

PROJECT MANUAL

FOR

TOWN OF RIDGELAND

TILLMAN HIGHWAY FORCEMAIN AND

WATERMAIN IMPROVMENTS

RIDGELAND, SC

REQUEST FOR BIDS NO.: TOR-2026-06



**THE TOWN OF RIDGELAND,
SOUTH CAROLINA**

PREPARED BY:
FOUR WATERS ENGINEERING, INC.
FOR
THE TOWN OF RIDGELAND, SC
JULY 2026

DATE: JULY 2026

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ADVERTISEMENT FOR BIDS

**Town of Ridgeland
Ridgeland, SC**

Tillman Highway Forcemain and Watermain Improvements

General Notice

Town of Ridgeland (Owner) is requesting Bids for the construction of the following Project:

Tillman Highway Forcemain and Watermain Improvements

TOR-2026-06

Four Waters Engineering Project #17-1007-046

Bids for the construction of the Project will be received at the Town Hall located at One Town Square, Ridgeland, SC, until **Tuesday, September 1, 2026**, at 2:30 PM local time. At that time the Bids received will be publicly opened and read.

Mail Bid Response to:

Town of Ridgeland
ATTN: Dennis E. Averkin, Town Administrator
P.O. Box 1119
Ridgeland, SC 29936

Hand Deliver Bid Response to:

Town of Ridgeland
ATTN: Dennis E. Averkin, Town Administrator
1 Town Square
Ridgeland, SC 29936

The Project includes the following Work:

1. Mobilization/Demobilization, General Requirements, Bonds and Insurance.
2. Contractor is responsible for protecting existing materials, structures, and equipment on-site during construction activities.
- 3. Utility Work**
 - Install approximately 9,941 linear feet (LF) of new 12" watermain PVC DR18 by open cut.
 - Install approximately 11,732 linear feet (LF) of new 10" forcemain PVC DR18 by open cut
 - Install approximately 2,199 LF of new 12-inch forcemain HDPE DR-11 by horizontal directional drill (HDD).
 - Install approximately 341 LF of new 16-inch watermain HDPE DR-11 by horizontal directional drill (HDD).
 - Install approximately 310 linear feet (LF) of new 10" forcemain PVC DR18 by jack and bore
 - Tie in of 10-inch forcemain into existing wastewater system at Jimmy Mixson Water Reclamation Facility.
 - Install associated fittings, valves, and accessories with new forcemain installation as indicated on construction plans.
 - Complete restoration of roadway, driveway, fencing, and vegetation as necessary for installation of forcemain and watermain.

- Complete maintenance of traffic as necessary for installation of forcemain and watermain.
- Complete soil erosion and sediment control as necessary for installation of forcemain and watermain.

Bids are requested for the following Contract: **TOR-2026-06 Tillman Highway Forcemain and Watermain Improvements.**

Bidders must comply with all applicable state and federal requirements identified in the Bidding Documents. Bidders must provide a 5% bid bond.

Obtaining the Bidding Documents

Information and Bidding Documents for the Project can be found at the following designated website:

<https://www.ridgelandsc.gov/bid-opportunities>

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the issuing office as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

The Issuing Office for the Bidding Documents is Four Waters Engineering, Inc. Printed Bidding Documents may be purchased from the Issuing Office at a cost of \$250.00. Cost does not include shipping charges. Upon the Issuing Office's receipt of payment, printed Bidding Documents will be sent via the prospective Bidder's delivery service. The shipping charge amount will depend on the shipping method chosen. Request for printed Bidding Documents shall be directed to Kate Bleuer (email: kbleuer@4weng.com) of the Four Waters Engineering office located at 324 6th Avenue N, Jacksonville Beach, Florida 32250, office phone: (904) 414-2400 Ext 57.

Pre-bid Conference

A non-mandatory pre-bid conference for the Project will be held on Wednesday, August 12, 2026, at 11:30 am. The pre-bid conference will be held virtually through Microsoft Teams. Please contact Kate Bleuer at Four Waters Engineering for the meeting link and information. Attendance at the pre-bid conference is encouraged but not required.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: **Town of Ridgeland**
By: **Dennis Averkin**
Title: **Town Administrator**
Date: **Friday, July 31, 2026**

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). **See the Agreement for a list of the Contract Documents.** It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by most PDF readers. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.04.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information

that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
 - 1. Electronic Documents that are available in native file format include:
 - a. Project Drawings (AutoCAD .dwg)
 - 2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
 - 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
 - 4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder must submit the following information along with their bid documents:
 - A. Written evidence establishing their qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Contractor's license number as evidence of Bidder's State Contractor's License.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-bid conference will be held at the day and time indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to

discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.

- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

- A. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. The pre-Bid conference will be held via Microsoft Teams, please contact Kate Bleuer at Four Waters Engineering for meeting link and information.
- B. Bidders visiting the Site are required to arrange their own transportation to the Site.
- C. Access to the Site is available however, Bidder must conduct the required Site visit during normal working hours.
- D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- E. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- F. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- G. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should

review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Questions are to be submitted via email in writing, response to questions will be issued as an addenda and provided to registered plan holders. Contact information and submittal procedures for such questions are as follows:
 - A. Engineer:

Four Waters Engineering, Inc.
Angela Bryan, PE
844-414-2400 Ext 51
abryan@4weng.com
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the

Contract or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

A. To address possible material delivery delays, attention is called to Paragraph 4.05 of the General Conditions (Delays in Contractor's Progress).

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.

- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 All Bidders must submit to Owner a list of the Subcontractors or Suppliers proposed for the project, along with their bid documents.
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by

the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.
- 11.05 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.07A.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.

- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.02 *Allowances*

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper (unless provided by the Town) for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope

containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.

- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of

the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

19.03 CSX Corporation has additional insurance requirements which must be adhered to while construction activities are performed within their right-of-way, these requirements may be found in Appendix E.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

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BID FORM FOR CONSTRUCTION CONTRACT

[NOTE TO BIDDER: DETACH ENTIRE SECTION AND SUBMIT AS BID. STAPLE SECTION TOGETHER PRIOR TO SUBMITTING.]

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

Town of Ridgeland
PO Box 1119
One Town Square
Ridgeland, South Carolina 29936

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
- C. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids.
- D. List and qualifications of Subcontractors (Schedule B of EJCDC C-451). Subcontractors for specialty work, for this project are provided in Section 9.01 (of EJCDC C-451) are required to be licensed in the State of South Carolina. Prime contractor must be licensed in the State of South Carolina.

ARTICLE 3—BASIS OF BID

3.01 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

3.02 In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the available budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

3.03 *Unit Price Bids*

- A. Bidder will perform the following Work at the indicated unit prices:

[NOTE TO BIDDER: BIDDER TO ENTER BID UNIT PRICE AND BID ITEM PRICE FOR EACH LINE-ITEM LISTED. BIDDER TO ALSO ENTER TOTAL OF ALL UNIT PRICE BID ITEMS]

No.	Description	Unit	Quantity	Unit Price	Item Price
1	Contractor General Conditions	LS	1		
2	Maintenance of Traffic (Traffic and Pedestrian Control)	LS	1		
3	Silt Fence	LF	21,853		
4	Check Dams	EA	49		
5	Inlet Protection	EA	17		
6	Tree Trimming Operations	LS	1		
7	8" PVC (DR18) Forcemain by Open Cut, with Select Backfill	LF	20		
8	10" PVC (DR18) Forcemain by Open Cut, with Select Backfill	LF	9,043		
9	10" PVC (DR18) Forcemain by Open Cut, with Granular Backfill (Driveways)	LF	421		
10	10" PVC (DR18) Forcemain by Open Cut, with Unshrinkable Flowable Fill Backfill (Roadway)	LF	2,573		
11	8" PVC (DR18) Watermain by Open Cut, with Select Backfill	LF	105		
12	8" PVC (DR18) Watermain by Open Cut, with Unshrinkable Flowable Fill Backfill (Roadway)	LF	35		
13	12" PVC (DR18) Watermain by Open Cut, with Select Backfill	LF	8,832		
14	12" PVC (DR18) Watermain by Open Cut, with Granular Backfill (Driveways)	LF	353		
15	12" PVC (DR18) Watermain by Open Cut, with Unshrinkable Flowable Fill Backfill (Roadway)	LF	1,043		
16	12" HDPE (10" I.D.) (DR11) Forcemain by Horizontal Directional Drilling	LF	2,233		
17	16" HDPE (12" I.D.) (DR11) Watermain by Horizontal Directional Drilling	LF	576		
18	10" DI Forcemain Carrier Pipe for Jack & Bore	LF	296		
19	24" Steel Casing Pipe for Jack & Bore, including spacers and end treatment	LF	273		
20	8" DI MJ 90° Bend	EA	1		

No.	Description	Unit	Quantity	Unit Price	Item Price
21	10" DI MJ 11.25° Bend	EA	10		
22	10" DI MJ 22.5° Bend	EA	13		
23	10" DI MJ 45° Bend	EA	67		
24	10" DI MJ 90° Bend	EA	3		
25	12" DI MJ 11.25° Bend	EA	18		
26	12" DI MJ 22.5° Bend	EA	13		
27	12" DI MJ 45° Bend	EA	57		
28	12" DI MJ 90° Bend	EA	3		
29	10" MJ Gate Valve with Box and Cover	EA	13		
30	8" MJ Gate Valve with Box and Cover	EA	4		
31	6" MJ Gate Valve with Box and Cover	EA	11		
32	12" MJ Gate Valve with Box and Cover	EA	17		
33	12"x6" DI MJ Tee	EA	9		
34	12"x8" DI MJ Tee	EA	1		
35	12"x12" DI MJ Tee	EA	1		
36	12" MJ Adapter	EA	10		
37	12"x10" DI MJ Reducer	EA	10		
38	12"x16" DI MJ Reducer	EA	4		
39	16" MJ Adapter	EA	4		
40	6" DI MJ Plug	EA	1		
41	8" DI MJ Plug	EA	4		
42	10" DI MJ Plug	EA	1		

No.	Description	Unit	Quantity	Unit Price	Item Price
43	12" DI MJ Plug	EA	3		
44	8"x8" DI MJ Tee	EA	1		
45	10"x10" DI MJ Tee	EA	1		
46	10"x8" DI MJ Tee	EA	2		
47	Below Ground 2" Manual Air Release Valve/Flushing Assembly and Sample Test Tap	EA	18		
48	Fire Hydrant Assembly	EA	10		
49	6" DIP Fire Hydrant Leads	LF	60		
50	Temp Sample Tap	EA	10		
51	Connect to 12" Existing Watermain at intersection of Floyd Street and Greys Highway via a 12"x12" Cut in Tee	LS	1		
52	Connect into Jimmy Misson Water Reclamation Facility	LS	1		
53	Mill and Resurface 2" of Asphalt on SCDOT Roadway (restoration)	SY	12,858		
54	Full Asphalt Replacement	SY	2,956		
55	Remove and Replace Gravel Driveways (restoration)	SY	64		
56	Remove and Replace Asphalt Driveways (restoration)	SY	1,229		
57	Remove and Replace Concrete Driveways (restoration)	SY	148		
58	Concrete Sidewalk Replacement	SY	23		
59	Brick Sidewalk Replacement	SY	9		
60	Remove and Replace Curb and Gutter (restoration)	LF	250		
61	Existing Poles and Signs (Utility, Street, Traffic, Pylon, etc.) to be Supported, Protected and Preserved during Utility Installation	LS	1		
62	Regrading and Restoration of Existing Drainage Swales, Ditches and Ground Surface	LS	1		
63	Stabilization - Hydroseeding (restoration)	SY	30,000		
64	Installation of Forcemain/Water Warning Sign	EA	12		

65	CSX Jack and Bore Pit (25' depth)	EA	2		
66	West Main Street Jack and Bore Pit	EA	2		
67	CSX Agreement Costs (Allowance)	LS	1	\$50,000.00	
68	A-3 Fill (Unsuitable Soil Replacement)	CY	100		
69	As-Built Documents and Drawings	LS	1		
	TOTAL				

Total Base Bid Price (Total of All Lump Sum, Unit Price Bids, Allowances) in Words:

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

[NOTE TO BIDDER: INSERT ADDENDA NUMBER IN THE TABLE BELOW TO ACKNOWLEDGE RECEIPT OF ADDENDA (IF ANY).]

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.
5. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
6. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
7. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
8. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
9. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder’s Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

[NOTE TO BIDDER: COMPLETE ENTIRE PAGE BELOW]

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.:

BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Town of Ridgeland Address <i>(principal place of business)</i> : One Town Square Ridgeland, SC 29936	Bid Project <i>(name and location)</i> : Tillman Highway Forcemain and Watermain Improvements Bid Due Date:
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
1.			
2.			
3.			
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?		☐ Yes ☐ No ☐ Pending	

- 1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

- 1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:		
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$	
Name:		Title:		
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$	
Name:		Title:		
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$	
Name:		Title:		

ARTICLE 2—LICENSING

- 2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

- 3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		
☐ HUBZone Business (Historically Underutilized) Business		
☐ Other		
☐ None		

ARTICLE 4—SAFETY

- 4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

- 4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

- 5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:			
Business address:			
Date of Business's most recent financial statement:		☐ Attached	
Date of Business's most recent audited financial statement:		☐ Attached	
Financial indicators from the most recent financial statement			
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)			
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)			

ARTICLE 6—SURETY INFORMATION

- 6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	☐ Yes ☐ No		
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

- 7.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):	
---	--

Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?		☐ Yes ☐ No	
Does provider have an A.M. Best Rating of A-VII or better?		☐ Yes ☐ No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

8.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:			
As a general contractor:		As a joint venturer:	
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:			
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No			
Been barred from contracting by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No			
Been released from a bid in the past 5 years? ☐ Yes ☐ No			
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No			
Refused to construct or refused to provide materials defined in the contract documents or in a change order? ☐ Yes ☐ No			
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No			
Provide full details in a separate attachment if the response to any of these questions is Yes.			

- 8.03 List all projects currently under contract in Schedule A and provide indicated information.
- 8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's (or subcontractors) experience with projects similar in type and cost of construction.
- 8.05 In Schedule C, provide information on key individuals whom Business (or subcontractors) intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

- 9.01 Provide the following information with the Statement of Qualifications:
 - A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
 - B. Diverse Business Certifications if required by Paragraph 3.01.
 - C. Certification of Business's safety performance if required by Paragraph 4.02.
 - D. Financial statements as required by Paragraph 5.01.
 - E. Attachments providing additional information as required by Paragraph 8.02.
 - F. Schedule A (Current Projects) as required by Paragraph 8.03.
 - G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04, including subcontractors' separate pages from prime contractor for the following scope of work:
 - 1. Watermain installation
 - 2. Sanitary forcemain installation
 - 3. Jack and bore construction
 - 4. Horizontal directional drilling construction
 - 5. Traffic control management
 - 6. Roadway milling, repaving, and striping
 - H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05, including subcontractors' separate pages from prime contractor for the following scope of work:
 - 1. Watermain installation
 - 2. Sanitary forcemain installation
 - 3. Jack and bore construction
 - 4. Horizontal directional drilling construction
 - 5. Traffic control management
 - 6. Roadway milling, repaving, and striping
 - I. Additional items as pertinent.

This Statement of Qualifications is offered by:

Business:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

NOTICE OF AWARD

Date of Issuance:

Owner: Town of Ridgeland Owner's Project No.: 2026-06
Engineer: Four Waters Engineering, Inc. Engineer's Project No.: 17-1007:046
Project: Tillman Highway Forcemain and Watermain Improvements
Contract Name: Tillman Highway Forcemain and Watermain Improvements
Bidder:
Bidder's Address:

You are notified that Owner has accepted your Bid dated _____ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Tillman Highway Forcemain and Watermain Improvements

The Contract Price of the awarded Contract is \$ _____. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Four (4) unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☒ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **four (4)** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Town of Ridgeland**

By (signature): _____

Name (printed): Dennis E. Averkin

Title: Town Administrator

Copy: Engineer, Four Waters Engineering, Inc.

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AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **Town of Ridgeland** ("Owner") and
_____ **[name of contracting entity]** ("Contractor").

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Gravity Sewer Rehabilitation.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

1. Mobilization/Demobilization, General Requirements, Bonds and Insurance.
2. Contractor is responsible for protecting existing materials, structures, and equipment on-site during construction activities.

3. Utility Work

- Install approximately 9,941 linear feet (LF) of new 12" watermain PVC DR18 by open cut.
- Install approximately 11,732 linear feet (LF) of new 10" forcemain PVC DR18 by open cut
- Install approximately 2,199 LF of new 12-inch forcemain HDPE DR-11 by horizontal directional drill (HDD).
- Install approximately 341 LF of new 16-inch watermain HDPE DR-11 by horizontal directional drill (HDD).
- Install approximately 310 linear feet (LF) of new 10" forcemain PVC DR18 by jack and bore
- Tie in of 10-inch forcemain into existing wastewater system at Jimmy Mixson Water Reclamation Facility.
- Install associated fittings, valves, and accessories with new forcemain installation as indicated on construction plans.
- Complete restoration of roadway, driveways, fencing, and vegetation as necessary for installation of forcemain and watermain.
- Complete maintenance of traffic as necessary for installation of forcemain and watermain.
- Complete soil erosion and sediment control as necessary for installation of forcemain and watermain.

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained Four Waters Engineering, Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by the Engineer.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.03 *Contract Times: Days*

- A. The Work will be substantially complete within **365** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **395** days after the date when the Contract Times commence to run.

4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion:* Contractor shall pay Owner **\$1,000.00** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$1,000.00** for each day that expires after such time until the Work is completed and ready for final payment.
 4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner’s sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the **25th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. **95** percent of the value of the Work completed (with the balance being retainage).
 - b. **95** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **100** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 - 1. This Agreement.
 - 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 - 3. General Conditions.
 - 4. Supplementary Conditions.
 - 5. Specifications as listed in the table of contents of the project manual.
 - 6. Drawings (not attached but incorporated by reference) consisting of 51 sheets with each sheet bearing the following general title: Sewer Resiliency Improvements – Gravity Sewer Rehabilitation.
 - 8. Addenda (numbers **one (1)** to _____, inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid.
 - b. A written statement that Bidder is authorized to do business in the state where the Project is located.
 - c. Copy of Bidder's state or other contractor license.
 - d. Subcontractor and Supplier qualification information.
 - 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 5. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 6. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 7. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 8. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 9. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

Town of Ridgeland

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name: Dennis E. Averkin

(typed or printed)

Title: Town Administrator

(typed or printed)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

Contractor:

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

License No.:

(where applicable)

State:

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NOTICE TO PROCEED

Owner: Town of Ridgeland Owner's Project No.: 2026-06
Engineer: Four Waters Engineering, Inc. Engineer's Project No.: 17-1007:046
Contractor: _____ Contractor's Project No.: _____
Project: Tillman Highway Forcemain and Watermain Improvements
Contract Name: Tillman Highway Forcemain and Watermain Improvements
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **365** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **395** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: Town of Ridgeland
By (signature): _____
Name (printed): Dennis E. Averkin
Title: Town Administrator
Date Issued: _____

Copy: Engineer, Four Waters Engineering, Inc.

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PERFORMANCE BOND

Contractor Name: <i>[Full formal name of Contractor]</i> Address <i>(principal place of business)</i> : 	Surety Name: <i>[Full formal name of Surety]</i> Address <i>(principal place of business)</i> :
Owner Name: Town of Ridgeland Mailing address <i>(principal place of business)</i> : PO Box 1119 Ridgeland, SC 29936	Contract Description <i>(name and location)</i> : Tillman Highway Forcemain and Watermain Improvements Ridgeland, SC 29936 Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**.

PAYMENT BOND

Contractor Name: <i>[Full formal name of Contractor]</i> Address <i>(principal place of business)</i> :	Surety Name: <i>[Full formal name of Surety]</i> Address <i>(principal place of business)</i> :
Owner Name: Town of Ridgeland Mailing address <i>(principal place of business)</i> : PO Box 1119 Ridgeland, SC 29936	Contract Description <i>(name and location)</i> : Tillman Highway Forcemain and Watermain Improvements Ridgeland, SC 29936 Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**.

