the cable diameter.
- E. The minimum diameter required for pull wheels or rollers should be double the minimum bend radius. The Contractor will be responsible to check manufacturer's specifications for the cable feed-chute, to make sure that the chute's critical dimensions and clearances are compatible with the placing cable. The chute must have a 31-inch minimum radius.

3.22 AIR-ASSISTED FIBER OPTIC CABLE

- A. For lengths of Fiber Optic Cable over 600 feet, the Contractor shall employ the Air-Assisted method for installation.
- B. Long radius bends shall be utilized in equipment foundations and other situations requiring the negotiation of sharp angles.
- C. The duct system shall be properly installed utilizing pressure tight splices.
- D. Seal one end of the duct and pressurize the duct utilizing a sealed blowing machine.
- E. Provide proof that the duct is properly spliced and not crushed by blowing a hard mandrel through the duct.
- F. The duct shall maintain 130 psi without realizing significant pressure loss.
- G. The front end of the Fiber Optic Cable is to be end capped to prevent the cable from getting hung up in the duct.

- H. The Contractor shall utilize proper air seals to fit the fiber optic cable.
- I. Clean and dry the duct.
- J. For high air speed machines, hand push approximately 100 feet of fiber optic cable into the duct prior to activating the machine.

3.23 INSPECTION AND CLEANING OF EXISTING CONDUITS

- A. The following provisions shall apply to Existing Conduit Systems:

When installing fiber optic cable in existing conduits through existing hand holes, the Contractor shall visually check the cable route to ensure that there is a smooth transition between exit and entrance elevations and that the horizontal and vertical angle is not so sharp as to cause damage to the cable as it is being pulled through the existing conduit. Should the Contractor encounter sharp bends in existing conduit, the Contractor shall bring the situation to the Engineer's attention. Reinstalling existing conduit through a hand hole to provide smooth transitions is a potential solution.

- B. Clean the existing conduit of any debris that could impede pulling fiber optic cable through it or that could damage the cable if the debris remained.
- C. Inspection and Cleaning Existing Conduit Systems includes but shall not be limited to inspecting the cable route, notifying the Engineer of sharp bends, cleaning, and all materials and labor necessary to Inspect and Clean Existing Conduit Systems. Inspection and cleaning of existing conduit systems shall be considered incidental for which no direct compensation will be made.

3.24 CABLE TERMINATION - FIBER OPTIC

- A. All fibers shall be terminated using the specified connector type. No mechanical splice is allowed.
- B. All terminated fibers at the Telecommunications Closets shall be mated to couplings mounted on patch panels. Couplings shall be mounted on a panel that, in turn, snaps into the housing assembly. Any unused panel positions shall be fitted with a blank panel inhibiting access to the fiber optic cable from the front of the housing.
- C. All couplings shall be fitted with a dust cap.
- D. Fibers from multiple locations may share a common enclosure; however, they must be segregated on the connector panels and clearly identified. Fibers from multiple destinations may be secured in a common enclosure provided that they are clearly identified as such. Fibers from different locations shall not share a common connector panel (e.g. "insert").
- E. Slack of 15 feet in each fiber cable shall be provided as to allow for future re-termination in the event of connector or fiber end-face damage. Adequate slack shall be retained to allow termination at a 30" high workbench positioned adjacent to the termination enclosure(s). A

minimum of 1-meter (~39") of slack shall be retained regardless of panel position relative to the potential work area.

3.25 TEST/ACCEPTANCE CRITERIA

A. Testing

1. The Contractor will perform on-reel OTDR tests for each fiber strand of each provided reel prior to taking the reels from the yard. The OTDR test shall be in one direction at 1550 nm.
2. The Contractor is responsible for supplying all equipment and personnel necessary to conduct the acceptance tests.
3. Upon completion of the fiber optic cable installation, the Contractor shall conduct acceptance testing according to a schedule coordinated with the Consultant. Consultant may be in attendance to witness the test procedures. The Contractor shall offer adequate advance notice to the Consultant to allow for such participation.
4. The Contractor shall utilize a manufacturer-recommended "OTDR Trace Analysis" and a "Power Meter Report" software program or a single software program that is a combination of "ODTR Trace Analysis" and "Power Meter Report.". The Contractor shall identify the software to the County as part of the Project Documentation Submittal. If the County does not already own a copy of the proposed software, the Contractor shall provide the County with a licensed copy.