Contractor's Application for Payment

Owner: <u>Town of Ridgeland</u>	Owner's Project No.: <u>2026-06</u>
Engineer: <u>Four Waters Engineering, Inc.</u>	Engineer's Project No.: <u>17-1007:046</u>
Contractor: _____	Contractor's Project No.: _____
Project: <u>Tillman Highway Forcemain and Watermain Improvements</u>	
Contract: <u>Tillman Highway Forcemain and Watermain Improvements</u>	
Application No.: _____ Application Date: _____	
Application Period: From _____ to _____	

1. Original Contract Price	\$	-
2. Net change by Change Orders	\$	-
3. Current Contract Price (Line 1 + Line 2)	\$	-
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	\$	-
5. Retainage		
a. <u>5%</u> X <u>\$ -</u> Work Completed =	\$	-
b. <u>5%</u> X <u>\$ -</u> Stored Materials =	\$	-
c. Total Retainage (Line 5.a + Line 5.b)	\$	-
6. Amount eligible to date (Line 4 - Line 5.c)	\$	-
7. Less previous payments (Line 6 from prior application)		
8. Amount due this application	\$	-
9. Balance to finish, including retainage (Line 3 - Line 4 + Line 5.c)	\$	-

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____

Signature: _____ **Date:** _____

Recommended by Engineer	Approved by Owner
By: _____	By: <u>Dennis E. Averkin</u>
Title: _____	Title: <u>Town Administrator</u>
Date: _____	Date: _____
Approved by Funding Agency (if required)	
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner:	Town of Ridgeland					Owner's Project No.:	2026-06	
Engineer:	Four Waters Engineering, Inc.					Engineer's Project No.:	17-1007:046	
Contractor:						Contractor's Project No.:		
Project:	Tillman Highway Forcemain and Watermain Improvements							
Contract:	Tillman Highway Forcemain and Watermain Improvements							

Application No.:		Application Period:	From	to	Application Date:			
A	B	C	D	E	F	G	H	I
Item No.	Description	Scheduled Value (\$)	Work Completed		Materials Currently Stored (not in D or E) (\$)	Work Completed and Materials Stored to Date (D + E + F) (\$)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) (\$)
			(D + E) From Previous Application (\$)	This Period (\$)				
Original Contract								
						-		-
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						-		-
Original Contract Totals		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner:	Town of Ridgeland					Owner's Project No.:	2026-06	
Engineer:	Four Waters Engineering, Inc.					Engineer's Project No.:	17-1007:046	
Contractor:						Contractor's Project No.:		
Project:	Tillman Highway Forcemain and Watermain Improvements							
Contract:	Tillman Highway Forcemain and Watermain Improvements							

Application No.:		Application Period:	From	to		Application Date:	
A	B	C	D	E	F	G	H
			Work Completed				
			(D + E) From Previous Application (\$)	This Period (\$)	Materials Currently Stored (not in D or E) (\$)	Work Completed and Materials Stored to Date (D + E + F) (\$)	% of Scheduled Value (G / C) (%)
Item No.	Description	Scheduled Value (\$)					Balance to Finish (C - G) (\$)
Change Orders							
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	Change Order Totals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Original Contract and Change Orders							
	Project Totals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner:	Town of Ridgeland	Owner's Project No.:	2026-06
Engineer:	Four Waters Engineering, Inc.	Engineer's Project No.:	17-1007:046
Contractor:		Contractor's Project No.:	
Project:	Tillman Highway Forcemain and Watermain Improvements		
Contract:	Tillman Highway Forcemain and Watermain Improvements		

Application No.: _____	Application Period: From _____ to _____	Application Date: _____
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A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Original Contract											
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Contractor's Application for Payment

Owner:	Town of Ridgeland	Owner's Project No.:	2026-06
Engineer:	Four Waters Engineering, Inc.	Engineer's Project No.:	17-1007:046
Contractor:		Contractor's Project No.:	
Project:	Tillman Highway Forcemain and Watermain Improvements		
Contract:	Tillman Highway Forcemain and Watermain Improvements		

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Change Orders											
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Change Order Totals					\$ -		\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders											
Project Totals					\$ -		\$ -	\$ -	\$ -		\$ -

Contractor's Application for Payment

Owner's Project No.:	2026-06
Engineer's Project No.:	17-1007:046
Contractor's Project No.:	

[illegible]

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: Town of Ridgeland Owner's Project No.: 2026-06
Engineer: Four Waters Engineering Engineer's Project No.: 17-1007:046
Contractor: Contractor's Project No.:
Project: Tillman Highway Forcemain and Watermain Improvements
Contract Name: Tillman Highway Forcemain and Watermain Improvements

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: _____ **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By (signature): _____

Name (printed): _____

Title: _____

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NOTICE OF ACCEPTABILITY OF WORK

Owner: Town of Ridgeland Owner's Project No.: 2026-06
Engineer: Four Waters Engineering Engineer's Project No.: 17-1007:043
Contractor: Contractor's Project No.:
Project: Tillman Highway Forcemain and Watermain Improvements
Contract Name: Tillman Highway Forcemain and Watermain Improvements
Effective Date of the Construction
Notice Date: Contract:

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated April 7, 2017 ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By (*signature*): _____

Name (*printed*): _____

Title: _____

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and

recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments

during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. **Required Insurance:** Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
 - B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
 - C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
 - D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
 - E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
1. Observations by Engineer;
 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. Use or occupancy of the Work or any part thereof by Owner;
 5. Any review and approval of a Shop Drawing or Sample submittal;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.

- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design

professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to

Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

- 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:* Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance:* Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. Reductions in Payment by Owner

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all duly pending Change Proposals and Claims; and

- e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their

reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if

repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC-1.01.A.8 – Add the following at the end of the Paragraph:

The Change Order form to be used on this Project is EJCDC C-941 (2018). Agency approval is required before Change Orders are effective.

SC-1.01.A.11 – Delete and replace with the following:

11. *Constituent of Concern*—Asbestos; petroleum; radioactive materials; polychlorinated biphenyls (PCBs); lead-based paint (as defined by the HUD/EPA standard); hazardous waste; contaminated environmental media, metal bearing protective coatings, paints, and liners; metals such as but not limited to arsenic, cadmium, chrome, cobalt, lead, and mercury; and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act (Superfund), 42 U.S.C. §9601 et seq.; (b) the Hazardous Materials Transportation Act, 49 U.S.C. §5101 et seq.; (c) the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6901 et seq.; (d) the Toxic Substances Control Act, 15 U.S.C. §2601 et seq.; (e) the Clean Water Act (CWA), 33 U.S.C. §1251 et seq.; (f) the Clean Air Act (CAA), 42 U.S.C. §7401 et seq.; or (f) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance, or material.

SC-1.01.A.16 – Add the following at the end of the Paragraph:

The terms Contractor and CONTRACTOR are interchangeable and shall have the same meaning in the Contract Documents.

SC-1.01.A.22 – Add the following at the end of the Paragraph:

The terms Engineer and ENGINEER are interchangeable and shall have the same meaning in the Contract Documents.

SC-1.01.A.30 – Add the following at the end of the Paragraph:

The terms Owner and OWNER are interchangeable and shall have the same meaning in the Contract Documents.

SC-1.01.A.50 – Add the following at the end of the Paragraph:

The Work Change Directive form to be used on this Project is EJCDC C-940 (2018). Agency approval is required before a Work Change Directive is issued.

SC 1.01.A.51 – Add the following new paragraph immediately after Paragraph 1.01.A.50:

51. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in 40 CFR 261 titles “Identification and Listing of Hazardous Waste,” as amended from time to time.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner’s Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor one printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

- B. *Electronic Documents Protocol:* The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol (“EDP” or “Protocol”) for exchange of electronic transmittals.

1. *Basic Requirements*

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.

- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is 20 MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.

- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.
- h. The Engineer will operate a Project information management system (also referred to in this EDP as "Project Website") for use of Owner, Engineer and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this EDP or the General Conditions, use of the Project Website by the parties as described in this Paragraph will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information. The following conditions and standards will govern use of the Project Website: To be determined in conjunction with Owner and Contractor.

C. *Software Requirements for Electronic Document Exchange; Limitations*

- 1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents

received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.

- a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. *Requests by Contractor for Electronic Documents in Other Formats*

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
 - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.
 - b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.

- c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
 - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$200 per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

SC-3.01 Delete Paragraph 3.01.C in its entirety.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.05 *Delays in Contractor's Progress*

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

- 5. *Weather-Related Delays*
 - a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered abnormal weather conditions. Requests for time extensions due to abnormal weather conditions will be submitted to the Owner within five days of the end of the abnormal weather condition event. Owner will review the request and decide if an extension of Contract Times is warranted. Owner may approve or deny request at his sole discretion. Owner may consult the Engineer for guidance in making the decision.
 - b. Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded National Oceanic and Atmospheric Administration weather monitoring station at the nearest location to the Project Site.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 Subsurface and Physical Conditions

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Geotechnical Report	July 6, 2026	Located in Appendix G

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
Tillman Highway Forcemain and Watermain Improvements	July 2026	Provided separately

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at Owner's Office during regular business hours, or may request copies from Engineer.

5.06 Hazardous Environmental Conditions

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
No reports available		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
No drawings available		

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.02 *Insurance—General Provisions*

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

6.03 *Contractor's Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Each accident	\$500,000
Each employee	\$500,000
Policy limit	\$500,000

- E. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and

3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- F. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- G. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
 6. Any limitation or exclusion based on the nature of Contractor's work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

H. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$1,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

- I. *Automobile Liability*: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$1,000,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

- J. *Umbrella or Excess Liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$2,000,000
General Aggregate	\$2,000,000

- K. CSX Insurance Requirements: Contractor shall purchase and maintain RAILROAD PROTECTIVE LIABILITY INSURANCE and other necessary insurance for the duration of the project associated with crossing CSX's railway tracks, and within their right-of-way. CSX insurance requirements are provided in Appendix E (3 separate documents).

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 Labor; Working Hours

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

- Regular working hours will 7 A.M. to 7 P.M., Monday through Friday.

2. Owner's legal holidays are New Year's Day, Martin Luther King Jr. Day, Juneteenth, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving, Christmas Eve, and Christmas.
3. To perform work outside of the regular working hours or on Owner's legal holiday, Contractor must request permission in writing to Owner. Generally, permission will not be granted unless construction schedule has been or is anticipated to be affected by severe weather delays or other unforeseen conditions.

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as \$1,000 per day to cover cost of Resident Project Representative to be present at the Site.

ARTICLE 8—OTHER WORK AT THE SITE

8.02 Coordination

SC-8.02 Add the following new Paragraph 8.02.C immediately after Paragraph 8.02.B:

- C. Owner may contract with others for the performance of other work at or adjacent to the Site during the period of the Project.
 1. Contractor shall coordinate with others to allow access to worksite.

ARTICLE 9—OWNER'S RESPONSIBILITIES

No suggested supplementary conditions in this article.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:

1. On this Project, by agreement with the Owner, the Engineer will furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

ARTICLE 11—CHANGES TO THE CONTRACT

SC-11.02.C – Add new paragraph immediately after Paragraph 11.02.B:

C. The Engineer or Owner shall contact the Agency for concurrence on each Change Order prior to issuance. All Contract Change Orders must be concurred on (signed) by Agency before they are effective.

SC-11.03.A.2 – Add new Paragraph 11.03.A.2 immediately after Paragraph 11.03.A, which shall be renamed Paragraph 11.03.A.1:

2. The Engineer or Owner shall contact the Agency for concurrence on each Work Change Directive prior to issuance. Once authorized by Owner, a copy of each Work Change Directive shall be provided by Engineer to the Agency.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

13.01 *Cost of the Work*

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of Rental Rate Blue Book for Construction Equipment.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, “small tools and hand tools” means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and;
 - and

- b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 *Progress Payments*

15.02 SC-15.01.B.4 – Add the following language at the end of paragraph:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage or invest the retainage for the benefit of the Contractor.

SC-15.01.B.5 – Add new paragraph immediately after Paragraph 15.01.B.4:

5. The Application for Payment form to be used on this Project is EJCDC® C-620. The Agency must approve all Applications for Payment before payment is made.

SC-15.01.D.1 – Delete paragraph in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due 35 days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC-15.01 Add the following new Paragraph 15.01.F:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

SC-15.02.A – Amend paragraph by striking out the following text: "7 days after".

15.03 *Substantial Completion*

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 Arbitration

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 Arbitration

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.

- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 *Attorneys' Fees*

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02. [Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new Paragraph immediately after Paragraph 17.01" and revise the numbering accordingly].

17.03 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18—MISCELLANEOUS

SC-18.11 Add the following new paragraph immediately after Paragraph 18.10:

18.11 *Termination for Cause and Convenience*

In Addition to the Termination for Cause listed in the General Conditions, please see the additional requirements for RIA-funded grant projects.

The contract may be terminated in whole or in part as follows:

1. By the Grantee, if a contractor fails to comply with the terms and conditions of the RIA award;
2. By the Grantee, to the greatest extent authorized by law, if an award no longer effectuates the program goals or agency priorities;
3. By the Grantee with the consent of the contractor, in which case the two parties must agree upon the termination conditions, including the effective date and, in the case of partial termination, the portion to be terminated;
4. By the Grantee upon written notification setting forth the reasons for such termination, the effective date, and, in the case of partial termination, the portion to be terminated. However, if the Grantee determines in the case of partial termination that the reduced or modified portion of the contract will not accomplish the purposes for which the contract was made, the Grantee may terminate the contract in its entirety; or
5. By the Grantee pursuant to termination provisions included in the RIA award.

SC-18.12 Add the following new paragraph immediately after Paragraph 18.11:

18.12 *Administrative, Contractual, and Legal Remedies*

In addition to any of the remedies described elsewhere in the contract if the contractor materially fails to comply with the terms and conditions of this contract, including any federal or state statutes, rules or regulations, applicable to this contract, RIA or the Grantee may take one or more of the following actions:

1. Temporarily Withhold payments pending correction of the deficiency by the contractor;
2. Disallow (that is, deny both use of funds and any applicable matching credit for) all or part of the cost of the activity or action not in compliance;
3. Wholly or partly suspend or terminate this Contract; and
4. Take other remedies that may be legally available.

The remedies identified above, do not preclude the contractor from being subject to debarment and suspension under Presidential Executive Orders 12549 and 12689. The Grantee shall have the right to demand a refund, either in whole or part, of the funds provided to the contractor for noncompliance with the terms of this Contract.

SC-18.13 Add the following new paragraph immediately after Paragraph 18.12:

18.13 Equal Opportunity Clause

Per the definition of “federally assisted construction contract” as defined by 41 CFR Part 60-1.3, the following provisions are required:

During the performance of this contract, the contractor agrees as follows:

- B. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applications are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:
 - 1. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applications for employment, notices to be provided setting forth the provisions of this nondiscrimination clause. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will received consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
 - 2. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
 - 3. The contractor will send to each labor union or representative of workers with which he has a collective bargaining contract or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 - 4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
 - 5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
 - 6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be

canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

SC-18.14 Add the following new paragraph immediately after Paragraph 18.13:

18.14 *Debarment and Suspension (Executive Orders 12549 and 12689)*

The Contractor certifies that it is not listed on the government-wide exclusions in SAM, in accordance with the OMB guidelines at 2 CFR 180 and 2 CF 1200 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension."

SC-18.15 Add the following new paragraph immediately after Paragraph 18.14:

18.15 *Contract Work Hours and Safety Standards Act*

The Contractor must comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each Contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

SC-18.16 Add the following new paragraph immediately after Paragraph 18.15:

18.16 Contractors must comply with any and all applicable funding agency requirements.

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WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner: Town of Ridgeland Owner's Project No.: 2026-06
Engineer: Four Waters Engineering, Inc. Engineer's Project No.: 17-1007:046
Contractor: Contractor's Project No.:
Project: Tillman Highway Forcemain and Watermain Improvements
Contract Name: Tillman Highway Forcemain and Watermain Improvements
Effective Date of Work Change
Date Issued: Directive:

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**
Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

Recommended by Engineer	Authorized by Owner
By: _____	Dennis E. Averkin
Title: _____	Town Administrator
Date: _____	_____

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CHANGE ORDER NO.: [Number of Change Order]

Owner: Town of Ridgeland Owner's Project No.: 2026-06
Engineer: Four Waters Engineering, Inc. Engineer's Project No.: 17-1007:046
Contractor's Project No.:
Contractor: No.:
Project: Tillman Highway Forcemain and Watermain Improvements
Contract Name: Tillman Highway Forcemain and Watermain Improvements
Date Issued: Effective Date of Change Order:

The Contract is modified as follows upon execution of this Change Order:

Description:

[Description of the change]

Attachments:

[List documents related to the change]

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order] : \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Accepted by Contractor

By: _____

Title: _____

Date: _____

Authorized by Owner

Approved by Funding Agency (if applicable)

By: Dennis E. Averkin

Title: Town Administrator

Date: _____

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FIELD ORDER NO.: [Number of Field Order]

Owner:	Town of Ridgeland	Owner's Project No.:	2026-06
Engineer:	Four Waters Engineering, Inc.	Engineer's Project No.:	17-1007:046
Contractor:		Contractor's Project No.:	
Project:	Tillman Highway Forcemain and Watermain Improvements		
Contract Name:	Tillman Highway Forcemain and Watermain Improvements		
Date Issued:	Effective Date of Field Order:		

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____

Title: _____

Date: _____

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TECHNICAL SPECIFICATIONS

SECTION 01025
MEASUREMENT AND PAYMENT

A. GENERAL

1. The CONTRACTOR shall receive and accept the compensation provided in the Proposal and the Contract as full payment for furnishing all materials, labor, tools and equipment, for performing all operations necessary to complete the work under the Contract, and also in full payment for all loss or damages arising from the nature of the work, or from any discrepancy between the actual quantities of work and quantities herein estimated by the Engineer, or from the action of the elements or from any unforeseen difficulties which may be encountered during the prosecution of the work until the final acceptance by the OWNER.
2. The prices stated in the proposal include all costs and expenses for taxes, labor, equipment, materials, commissions, transportation charges and expenses, patent fees and royalties, labor for handling materials during inspection, together with any and all other costs and expenses for performing and completing the work as shown on the Drawings and specified herein. The basis of payment for an item at the unit price shown in the proposal shall be in accordance with the description of that item in this Section.
3. The CONTRACTOR's attention is called to the fact that the quotations for the various items of work are intended to establish a total price for completing the work in its entirety. Should the CONTRACTOR feel that the cost for any item of work has not been established by the Bid Form or Payment Items, he shall include the cost for that work in some other applicable bid item, so that his proposal for the project does reflect his total price for completing the work in its entirety.

B. MEASUREMENT

1. The quantities for payment under this Contract shall be determined by actual measurement of the completed items, in place, ready for service and accepted by the OWNER, in accordance with the applicable method of measurement therefor contained herein. A representative of the CONTRACTOR and OWNER shall witness all field measurements.

C. WORK ITEMS NOT PAID FOR SEPARATELY

1. Color Audio-Video Recording: Measurement for pre-construction color audio-video recording will not be made for payment and all items shall be included in the unit price of project unit items installed.
2. Construction Photographs: Measurement for construction photographs will not be made for payment and all items shall be included in the unit price of project unit items installed.
3. Contractor Storage Site / Lay Down Yard / Temporary Office: Measurement for Contractor Storage Site / Lay Down Yard / Temporary Office will not be made for payment and all items shall be included in the unit price of project unit items installed.
4. Regular Excavation: Measurement for regular excavation will not be made for payment and all items shall be included in the unit price of project unit items installed.

5. Dewatering: Measurement for dewatering operations necessary for construction will not be made for payment and all items shall be included in the unit price of project unit items installed.
6. Stabilization: Measurement for stabilization operations necessary for construction will not be made for payment and all items shall be included in the unit price of project unit items installed.
7. Community Outreach: Payment for public dissemination of information regarding road closure, detours, work zones or other announcements, via print, digital, signage or other means is to be included with the unit price of the associated work and will not be paid separately.
8. Miscellaneous Work Items: Measurement for miscellaneous work items such as mobilization / demobilization, payment and performance bonds, testing and reporting, temporary fencing, temporary facilities, and other items not specifically listed in the Bid Proposal Form will not be made for payment and all items shall be included in the unit price of project unit items installed.

PAY ITEMS

1. CONTRACTOR GENERAL CONDITIONS

Under this item, the Work shall consist of the preparatory work and operations for the assembling and the setting up necessary for the project, such as storage areas, sanitary facilities, field offices, moving in of personnel and equipment as required by the Specifications. Payment will be made on a lump sum basis for bonding and insurance not to exceed five percent (5%) of the total Bid Amount.

- a. Under this item, the Contractor shall include the cost of all bonding, insurance and benefit required for the execution of the Work.
- b. Under this item, the Contractor shall include the cost of all mobilization and demobilization required for the execution of the Work.

2. MAINTENANCE OF TRAFFIC (TRAFFIC AND PEDISTRIAN CONTROL)

Measurement and payment of this item is lump sum and includes all items of work or material required to maintain pedestrian and vehicular traffic per SC DOT standards including but not limited to temporary signing, barriers, drums or markers, flagging/flaggers, warning lights/flashers, lighted sign boards, safety ropes, temporary striping, temporary tape, temporary walkway/sidewalk, and other materials as necessary to maintain the traffic control detour. Also included is furnishing, installing and maintaining a Traffic Control Plan, control and safety devices, control of dust, temporary crossing structures over trenches, any necessary detour facilities, and other special requirements for the safe and expeditious movements of traffic, including vehicular, bicycle, and pedestrian.

Two (2) temporary electronic signs shall be provided per work zone area, two (2) weeks prior to commencement of work, alerting residents of upcoming work or traffic pattern changes shall be provided for this item. These signs will be updated once construction activities commence to provide information about closures, delays, anticipated construction duration, or other pertinent information to residents, and will be used in conjunction with temporary signage. These signs will be located on either side of the planned work zone, and between 500-1,500 feet from the planned work zone. These signs shall remain in place until construction activities are completed within the work zone, at which time they can be relocated (if necessary).

Payment will be made based on a percentage of the total work completed.

3. SEDIMENTARY AND EROSION CONTROL MEASURES

Measurement and payment of these items are based on the Bid Proposal Form and includes all items of work to comply with NPDES best management practices to prevent runoff from project site and includes all work outlined in the project general notes and erosion control drawings and details shown in the plans. Payment will be made based on quantities installed, which includes (but not limited to) the following.

- a. Silt Fence
- b. Check Dams
- c. Inlet Protection

Ongoing maintenance to maintain these measures are to be included within the cost, as no additional payment will be made for upkeep of sedimentary and erosion control measures.

4. TREE TRIMMING OPERATIONS

Measurement and payment of this item is lump sum for any tree trimming activities and the demolition of operations. Payment shall be full compensation for all equipment, labor, materials, and tools necessary for the any tree trimming activities, tree removal, and demolition of operations, in accordance with the Contract Drawings and Details. Payment will be made based on a percentage of work complete.

5. PRESSURE PIPING, APPURTENANCES AND CONNECTIONS (VARIES BY MATERIAL , TYPE, SIZE)

Measurement and payment for this item shall be per linear foot (LF) or each (ea.) appurtenance installed and will be full compensation for providing materials, equipment and installation necessary for all piping installed by open cut, jack and bore or HDD, fittings, valves and valve assemblies, and associated accessories of the various types, sizes and materials noted on the contract documents for piping systems installed. Item includes all appropriate jointing materials and mechanical restraints; markers; nuts, bolts, socket clamps, sleeves; all valves, required actuator (operating nut and stem extension (if applicable)); valve box and cover, valve tags; all piping and fittings; air release valves and piping and assemblies; dewatering; backfilling material; laying and jointing pipe; pressure and leakage testing; all sheeting, shoring and bracing required to maintain excavations in a safe condition; protecting existing structures, utilities and property both public and private; furnishing and installing locate wiring, locate wire test stations, locate wire-related appurtenances and locate wire testing; furnishing all material, labor, tools, and equipment and all incidental and related work required to complete the work of the item.

Flowable fill shall be utilized as backfill within all open cuts across or within South Carolina Department of Transportation owned roadways. Payment will be based on pipe length or appurtenance installed as provided on the Bid Proposal Form.

6. 24" STEEL CASING PIPE AND ACCESSORIES

Payment will be made on a linear foot basis for all equipment, labor, material, and tools necessary for the installation of casing by jack and bore. Measurement shall be made along the horizontal projection of the center line of the casing. Payment for the work will be made at the Contract unit price and shall be full compensation for the items of work, complete, including casing pipe; casing spacers and end caps (if required); locate wiring (if require); excavation; dewatering; backfill and compacting, and all incidental work required to complete the work including all materials, labor, tools and equipment.

7. CONNECT TO 12" EXISTING WATERMAIN AT INTERSECTION OF FLOYD STREET AND GREYS HIGHWAY.

Measurement and payment of this item is lump sum and includes all items of work to connect the existing watermain and proposed watermain, along with any required disconnections. Payment shall be full compensation for furnishing all material, labor, tools, and equipment and all incidental and related work required to complete the work of the item. necessary for the completion of this work, including fittings, valves and valve assemblies, and associated accessories of the various types, sizes and materials noted on the contract documents to tie-in to existing watermain, along with disconnections and reconnection of smaller watermain. Item includes all appropriate jointing materials and mechanical restraints; markers; nuts, bolts, socket clamps, sleeves; all valves, required actuator (operating nut and stem extension (if applicable)); valve box and cover, valve tags; all piping and fittings; dewatering; backfilling material; laying and jointing pipe; pressure and leakage testing; all sheeting, shoring and bracing required to maintain excavations in a safe condition; protecting existing structures, utilities and property both public and private; furnishing and installing locate wiring, locate wire test stations, locate wire-related appurtenances and locate wire testing. Payment will be made based on the lump sum price as provided within the Bid Proposal Form.

8. CONNECT INTO JIMMY MISSION WATER RECLAMATION FACILITY

Measurement and payment of this item is lump sum and includes all items of work to connect the proposed forcemain into the sanitary sewer system located at Jimmy Misson Water Reclamation Facility. Payment shall be full compensation for furnishing all material, labor, tools, and equipment and all incidental and related work required to complete the work of the item. necessary for the completion of this work, including fittings, valves and valve assemblies, and associated accessories of the various types, sizes and materials noted on the contract documents to tie-in to existing forcemain, along with disconnections and reconnection of smaller forcemains. Item includes all appropriate jointing materials and mechanical restraints; markers; nuts, bolts, socket clamps, sleeves; all valves, required actuator (operating nut and stem extension (if applicable)); valve box and cover, valve tags; all piping and fittings; dewatering; backfilling material; laying and jointing pipe; pressure and leakage testing; all sheeting, shoring and bracing required to maintain excavations in a safe condition; protecting existing structures, utilities and property both public and private; furnishing and installing locate wiring, locate wire test stations, locate wire-related appurtenances and locate wire testing. **It is anticipated that bypass pumping will be required for this activity, and its cost is to be included within the cost of this item, no additional payment will be made for bypass pumping.** Payment will be made based on the lump sum price as provided within the Bid Proposal Form.

9. MILL AND RESURFACE TWO INCHES (2") OF ASPHALT ON SC DOT ROADWAY (RESTORATION)

Payment will be made on a unit price per square yard basis for all equipment, labor, material and tools necessary to mill existing asphalt roadway and install two inch (2") thick asphalt overlay with SC DOT type asphalt in accordance with Contract Drawings, Details and the SC DOT Encroachment Permit. **This operation is to be in conjunction with the Full Asphalt Replacement (below) and shall have no joints or seams along with being a continuous asphalt layer.**

Payment shall include all temporary and permanent pavement markings and striping as required per SC DOT, (paint on secondary roads and thermoplastic on primary roads per SC DOT determination).

10. FULL ASPHALT REPLACEMENT

Payment will be made on a unit price per square yard basis for all equipment, labor, material and tools necessary to remove existing asphalt roadway as necessary for utility installation and install four inch (4") thick asphalt overlay with SC DOT type asphalt in accordance with Contract Drawings, Details and the SC DOT Encroachment Permit. **This overlay is required within the trench width for all utilities located within the paved SC DOT roadway surface.**

11. REMOVE AND REPLACE GRAVEL DRIVEWAY

Measurement for this item is square yards (SY) of driveway removed and replaced as a consequence of utility installation and includes all items or work for gravel driveway replacement accepted and installed in accordance with contract documents. This item is to include all necessary materials and equipment, compaction, vibrating (if required), removal, gravel, and testing as required per specification as specified in the contract documents.

Driveway replacement shall consist of eight inch (8") granular material, installed and compacted in two (2) lifts. Payment will be made based on the unit price as provided within the Bid Proposal Form.

12. REMOVE AND REPLACE ASPHALT DRIVEWAY

Measurement for this item is square yards (SY) of driveway removed and replaced as a consequence of utility installation and includes all items or work for asphalt driveway replacement accepted and installed in accordance with contract documents. This item is to include all necessary materials and equipment, compaction, vibrating (if required), removal, basecourse, asphalt, milling and resurfacing, and testing as required per specification as specified in the contract documents. **Driveway replacement shall consist of six inch (6") aggregate base with two inches (2") of asphaltic concrete.** Payment will be made based on the unit price as provided within the Bid Proposal Form.

13. REMOVE AND REPLACE CONCRETE DRIVEWAY

Measurement for this item is square yards (SY) of driveway removed and replaced as a consequence of utility installation and includes all items or work for concrete driveway replacement accepted and installed in accordance with contract documents. This item is to include all necessary materials and equipment, compaction, vibrating (if required), removal, basecourse, asphalt, milling and resurfacing, and testing as required per specification as specified in the contract documents. **Driveway replacement shall consist of four inch (4") aggregate base with six inches (6") of concrete (4,000 psi minimum).** Payment will be made based on the unit price as provided within the Bid Proposal Form.

14. SIDEWALK REPLACEMENT

Measurement for this item is square yards (SY) and includes all items or work for sidewalk replacement, including 1) asphalt 2) concrete, 3) brick pavers accepted and installed in accordance with contract documents. This item is to include all necessary materials and equipment, compaction, vibrating (if required), removal, paver removal and storage, asphalt, concrete, milling and resurfacing, and testing as required per specification as specified in the contract documents. Payment will be made based on the unit price as provided within the Bid Proposal Form.

15. REMOVE AND REPLACE CURB AND GUTTER (RESTORATION)

Payment will be made on a unit price per linear foot basis for all equipment, labor, materials, and tools necessary for the construction of concrete curb and gutter, in accordance with the Contract Drawings, Details, and SC DOT requirements.

16. EXISTING POLES AND SIGNS TO BE SUPPORTED, PROTECTED AND PRESERVED DURING FORCEMAIN INSTALLATION

Payment will be made on a lump sum basis for all equipment labor, materials, and equipment necessary to support, protect and preserve existing poles and signs, including streetlights, traffic lights, utility poles, roadway and utility signs or other surface poles or signs within the forcemain construction zone. If these structures cannot remain in place during construction, they shall temporarily be removed (if possible), with the consent of owner of the structure.

For temporary removal, payment shall include reinstalling posts, or poles including, reflective sheeting signs, drilling for bolts/anchors, mounting brackets plates, hardware, concrete foundations, and all other appurtenances required to furnish and install new poles or signs in accordance with the Contract Drawings, Details, Owner's requirements, and the Manual on Uniform Traffic Control Devices. Payment will be made based on the lump sum price as provided within the Bid Proposal Form.

17. REGRADING AND RESTORATION OF EXISTING DRAINAGE SWALES, DITCHES, AND GROUND SURFACE

Payment will be made on a lump sum basis for all equipment labor, materials, and equipment necessary to restore the ground surface to its original elevation. This work includes placing, moving regrading, and compacting soils to achieve the original elevations and contours. This item shall be to provide such restoration to preconstruction or new condition and maintain it in good condition until final acceptance and approval. Payment will be made based on the lump sum price as provided within the Bid Proposal Form.

18. STABILIZATION – HYDROSEEDING (RESTORATION)

Payment will be made on a unit price per square yard basis for all equipment, labor, materials, and tools necessary to install permanent seeding to all disturbed areas within the project limits. Payment for this bid item shall include soil preparation, fine grading, and hydroseeding in accordance with the Construction Drawings, Details, and the SC DOT's requirements. Any areas disturbed by the contractor outside of the limits of construction as indicated by the Drawings will require soil preparation, fine grading, and hydroseeding at the contractor's expense.

19. INSTALLATION OF FORCEMAIN/WATERMAIN WARNING SIGN

Payment will be made per each item installed basis for all equipment labor, materials, and equipment, to furnish and install "DANGER UNDERGROUND FORCE/WATER MAIN" signage. Payment shall include posts, reflective sheeting signs, drilling for bolts/anchors, mounting brackets plates, hardware, concrete foundations, and all other appurtenances required to furnish and install signs in accordance with the Contract Documents, Permits or Inspector's instructions. Payment will be made based on each sign installed.

20. JACK AND BORE PITS

Measurement and payment for this item shall be per each (ea.) jack and bore pit excavated, as indicated on the Contract Documents, which are necessary to install casing/carrier pipe for the indicated pressure pipe. Provided depths are approximated, and Contractor is responsible for excavating enough to ensure jacking operations successfully install casing pipe at the correct elevation. Costs include excavation; soil storage/removal; backfilling; compaction; all sheeting, shoring and bracing required to maintain excavations in a safe condition; protecting existing structures, utilities and property both public and private; dewatering; safe access into/out of the pit. Payment will be made on the unit price within the Proposed Bid Form and include all equipment labor, materials, and equipment.

21. CSX AGREEMENT COST

An allowance has been included with the Bid Proposal Form for Contractors usage in complying with CSX construction related requirements, per their Encroachment Agreement (Appendix E). This is subject to the Town's authorization, which will require a CSX invoice which may pertain to licenses, health and safety, inspections, surveying, railway protection and testing, flagging operations, signal/communication protection, and other unforeseen items, that CSX will require the Contractor to financially be responsible for.

22. A-3 FILL (UNSUITABLE SOIL REPLACEMENT)

Measurement for this item is per cubic yard installed and includes all items or work of A-3 Fill placed and accepted by the Engineer. This item is to include all necessary equipment for transport, placement, and compaction required per contract drawings and for the removal and disposal of unsuitable material and placement of A-3 soil. Payment will be made based on a per cubic yard of unsuitable soil removed and A-3 fill installed.

23. AS BUILT DOCUMENTS AND DRAWINGS

Payment will be made on a lump sum basis for all equipment labor, materials, and equipment necessary to produce As Built drawing of the items installed under this contract. All locations and elevations using State Plane Coordinates (Horizontal Datum NAD 83 and Vertical Datum NAVD 88) and be relative to the established surface survey bench mark and baseline stationing that is tied to existing, fixed and visible sight features as required herein must be permanently documented by the Contractor, on the As-Built Drawings using AutoCAD, with final submission being both the AutoCAD and a pdf file.

- a) The Contractor shall maintain at the construction site a complete set of field drawings for recording the as-built conditions. The Contractor shall compile and submit as-built data in accordance with the Project Record Documents requirements. b.
- b) As-Built data shall include Horizontal Directional Drill pipe installation information in plan and profile views in AutoCAD format with X, Y, and Z coordinates in Florida State Plane East Zone Coordinates (Horizontal Datum NAD 83 and Vertical Datum NAVD 88). c.
- c) Directional Drill Bore Log shall be provided as part of the As-Built documentation and shall show recorded X, Y, and Z locations of the drill head at minimum every 20 feet in the AutoCAD format documentation.
- d) Jack and Bore casing and carrier pipe information shall be provided as part of the As-Built documentation and shall show depth, slope (if present), material, spacers distance, and end covers.

END OF SECTION 01025

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SECTION 01100

SUMMARY OF WORK

PART 1-GENERAL

The Summary of Work in this Section comprises the Town of Ridgeland Sewer Resiliency Improvements, Ridgeland, South Carolina. The following scope of work description is intended to be general in nature. The intention is to have the successful Contractor perform all of the work included and presented within the Construction Contract Documents, paying particular attention to the Schedule of Bid Prices. The Contractor shall comply with and be responsible for all of the requirements of the Project Manual including the Drawings and Specifications.

1.01 RELATED REQUIREMENTS INCLUDED

Project Manual, Division 0, Bidding and Contract Documents

The Contractor shall comply with and be responsible for all of the requirements of the Project Manual, without exception.

The Contract Form for this Project shall be as stipulated in Division 0, Section 00520 in the Project Manual.

1.02 SCOPE OF WORK

The Project includes the following Work:

1. Mobilization/Demobilization, General Requirements, Bonds and Insurance.
2. Contractor is responsible for protecting existing materials, structures, and equipment on-site during construction activities.

3. Utility Work

- Install approximately 9,941 linear feet (LF) of new 12" watermain PVC DR18 by open cut.
- Install approximately 11,732 linear feet (LF) of new 10" forcemain PVC DR18 by open cut
- Install approximately 2,199 LF of new 12-inch forcemain HDPE DR-11 by horizontal directional drill (HDD).
- Install approximately 341 LF of new 16-inch watermain HDPE DR-11 by horizontal directional drill (HDD).
- Install approximately 310 linear feet (LF) of new 10" forcemain PVC DR18 by jack and bore
- Tie in of 10-inch forcemain into existing wastewater system at Jimmy Mixson Water Reclamation Facility.
- Install associated fittings, valves, and accessories with new forcemain installation as indicated on construction plans.
- Complete restoration of roadway, fencing, and vegetation as necessary for installation of forcemain and watermain.
- Complete maintenance of traffic as necessary for installation of forcemain and watermain.
- Complete soil erosion and sediment control as necessary for installation of forcemain and watermain.

1.03 SUBSTANTIAL COMPLETION

Substantial completion is the time at which the Work has progressed to the point where, in the opinion of the Engineer, the Work is sufficiently complete in accordance with the Contract

Documents so that the facilities can be utilized for the purposes for which they are intended. For this project, Substantial Completion includes all components of the Work of the Project that rehabilitates and restores to service the sewer collection system, which has been inspected and approved by the Town and determined to be functioning properly. This requires the contractor to achieve completion of all Work of the Project less the paving and establishment of final grassing. This is grass planted but not yet established.

1.04 FINAL COMPLETION

Final completion is the time, as certified by the Engineer, when all Work of the Project is complete, post completion documents have been submitted by the contractor and are satisfactory, and the Project is ready for final payment. Final completion requires the contractor to be at the level of functionality defined complete with all “punch list” items addressed, grassing to have been established and to be complete in all respects as contained within the Construction Contract Documents. The date of final completion shall constitute the date of the beginning of the Guarantee and Warranty period.

1.05 USE OF THE PREMISES

- A. Contractor shall have use of the area encompassing the Project Site as shown on the applicable drawings for execution of the Work of this Contract, except as may be otherwise indicated or necessitated by the requirements of the Project Manual, or as may be determined by the Owner.
- B. Contractor shall provide, or cause to be provided, and shall pay for all geotechnical services, testing, labor, equipment, materials, and such other utilities, transportation, and facilities necessary for the proper execution of the Work, whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work.
- C. Contractor shall provide protection at all affected areas of the site during the performance of the Work.
- D. Contractor shall perform all work in conformance with O.S.H.A. requirements, which will be strictly enforced.
- E. Contractor shall coordinate the use of the premises consistent with the Project requirements as may be directed by the Owner.
- F. Contractor shall use access routes for delivery of materials and equipment only as indicated on the drawings approved by the Owner and as may be directed by the Owner. Do not use access routes other than those indicated. Contractor shall keep clean, maintain, and repair all access routes used.
- G. Contractor shall assume full responsibility for the protection and safekeeping of all products under this contract, stored and / or installed on the Project Site as well as those products stored off the Project Site. Materials, products, and equipment shall be stored on the Project Site only in those areas indicated or allowed for staging and approved by the Owner.
- H. Safe staging and material storage shall be limited to the area indicated on the drawings, which have been approved by the Owner and as may be designated by the Owner. Contractor must obtain specific permission from the Owner for the use of other areas for storage and staging.
- I. Contractor shall protect existing sidewalks, pavement, curbs, utilities, building exterior, and interior surfaces subject to damage by Work performed under this contract. Contractor shall, at his sole cost and expense, repair or replace any existing work damaged by his/her prime and/or sub-contractor's personnel or equipment.

1.06 WORK SEQUENCE AND COMPLETION

- A. Contractor shall work in an orderly manner coordinated with the work of other disciplines and trades.
- B. No disruption to, or use of adjacent facilities and access to those facilities will be allowed.
- C. Operation of the existing sewer system must be maintained at all times during the construction without obstruction of the flow. Any sewer system overflows caused by the contractor or sub-contractors' actions shall be reported immediately to the Town and Engineer and shall be properly removed, and the site cleaned up in accordance with all SC DES (formerly SCDHEC) requirements. Every effort shall be made to keep any overflows from reaching the storm sewer system or any surface waters. The cost of any sewer system overflows, cleanup and monitoring, or fines by SC DES shall be paid by the contractor at no expense to the Town.
- D. The Owner may require certain work to be performed after normal working hours or on holidays or weekends or as may be necessitated in the public interest. Such work does not constitute a change of scope or additional cost.

1.07 LIQUIDATED DAMAGES

The Contractor agrees to commence Work under this Contract on the effective date established as "Notice to Proceed", and to complete the Work in conformance with the allotted time described in the Project Manual. Should the Contractor neglect, fail, or refuse to complete the Work within the established Completion date then the Contractor shall pay to the Owner Liquidated Damages in the amount of one thousand dollars (\$1,000.00) per day for those damages suffered by the Owner as a result of delay for each and every calendar day that the Contractor has failed to complete the work within the established Completion date. The aforementioned Liquidated Damages are not a penalty, but rather are a pre-agreed liquidation of the losses incurred by the Owner due to the failure of the Contractor to complete the Work on time.

1.08 SUBSTITUTIONS AND PRODUCT OPTIONS

Written requests for substitutions shall be forwarded to the Engineer for review and Owner approval.

1.09 SURVEY

Contractor shall verify all survey data, geotechnical reports and investigations included within the Contract Documents and report any errors and inconsistencies in writing to the Owner before any work is performed in those areas where errors and inconsistencies may exist. Refer to Division 1, Section 01310, Project Management and Coordination in the Project Manual.

PART 2- PRODUCTS

Not Used

PART 3- EXECUTION

Not Used

END OF SECTION 01100

SECTION 01300

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

- A. Division 0, Bidding and Contract Documents of the Project Manual
- B. Division 1, General Requirements of the Project Manual

1.02 CODES, AUTHORITIES, REGULATORY AGENCIES, AND INDUSTRY REFERENCES

- A. Where references are made on the Drawings or in the Technical Specifications to codes, they shall be considered an integral part of the Construction Contract Documents as minimum standards. Nothing contained in the Construction Contract Documents shall be so construed as to be in conflict with any law, bylaw, ordinance or regulation of the municipal, state, federal or other authorities having jurisdiction. The Contractor shall reflect reference to specific codes, as may be applicable, insuring conformance with code requirements.
- B. Perform Work in compliance with the following code:

Current edition of all applicable building code(s), local, state and federal.
International Building Code – latest edition
- C. Perform Work in compliance with the following Authorities and Regulatory Agencies:
 - 1. Town of Ridgeland, South Carolina
 - 2. South Carolina Department of Environmental Services (former Department of Health Environmental Controls (SC DHEC)) (SC DES/ OCRM)
 - 3. South Carolina Department of Transportation (SC DOT)
 - 4. US Army Corps of Engineers (US ACOE)
 - 5. CSX Corporation (CSX)
 - 6. OSHA Code of Federal Regulations. (OSHA)
 - 7. All federal, state and local clean air, clean water, water rights, resource recovery, and solid waste disposal standards and the Federal Endangered Species Act, and the Occupational Safety and Health Acts.
 - 8. Environmental Protection Agency (EPA).

1.04 PERMITTING

- A. At no additional expense to the Owner, the Contractor shall file for and obtain necessary licenses and permits for any interim phases for construction, and be responsible for complying with any federal, state, county, and municipal laws, codes, regulations and ordinances applicable to the performance of the Work, including, but not limited to, any

laws or regulations requiring the use of licensed prime and /or subcontractors to perform parts of the Work.