B. Tests After Installation

Upon completion of cable installation and termination, the Fiber Optic cabling shall be tested to include:

- a. Optical Attenuation ("Insertion Loss" Method)
- b. Verification of Link Integrity (OTDR)
- c. Optical return loss (ORL)

C. Optical Attenuation Testing

1. Optical Attenuation shall be measured on all terminated optical fibers in both directions of transmission using the "Insertion Loss" method. Measurement shall be inclusive of the optical connectors and couplings installed at the system endpoints. Access jumpers shall be used at both the transmit and receive ends to ensure that an accurate measurement of connector losses is made.
2. Multi-mode fibers shall be tested in accordance with the TIA/EIA 526-14A, Method B at 850 ± 30 nm and $1310\pm$ nm. Single mode fibers shall be tested in accordance with the TIA/EIA 526-7-1998. Method A.1. Testing shall be at 1300 ± 20 nm and 1500 ± 10 nm.

3. Attenuation of optical fibers shall not exceed the values calculated as follows:

$$\text{Attenuation (max.)} = 2 * C + L * F + S \text{ dB}$$

Where C is the maximum allowable Mated Connector Loss ≤ 0.35 dB, L is the length of the run (in kilometers) and F is the maximum allowable fiber loss (in dB/km). S is the total splice loss ≤ 0.1 dB (# of splices * max. attenuation per splice).

4. Documentation of the insertion loss testing for each fiber run shall be provided to the Owner to include a record of:
 - a. Wavelength
 - b. Fiber type
 - c. Fiber and cable number
 - d. Measurement direction
 - e. Test equipment model and serial number
 - f. Operator
 - g. Test documentation must be stored in a floppy disk and printed as a hard copy with all test results labeled.
 - h. All testing is to be done through connectors.
 - i. Any fiber that fails testing must have appropriate corrective action taken to rectify the situation.

D. Optical Time Domain Reflectometer (OTDR) Testing

1. The OTDR shall comply with the latest revision for the Bellcore/Telcordia Document GR-196-CORE "Generic Requirements for OTDR-Type Equipment" and SR-4731 "OTDR Data Format." In addition, the OTDR performance requirements shall comply with the following:
 - a. The event dead zone shall be less than or equal to three meters.
 - b. The attenuation dead zone is less than or equal to 5 meters.
 - c. Has a dynamic range of 25 dB or greater.
2. Each fiber shall be tested after splices are sealed in the Outdoor Fiber Splice Enclosure. Should any fiber fail ODTR or power meter test, re-splice that fiber and retest all fibers disturbed in the splice enclosure.
3. All links shall be tested bi-directionally with an OTDR that are 330 feet (100 m) or longer. (Contractor shall supply the OTDR meter – see below.) Single mode fibers shall be tested at 1310/1550-nm (nominal).
4. The Contractor shall provide a flowchart for each tested fiber cable. The flowchart shall illustrate location of launch and end of a fiber link, interconnect points, and splice points. The flowchart shall be used to distinguish a splice from a micro/macro bend.

5. Launch cables of adequate length (1000' minimum) shall be used to allow viewing of the entire length of the cable, including the connectors at the launch and receive end.
6. OTDRs used as part of these testing specifications shall be calibrated to sheath (jacket) length, not optical length by adjusting the unit's index of refraction.
7. All OTDR traces shall maximize both the vertical and horizontal scales to the greatest extent possible and still fit the entire cable link trace on the screen with optimum resolution.
8. All OTDR tests shall be averaged for a minimum of two (2) minutes.
9. Failure of a link at any part of the testing shall result in the contractor having to repair the problem and retest the installation. Cost for any required repairs and re-testing shall be borne solely by the Contractor.
10. Reflective and non-reflective events shall be marked by OTDR, and the data for each event must be retrievable.
11. In an event where two non-reflected event anomalies ("gainer" and "exaggerated loss") are detected by OTDR in any given splice point, the bidirectional average of each splice must be calculated by the Contractor to get the actual value for each splice.
12. OTDR traces revealing a point discontinuity greater 0.1-dB (average, when tested by-directionally) in a single mode fiber at any of the tested wavelengths or any discontinuity showing a reflection at that point shall be a valid basis for rejection of that fiber by the Owner.
13. Where applicable, test each fusion splice in the forward and backward directions. Each reading (not an average) shall be recorded. All events shall be recorded.
14. OTDR traces revealing a "Ghost" shall also be a valid basis for rejection of that fiber by the Owner.
15. The installation of that cable shall be reviewed in an effort to solve any problems that may be causing the fault. If such efforts do not remove the fault, that cable and the associated terminations shall be replaced at the expense of the Contractor.
16. All fiber shall be tested for attenuation loss using an OTDR set to 2-Point loss measurement parameters. Marker points shall be placed at the beginning and end of each backscatter signature recorded by the OTDR. The manufacturer's instructional guide can be used to determine proper placement of these markers.
17. Links that contain splice points or interconnect points shall also contain an additional "Events Display Table" to accompany the OTDR trace. This display shall show the distance to the events, distance between multiple events, each events loss in db, and a description of the event (reflective event, non-reflective event, gains and cable end). All attenuation event loss readings shall be in the LSA (Least Square Average) mode of the OTDR. 2-Point attenuation measurements at events are not acceptable.
18. Proper pulse width selection is required to minimize attenuation dead zone effect.