- B. Town has or is currently in the process of acquiring the following permits for the project work. All other necessary permits are the responsibility of the contractor.
 - 1. SC DOT Encroachment Permits; Permit No. SC DOT #: 200164082 (WATERMAIN), Permit No. SC DOT #: 200164079 (FORCEMAIN)
 - 2. US Army Corps of Engineers Permits/Letter; (WATERMAIN), (FORCEMAIN)
 - 3. SC DES CZC Determination; (WATERMAIN), (FORCEMAIN)
 - 4. SC DES Permit to Construct; (WATERMAIN), (FORCEMAIN)
 - 5. CSX Corporation Permit/Insurance Requirements/Agreement; Permit No. CSX #: 1058047 / 1091971 (FORCEMAIN)

1.05 INSPECTION AND CERTIFICATIONS

- A. Arrange inspections and obtain Certificates of approval from applicable authorities having jurisdiction. Furnish Certificates of Approval in accordance with the applicable Technical Specifications and the General Requirements of the Contract.
- B. Notify and coordinate for all appropriate county and state inspections of the work. Allow enough time to maintain progress of the work.

1.06 PERFORMANCE

- A. Should the Contractor knowingly perform any Work that does not conform with the requirements of applicable codes, ordinances, regulations, or standards, without given prior written notice to the Owner and obtaining required variance, etc. from the governing body, Contractor shall assume full responsibility thereof and shall bear all costs involved in correcting such non-complying Work. Costs shall include but not be limited to: All fines, inspection costs, damages, design and management fees in addition to the cost of removal and replacement of the work of all trades involved.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01300

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall comply with and be responsible for all of the requirements of the Project Manual and the Construction Contract Documents, without exception.
- B. Contractor shall be responsible for general project coordination of all construction phases and aspects, trades, and disciplines of the Work of the Project.
- C. Contractor shall be responsible for general coordination of all construction site operations and with other improvement projects that may be conducted by the Owner.
- D. Contractor shall be responsible for general coordination with other interested parties including, but not limited to SC DES (former SC DHEC), OCRM, SC DOT, US ACOE, CSX, Owner, other Contractors working on abutted property projects, and all involved permitting authorities.

1.02 RELATED REQUIREMENTS

- A. Division 0, Bidding and Contract Documents in the Project Manual.
- B. Division 1, General Requirements in the Project Manual

1.03 GENERAL COORDINATION

- A. Coordinate scheduling, submittals, and work of various Sections of the Technical Specifications to assure efficient and orderly sequence of installation of construction elements with provisions for accommodating any items furnished by the Owner, or others, to be installed by the Contractor.
- B. Coordinate sequence of Work to accommodate partial occupancy for the Owner as specified in Section 01100, Summary of Work and / or as directed by the Owner.
- C. Review and coordinate requirements of all Divisions of the Project Manual and Sections of the Technical Specifications. Report any discrepancies to the Owner.
- D. Maintain services of prime and major subcontractors throughout duration of the Contract, except as may be required by provisions of Conditions of Contract. Notify the Owner, in writing, of intention to replace prime or sub-contractor(s), outlying reasons for the action and naming proposed replacement contractor(s).
- E. Coordinate work of prime and sub-contractors and record contractor installation(s) data on Project Record (As Constructed) Drawings.

- F. All communications regarding Contract requirements shall be addressed to the Owner. Outline any special procedures required for coordination and include such items as required notices, reports, and attendance at meetings.
- G. Arbitrate and resolve coordination conflicts between prime and sub-contractors to ensure complete and operational systems.
- H. Coordinate work with all existing utility systems.
- I. Coordinate construction activities to ensure that operations are carried out with due consideration given to energy, water, and materials.
- J. Salvage materials and equipment involved in the performance of, but not actually incorporated in, the Work. Salvage material shall include marketable deciduous and coniferous timber to be cut and removed by the Contractor on the project site.

1.04 COORDINATION MEETINGS

- A. In addition to the meetings referred to in Section 01315, Progress Meetings, the Contractor shall conduct coordination meetings and pre-installation meetings with supervisory personnel, prime and sub-contractors, suppliers, the Owner, and others as necessary and applicable, to assure coordination of different trades and disciplines.
- B. Schedule coordination and pre-installation meetings with prime and sub-contractors, suppliers, and the Owner to discuss hardware installation and specialty systems installation.

1.05 COORDINATION OF SUBMITTALS

- A. Coordinate use of Project space and sequence of installation of equipment, walks, parking areas, mechanical, electrical, plumbing, or other Work that is indicated diagrammatically on the Contract drawings and/or contained in the Technical Specifications. Utilize space efficiently to maximize accessibility for Owner installations, maintenance, and repairs.
- B. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in sequence required to obtain best results.
- C. Make adequate provisions to accommodate items scheduled for later installation, including accepted Bid Alternates, Owner supplied items, subcontractor installed items, work by others, and installation of products purchased with allowances.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used.

END OF SECTION 01310

SECTION 01315 PROGRESS MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Division 1, General Requirements of the Contract Documents apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Construction Progress Meetings.

1.3 PROGRESS MEETINGS

- A. Conduct bi-weekly construction progress meetings at the Project site at regularly scheduled intervals. Notify the Owner of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Agenda: Review and correct or approve minutes of the previous Construction progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate in the current status of the Project.
 - 1. Contractor's construction schedule: Provide overall construction schedule and two-week look ahead schedule. Review progress since the last meeting. Determine where each activity is in relation to the Contractor's schedule, whether on time or ahead or behind schedule. Determine how schedule can be improved if behind.
- C. Reporting: After each progress meeting date, the Contractor will distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - 1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION 01315

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SECTION 01340
SHOP DRAWINGS, WORKING DRAWINGS, AND SAMPLES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The Contractor shall submit to the Engineer for review and approval, such Working Drawings, Shop Drawings, Test Reports and Data on materials and equipment (hereinafter in this Section called Data), and material samples (hereinafter in this Section called Samples) as are required for the proper control of work, including but not limited to those Working Drawings, Shop Drawings, Data and Samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
2. Within fourteen (14) calendar days after the Effective Date of the Agreement, the Contractor shall submit to the Engineer a complete list of preliminary Data on items for which Shop Drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the Engineer shall in no way expressed or implied relieve the Contractor from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.
3. The construction procedures shall comply with this Project Manual and with the latest edition of the Town of Ridgeland Water and Sewer Standards.
4. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log should include the following items:
 - a. Submittal-Description and Number assigned.
 - b. Date to Engineer.
 - c. Date returned to Contractor (from Engineer).
 - d. Status of Submittal (Approved as Noted, Rejected/Resubmit).
 - e. Date of Resubmittal and Return (as applicable).
 - f. Date material release (for fabrication).
 - g. Projected date of fabrication.
 - h. Projected date of delivery to site.
 - i. Status of O&M manuals submittal.

- j. Specification Section.
- k. Drawing Sheet Numbers.

1.02 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the Contractor to check all drawings, Data and Samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Drawings and Data shall bear the Contractor's stamp showing that they have been so checked. Shop Drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop Drawings shall indicate any deviations in the submittal from requirements of the Contract Documents. If the Contractor takes exception to the specifications, the Contractor shall note the exception in the letter of transmittal to the Engineer.
- B. Determine and verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar Data.
 - 4. Conformance with Specifications.
- C. The Contractor shall furnish the Engineer a schedule of Shop Drawings submittals fixing the respective dates for the submission of Shop and Working Drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.
- D. The Contractor shall not begin any of the work covered by a Shop Drawing, Data, or a Sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the Engineer, with approval.
- E. The Contractor shall submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking and appropriate action from the time the Engineer receives them.
- F. All submittals shall be accompanied with a transmittal letter containing the following information:
 - 1. Date.
 - 2. Project Title and Number.
 - 3. Contractor's name, address, phone, and fax numbers.
 - 4. The number of each Shop Drawing, Project Data, and Sample submitted.

5. Notification of Deviations from Contract Documents.
 6. Submittal Log Number conforming to Specification Log Number.
- G. The Contractor shall submit Shop Drawings in electronic pdf format with the file name indicating the submittal and submittal date to the engineer via email. The Engineer will review and make comments electronically to the contractor and require updated shop drawings electronically until approved.
- Upon engineer's request, the contractor shall submit four (4) copies of descriptive or product Data submittals to complement Shop Drawings for the Engineer plus the number of copies which the Contractor requires returned. The Engineer will retain four (4) sets. All blueprint Shop Drawings shall be submitted with four (4) sets of prints plus the number of copies which the Contractor requires returned. The Engineer will review the blueprints and retain four (4) sets, returning the remainder to the Contractor with appropriate review comments.
- H. The Contractor shall be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review and approval by the Engineer of the necessary Shop Drawings.
- I. The Contractor shall be fully responsible for observing the need for and making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment he proposed to supply both as pertains to his own work and any work affected under other parts, headings, or divisions of drawings and specifications.

1.03 ENGINEER'S REVIEW OF SHOP DRAWINGS

- A. The Engineer's review of Shop Drawings, Data and Samples submitted by the Contractor will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation. The Engineer's review and exceptions, if any, will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown.
- B. The review of drawings and schedules will be general, and shall not be construed:
1. As permitting any departure from the Contract requirements.
 2. As relieving the Contractor of responsibility for any errors, including details, dimensions, and materials.
 3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations per Paragraph 1.02A. herein and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.

- D. When reviewed by the Engineer, each of the Shop Drawings will be identified as having received such review being so stamped and dated. Shop Drawings stamped "REVISE AND RESUBMIT" and with required corrections shown will be returned to the Contractor for correction and resubmittal.
- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing or on resubmittal Shop Drawings, to revisions other than the corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.
- F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.
- G. Shop Drawings and submittal Data shall be reviewed by the Engineer for each original submittal and first and second resubmittal; thereafter review time for subsequent resubmittals shall be charged to the Contractor in accordance with the terms of the Engineer's Agreement with the Owner.
- H. When the Shop Drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- I. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor for resubmittal. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items for:
 - 1. Systems.
 - 2. Processes.
 - 3. As indicated in specific Specifications Sections.

All drawings, schematics, manufacturer's product Data, certifications and other Shop Drawing submittals required by a system specification shall be submitted at one time as a package to facilitate interface checking.

- J. The shop drawings shall be approved by the Engineer prior to contractor ordering the construction materials.

1.04 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for materials and equipment which become an integral part of the project. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data shall be considered only as supportive to required Shop Drawings as defined above. As used herein, the term "manufactured"

applies to standard units usually mass-produced; and "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements.

- B. Manufacturer's catalog sheets, brochures, diagrams, illustrations and other standard descriptive data shall be clearly marked to identify pertinent materials, product or models. Delete information which is not applicable to the Work by striking or cross-hatching.
- C. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.
- D. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:
 - 1. Project Title and Number.
 - 2. Name of project building or structure.
 - 3. Number and title of the Shop Drawing.
 - 4. Date of Shop Drawing or revision.
 - 5. Name of contractor and subcontractor submitting drawing.
 - 6. Supplier/manufacturer.
 - 7. Separate detailer when pertinent.
 - 8. Specification title and number.
 - 9. Specification section.
 - 10. Application Contract Drawing Number.
- E. If Shop Drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such drawings have been reviewed.
- F. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent Data.

- G. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name, and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- H. Only the Engineer will utilize the color "red" in marking Shop Drawing submittals.

1.05 WORKING DRAWINGS

- A. When used in the Contract Documents, the term "Working Drawings" shall be considered to mean the Contractor's plan for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and falsework; for underpinning; and for such other work as may be required for construction but does not become an integral part of the Project.
- B. Copies of Working Drawings as noted in Paragraph 1.05A. above, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer, and shall be submitted at least thirty (30) calendar days (unless otherwise specified by the Engineer) in advance of their being required for work.
- C. Working Drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of South Carolina and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, Working Drawings must have been reviewed without specific exceptions by the Engineer, which review will be for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the Owner and Engineer shall have no responsibility, therefore.

1.06 SAMPLES

- A. The Contractor shall furnish, for the approval of the Engineer, Samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on Samples. Materials or equipment for which Samples are required shall not be used in work until approved by the Engineer.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture, and pattern.
 - 3. A minimum of two (2) Samples of each item shall be submitted.
- C. Each Sample shall have a label indicating:
 - 1. Name of Project.

2. Name of Contractor and Subcontractor.
3. Material or Equipment Represented.
4. Place of Origin.
5. Name of Producer and Brand (if any).
6. Location in Project.

(Samples of finished materials shall have additional marking that will identify them under the finished schedules.)

- D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of Samples containing the information required in paragraph 1.06B. above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Approval of a Sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract requirements.
- E. Approved Samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Approved Samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the approved Samples. Samples which failed testing or were not approved will be returned to the Contractor at his expense, if so requested at time of submission.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01340

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SECTION 01370

SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 Description:

- A. Work Included: Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the work, as specified herein, and in other provisions of the Contract Documents.
- B. Related Work: Documents affecting the work of this Section include, but are not necessarily limited to, General Conditions and 01025 Measurement and Payment.

1.2 Quality Assurance:

- A. Use required means to assure arithmetical accuracy of the sum described.
- B. When so required by the Engineer, provide copies of the subcontracts or other data acceptable to the Engineer substantiating the sums described.

1.3 Submittals:

Prior to commencement, submit a proposed schedule of values to the Engineer.

- A. Meet with the Engineer and determine data, if any, required to be submitted.
- B. Secure the Engineer's approval of the values prior to commencement.

END OF SECTION 01370

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SECTION 01381 CONSTRUCTION AUDIO-VIDEO RECORDING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

Progress video tapes shall be made at periodic intervals, not to exceed 30 days, showing the extent and progress of the work performed as of that date. Video tapes shall be taken at each location of work on the day ending the period for which partial payment is requested, during the development of stages and condition of work, and as directed by the Engineer. Typical pipeline work shall be videotaped at different stages of construction at the direction of the Engineer.

- A. Initial video tape inspection of existing conditions shall be taken no later than 14 calendar days after notice to proceed and prior to beginning of any construction.
- B. At each specified time, take video tapes of each major area of work.
- C. Final video tapes shall be submitted and approved by the Engineer/Town prior to final acceptance and payment.

1.2 QUALITY ASSURANCE

- A. Video Camera Operator: The operator may be an employee of the Contractor and must be completely familiar with the proper operation of the video recording device (digital camera) and how to create a DVD. Employ operator only after review of his qualifications by Engineer.

1.3 SUBMITTALS

- A. Submit qualifications and experience record of operator.
- B. DVDs shall be submitted to the Engineer at the time of each payment request and shall become the property of the Town.

PART 2- PRODUCTS

2.1 VIDEO REPORT

- A. Provide a high-quality DVD in a MPEG2 format video with a standard resolution of 720x480. Use a camera with lighting suitable to allow a clear picture of the entire project site.

2.2 DIGITAL FILE

- A. Recording can also be completed, stored and submitted as a digital file in Microsoft, Windows, Quicktime, Flash or other formats with file extensions such as AVI, MOV, WMV, etc.

2.3 DIGITAL CAMERA

- A. The video camcorder shall have a minimum resolution of 18.20 megapixels, sensor size 1/2.3-inch with an optical zoom; criteria based off Sony CyberShot DSC Wx500 but any approved equal is acceptable.
- B. At the end of the project all DVDs with index based on elapsed time of tape shall become the property of the Town.

PART 3 - EXECUTION

3.1 GENERAL

- A. The following location information shall be provided on color audio-video tape recording.
 - 1. Audio: Each recording shall begin with a verbal description of the current date, project name and municipality and be followed by the general location, name of the street, viewing side and direction of progress.
 - 2. Video: Transparent information must appear on the viewing screen. This information will consist of the date and time of recording. The date information will contain the month, day and year.
 - 3. Digital: To preclude the possibility of tampering or editing in any manner, all video recordings by electronic means must display continuously and simultaneously generated transparent digital information to include the date and time of recording. The date information will include the month, day and year.
- B. The taped coverage shall include all surface features located within the zone of influence of construction supported by appropriate audio description. Audio description shall be made simultaneously with video coverage. Such coverage shall include, but not be limited to, all existing driveways, sidewalks, fences, curbs, ditches, roadways, landscaping, trees, culverts, headwalls, retaining walls, or buildings located within such zone of influence. Particular and detailed attention shall be given to any defects noted, such as cracks, disturbed areas, damaged items, or as may be required by the Engineer. It is the intent of this coverage to accurately and clearly document pre-existing conditions and especially any items that could result in construction claims. The excavation areas shall be physically marked with high visibility fluorescent paint prior to videotaping. The markings shall include the job number and stationing.
- C. The zone of influence shall be defined as an area within 30 feet of the proposed work.
- D. The Contractor shall be able to televise and tape areas with paved roads, along co-owned easements through parks, lawns, and open fields. If videotaping on private property, the Contractor shall give the Town sufficient prior notice of such entry so that Owners may be advised of and their permission obtained for the work.
- E. To produce the proper detail and perspective, adequate lighting will be required to fill in the shadow area caused by trees, utility poles, road signs and other such objects in residential areas or as directed by the Engineer.
- F. Houses and buildings shall be identified visually by house number, when visible, in such a manner that structures of the proposed system, manholes on a sewer system and hydrants on a water system can be located by reference.
- G. The rate of speed in the general direction of travel of the conveyance used during taping shall not exceed 48 feet per minute in residential areas, nor exceed 100 feet per minute in non-residential areas. Panning rates and zoom-in, zoom-out rates shall be controlled sufficiently such that during playback will produce clarity of the object viewed. The playback picture shall be in focus and be of extreme clarity at all times.
- H. All taping shall be done during times of good visibility. No taping shall be done during periods of visible precipitation unless otherwise authorized by the Engineer.
- I. The Town shall have the authority to designate what areas may be omitted or added for audio-video coverage.

- J. All DVDs shall be properly identified by DVD number, location and project name and municipality in a manner acceptable to the Town.
- K. A record of the contents of each DVD shall be supplied by an index sheet identifying each segment in the recording by location, i.e., street or road viewing, elapsed time of video (no counter numbers), viewing side, point starting from, traveling direction and ending destination point.
- L. Any portion of the recording not conforming to specifications shall be rejected.
- M. Any recording not acceptable to the Town shall be refilmed at no additional charge. The Contractor shall reschedule unacceptable coverage within five (5) days after being notified.
- N. All recordings shall be performed by Contractor and reviewed and accepted prior to construction.
- O. One (1) original and one (1) copy are to be provided. Original to Town and copy to Engineer.

3.2 PROGRESS CONSTRUCTION VIDEO

- A. Submit DVDs on a monthly basis to accompany each request for progress payment to the Town and Engineer.

END OF SECTION 01381

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SECTION 01410 TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Unless otherwise noted in a Section of the Technical Specifications, the Contractor shall employ and pay for the services of an Independent Testing Laboratory to perform specified testing of work and materials at the Project Site or at point of manufacture.
- B. The Contractor shall comply with and be responsible for all of the requirements of the Project Manual, without exception.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders, or approvals of public authorities.
- B. Each specification section listed: Inspection and laboratory testing required, and standards for testing.
- C. Division 1, General Requirements of the Project Manual.

1.03 QUALIFICATIONS OF LABORATORY

- A. Meet “Recommended Requirements for Independent Laboratory Qualification,” published by American Council of Independent Laboratories.
- B. Comply with the following requirements:
 - 1. ANSI/ASTM D3740: Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
 - 2. ANSI/ASTM E329: Standard Recommended Practice for Inspection and Testing for Concrete, Steel, and Bituminous Materials as Used in Construction.
- C. Authorized to operate in the State of South Carolina
- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.
- E. Testing Equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.

- F. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform Work in accordance with requirements of Construction Contract Documents.
- G. Failure on part of Owner to make any tests of materials shall in no way relieve the Contractor of responsibility of furnishing materials or performing work conforming to the Construction Contract Documents.

1.04 LABORATORY DUTIES

- A. Cooperate with the Owner and Contractor; provide qualified personnel after due notice from Contractor.
- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Owner and Contractor of observed irregularities or deficiencies of work or products.
- D. Promptly submit written report of each test and inspection: one (1) copy each to Owner, noted Agencies, and Contractor. Each report shall include:
 - 1. Date issued.
 - 2. Project title and Bid Number
 - 3. Testing laboratory name, address and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of product.
 - 9. Location of sample or test in the Project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with Contract Documents.
 - 12. Interpretation of test results, when requested by Owner
- E. Perform additional tests as may be required by the Owner.

1.05 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Design/Builder.
 - 4. Stop the Work.

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate, together with laboratory personnel, will provide access to the point/location of the Work, and to manufacturer's operations.
- B. Secure and deliver to laboratory at designated location(s) adequate quantities of representational material proposed to be used and which require testing together with applicable proposed design mixes.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which required control by the testing laboratory.
- D. Furnish copies of Products test reports to the Owner as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the Project Site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test samples.
- F. Notify laboratory twelve (12) hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- G. Make arrangements with laboratory and pay for services to perform:
 - 1. inspections, sampling and testing required;
 - 2. those for the Contractor's convenience;
 - 3. and when the initial tests or inspections indicate Work does not comply with Contract Documents (i.e., re-tests).

1.07 SOURCE OF MATERIALS

- A. Source of supply of each of the materials required shall be acceptable to the Owner.
- B. Representative samples shall be submitted for inspection or tests.
- C. Results obtained from testing samples will be used for preliminary approval, but will not be used as final acceptance of materials.
- D. The Owner may test materials proposed to be used at any time during preparation and use.
- E. If it is found that sources of supply, which have been approved, do not furnish product of uniform quality, or if product from any source proves unacceptable at any time, Contractor shall furnish approved material from another source without additional cost to Owner or delay in completion date.

1.08 IDENTIFICATION

- A. Required samples submitted by Contractor shall be properly labeled for identification.
- B. Materials and/or equipment that have been inspected and/or tested shall be stored in a controlled area with suitable identification referencing tests and certifications.
- C. Continuous inventory shall be kept of all items in this area controlled by log in and log out with receiving and disbursing signatures.
- D. Copies of receiving or disbursing actions shall be sent to the Owner on a daily basis.
- E. Disbursing records shall show final destination and installation.