19. Fiber links that are shorter than 6000 feet require pulse width to set to 10ns. That is equal to MM dead zone=23 feet (7 m), SM dead zone = 33 feet (10 m).
20. The OTDR display shall be delivered via email with identification and numbering, sequences to be pre-approved by the Engineer. Each trace must contain as a minimum:
 - a. cable/sheath length (not optical fiber length)
 - b. 2-point db loss, attenuation in db/mile (db/km)
 - c. fiber type
 - d. wavelength used
 - e. pulse width selection
 - f. and fiber/cable identification
21. The stored fiber trace shall allow full manipulation of the trace when viewed with the PC emulation software. Both a hard copy printout and soft copy of each trace shall be submitted to LOGIS for approval.
22. The Contractor shall provide the Owner with a licensed copy of OTDR trace viewing software one week prior to OTDR tests starts.
23. Documentation of the OTDR signature traces displaying the entire length of the cable run shall be provided to the Owner to include a record of:
 - a. Wavelength
 - b. Fiber type
 - c. Fiber and cable number
 - d. Measurement direction
 - e. Test equipment model and serial number
 - f. Operator

E. ORL Testing

1. All connectors at single mode fiber links shall be tested for optical return loss (ORL) using OTDR. The OTDR shall be capable of measuring connector spike with respect to the backscatter signal on the OTDR. This technique shall be accomplished by software embedded in the instrument.
2. The launch cords must be kept clean and periodically repolished to ensure as perfect a surface finish as possible to match polishing on the connectors.
3. The single-mode connector's optical return loss shall be not less than 55 dB for UPC connectors.
4. Test documentation must be delivered via email with all test results labeled.
5. The Contractor shall provide the Owner with a licensed copy of OTDR trace viewing software one week prior to fiber test starts.

3.26 GPS COMPONENT AND UTILITY LOCATION DATA

- A. Collect location coordinates for each splice point, handhole and underground cable, including cable installed in conduits and empty conduits using a GPS receiver capable of sub-foot accuracy.
- B. Location data must meet the following criteria:
 - 1. The collected coordinates should be accurate to less than one foot.
 - 2. Use a minimum of 5 satellites by the receiver to collect location data.
 - 3. Data to be collected based on NAD83 (1996) HARN adjustment with G03WGS84 or NAD83 (2007) adjustment with G09WGS84.
 - 4. The coordinate system shall be the Pre-Defined Dakota County Coordinate System.
- C. Measure above ground components from the street side of the asset collected.
- D. Collect underground cable location no more than 2 weeks after it has been installed. Collect underground cable as line geometry. Capture the vertex points every 100 feet and at every junction or change in cable direction. Depth does not need to be collected unless underground cable is installed outside the depth of 42 inches.
- E. If depth change has occurred, capture a vertex point before and after the depth change.
- F. If GPS coordinates are required for in place underground facilities, capturing the coordinates based on recent aboveground utility locate markings would be acceptable.
- G. Data that does not meet the above criteria and guidelines may be rejected and the Contractor would be responsible to repeat the data collection.

3.27 DOCUMENTATION

- A. As-built drawings
 - 1. The following requirements apply to all record drawings:
 - a. The coordinate system shall be the Pre-Defined Dakota County Coordinate System.
 - b. Location coordinates for each splice point, handhole and underground cable shall be indicated on the record drawings.
 - c. The recorded drawings shall be maintained at the Contractor's expense.
 - d. All such drawings shall be provided as necessary for clarification.
 - e. The record drawings shall be in 1"-30' scale.
 - f. The Contractor shall indicate on the drawings the fiber optic cable location with the reference to the center of the street.

- g. The recorded drawings shall be returned to LOGIS on completion of the work and are subject to the approval of the consultant.
2. The record drawings shall be submitted in the following formats:
 - a. In one blueline set
 - b. In one reproducible set
3. As-built drawings shall be submitted to the Engineer within 40 working days subsequent to the substantial completion. The Contractor shall be subject to a daily charge assessed at a rate of \$200.00 per day for each day or portion thereof with which the Engineer determines that the Contractor has not complied. The Engineer reserves the right to allow the Contractor greater than 40 working days after contract approval to make submittals.

B. Test Records

1. Test readings shall be recorded along with the annotation that these are post-installation readings. Printed copies of these readings shall be provided to the Owner upon completion of the project. Records are to include the date of testing, name of technician, and readings of all above-described test results.
2. The objective of fiber optic cable test documentation is to document OTDR and Power Meter test results to verify that these results meet specifications, as well as to document the link loss, fiber optic cable distance between splices and terminations, and the fusion splice losses.
3. The following provisions shall apply to fiber optic test documentation:
 - a. The Contractor shall provide post installation documentation via email.
 - b. The Contractor shall record power meter and OTDR test data, fiber count, and fiber routing of the cable and cable run.
4. Measure and record the following values for all fiber optic cables:
 - a. Fiber optic cable length markings at all splice and termination locations on the fiber optic schematics.
 - b. Fiber optic cable index of refraction.
 - c. Attenuation of each fiber optic splice in both directions and average attenuation.
 - d. Event notes for each trace. These notes shall identify each splice location and shall be consistent with each fiber optic schematic vault location.
 - e. Attenuation of each fiber optic link, in both directions, as measured with a light source and power meter at 1550 nm wavelength for SM.
 - f. Manufacturer's reel (spool) test documentation that is shipped with the fiber optic cable spool.

3.28 LABELING

- A. Descriptive identifiers shall be written on the colored tape with a laundry marking pen.
- B. Descriptive identifiers shall include a combination of the following:
 - 1. Identify the item that the fiber is traveling to by name.
 - 2. Identify the fiber count and mode.
 - 3. Identify the direction the majority of the fiber optic cable travels from a handhole.
- C. Labels should be visible during the installation of and normal maintenance of the infrastructure. Labels should be resistant to the environmental conditions at the point of installation (such as moisture, heat or ultraviolet light) and should have a design life equal to or greater than that of the labeled component.
- D. Each cable shall be labeled within 18 inches from the end of the splice enclosure.
- E. Each cable is to be labeled within 18 inches from the end of the conduits. In addition, labels shall be affixed to conduit at every transition of a vault, hand hole, riser closet, or major pull box. Labels will be in the form of "HUB Location one-Location two- fiber strands#". For example, cable sheath from the Splice Point to West Water Tower would be labeled as "Court House-Water Tower -12." For example, in the assist handholes, the cables shall be labeled as "From HH-9 East to HH-11 West."
- F. The following provisions shall apply to labeling Fiber Distribution Components:
 - 1. Label the front of the patch panels with the fiber optic cable number, direction, and fiber count.
 - 2. Each fiber optic strand shall be labeled with a unique identifier at the coupler in the fiber optic patch panel. Connectors shall be labeled on the identifying sheets on the front of the fiber optic patch panel.
 - 3. Label the front of the splice panels with the fiber optic cable number, direction, and fiber count.
 - 4. Label splice trays/splice wheels with the cable ID and fiber numbers contained in the tray/wheel.

3.29 FIBER OPTIC SYSTEM ACCEPTANCE

- A. The fiber optic outside plant system will be accepted by the Owner when:
 - 1. All the work has been completed in accordance with the contract and specifications.
 - 2. The system operates in conformance with the manufacturer's published specifications.
 - 3. The system has completed a successful performance period. The performance period will begin on the day following the cutover and must continue for

30 consecutive days during which time the system will operate at an average effectiveness level of 99 percent or more. If for any reason this level cannot be maintained, a new 30-day performance period will be initiated. It is not necessary that one 30-day period expires before another performance period begins.

4. The Contractor has certified in writing to LOGIS when the cable is installed, operational in accordance with these specifications, and ready for use.
5. The final step in accepting buried cable installation will be a thorough inspection of the entire route from start to finish. The “as-built” drawings must be submitted to the Owner one week prior to final inspection. The drawings will be examined by LOGIS personnel and involved parties for conformance to LOGIS’ plans, codes, regulations, and general accuracy.
6. The construction area above ground will be inspected to ensure the following:
 - a. Restoration has been accomplished.
 - b. Permanent markers have been installed immediately beside the cables.
 - c. Road bores, if used, are properly completed and will not collapse a portion of the road.
 - d. Debris and trash have been removed from the site.
 - e. Other instructions specific to the installation have been completed to the project manager’s specifications.
 - f. All test results should be submitted in hard copy and in usable (MS Word) electronic format and meet specifications.
7. At this time, upon Owner’s written acceptance, operations control becomes the responsibility of the Owner.