1.09 MATERIAL STORAGE

- A. Materials shall be stored so as to ensure preservation of their quality and fitness for Work, in accordance with requirements of the Project Manual.

1.10 SCHEDULE OF INSPECTIONS AND TESTS

- A. Refer to each individual Section of the Project Manual for specific testing requirements, or as otherwise required by the Contract Documents or appropriate regulatory agency.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01410

SECTION 01510
TEMPORARY CONSTRUCTION CONTROLS

PART 1- GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall comply with and be responsible for all of the requirements of the Project Manual, without exception.
- B. Furnish, install, and maintain temporary controls required for construction.
- C. Remove at completion of Work.

1.02 RELATED REQUIREMENTS

- A. Division 1, General Requirements of the Project Manual.

1.03 CONSTRUCTION SITE CLEANING

- A. Maintain areas within limits of the Project Work Site free of extraneous debris and litter.
- B. Initiate and maintain specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and off-site hauls routes.
 - 1. Furnish on-site containers for collection of waste materials, debris, and rubbish.
 - 2. Prohibit overloading of trucks to prevent spillage on access and haul routes.
 - 3. Provide periodic inspection of traffic areas to enforce requirements.
 - 4. Remove waste material, debris, and rubbish from site and building area daily, or sooner as otherwise needed.
 - 5. Do not drop or throw materials from heights. Lower waste material in a controlled manner and with as few handlings as possible.
 - 6. During the entire construction period, and at all times, keep the site access entry road, parking areas free from accumulation of waste materials, debris, and rubbish caused by the Work of this Project.
 - 7. Dirt and debris shall be removed from all surfaces prior to closure of all areas (walls, ceilings, chases, etc.).
- C. Hazards Control:
 - 1. Store volatile wastes in covered metal containers.
 - 2. Remove containers from premises daily.
 - 3. Prevent accumulation of waste, which creates hazardous conditions.
 - 4. Provide adequate ventilation during use of volatile or noxious substances.
- D. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws:
 - 1. Do not burn or bury rubbish and waste materials on the project site.

2. Do not dispose of waste into streams or waterways.
3. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

1.04 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations and provide positive means to prevent air-borne dust from dispersing into atmosphere.
- B. Clean interior building areas to prevent accumulation of dirt and debris and execute prior to start of finish painting, special coatings, and/or other finish material installations.
- C. Wet down materials and rubbish to prevent blowing dust.
- D. Schedule cleaning operations so that dust and other contaminants resulting from the cleaning process will not fall on wet, newly painted surfaces.
- E. Continue cleaning on an as-needed basis until the building and/or site is ready for beneficial occupancy.

1.05 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation. Wetland areas shall be protected as well.
 1. Hold areas of bare soil exposed at one time to minimum.
 2. Provide temporary control measures such as berms, dikes, and drains.
 3. Comply with federal, state, and local regulations.
- B. Construct fills and soil waste areas by selective placement to eliminate surface soils or clay, which will erode.
- C. Periodically inspect earthwork to detect any evidence of start of erosion, apply corrective measures as required by erosion control.

1.06 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by discharge of noxious substances from construction operations.
- B. Contractor is responsible only for pollution control of the immediate Work of Contract, the actions and operations of the Contractor, and the workers employed or contracted to Contractor. Provide equipment and personnel to perform emergency measures required to contain spillage, and to remove contaminated soil or liquids.
- C. Take special measures to prevent harmful substances from entering public waters. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to basins, or in sanitary or storm sewers.

- D. Provide systems for control of atmospheric pollutants. Prevent toxic concentrations of chemicals. Prevent harmful disposal of pollutants into the atmosphere.

1.07 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to project site or adjoining properties. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas. Direct drainage to proper runoff.
- B. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface and water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of site or adjoining areas.
- D. Dewater areas in accordance with applicable local and state requirements and accepted professional practice.

1.08 EARTH CONTROL

- A. Contractor shall, at his/her sole cost, remove excess soil, pier spoils, etc., at time of generation.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTIONS

3.01 REMOVAL

- A. Contractor shall, at his/her sole cost, remove temporary construction controls at completion of Work or as required by execution of Work.

END OF SECTION 01510

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SECTION 01563 HANDLING OF INCIDENTAL FUEL SPILLAGE DURING CONSTRUCTION

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

- A. Division 0, Bidding and Contract Documents in the Project Manual.
- B. Division 1, General Requirements in the Project Manual.
- C. South Carolina Dept. of Environmental Services (SC DES (formerly SC DHEC)).

1.02 SCOPE

- A. This section consists of procedures to be followed in handling material contaminated with petroleum fuel products (hydrocarbons including petroleum, petroleum derivatives, hydraulics and like products) caused by incidental spillage (including leaks) from the Contractor's or his/her prime and sub-contractor's equipment.

Incidental spillage shall mean spillage of a quantity not greater than 25 gallons per incident, of vehicular or mechanical equipment fuel products, onto open ground and absorbed or not absorbed by the soils.

Spillage or leakage of petroleum fuel products in quantities in excess of 25 gallons shall be immediately remediated by the Contractor using applicable and appropriate procedure(s). Whenever such spillage or leakage occurs, the Contractor shall immediately implement the appropriate corrective actions as required.

- B. The provisions of this Section are limited to incidental petroleum fuel spillage on ground surfaces, and it excludes fuel spillage onto surface waters.

1.03 APPLICABLE CODES

- A. The Contractor shall comply with all prevailing federal, state, and local environmental protection ordinances and codes governing and having application to any discharges, intentional or accidental, which may cause water pollution and constitute a nuisance, and sanitary nuisance.
- B. Leaks and spillage may occur when using mechanical equipment. Equipment generated or lubricated with petroleum products, are prone to leaks or spillage, therefore proper management of "spillage incidents" is essential.

PART 2 – PRODUCTS

2.01 ABSORBENT MATERIALS

Contractor shall equip crews and/or provide machinery with the most efficient type of petroleum absorbent materials. These materials are available at petroleum equipment suppliers and must be readily accessible so that spillages can be quickly contained and prevented from becoming greater incidents. Fiber material, sand, or cat litter may be used as an absorbent material. Sufficient

quantity of absorbent material capable of absorbing up to 25 gallons of petroleum fuel products shall be stocked at the job site at all times.

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Personnel handling waste materials must have a minimum of 40 hours training as defined in 29 CFR 1910.120 and in accordance with the certified OSHA course.
- B. Perform work as specified herein and in accordance with the applicable provisions of SCDES. No payment will be made to the Contractor for the cost of handling and disposing of leaks, spillages, and materials contaminated by such leaks or spillages. The procedure for the proper handling and disposal of contaminated soils and absorbent materials is readily available through the aforementioned agencies.
- C. The steps outlined below are minimum requirements and are merely presented as guidelines. They do not constitute a complete compliance procedure.

STEP 1:

If fuel contamination to open ground has been discovered, check for the origin of that leak or spillage. Then stop the spillage or leak and positively contain it. Then use absorbents to collect the discharged liquid. Immediately notify the Owner.

STEP 2:

Sand may be used to absorb ground surface spills while absorbent materials may be used to absorb ground spills as well as surface water spills. Once absorption of spilled fuels is complete, the impacted (contaminated) absorbent materials shall be stored in 55-gallon steel drums (100-150 lbs.). If leaked or spilled fuel has been absorbed into the soils, excavate and containerize the impact (contaminated) soils. Soils may be stored in 55- gallon steel drums.

STEP 3:

The contaminated materials must be collected, containerized, and otherwise properly stored and labeled prior to transport to a pre-approved storage, disposal, or treatment facility. All drums used to store impacted (contaminated) absorbent material and/or contaminated soils shall be properly sealed and labeled with the following information.

Name of Company (Contractor)

Contract or Project No.:

Location of origin:

Type of contents:

Type of containment:

Quantity: (e.g. 1 of 1)

Date:

Containerized by:

Labeled by:

END OF SECTION 01563

SECTION 01570 TRAFFIC REGULATION

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall comply with and be responsible for all of the requirements of the Project Manual without exception.
- B. Construction parking control, flagmen, flares and lights, haul routes, traffic signs and signals, and removal.
- C. Maintenance of safety and convenience of public.

1.02 RELATED WORK

- A. Division 1, General Requirements of the Project Manual.
- B. Section 01300 Requirements
- C. SCDOT Encroachment Permit

1.03 PUBLIC SAFETY AND CONVENIENCE

- A. Materials and equipment shall be stored, and Work conducted to minimize obstruction to pedestrian movement and vehicular traffic. Materials and equipment stored in or near the path of traffic shall be protected with appropriate warning signs and barricades. At night, or as otherwise required, equipment not in use shall be stored in such a manner and location to not interfere with the safe passage of pedestrians and vehicles. Contractor shall provide and maintain flagmen at points and for periods of time required to provide safety and convenience of traffic and as directed by the Owner or project permits.
- B. Contractor shall not close traffic to any bridge or any other portion of public road except as may be designated by the Owner. Prior to closing any access way and/or structure coordinate work schedule with the Owner.
- C. Contractor shall provide the Owner with notice at no less than 48 hours prior to movement of heavy equipment and/or wide or slow-moving vehicles to or from Project Site. Contractor shall strictly adhere to vehicular routes established or as may be directed by the Owner or project permits.

1.04 LANE CLOSURE RESTRICTIONS

Contractor shall be responsible to verify with the Town of Ridgeland and/or South Carolina Department of Transportation (SC DOT), as appropriate, lane closure restriction hours. Contractor to verify restrictions on lane closures near schools and meet the required regulations.

Any work on SCDOT roads shall be planned so that closure of intersecting streets, road approaches, or other access points is held to a minimum.

1.05 TRAFFIC CONTROLS AND SIGNALS

Traffic controls for utility construction and maintenance operations shall conform with the SC DOT Standard Drawings and Manual on Uniform Traffic Control Devices (MUTCD). All construction and maintenance operations shall be planned with full regard for safety and to keep traffic interference to an absolute minimum.

The contractor shall:

- a. provide, erect, and maintain all necessary barricades, lights, danger signals, signs, and other control devices, provide qualified, trained, and equipped flaggers and watchmen where necessary, as may be directed by the Owner or SC DOT.
- b. take all necessary precautions for the protection of the Work, the warning that work is under construction and the safety of the public. Suitable advance warning signs shall be erected in advance where operations interfere with the use of the road by traffic. Where a lane, or a portion of a lane, is closed, traffic control devices and flaggers shall be used in accordance with Standard Drawings and MUTCD. All barricades, signs, and traffic control devices shall conform to the requirements of the MUTCD.

1.06 HAUL ROUTES

Based on regulations prescribed by the Town of Ridgeland, SC DOT, or other agencies having jurisdiction, use only established roadways or use temporary roadways constructed by the contractor when and as authorized by the Owner. When materials and/or equipment are being transported in executing the Work, vehicles shall not be loaded beyond loading capacity recommended by manufacturer of vehicle or prescribed by federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, contractor shall protect them from damage. Contractor shall repair / replace or pay for all damaged curbs, sidewalks, roads, and / or paving.

1.07 EQUIPMENT STORAGE

When equipment is not in use, on roadways open to public travel, contractor's equipment and vehicles shall be kept at least thirty (30) feet from the edge of the travel lanes. On Interstate routes or Freeways, no vehicles or equipment will be permitted on the shoulders at any time.

1.08 FLARES AND LIGHTS

Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic in landside areas only.

PART 2 – PRODUCTS

2.01 SIGNS, SIGNALS AND DEVICES

- A. Post-mounted and wall-mounted at parking areas to indicate spaces designated for use by construction personnel.
- B. Traffic control signals, as may be required, and as approved by SC DOT and the Town of Ridgeland, as appropriate.
- C. Traffic cones and drums and lights, as approved by SC DOT and the Town of Ridgeland, as appropriate.
- D. Flagmen equipment as required by SC DOT and the Town of Ridgeland, as appropriate.

PART 3 – EXECUTION

3.01 REMOVAL

- A. Contractor shall remove equipment and devices, at his/her sole cost, when no longer required. Repair damage caused by installation. Remove post settings to depth of three (3) feet.

END OF SECTION 01570

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SECTION 01700 EXECUTION REQUIREMENTS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Contractor shall comply with and be responsible for all of the requirements of the Project Manual without exception.
- B. Contractor shall provide field engineering and general layout services required on the project as follows:
 - 1. Civil, structural, or other professional engineering services specified or required to execute construction methods.
 - 2. Survey work required for execution of the total Work of the Project.
 - 3. Continuous horizontal and vertical control regarding layout and execution of Work of the Project, as appropriate.
 - 4. Coordinate field engineering services with the Owner.

1.02 RELATED REQUIREMENTS

- A. Division 1, General Requirements of the Project Manual.
- B. The Drawings and all sections of the Technical Specifications as may be applicable.

1.03 CONTROLS

- A. Contractor will establish primary controls, horizontal and vertical control points, at various locations at the Site. These will be described and indicated on the Contractor's as constructed drawings and will be coordinated in the field by the Contractor.
- B. Existing control points and property line markers will be shown on the Construction Contract drawings.

1.04 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. For required surveying, a qualified engineer or land surveyor registered in the State of South Carolina and acceptable to the Owner.
- B. For required engineering, a registered professional engineer of a discipline required for this Project licensed in the State of South Carolina and acceptable to the Owner.

1.05 SURVEY REFERENCE POINTS

- A. Existing horizontal and vertical control points for the Project are those designated on the Construction Contract drawings or as determined from investigation of the existing conditions.
- B. Verify property lines, grades, levels and dimensions indicated.
- C. Locate and protect control points prior to starting Site Work and preserve permanent reference points during construction.
 - 1. Make no changes or relocations without prior approval of the Owner
 - 2. Report to the Owner when a reference point is lost, destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. Require surveyor to replace Project control points, which may be lost or destroyed.

1.06 PROJECT LAYOUT REQUIREMENTS

- A. Establish a sufficient number of permanent benchmarks on Site, as may be required, referenced to data established by survey control points. Record locations of benchmarks with horizontal and vertical data on Project Record Documents, Section 01781.
- B. From established control points, layout all new construction Work by establishing all lines and grades at Site necessary to control Work. Contractor shall be responsible for all measurements that may be required for execution of Work.
- C. Furnish, at own expense, all such stakes, steel pins, equipment, tools, and material and labor that may be required in laying out Work control points.
- D. Establish lines and levels, locate, and layout by instrumentation and similar appropriate means:
 - 1. Site Improvements
 - a. Stakes for grading, fill, and topsoil placement.
 - b. Utility slopes and invert elevations for new utility construction.
 - c. Limits of pavement (pervious concrete and asphalt).
 - 2. Batter boards for structures.
 - 3. Building foundation column locations, piling, and floor levels.
 - 4. Controlling lines and levels required for mechanical and electrical trades.
- E. Verify and coordinate in field all existing and proposed underground components including civil, structural, utilities, and other components prior to initiation of the Work. Advise the Owner of any conflicts or discrepancies.

1.07 SUBMITTALS AND DOCUMENTS

- A. Submit name and address of Surveyor and Professional Engineer to the Owner.
- B. On request of the Owner, submit documentation to certify accuracy of field engineering work and compliance with Contract Documents.

- C. Submit certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.
- D. Standards and Availability: Data and other measurements shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings, and computation in establishing above horizontal and vertical control points shall be available at all times during progress of Work for ready examination by the Owner.
- E. Maintain complete and accurate record data on underground utilities and obstructions, new and existing, encountered in execution of Work. Record data on Project Record Documents in accordance with requirements of Section 01781, Project Record Documents.
- F. On completion of the sewer main, sewer service laterals, water main, and other major site improvements, prepare as-constructed drawings showing appropriate survey elevations of construction and dimensions, locations, and angles.
- G. Submit, upon request by the Owner, signed and sealed Engineering Calculations, as relevant.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION 01700

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SECTION 01740 WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope of Work:
 - 1. Compile specified bonds and warranties, as in Article 6 and 7, respectively, of Section 00700: General Conditions and as specified in these Specifications.
 - 2. Co-execute submittals when so specified.
 - 3. Review submittals to verify compliance with Contract Documents.
 - 4. Submit to the Engineer for review and transmittal to Town.
- B. Related Work Described Elsewhere:
 - 1. Instruction to Bidders: Bid Bonds.
 - 2. Conditions of the Contract: Performance Bond and Payment Bond.
 - 3. Agreement between Owner and Contractor for Construction Contract – check summary; Contracting Provisions for Construction Projects: Section 00520.

1.2 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds, and service and maintenance contracts executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two (2) each.
- C. Table of Contents: Neatly typed in orderly sequence. Provide complete information for each item.
 - 1. Product of work item.
 - 2. Firm, with name of principal, address, and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond, or service and maintenance contract.
 - 5. Duration of warranty, bond, or service maintenance contract.
 - 6. Provide information for Town's personnel:

- a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
- 7. Contractor information including name of responsible principal, address, and telephone number.

1.3 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8-1/2 inches by 11 inches, punch sheets for standard three-post binder. Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of Project.
 - b. Name of Contractor.
- C. Binders: Commercial quality, three-post binder with durable and cleanable plastic covers and maximum post width of two (2) inches.

1.4 WARRANTY SUBMITTALS REQUIREMENTS

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. The manufacturer's warranty period shall be concurrent with the Contractor's for one (1) year, unless otherwise specified, commencing at the time of final acceptance by the Town.
- B. The Contractor shall be responsible for obtaining certificates for equipment warranty for all major equipment specified under Divisions 11: Equipment; 15: Mechanical; and 16: Electrical, and which has at least a 1 Hp motor or which lists for more than \$1,000. The Engineer reserves the right to request warranties for equipment not classified as major. The Contractor shall still warrant equipment not considered to be "major" in the Contractor's one-year warranty period even though certificates of warranty may not be required.
- C. The Town shall incur no labor or equipment costs during the guarantee period.
- D. Guarantee shall cover all necessary labor, equipment, and replacement parts resulting from faulty or inadequate design, improper assembly or erection, defective workmanship and materials, leakage, breakage, or other failure of all equipment and components furnished by the manufacturer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01740

SECTION 01770 CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall comply with and be responsible for all the requirements of the Project Manual, without exception.
- B. The Contractor shall comply with applicable requirements in this Section and more specific requirements in Division 1, Section 01100, Summary of Work.
- C. The Contractor shall comply with requirements stated in the Contract and in approved Specifications for the Work.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: Fiscal provisions, legal submittals, and additional administrative requirements.
- B. Division 0, Bidding and Contract Documents in the Project Manual.
- C. Division 1, General Requirements in the Project Manual.
- D. Closeout submittals required of trades in various sections of the approved Specifications.

1.03 DAMAGES

- A. If the Contractor neglects, fails, or refuses to complete the work by the Substantial Completion Date, Final Completion Date, subject to any proper extension granted by the Owner, then the Contractor will pay, or cause the Contractor's Surety to pay damages to the Owner as defined in the contract documents.

1.04 SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work is substantially complete, he shall submit to the Owner the following:
 - 1. A written certification that the Work, or designated portion thereof, is substantially complete. All items not complete shall be listed and deficient items noted.
 - 2. Owner will review the Contractor's certification and examine the Work for conformance to the Certification and the Contract Documents.

3. Owner will inform the Contractor of non-compliance or incomplete items.
 4. Contractor shall remedy the deficiencies in the Work within seventy-two (72) hours and send a second written notice of substantial completion to the Owner.
 5. The Owner will re-examine the Work.
- B. When the Owner determines that the Work is substantially complete, the Owner will:
1. Prepare a Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected, as verified and amended.
 2. Send to Contractor for his/her written acceptance of the responsibilities assigned to them in the Certificate.
- C. After Work is substantially complete, Contractor shall:
1. Obtain and submit Certificate of Occupancy. Owner shall, in detail, list the status of the area affected by partial acceptance and occupancy to establish the existing conditions prior to such acceptance or occupancy.
 2. Complete Work listed for completion or correction within designated form.

1.05 FINAL COMPLETION

- A. Within thirty (30) calendar days after substantial completion, the Contractor shall submit to the Owner written certification that:
1. Contract Documents have been reviewed.
 2. Work has been examined for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in the presence of the Owner and the appropriate Utility Operations and Maintenance personnel and are operational.
 5. Work is completed and ready for final examination.
 6. Submittal of Closeout Documents as stipulated in paragraph 1.06 below.
- B. The Owner will make an examination to verify the status of completion within ten (10) calendar days after receipt of such certification.
- C. Should the Owner consider the Work incomplete or defective, or the Contractor has not demonstrated to the Owner that a "good faith" effort has been made within the time allotted in paragraph 1.05 A above, any Damages and/or Liquidated Damages will be charged against the Contractor as defined and explained in the contract documents.

1. The Owner will promptly notify the Contractor in writing of all deficiencies listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written Certification to the Owner that the Work is complete.
 3. The Owner will re-examine the Work.
- D. When the Owner concludes that the Work is complete, the Owner shall determine the number of days, if any, for which Liquidated Damages will be assessed and request the Contractor to prepare closeout submittals.
- E. Acceptance of the entire project shall commence after all contract work is complete, final inspections are made, corrective actions completed, the Work re-inspected, and after final acceptance by the Owner.
- F. The date established by the Owner as the Final Completion Date shall initiate the guarantee and the warranty periods for all system components and the construction of the Project. The Project shall not be considered Final Complete until all Close Out Documents are properly completed and transmitted to the Owner.
- G. The Owner shall review the status of the Work and compare it to the request for final payment and compare it with the Project records for conformance to the final settlement requirements.
- H. The Owner shall receive from the Contractor and maintain the permit drawings and specification package (as relevant), copy of all shop drawings and submittals, the “as-built” set of drawings and specifications, and maintenance manuals as required by the contract and submitted by the Contractor. In addition, the Contractor shall provide spare parts and supplies, stored materials, special tools, filters, and other pertinent items as required under the Contract Documents to the Owner.

1.06 CLOSEOUT SUBMITTALS

- A. Evidence of compliance with requirements of governing authorities:
1. Certificates of Inspection:
 - a. Forcemain Tie in at Jimmy Mixson Water Reclamation Facility.
 - b. Watermain Tie in at Greys Highway and Floyd Street.
 - c. Forcemain.
 - d. Watermain.
 - e. Fire Hydrants.
 - f. Asphalt Pavement, and Stripping.
 - g. Concrete Pavement.
 2. All Closeout documents required by the Contract Documents.
- B. Project Record Documents, in accordance with Section 01781.

- C. Warranties and Bonds.
- D. Certificate of Insurance for Products and Completed Operations.

1.07 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Contractor's Affidavit of release of Liens.
 - 1. Consent of Surety to Final Payment. Use form acceptable to the Owner.
 - 2. Contractor's Release or Waiver of Liens. Standard Form "Affidavit and Partial Lien Waiver". Use form acceptable to Owner.
 - 3. Separate releases of waivers of liens from prime and subcontractors, suppliers, and others with lien rights against property of the Owner together with a list of those parties, in accordance with Standard Form "Affidavit and Final Lien Waiver". Use form acceptable to Owner.
- B. All submittals shall be duly executed before delivery to the Owner.

1.08 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final Statement of accounting to the Owner.
- B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected Work.
 - e. Deductions for liquidated damages.
 - f. Other adjustments.
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. The Owner will prepare a final Change Order reflecting approved adjustments to the Contract Sum, which were not previously made by Change Orders.

1.09 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit final Application for Payment in accordance with procedures and requirements stated in Division 0 – Bidding and Contract Documents.

1.10 ADDITIONAL ADJUSTMENT

- A. No adjustments to the Contract requested by the Contractor will be allowed if asserted after execution of Final Payment of Contract.

1.11 POST-CONSTRUCTION INSPECTION

- A. Prior to expiration of one (1) year from the Date of Final Completion, the Owner, or its designated representative, will make visual inspection of the Project Work in the company of the Contractor to determine whether further correction of Work is required in accordance with the provisions of the Contract. The Contractor shall be responsible for contacting the Owner and scheduling and coordinating the one (1) year inspection.
- B. The Owner will notify the Contractor, in writing, of any observed deficiencies.
- C. Contractor shall contact the Owner to arrange convenient time and establish schedule for correction of deficiencies.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION 01770

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SECTION 01781
PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 REQUIRED INCLUDED

- A. Contractor shall comply with and be responsible for all requirements of the Project Manual, without exception.
- B. Contractor shall comply with the applicable requirements in this section and more specific requirements in: Section 01100, Summary of Work; and Section 01770, Close Out Procedures.
- C. Contractor shall conform to the requirements of the Owner, Town of Ridgeland, and such other federal, state agencies having jurisdiction.

1.02 RELATED REQUIREMENTS

- A. Division 0, Bidding and Contract Documents, in the Project Manual.
- B. Division 1, General Requirements in the Project Manual.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. For duration of Project, maintain at job Site the following:
 - 1. One copy of the Drawings, Specifications, Addenda, shop drawings, products data, miscellaneous requested submittal data, Change Orders and other modifications to Contract, field orders, field test or written instructions.
 - 2. One copy of transmittal letters.
 - 3. One set of construction photographs and videos.
 - 4. One set of samples.
 - 5. One copy of Permit Drawings or documents as may be required by the appropriate governing agency.
- B. Store documents and samples in Contractor's field office, or at an alternate location within thirty (30) minutes travel time, apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinets or secure storage space for storage of samples.
- C. File documents and samples in accordance with CSI 16-division format.
- D. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

- E. Make documents and samples available at all times for inspection by the Owner.
- F. Incomplete or out of order documents and samples will be grounds for not approving the Contractor's Application for Payment.
- G. Provide felt tip marking pens for recording information in color code designated by the Owner.
- H. Label each document "PROJECT RECORD" in neat large, printed letters. Keep record documents current. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
 - 1. Drawings: Legibly mark to record actual construction.
 - 2. All underground piping with elevations and dimensions.
 - a. Changes to piping location.
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Actual installed pipe material, class, etc.
 - d. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Change Order.
 - 5. Details not on original Contract Drawings.
 - 6. Equipment and piping relocations.
 - 7. Specifications and Addenda: Legibly mark each section to record manufacturer, trade name, catalog number of Supplier of each product and item of equipment actually installed.
 - 8. Changes made by Change Order.

1.04 RECORD DRAWINGS

- A. Permanent and accurate As-built Record Drawings shall be created at Contractor's expense from the approved, original drawings.
 - 1. The record as-built drawings shall be submitted to the Engineer on Auto-CAD, Release 2016 or latest version, two (2) CDs with signed and sealed digital pdf copies, and two (2) signed and sealed original full size (24"x36") paper copies.
 - 2. Accompany submittal with transmittal letter in duplicate, containing:
 - a. Date.
 - b. Project title and number.
 - c. Contractor's name and address.
 - d. Title and number of each Record Document.
 - e. Signature of Contractor or his authorized representative.
- B. Legibly mark actual construction on designated As-built Record Drawing:
 - 1. Depths of various elements of structure(s).

2. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
 3. Dimensional locations, vertical and horizontal, of site work, including utilities.
 4. Dimensional location, vertical and horizontal, of rehabilitated sewer mains including depth of pipe.
 5. Dimensional location, vertical and horizontal, of new sewer mains including pipe invert elevations, manhole structures, and top of lid.
 6. Dimensional location and size of sewer service laterals.
- C. Indicate the following installed conditions:
1. Actual installed sewer pipe method of construction.
 2. Field modifications with dimensions and details.
 3. Modifications made by addenda, clarifications, Field Orders or Change Orders.
 4. Details not on original, approved contract drawings.
 5. Record information on a daily basis, or as often as necessary.
 6. Include references to related shop drawings and modifications.
- D. Record data shall be gathered by a Registered Surveyor licensed to conduct work in South Carolina. Reference section 01700 Execution Requirements.
- E. Contractor shall submit As-built Record Documents drawings to the Engineer and Owner for review and acceptance thirty (30) days prior to final closeout.
- F. Make revisions and additions as may be indicated by the Engineer and Owner.
- G. Do not use these Drawings for reference or construction, nor allow them to leave the field office.

1.05 RECORD SPECIFICATIONS AND ADDENDA

- A. Legibly mark up in color code designated by the Owner each Specification Section to record the following:
1. Manufacturer, trade name, catalog name, and supplier (with address and phone number) of each product and item of equipment actually installed.
 2. Modifications made by Change Order.
 3. Other matters not originally specified.

1.06 RECORD SAMPLES

- A. Record in transmittal, if not indicated, manufacturer, trade name, and catalog number.

1.07 CCTV INSPECTION

- A. Provide copies of all Pre-Construction CCTV and Post Construction CCTV recordings and documentation as required per Section 02955.

1.08 SUBMITTALS

- A. Provide submittals as outlined in the Section 01340 Shop Drawings, Working Drawings, and Samples and in Section 01770 Closeout Procedures section 4.3 Project Closeout Requirements.

1.09 BURDEN OF ACCURACY

- A. Contractor shall bear all costs of damages of any nature incurred by the Owner due to inaccuracies or incompleteness of the submitted Project Record Documents.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION 01781

SECTION 02020

PROTECTION OF EXISTING UTILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

This section includes materials and procedures for protecting existing underground utilities.

1.2 REQUIREMENTS

- A. Prior to construction start, Contractor shall locate the horizontal and vertical position of all existing underground utilities, electrical and control lines within the work areas and yard pipe routes indicated on the Drawings. If conditions vary from those presented, the Contractor shall immediately notify the Engineer.
- B. Locate existing utilities by field exploration. Maintain existing utilities and protect from damage as necessary to satisfy the requirements of jurisdictional utility companies and related codes and regulations.
- C. Do not disconnect or shut down any part of the existing utilities and services, except by permission of authorities having jurisdiction. Submit schedule of estimated shut-down time in order to obtain such permission, and notify all interested parties, neighbors, utilities, and municipal and county authorities, as required.
- D. Utilities to be removed shall not be removed until shut-down time can be kept to a minimum. Do not remove an existing utility line or service until the replacement line, crossover, or capping is ready to be performed.
- E. Provide shoring, underpinning, and structural support for existing utility lines and structures that become suspended or otherwise unsupported because of adjacent excavation operations. Submit plans showing all protections in place and temporary supports of utilities adequate to maintain safety, integrity and function for Engineer's review and approval.

1.3 REQUIRED NOTIFICATIONS

- A. Underground utilities shall be marked for identification by the affected utility companies 72 hours prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire, or other structure. The Contractor shall notify the Engineer and utility owners before performing any such excavation work. Notify most affected utilities by calling Underground Service Alert (USA) at 1-800-642-2444 or "Call Before You Dig" 811. Contact utility owners not covered by these services, such as owners of non-pressurized stormwater and sewer lines by calling the affected utility owners directly.
- B. Protect active underground utilities from damage and comply with Town of Ridgeland ordinances, requirements, and regulations. If underground utilities are damaged in any

way, notify the Engineer, property owner, and affected utilities immediately for corrective action.

- C. Coordinate with the Owner and Engineer, in writing, any proposed service interruptions at least five (5) business days prior to the service interruption. Comply with any Owner and Engineer review comments or instructions to facilitate the outage, including proposed service interruption schedule changes. Contractor shall not proceed with the service interruption until written authorization from the Owner is received.

1.4 RELOCATION OF EXISTING UTILITIES

- A. Relocate and place into operating service all existing utilities that may interfere with other parts of the work of this Contract, prior to starting the affected work. Unless otherwise indicated, Contractor shall provide notice to existing utility owner of proposed relocation and receive approval from the existing utility owner and other agencies having jurisdiction.
- B. Contractor shall revise the As-Built and or Record drawing, noting the relocated utility and its construction details and modification date.
- C. Certain utilities may be relocated by the affected utility companies prior to start of construction. The names and addresses of such utility companies, including a list of facilities to be relocated with description and location, are specified herein.

PART 2 - MATERIALS

2.1 REPLACEMENT IN KIND

Except as indicated or as specifically authorized by the Owner's Representative, reconstruct utilities with new material of the same size, type, and quality as that removed.

2.2 CONTRACTOR SUPPLIED TEMPORARY MATERIALS

Contractor shall supply all materials, including but not limited to, steel beams and bracing, support straps, sheeting and shoring, timbers, and all other items necessary to protect existing underground utilities.

PART 3 - EXECUTION

3.1 GENERAL

- A. Replace in kind street improvements, such as curbs and gutters; fences; signs; paved surfaces; etcetera, that are cut, removed, damaged, or otherwise disturbed by the construction.
- B. Where utilities are parallel to or cross the pipeline trench but do not conflict with the permanent work to be constructed, follow the procedures given below and as indicated on the Drawings. Notify the utility owner 48 hours in advance of the crossing construction and coordinate the construction schedule with the utility owner's

requirements. For utility crossings not shown on the Drawings, refer to the instructions of the Owner's Representative for guidance.

- C. Determine the true location and depth of utilities and service connections which may be affected by or affect the work. Determine the type, material, and condition of these utilities. In order to provide sufficient lead time to resolve unforeseen conflicts, order materials and take appropriate measures to ensure that there is no delay in work expose utilities in advance of the pipeline construction by potholing a minimum of 250 feet ahead of pipe laying.

3.2 PROCEDURES

- A. Protect in Place: Protect utilities in place, unless abandoned, and maintain the utility in service, unless otherwise specified.
- B. Cut and Plug Ends: Unless noted otherwise in construction documents, cut abandoned utility lines and plug the ends with concrete plug. Cap both ends of the abandoned service pipe. Pour a concrete lug completely around the plugged end of the abandoned utility line such that the line is encapsulated with a minimum of 6 inches of concrete on all sides. Dispose of the cut pipe as unsuitable material.
- C. Remove and Reconstruct: Where necessary or as required by the Owner's Representative, remove the utility and, after passage, reconstruct it with new materials. Provide temporary service for the disconnected utility.

3.3 COMPACTION

- A. Utilities Protected in Place: Backfill and compact under and around the utility so that no voids are left. Where utilities are concrete encased, use the alternative construction method (sand slurry) for backfill around the utility.
- B. Alternative Construction - Sand Slurry: Sand slurry consisting of one sack (94 pounds) of Portland cement per cubic yard of sand and sufficient moisture for workability may be required for backfill to aid in reducing compaction difficulties. Submit specific methods and procedures for the review of the Owner's Representative prior to construction.

3.4 ADJACENT PARALLEL UTILITIES

Protect existing parallel utilities from any disturbances and repair the lines and associated appurtenances if they are damaged in any way. All costs incurred for protection of utilities or any costs incurred due to the presence of the lines, whether or not they lie within the new construction, shall be borne in full by the Contractor.

END OF SECTION

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SECTION 02140 DEWATERING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The work to be performed under this section shall include furnishing all equipment and labor necessary to remove storm or subsurface waters from excavation areas in accordance with the requirements set forth and as shown on the Drawings.
- B. Related Work Described Elsewhere
 - 1. SC DOT Standard Specifications for Highway Construction: Division 200 Earthwork.

1.02 QUALITY ASSURANCE

The dewatering of any excavation area and the disposal of the water shall be in strict accordance with the South Carolina Department Environmental Services (SC DES (formerly SC DHEC)) and the latest revision of all local and state government rules and regulations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 DEWATERING

- A. The Contractor shall provide adequate equipment for the removal of storm or subsurface water which may accumulate in the excavation. The water table should be maintained at least 2 feet below the required depth of excavation.
- B. If subsurface water is encountered, the Contractor shall utilize suitable equipment to adequately dewater the excavation so that it will be dry for work and pipe laying and structure installation. A wellpoint system or other Engineer approved dewatering method shall be utilized if necessary to maintain the excavation in a dry condition for preparation of the trench bottom and for pipe laying and structure installation. The Contractor shall provide a Dewatering Plan prepared by an engineer licensed in the State of South Carolina for submittal and review in accordance with Section 01340.
- C. Dewatering by trench pumping will not be permitted if migration of fine-grained natural material from bottom, side walls, or bedding material will occur.
- D. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the Contractor shall

obtain the Engineer's approval of wet trench construction or procedure before commencing construction.

3.02 DISPOSAL

- A. Water pumped from the trench or other excavation shall be disposed of in storm sewers having adequate capacity, canals, or suitable disposal pits.
- B. Contractor is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the operation.
- C. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the Contractor's plan for trench disposal is approved in writing by the Engineer. The Contractor's plan shall include temporary culverts, barricades, and other protective measures to prevent damage to property or injury to any person or persons.
- D. No flooding of streets, roadways, driveways, or private property will be permitted. Engines driving dewatering pumps shall be equipped with residential type mufflers. Where practical and feasible, electric "drops" should be used in lieu of portable generators.

END OF SECTION 02140

SECTION 02221
TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope of Work: The work included under this Section consists of clearing, excavating, removal and replacement of unsuitable materials with suitable fill materials, grading and backfilling as required for the construction of the structures, piping and appurtenances as shown on the Drawings and specified herein.
- B. Plan For Earthwork: The Contractor shall be responsible for having determined to his satisfaction, prior to the submission of his bid, the conformation of the ground, the character and quality of the substrata, the types and quantities of materials to be encountered, the nature of the groundwater conditions, the prosecution of the work, the general and local conditions and all other matters which can in any way affect the work under this Contract. Prior to commencing the excavation, the Contractor shall submit a plan of his proposed operations to the Engineer for review. The Contractor shall consider, and his plan for excavation shall reflect, the equipment and methods to be employed in the excavation. No claims for extras based on substrata or groundwater table conditions will be allowed.
 - 1. Geotechnical exploration and analysis have been conducted by Whitaker Lab (see Appendix G).

1.2 QUALITY ASSURANCE

A Testing Laboratory employed by the Contractor will make such tests as are specified. The Contractor shall schedule his work so as to permit a reasonable time for testing before placing succeeding lifts and shall keep the laboratory informed of his progress. Costs for all testing shall be paid by the Contractor, including any and all tests, which have to be repeated because of the failure of the tested material to meet specifications. Testing Laboratory or Contractor shall provide a map of all test locations. All testing shall be done in the presence of the Engineer or the Owner's Representative. The Contractor shall also employ the services of a Geotechnical Engineer. In the event should unsuitable materials be encountered during excavation, the Geotechnical Engineer shall perform all required testing necessary to determine the extent of the unsuitable materials and recommend what remedies shall be necessary including the removal and replacement of unsuitable materials with suitable fill materials. The removal and replacement of unsuitable materials with suitable fill materials shall be paid for at the unit prices established in the Bid Form.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General:
 - 1. All fill and backfill material shall be subject to the approval of the Engineer.

2. All fill and backfill material shall be free of organic material, trash, or other objectionable material. The Contractor, at no additional cost to the Owner, shall remove excess or unsuitable material from the job site.
- B. Select Backfill: shall consist of finely divided earth, stone, dust, sand, crushed stone, or other approved material, including A-3 sand and shall not contain stones, rock, concrete or other rubble larger than 2 inches in diameter. Less than 10 percent of the material shall pass the no. 200 mesh sieve. It shall have physical properties, which allow it to be easily spread and compacted.
 - C. Granular Backfill: shall be per Section 714.3.4 (Bed for Pipe) of SC DOT's SC-M-714 directive, dated January 1, 2021 (see excerpt below).

714.3.4 Bed for Pipe

For bedding material, use either:

1. Well graded A-1 (AASHTO M 145) soils
2. Screenings meeting A-1 (AASHTO M 145)
3. Macadam or Marine Limestone Graded aggregate base from Qualified Product List 2
4. Materials meeting AASHTO soil classifications A-2-4
5. Uniformly graded, coarse grained A-3 (AASHTO M 145) soils
6. Uniformly graded angular stone as large as #5 stone (Class 2 wrapped, vibrated)

The same material must be used for bedding and structural backfill unless CLSM is used for structural backfill.

- D. Unshrinkable Flowable Fill Backfill: shall be per Section 210 (Flowable Fill) of SC DOT's 2025 Standard Specifications for Highway Construction (see excerpt below).

Mix Designs for Flowable Fill

	Excavatable		Non-Excavatable
	Air Entrained	Non-Air Entrained	
Type 1 Portland Cement*	50 - 100 lb/cu yd**	20 - 40 lb/cu yd	75 - 150 lb/cu yd
Fly Ash	0 - 600 lb/cu yd	250 - 600 lb/cu yd	150 - 600 lb/cu yd
Water	See Note 1	See Note 1	See Note 1
Air***	15% - 35%	Not applicable	5% - 20%
28-day Compressive Strength***	150 psi Maximum	150 psi Maximum	150 psi Minimum

Note 1: Select water content as necessary to produce a consistency that will result in a flowable, self-leveling product at the time of placement.

- E. Unsuitable Material: Unsuitable material is soil which is unsuitable for the support of structures, piping, or other materials. Unsuitable material shall be soils containing muck, clay, excessive amount of organic material, stumps, brush, roots, rubbish and building material rubble or other deleterious materials.

PART 3 - EXECUTION

3.1 PREPARATION

- A General: To the maximum extent possible, preserve existing trees and structures within the limits of construction. Any structure that must be disturbed due to Contractor operations shall be returned to its original condition, unless otherwise noted in the construction documents.

3.2 EXCAVATION

- A Excavating for Utilities:
 - 1. Immediately document the location, elevation, size, material type and function of all new subsurface installations and utilities encountered during the course of construction.
 - 2. Excavation equipment operators and other concerned parties shall be familiar with subsurface obstructions as shown on the Drawings and located in the field and should anticipate the encounter of unknown obstructions during the course of work.
 - 3. Encounters with subsurface obstructions shall be hand excavated.
 - 4. Excavation and dewatering shall be accomplished by methods which preserve the undisturbed state of the suborder soils. Suborder soils which become soft, loose, "quick" or otherwise unsatisfactory for support of structures as a result of inadequate dewatering or other construction methods, shall be removed and replaced by crushed stone as required by the Engineer at the Contractor's expense.
 - 5. No more than 100 linear feet of trench shall be open in advance of the completed pipe laying operation without prior approval of the Engineer. Pipe trenches across roadways and driveways shall be backfilled as soon as pipe is installed. Where, in the opinion of the Engineer, adequate detour facilities are not available, no trench shall be left open across a roadway or commercial property driveway where adequate detour routes are not available for a period in excess of 60 minutes, or as directed by the governing authority. No trench shall be left open across any roadway or driveway for more than 24 hours. Contractor shall provide barriers around the entire perimeter of any trench in accordance with OSHA requirements when the trench is left unattended to prevent unauthorized personnel entrance or falls into any open trench. All open trenches shall be protected by the Contractor with barriers, warning devices and traffic control devices, which shall be kept in the correct position, properly directed and clearly visible at all times.

6. All pavements shall be cut for removal with saws and approved power tools.
7. Excavated material shall be stockpiled in such a manner as to prevent nuisance conditions. Surface drainage shall not be hindered. Topsoils shall be carefully selected and kept separated. Rock, shell or other base materials for roads and shall be carefully selected and kept separate. Grade and line stakes shall be protected. No excavated material shall be placed on private property without the written consent of the property owner.
8. All locations and elevations as required herein must be permanently documented by the Contractor on the As-Built/Record Drawings prior to the Engineer's approval of the Application for Payment for that work.

3.3 DRAINAGE

- A. The Contractor shall at all times during construction provide ample means and devices with which to promptly remove and dispose of all water entering trench and structure excavations and shall keep said excavations acceptably dry, until the structures to be built therein are completed. All water pumped or drained from the Work shall be disposed of in a suitable manner without damage to storm sewer, pavement, pipes, electrical conduits, or any other work and without damage to surrounding property and in accordance with pertinent rules and regulations.
- B. Drainage Shall Be Adequate: No pipe shall be laid in water and no water shall be allowed to rise above the bottom of any pipe while it is being jointed, except as otherwise permitted in writing. No masonry shall be placed in water and no water shall be allowed to rise over masonry until the concrete or mortar has attained its initial set. Nor shall water be allowed to run over the completed masonry for four days. In no event shall water be allowed to rise so as to set up unequal pressures in the structures until the concrete or mortar has set at least 24 hours and also, until any danger of flotation has been removed.
- C. Dewatering, if required, shall be continued during construction to keep the ground water below the level of the backfill at all times until the backfill is completed.

3.4 FILL AND COMPACTION

- A. All pipe trenches shall be backfilled with suitable material compacted as indicated on the Drawings. The following guidelines are to be followed:
 1. Backfilling under native soil shall be select material.
 2. Backfilling under driveways (all types) shall be granular material.
 3. Backfilling under roadways shall be unshrinkable flowable fill (100 psi max).

Backfill is to be placed in six (6) inch layers or less (where appropriate) with each layer being thoroughly and compacted to a density of 95 percent modified Proctor as determined by AASHTO Method T-99. The material should exhibit moisture content within 2 percent of the Modified Proctor optimum moisture content (AASHTO T-180) during the compaction operations. Special care shall be taken on each side of the pipes and to 12 inches above pipe.

- B. Excavations for manholes shall be prepared and backfilled in accordance with recommendations of the Geotechnical Report, along with local, state and federal regulations.
- C. Field density tests shall be determined in each layer of backfill at the following locations:
 - 1. Every 200 feet.
 - 2. Every street crossing.
 - 3. Every structure location
 - 4. Other locations as determined by the Owner's Representative.
- D. Excavations shall be backfilled to the original grade or as indicated on the Drawings. Deviation from this grade because of settling shall be corrected. Backfill operation shall be performed to comply with all rules and regulations and in such a manner that it does not create a nuisance or safety hazard.

3.5 SHEETING, SHORING, AND BRACING

- A. The Contractor shall provide and install such sheeting and shoring as may be required to support the sides of any excavation to prevent earth movement that could endanger the work or workmen, or any existing structures, or to confine the construction within a specified area such as an easement or street right-of-way. It shall be the Contractor's responsibility to place this sheeting and shoring for such protective purposes without the Engineer's instructions. Pipeline sheeting shall extend a minimum of three (3) feet below pipe or structure. In the process of extraction of sheeting, the use of vibratory type pile drivers (as opposed to impact type) shall be limited to that sheeting driven no greater than five (5) feet below the pipe invert.
 - 1. Contractor shall hire a specialty professional engineer licensed in the State of South Carolina to design the stabilization system. Design shall be signed and sealed and submitted to the Owner and Engineer for review.
- B. For excavations less than ten (10) feet in depth, the Contractor shall provide and install such sheeting and shoring as he may deem necessary. Such sheeting and shoring will be considered as being for the Contractor's convenience and benefit and all costs of furnishing, driving, and removing same shall be borne by him. Sheeting for excavations less than ten (10) feet in depth may be timber or steel at the Contractor's option, unless specified on the Contract Drawings and Documents, or specified by the Engineer.
- C. Unless otherwise directed by the Engineer, all timber sheeting shall be cut off a minimum of 30 inches below grade and left in place, with proper bracing to provide lateral support. Timber sheeting, bracing and shoring above the cut-off elevation shall be removed by careful extraction so as not to endanger other structures or property. All voids left shall be immediately backfilled with approved materials and compacted.
- D. Steel sheeting shall be required for all excavations ten (10) feet or more in depth and at such other locations as may be indicated on the drawings. Steel sheeting may be completely removed when sufficient backfill has been placed to prevent damage to the work and/or existing structures. Care shall be exercised to prevent the opening of voids during the extraction process.

- E. Steel sheeting shall be left in place when so authorized by the Engineer. The top of steel sheeting left in place shall be no less than 30 inches below grade unless otherwise shown on the Drawings, or directed by the Engineer.
- F. Steel drag shields or trench boxes may be used, location, fabrication and operation subject to written approval of the Engineer, and shall be Steel Safety Shield manufactured by Safety Shoring Shields, Inc., 155 North Dean Street, Englewood, New Jersey, 07861; Efficiency Trench Box manufactured by Efficiency Production, Inc. 2360 East Jolly Road, Okemos, Michigan 48864; or approved equal. Voids left by the advancement of the shield shall be carefully backfilled and compacted in accordance with trench backfill requirements.

END OF SECTION

SECTION 02300

PAVEMENT REMOVAL AND REPLACEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Work included under this Section consists of cutting, removing, protecting, and replacing existing pavements of the various types encountered.
- B. Protection of Existing Improvements: The Contractor shall be responsible for the protection of all pavements, sidewalks, and other improvements within the work area. All damage to such improvements, as a result of the Contractor's operations, beyond the limits of the work of pavement replacement as described herein, shall be repaired by the Contractor at his expense.
- C. All paving removal and restoration for this project shall be in accordance with the contract drawings and details, the standards of the South Carolina Department of Transportation (SC DOT), and the project SC DOT Encroachment Permit.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

3.01 TESTING

- A. All compaction density testing shall be conducted by a Geotechnical Professional Engineer licensed in the State of South Carolina. All results shall be submitted to the Owner for review and shall be submitted directly from the testing laboratory to SC DOT (contact information to be provided by Engineer) for construction in SC DOT rights-of-way. Approval must be received from Owner and SC DOT (for construction in SC DOT rights-of-way) prior to paving.

END OF SECTION 02300

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SECTION 02400 JACKING AND BORING OPERATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Work under this section consists of furnishing all labor, machinery, construction equipment and appliances required to perform all jacking and boring of pipeline casings and installation of pipe therein.
- B. The overall work scope shall include, but not be limited to, jacking and boring pits and equipment, sheeting, steel casing pipe, skid, steel straps, coatings, location signs as required, installation of the carrier pipe within the casings, miscellaneous appurtenances to complete the entire work as shown on the drawings, and restoration.
- C. Encasements shall be installed by the methods outlined in this Section, except where noted otherwise in the Contract Documents or limited by the official agency having jurisdiction.
- D. All work in connection with constructing encasement pipes under highways and railroads shall comply with all current requirements of governing highway (SC DOT) and railroad agencies (CSX). The Contractor shall be familiar with these requirements.

1.2 SHOP DRAWINGS

- A. Submit material certificates and product data for steel encasement pipe which certify conformance and compliance to specified requirements.
- B. Submit a Jacking and Boring Plan which includes the following:
 - 1. Layout Plan.
 - 2. Methods and procedures for jacking, boring, and grouting casing annulus and interior spaces.

PART 2 – PRODUCTS

2.1 GENERAL

Utilize a continuously monitored jacking and boring system matched to the expected subsurface conditions, a hydraulic jacking system to jack the pipeline, an auger to remove boring spoils, a guidance system to provide installation accuracy within the indicated tolerances, excavation equipment, material handling equipment, a dewatering system, and sheeting/shoring required to provide the work indicated.

2.2 PIPE JACKING EQUIPMENT

Provide main jacking equipment with a capacity greater than the anticipated jacking load. Provide intermediate jacking stations when the total anticipated jacking force needed to complete the installation may exceed the capacity of the main jacks or the designed maximum jacking force for the pipe. The jacking system is to supply a uniform distribution of jacking forces on the end of the pipe by use of thruster rings and cushioning material.

2.3 STEEL CASING PIPE

Provide steel pipe in conformance with AWWA C200 and ASTM A139/A139M, Grade B with a minimum yield strength of 35,000 psi, **unless otherwise presented on the drawings or within approving agency's requirements.** The pipe shall be coated externally with coal-tar primer followed by hot coal-tar enamel in accordance with ANSI/AWWA C203. The casing shall be shop cut with ends square with centerline, leveled and welded so that the entire length of the casing shall be straight and true. Minimum wall thickness of pipe shall be as indicated:

Steel Casing Schedule		
Carrier Pipe Diameter	Steel Casing Diameter	Minimum Wall Thickness
<u>10"</u>	<u>22"</u>	<u>0.281"</u>
<u>12"</u>	<u>24"</u>	<u>0.312"</u>

Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications and shall be performed by qualified welders. Field welds shall be complete penetration (butt welded), single-bevel groove type joints in accordance with the requirements of ANSI/AWWA C206. Welds shall be airtight, continuous over the entire circumference of the pipe, and shall not increase the outside pipe diameter by more than 3/4-inch. Nor shall there be intrusion of the weld metal into the bore of the casing. It shall be the Contractor's responsibility to provide stress transfer across the joints which is capable of resisting the jacking forces involved.

2.4 GROUT (IF REQUIRED)

- A. Provide cement grout for pressure grouting to fill the voids around the casing and for filling the interior annular space between carrier pipe and the casing composed of Portland cement conforming to ASTM C150/C150M, Type II, and sand meeting requirements of ASTM C33/C33M for fine aggregate, sufficiently fluid to inject through the casing and fill voids, with prompt setting to control grout flow.
- B. Utilize a grout with a minimum compressive strength of 100 psi attained within 24 hours. Admixtures are to be free of chlorides, corrosive or other material detrimental to the materials the grout contacts.

2.5 LUBRICATING FLUID

- A. Auguring fluids shall use a mixture of bentonite clay, or other approved stabilizing agent, mixed with potable water with a minimum pH of 6.0 to create the drilling fluid for lubrication and stabilization, as necessary.
- B. Vary the fluid viscosity to best fit the soil conditions encountered. Do not use other chemicals or polymer surfactant in the drilling fluid without written consent of the Engineer. Certify in writing to the Engineer that any chemicals to be added are environmentally safe and not harmful or corrosive to the facility.

PART 3 - EXECUTION

3.1 GENERAL

- A. Support all excavations and prevent movement of the soil, pavement, utilities or structures outside of the excavation. Furnish, place, and maintain sheeting, bracing, and lining required to support the sides of all shafts and to provide adequate protection of the work, personnel, and the general public.
- B. Consider the loading from boring or pipe jacking when preparing the design of the jacking and receiving pit supports as well as special provisions and reinforcement around the breakout location. Design the base of the pits to withstand uplift forces from the full design head of water, unless approved dewatering or other ground modification methods are employed.
- C. Construct a thrust block to transfer jacking loads into the soil. Ensure that the backstop and the proposed pipe alignment are square to each other. Also, design the thrust block to minimize excessive deflections in such a manner as to avoid disturbance of adjacent structures or utilities or excessive ground movement. Begin jacking operations only after concrete thrust block or treated soil has attained the required strength.

3.2 ACCESS SHAFT CONSTRUCTION

- A. Provide ground stabilization in the work area and the thrust block as required to accomplish the work.
- B. Construct a jacking access shaft to accommodate the installation of pipe casings, equipment and piping jacking device. Install thrust blocks(s) as required and consolidate the ground where the casings exit the shaft. Provide a dry jacking work area having a stable concrete floor that drains to a recessed sump pump to handle nuisance inflow.

- C. Construct a receiver shaft to accommodate the installation of pipe casings and the equipment used in the work. Consolidate the ground where the casings enter the shaft.
- D. Furnish, install, and maintain equipment to keep the jacking shaft free of excess water. Provide surface protection during the period of construction to ensure that surface runoff does not enter shafts.
- E. Provide security fence around all access shaft areas and provide shaft cover(s) when the shaft area is not in use.
- F. Pit Backfill and Compaction: Upon completion of the pipe jacking and all tests or inspections are completed, remove all equipment, debris, and unacceptable materials from the pits and commence backfilling operation. Complete backfilling, compaction, and pavement repairs in accordance with Section 02315 and Section 02700.

3.3 INSTALLATION

- A. Install a continuous length of tracer wire for the full length of each run of nonmetallic pipe in accordance with the American Public Works Association Uniform Color Code. Attach wire to top of pipe in such a manner that will not be displaced during construction operations.
- B. Jack each pipe casing section forward as the excavation progresses in such a way to provide complete and adequate, ground support at all times. Utilize a bentonite slurry applied to the external surface of the pipe to reduce skin friction.
- C. Provide a jacking frame for developing a uniform distribution of jacking forces around the periphery of the pipe. Place a plywood spacer on the outer shoulder of the pipe casing joint.
- D. Continuously monitor the jacking pressure and rate of cutter head advancement. Exercise special care when setting the pipe guard rails in the jacking pit to ensure correctness of the alignment, grade and stability.
- E. Utilize boring equipment capable of fully supporting the face of the tunnel.
- F. Maintain face pressure exerted at the heading as required to prevent loss of ground, groundwater inflows, and settlement or heave of the ground surface by balancing soils and groundwater pressures present.
- G. Do not jack pipe casing until the concrete thrust block and grouted soil zone in jacking and receiving shafts have attained the required strength.
- H. Jack the pipe into place without causing damage to the coatings, joints or completed pipe section.
- I. After completion of the jacking operation between jacking and receiving shafts, displace the lubricant material from between the pipe casing exterior and the surrounding ground with a cement grout. Control pressure and the amount of grout to avoid pipe damage and displacement of the pipe and soil. Grout within 48 hours after pipe installation has been completed to prevent any surface settlement due to movement of soil material into the void space or loosened zone around the pipe casing.
- J. Replace pipe casings damaged during installation.
- K. Ensure that the welds of steel pipe attain the full strength of the pipe and are watertight before jacking of the pipe section. Ensure that the inner face of the internal weld seam is flush with the pipe to facilitate the installation of the carrier pipe in the pipe casing.
- L. Once the boring process has begun, continue with that process uninterrupted until the pipe reaches the receiving shaft. Continue to push any damaged pipe until that damaged pipe section is pushed into the receiving shaft and is removed. Notify the Engineer immediately if any pipe is known to be or believed to be damaged.
- M. After encasement pipes are installed, the ductile iron or carrier pipe shall be installed in the encasement pipe using slip-on joints. The ends of the encasement pipe shall be sealed as directed by the Engineer.
- N. The carrier pipe shall be supported and blocked inside the encasement pipe at 10' intervals, and 5' from each pipe end for ductile iron pipe and 5' intervals, and 5' from each end for PVC pipe, to true line and grade and in such a manner to prevent horizontal or vertical movement. Casing spacers shall be fabricated with minimum ¼" x 4" wide ASTM A-36 steel and coated with a cold tar epoxy to a minimum

of 16 mils in accordance with AWWA C-210 specifications or approved equal. Steel straps or other means may be used as approved by the Engineer.

3.4 CLEAN UP AND FINAL CLOSEOUT

- A. Immediately clean "blow holes" or "breakouts" of drilling fluid to the surface and fill depressions with satisfactory fill material. Dispose of all drilling fluids, soils, and separated materials in compliance with Federal, State, and local environmental regulations.
- B. Remove all construction equipment and materials leaving the entire area involved in a neat condition equal to existing conditions prior to construction, unless indicated otherwise.
- C. The Contractor shall be considered as having completed the requirements of any boring or jacking when he has successfully completed the work to the satisfaction of the Engineer.

END OF SECTION 02400

SECTION 02410

HORIZONTAL DIRECTIONAL DRILLING

PART 1. GENERAL

1.01 SCOPE OF WORK:

The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation for pipe 10 inches and larger outside diameter (OD), also commonly referred to as directional boring or guided horizontal boring. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, restoration of underground utilities and environmental protection and restoration.

1.02 QUALITY ASSURANCE:

The requirements set forth in this document specify a wide range of procedural precautions necessary to ensure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification or within any associated permit (i.e.: railroad, US ACOE, SC DES, SC DOT, Etc.). Adherence to the specifications contained herein, or the Town Representative's approval on any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract. The HDD contractor shall be responsible for the repair of all damage to private and/or public property (at no expense to the Town). Repair work shall meet all local and state rules and requirements.

1.03 QUALIFICATIONS:

The work specified in this Section requires significant previous experience and expertise in similar work to avoid negative impacts to public safety and the environment. Therefore, the Contractor performing the work shall be qualified, in Town's judgment, to complete the horizontal directional drilling work specified herein. **The Contractor shall submit substantiating evidence of qualifications, in accordance with the provisions of this Section and the Instructions to Bidders.** Failure to submit the required documentation may cause the Contractor to be declared unqualified to perform the scope of work for the project. **Contractor or subcontractor responsible for horizontal directional drilling operations shall perform all horizontal directional drilling operations including pipe joining/fusing.** In order to qualify to perform work specified in this Section the Contractor must provide evidence satisfactory to the Engineer of Record and Owner, as noted in the Instructions to Bidders with bid response.

1.04 PROJECT SCHEDULE AND COOPERATION:

The project schedule shall be established on the basis of working a normal work schedule as defined in the Special Conditions, or otherwise indicated in the Construction Drawings. Unless approved or requested otherwise by the Engineer of Record or Owner, normal or general items of work, such as bacteriological testing, leakage and pressure testing, locate wire testing, density testing and final inspections, shall be scheduled during the normal work schedule. Due to operational and manpower limitations on the Town systems, Town may require the contractor to perform work outside of the normal work schedule. These operational and manpower limitations may include line filling and flushing operation, tie-in work, (cut-in work or other work) and other phases of the work which may impact the continued (non-interruptible) service to existing Town customers. The contractor shall plan and anticipate the cost impact of these systems limitations and provide such work or services at no additional cost to Town.

1.05 WARRANTY:

The Contractor shall supply to Town a one (1) year unconditional warranty. The warranty shall include materials and installation and shall constitute complete replacement and delivery to the site of materials and installation of same to replace defective materials or defective workmanship with new materials/workmanship conforming to the specifications.

The pipe manufacturer shall provide a warranty to the Contractor that the pipe conforms to these specifications and that the pipe shall be free from defects in materials and workmanship for a period of one (1) year from the date of final completion of the installation. The manufacturer's warranty shall be in a form acceptable to and for the benefit of Town and shall be submitted by the contractor as a condition of final payment. The manufacturer's warranty to the contractor shall in no way relieve the contractor from its unconditional warranty to Town.

The contractor shall warrant to Town that the methods used on the contract, where covered by patents or license agreements, are furnished in accordance with such agreements and that the prices included herein cover all applicable royalties and fees in accordance with such license agreements. The contractor shall defend, indemnify, and hold Town harmless from and against any and all costs, loss, damage or expense arising out of, or in any way connected with, any claim of infringement of patent, trademark, or violation of license agreement.

1.06 REFERENCED STANDARDS:

- A. The work shall conform to applicable provisions of the Town Standards for Water and Sewer Design and Construction, and the following standards, latest editions, except as modified herein.
- B. American Water Works Association (AWWA) Standards:
 - AWWA C900 Polyvinyl Chloride Pressure Pipe and Fabricated Fittings, 4 inch through 60 inch.
 - AWWA C906 Polyethylene (PE) Pressure Pipe and Fittings, 4 inch through 63 inch, for Water Distribution American Society for Testing and Materials (ASTM) Standards.
 - ASTM D638 Standard Test Method for Tensile Properties of Plastics.
 - ASTM D2122 Standard Method of Determining Dimensions of Thermoplastics Pipe and Fittings.
 - ASTM D2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.
 - ASTM D2837 Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
 - ASTM D3035 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter.
 - ASTM E3261 Standard Specification for Butt Heat Fusion Polyethylene Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
 - ASTM D3350 Standard Specification for Polyethylene Plastic Pipe and Fittings Materials.
 - ASTM F412 Standard Terminology Relating to Plastic Piping Systems.
 - ASTM F714 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
 - ASTM F2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings.

1.07 PERMITS:

The Contractor shall verify the existence of all necessary permits before commencing any work on the project.

1.08 SHOP DRAWING AND SUBMITTALS

- A. Work Plan: Prior to beginning work, the Contractor must submit to the Town Representative a work plan detailing the procedure and schedule to be used to execute the project. Horizontal directional drilling shall not commence until the contractor has received written approval of all work plan submittals from Town.

1. Methods: The Contractor shall provide complete descriptions of proposed plans, procedures, and personnel, as well as supporting calculations, for the following:
 - a. Drilling operations, addressing: Procedures for pilot hole drilling and reaming. Procedures for tracking and controlling the drilling head location. Procedures for preparing as-builts.
 - b. Drilling fluid management plan.
 - c. Spoils handling and disposal plan.
 - d. Pipe storage and handling, addressing: Means and methods for protecting pipe and ensuring temperature control in accordance with the Contractor's installation calculations.
 - e. Pipeline assembly and installation, addressing: Procedures for pipe joining, pipeline pullback, and pullback monitoring.
 - f. Prevention of inadvertent fluid losses and spills, and contingencies for rapid containment and cleanup, addressing: Measures to mitigate risk of inadvertent fluid returns to surface. Procedures for monitoring and controlling drilling fluid flows and pressures. Equipment, resources, and procedures for identifying, containing, and cleaning up fluid losses and spills.
 - g. Quality control and testing procedures.
 - h. Safety plan.
2. Schedule: The Contractor shall provide a schedule for all horizontal directional drilling activities commencing with the site preparation and terminating on completion of testing and final acceptance of the installed pipe. The schedule shall address anticipated subsurface conditions and overall project requirements.
3. Equipment
 - a. The contractor shall provide the make, model, and technical specifications for each of the following:
 1. Horizontal directional drill rig.
 2. Drilling system components.
 3. Downhole drilling assembly and reaming equipment.
 4. Downhole pressure sub.
 5. Guidance and control system.
 6. Pulling head.
 7. Swivel.
 8. Rollers.
 9. Solids separation and drill fluid recirculation systems.
 10. Pipe fusion equipment.
 11. Pipe fusion data logger.
 12. Pipe handling equipment.
 13. Pigs and pigging equipment.
 - b. The Contractor shall provide the following specific equipment information:
 1. Calibration certification for the pilot bore guidance and control system.
 2. Calibration certification for the heat fusion datalogger.
4. Supplemental Work Plan Requirements: The Contractor shall provide the following additional work plan submittals. The submission requirements for additional work plan submittals including number of copies and delivery of submittals shall follow the requirements outlined in the Submittals Section of the Special Conditions. Horizontal directional drilling shall not commence until the Contractor has received written approval of all supplemental work plan submittals.

- a. The Contractor shall submit acknowledgement of use of the Maintenance of Traffic plans in the Construction Drawings or shall submit alternate detailed Maintenance of Traffic plans for entry and exit pit sites and all areas of construction which will impact typical roadway or pathway use. Approval of SC DOT will be required for ALL Maintenance of Traffic plans with the ROW Permit.
- b. Frac-Out and Surface Spill Contingency Plan: Plans for mitigating the potential for inadvertent drilling fluid losses to surface, and for rapidly identifying and cleaning up spills near the investigation borings located along the project alignment. Investigation boreholes along the alignment have been backfilled as reported in the Geotechnical Report. The Contractor's work plans shall address the risk that investigation boreholes may contribute to the risk of drill fluid loss.
- c. Contingency plan for rapidly identifying, locating, and containing any drilling fluid returns.
- d. The Contractor shall submit a contingency plan to address procedures to be employed in the event any of the listed items occur.
 1. Utility strike, obstruction, or inability to advance drill pipe.
 2. Excessive deviation from proposed line and grade, as described within this Section.
 3. Inability to move pipe through borehole during pullback.
 4. Settlement or heave of roadways and structures within 50 feet of the alignment.

B. Calculations:

The Contractor shall submit final design calculations for Town's review and approval as soon as possible following Notice to Proceed, and in accordance with the Project Schedule section of the Special Conditions. Final design calculations shall support the Contractor's specific proposed means, methods, and products. The Contractor's final design calculations shall be prepared and sealed by a Licensed Professional Engineer registered to practice in the State of South Carolina, and retained by the Contractor. Horizontal directional drilling shall not commence until the Contractor has received written approval of all design calculation submittals from Town.

At a minimum, design calculations shall demonstrate that the proposed pipe, equipment, and means and methods comply with the requirements of this Section and have been designed based on the design borepath, and installation means and methods, for anticipated installation and handling, hydrostatic, earth, and live loads, installation temperature and site conditions. Design calculations shall address the considerations and guidelines presented in ASTM F1962: Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings

The Contractor shall supply copies of all other calculations required to support the required submittals for horizontal directional drilling. At a minimum, the following calculations should be included:

1. Maximum allowable pipe loading limits.
2. Pullback load calculation based upon proposed drill path plan and profile.
3. Buoyancy effect calculations.
4. Effects of ballasting plan on pipe pullback forces.
5. Hydrofracture analysis. This should include a maximum annular pressure curve and the respective formation pressure versus depth based on the proposed drill plan and profile.
6. Confirmation that design parameters do not exceed predicted installation stresses including factors such as tensile load, buckling and deformation.

C. Shop Drawing Submittals:

For all materials provided, Contractor shall provide copies of documentation (actual catalog data, brochures, drawings and descriptive literature) necessary to establish compliance with the Specifications in accordance with Submittals Section of the Special Conditions.

D. Construction Records:

1. Daily Reports: The Contractor shall maintain daily activity reports throughout all horizontal directional drilling operations, including pipe installation. A sample daily report shall be submitted to Town for approval prior to the commencement of drilling operations. Daily reports shall be submitted within 24 hours of completion, and shall include, for each drill rod added or withdrawn, or every 30 feet during drilling, pre-reaming, and pullback:

- a. Downhole tools and equipment in use.
- b. Description of ground conditions encountered.
- c. Description of drilling fluid.
- d. Drilling fluid pumping rate.
- e. Maximum and minimum downhole fluid pressures.
- f. Drilling head location - at least every 10 feet along the bore path.
- g. Drill stem torque.
- h. Details and perceived reasons for delays greater than one hour other than normal breaks and shift changes.
- i. Details of any unusual conditions or events.

2. Production and Record Drawings: The Contractor shall maintain at the construction site a complete set of field drawings for recording the as-built conditions. The Contractor shall plot as-built conditions on the field drawings, including the location in plan and elevation of the drill string, reaming head, and installed pipe, at the completion of each production shift. The Contractor shall compile and submit as-built data in accordance with the Project Record Documents requirements in the Special Conditions.

- a. As-Built data provided to the Engineer of Record for incorporation into the Record Drawings shall include Horizontal Directional Drill pipe installation information in plan and profile views in AutoCAD format with X, Y, and Z coordinates in South Carolina State Plane East Zone Coordinates (Horizontal Datum NAD 83 and Vertical Datum NAVD

88) conducted by a surveyor licensed in the State of South Carolina. Directional Drill Bore Log shall be provided as part of the As-Built documentation and shall be in South Carolina State Plane East Zone Coordinates (Horizontal Datum NAD 83 and Vertical Datum NAVD 88) and be relative to the established surface survey bench mark and baseline stationing that is tied to existing, fixed and visible sight features. Directional Drill Bore Log shall show recorded X, Y, and Z locations of the drill head at minimum every 20 feet in the AutoCAD format documentation.

3. Testing and Quality Control and Assurance Documentation: The Contractor shall maintain records for all testing and quality control and assurance procedures. The following records shall be provided to Town or Town's Representative on the day that information is acquired by the Contractor:

- a. Manufacturer's Field Reports.
- b. Test reports.
- c. Fusion reports. For each weld, provide an electronic and printed report of the downloaded information for each weld. Fusion reports shall be submitted for review and approval to Engineer/Owner prior to initiating pullback operations.

1.09 NOTIFICATION:

The Town Representative must be notified 48 hours (minimum) in advance of starting the drilling work. The Directional Bore shall not begin until the proper preparations (see Work Plan) for the operation have been completed.

1.10 MEASUREMENT AND PAYMENT

Payment methodology for this item shall be as provided in Section 01025 – Measurement and Payments.

1.11 SITE PREPARATION:

- A. Prior to any alterations to work-site, Contractor shall video record and photograph entire work area in accordance with Section 01380: Construction Photographs and Video. Two (2) copies of such documentation shall be given to the Town Representative and Engineer and one (1) copy shall remain with Contractor for a period of two (2) years following the completion of the project. Pre-construction videos and photographs shall be reviewed and approved by Town and Engineer prior to disturbing project site.
- B. The Contractor shall coordinate utilities locates with South Carolina811 (web site www.SouthCarolina811.com). Once the locate service has field marked all utilities, the Contractor shall verify each utility (including any service laterals, i.e. water, wastewater, cable, gas, electric, telecommunications, etc.) and those within each paved area. Verification may be performed utilizing Ground Penetrating Radar, hand dig, or vacuum excavation. Prior to initiating drilling, the Contractor shall record on the drawings both the horizontal and vertical location of the utilities off of a predetermined baseline. The Contractor shall utilize the Ground Penetrating Radar over the projected bore path whether utilities are located in the horizontal drill pathway or not, in order to reduce the opportunity of conflicting with any unforeseen obstructions.
- C. Work site shall be graded and filled to provide a level working area. No alterations beyond what is required for operations are to be made. Contractor shall confine all activities to designated work areas.
- D. Following drilling operations, Contractor will de-mobilize equipment and restore the work-site to original condition. All excavations will be backfilled and compacted in accordance with Section 02220 Excavating, Backfilling, Compacting and the Construction Details.

1.12 ENVIRONMENTAL PROTECTION:

Contractor shall place erosion and sediment control measures between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by contract documents, permits, and state, federal and local regulations. Contractor shall place approved protection methods to limit intrusion upon project area. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. Contractor shall adhere to all applicable environmental regulations including environmental condition stated in local, state and federal permits. Fuel may not be stored in bulk containers (greater than 25 gallons) within 200' of any water-body or wetland.

1.13 SAFETY:

Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner.

1.14 DOMESTIC WATER:

For the supply of domestic water during construction, the Contractor shall utilize a Town meter assembly (meter & backflow device) and pay for all water consumed.

PART 2. MATERIALS

2.01. HIGH DENSITY POLYETHYLENE (HDPE, PE) PIPE AND FITTINGS:

A. Materials:

Materials used for the manufacture of polyethylene pipe and fittings shall be PE4710 high density polyethylene meeting cell classification 345464C per ASTM D3350; and meeting Type III, Class B or Class C, Category 5, Grade P34 per ASTM D1248; and shall be listed in the name of the pipe and fitting Manufacturer in PPI TR-4, Recommended Hydrostatic Strengths and Design Stresses for Thermoplastic Pipe and Fittings Compounds, with a standard grade rating of 1600 psi at 73°F per ASTM D-2837. The Manufacturer shall certify that the materials used to manufacture pipe and fittings meet these requirements.

B. Polyethylene Pipe

HDPE Pipe shall conform to AWWA C906, DR-11, Ductile Iron Pipe (DIP) size and NSF

61 Standard. For pipe sizes 24-inch and larger, the HDPE may be IPS size, DR 11. Polyethylene pipe shall be manufactured in accordance with ASTM F714, Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter and shall be so marked. Each production lot of pipe shall be tested for (from material or pipe) melt index, density, % carbon, dimensions and either quick burst or ring tensile strength (equipment permitting).

C. Nominal Pipe Sizes

Nominal pipe sizes only are indicated on the drawings and bid form. Outside diameter of pipe is generally 1 to 2-inches greater than the nominal pipe diameter.

D. Service Identification:

Permanent identification of piping service shall be provided by co-extruding multiple equally spaced color stripes into the pipe outside surface or by solid colored pipe shell. The striping material shall be the same material as the pipe material except for color. Colors for identifying piping service shall be in accordance with Town Standards for Water and Sewer Design and

Construction.

E. Back-up Rings and Flange Bolts:

Flange adapters shall be fitted with lap joint flanges pressure rated equal to or greater than the mating pipe. Convuluted style backup rings preferred over the flat stock rings. The lap joint flange bore shall be chamfered to provide clearance to the flange adapter radius. Flange bolts and nuts shall be Grade 2 or higher.

F. Manufacturer's Quality Control:

The pipe and fitting manufacturer shall have an established quality control program responsible for inspecting incoming and outgoing materials. Incoming polyethylene materials shall be inspected for density, melt flow rated, and contamination. The cell classification properties of the material shall be certified by the supplier, and verified by Manufacturer's Quality Control.

G. Polyethylene Mechanical Joint (MJ) Adapters:

Mechanical connections of HDPE pipe to Ductile Iron or PVC piping, mechanical joint fittings, or valves shall be through a fusible polyethylene mechanical joint adapter with an integral, internal stainless steel insert. Mechanical joint adapter shall be of the same DR rating as the pipe. Adaptors shall include longer T-bolts or all thread rods with nuts at the mechanical joint bell.

2.02 FUSIBLE POLYVINYL CHLORIDE (FPVC) PIPE (IF APPROVED BY OWNER):

- A.** FPVC Pipe shall conform to AWWA C900, Ductile Iron Pipe Size (DIPS), DR18, and color coded. The pipe material shall be clean, virgin, National Sanitation Foundation No. 14, ASTM cell class 12454. FPVC shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or

chamfer. There shall be no bell or gasket of any kind incorporated into the pipe. Each length shall be clearly marked with the name of the manufacturer, location of the plant, pressure rating, nominal pipe diameter.

- B. FPVC pipe shall not be bent beyond the manufacturer's recommended minimum allowable bend radius. The published allowable bend radius is applicable to all pipe alignments, including during handling and movement, as well as final positioning and installation.
- C. FPVC pipe shall not be subjected to a pull force greater than 80% of the manufacturer's recommended allowable pull force for the pipe wall thickness and size. Allowable pull force is the tensile load that may be safely applied to the pipe and is a function of the tensile stress capacity of FPVC and the cross-sectional area of the FPVC pipe section. FPVC pipe shall meet the cell class tensile stress capacity of 7,000 psi when the compound is tested per ASTM 1784. Safety factor shall be 2.5.

2.03 DRILLING FLUIDS SHALL BE A BENTONITE SLURRY.

2.04 DELIVERY, STORAGE AND HANDLING OF MATERIALS:

- A. Inspect materials delivered to the site for damage. All materials found during inspection or during the progress of work to have cracks, flaws, cracked linings, or other defects shall be rejected and removed from the job site without delay.
- B. Unload and store opposite or near the place where the work will proceed with minimum handling. Store material under cover out of direct sun light. Do not store directly on the ground. Keep all materials free of dirt and debris. Storage and handling of pipe shall be in accordance with manufacturer's recommendations.
- C. Contractor is responsible for obtaining, transporting and sorting any fluids, including water, to the work site.
- D. Disposal of fluids is the responsibility of the Contractor. Disposal of fluids shall be done in a manner that is in compliance with all permits and applicable federal, state, or local environmental regulations. The bentonite drilling slurry, as appropriate, shall be recycled for reuse in the hole opening operation, or shall be hauled by the Contractor to an approved location or landfill for proper disposal. Contractor shall thoroughly clean entire area of any fluid residue upon completion of installation, and replace any and all plants, vegetation, and sod damaged, discolored or stained by drilling fluids. Contractor is responsible for the cost of disposal including but not limited to hauling and disposal charges.
- E. Disposal site for disposal of drilling fluids is the responsibility of the contractor or subcontractor involved with horizontal directional drilling. It shall be a state approved facility, permitted to accepted drilling fluids and waste.

2.05 EQUIPMENT REQUIREMENTS

A. GENERAL:

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing, delivery and recovery system of sufficient capacity to successfully complete the drill, a drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be re-used, a guidance system to accurately guide boring operations, a vacuum truck of sufficient capacity to handle the drilling fluid volume, trained and competent personnel to operate the system. All equipment shall be in good, safety operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

B. DRILLING SYSTEM

1. Drilling Rig:

The directional drilling machine shall consist of a power system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations. The rig shall be grounded during drilling and pullback operations. There shall be a system to detect electrical current from the drilling string and an audible alarm which automatically sounds when an electrical current is detected.

2. Drill Head:

The drill head shall be steerable and shall provide the necessary cutting surfaces and drilling fluid jets.

3. Mud Motors (if required):

Mud motors shall be of adequate power to turn the required drilling tools.

4. Drill Pipe:

Shall be constructed of high quality 4130 seamless tubing, grade D or better.

C. GUIDANCE SYSTEM:

Magnetic Guidance System (MGS) wireline, wireless or gyroscopic shall provide real time electronic data to the inspector on request. All daily data and project data shall be displayed on the "As Built". If deemed necessary, Town shall, at the contractor's expense, require a third party to verify the drill path profile and location of the installed line to Town satisfaction. The guidance system shall be capable of tracking at all depths up to forty feet (40') below the maximum proposed depth and in any soil condition, including hard rock. It shall enable the driller to guide the drill head by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The guidance system shall be accurate to +/-2% of the vertical depth of the borehole at sensing position at depths up to one hundred feet and accurate within 1.5 meters horizontally.

The Guidance System shall be of a proven type and shall be operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies on the surface of the drill path and shall consider such influences in the operation of the guidance system if using a magnetic system.

1. Bore Tracking and Monitoring:

At all times during the pilot bore the Contractor shall provide and maintain a bore tracking system that is capable of accurately locating the position of the drill head in the x, y, and z axes. The Contractor shall record these data at least once per drill pipe length.

a. Downhole and Surface Grid Tracking System:

Contractor shall monitor and record x, y, and z coordinates relative to an established surface survey bench mark. The data shall be continuously monitored and recorded at least once per drill pipelength.

b. Deviations between the recorded and design bore path shall be calculated and reported on the daily log. If the deviations exceed plus or minus 5 feet (horizontal or vertical deviation) from the design path, such occurrences shall be reported immediately to Town. The Contractor shall undertake all necessary measures to correct deviations and return to design line and grade.

c. Drilling Fluid Pressures and Flow Rates:

Drilling fluid pressures including drilling fluid pressure in the borehole annular space and flow rates shall be continuously monitored and recorded by the Contractor. These measurements

shall be made during pilot bore drilling, reaming, and pullback operations. D. DRILLING FLUID (MUD) SYSTEM:

1. Mixing System:

A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid. Mixing system shall continually agitate the drilling fluid during operations.

2. Drilling Fluids:

Drilling fluid shall be composed of clean water, appropriate additives and clay. Water shall be from an authorized source with a minimum pH of 6.0. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No potentially hazardous material may be used in drilling fluid.

3. Delivery System:

The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and conveyed to the drilling fluid recycling system or disposed of properly. A berm, minimum of 12" high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid cycling system to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage, recycling, and disposal facilities.

4. Drilling Fluid Viscosity

In the event that inadvertent returns or returns loss of drilling fluid occurs during pilot hole drilling operations, Contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a Marsh funnel and then wait another 30 minutes. If mud fracture or returns loss continues, Contractor shall cease operations and notify the Engineer of Record and Owner. The Engineer of Record, Owner and Contractor shall discuss additional options and work will then proceed accordingly.

5. Drilling Fluid Recycling System:

The drilling fluid recycling system shall separate sand, dirt and other solids from the drilling fluid to render the drilling fluid re-usable. Spoils separated from the drilling fluid will be stockpiled for later use or disposal.

6. Control of Drilling Fluids:

The Contractor shall follow all requirements of the Frac-Out and Surface Spill Contingency Plan as submitted and approved and shall control operational pressures, drilling mud weights, drilling speeds, and any other operational factors required to avoid hydrofracture fluid losses to formations, and control drilling fluid spillage. This includes any spillages or returns at entry and exit locations or at any intermediate point. All inadvertent returns or spills shall be promptly contained and cleaned up. The Contractor shall maintain on-site mobile spoil removal equipment during all drilling, pre-reaming, reaming and pullback operations and shall be capable of quickly removing spoils. The Contractor shall immediately notify the Engineer of Record and Owner of any inadvertent returns or spills and immediately contain and clean up the return or spill.

E. OTHER EQUIPMENT:

1. Pipe Rollers:

Pipe rollers shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Sufficient number of rollers shall be used to prevent excess sagging of pipe and to protect trees during pipe pullback operations. Sizing and maximum spacing and location of pipe rollers along pipe length shall adhere to pipe manufacturer's recommendations.

2. Pipe Rammers:

Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of the Engineer of Record and Owner.

3. Restrictions:

Other devices or utility placement systems for providing horizontal thrust other than those defined above in the preceding sections shall not be used unless approved by the Engineer of Record and Owner prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

F. DATA LOGGER.

1. General:

A data logger shall be used to record and document all butt weld fusion processes. A record shall be made of every fusion weld made. The data logger shall be of a rugged, handheld computer as the recording device connected to a data collection device. The data collection device shall record the heater temperature and fusion pressure profile over time. All data shall be recorded and transmitted to the handheld computer where the joint report will be stored, viewed, printed, or transferred to a desk top computer for archiving. The operator associated with the fusion process shall utilize the data logger report as one means to confirm a complete and proper weld. This data shall be made immediately available to the Engineer of Record and Owner, upon request. Unless approved otherwise by the Engineer of Record and Owner, a written or downloaded report for each fusion weld process shall be required and submitted to the Engineer of Record and Owner after the fusion weld process for review and approval prior to initiating pullback operations. If a potential defect fusion weld is suspected by the Engineer of Record, Owner or the Contractor, the work shall stop and a mutually acceptable (between the Contractor, Engineer of Record and Owner) corrective action plan shall be executed.

2. Data logger:

Equipment shall be Mc Elroy Datalogger Model no. DL6303 DL 6304 or the Engineer of Record and Owner approved equal.

PART 3. EXECUTION

3.01 DRILLING PROCEDURES

A. DRILL PATH:

Prior to drilling Contractor shall utilize all verified locate information to determine drill pathway. Marked up drawings (see Site Preparation paragraph) shall be on site at all times, and referred to during the drill operation.

B. GUIDANCE SYSTEM:

Contractor shall provide and maintain instrumentation necessary to accurately locate the pilot hole (both horizontal and vertical displacements), measure pilot string torsional and axial forces and measure drilling fluid discharge rate and pressure. The Engineer of Record and Owner shall have access to instrumentation and readings at all times during operation.

C. PILOT HOLE:

The pilot hole shall be drilled along the path shown on the plans and profile drawings. Unless approved otherwise by the Engineer of Record and Owner, the pilot-hole tolerances shall be as follows:

1. Elevation:
As shown on the plans.
2. Alignment:
As indicated; at a minimum three (3) feet within the right-of-way, easement, wetland boundary, or other restrictive designations.
3. Curve Radius:
The pilot hole radius shall be no less than 80% of the maximum bending radius as recommended by the pipe manufacturer of the pipe being installed. In no case shall the bending radius be less than 30 pipe diameters, unless approved otherwise by the Engineer of Record and Owner.
4. Entry Point Location:
The exact pilot hole entry point shall be within ± 5 feet of the location shown on the drawings without prior the Engineer of Record and Owner written permission for deviation.
5. Exit Point Location:
The exit point location shall be within ± 5 feet of the location shown on the drawings without prior the Engineer of Record and Owner written permission for deviation.
6. Limitations on Depth:
Pipe larger than bore hole path shall be specifically designed by the engineer and approved by the Engineer of Record and Owner. Where utilities cross under roads, the depth of cover shall comply with applicable authorizing agency and permit.
7. Water Main and Non-Water Main Separation Requirements:
The minimum separation requirements between water main and a nonwater main shall be as required by South Carolina EPD and in accordance with relevant permits. The current requirements are specified below:
 - a. Water mains shall be laid at least ten (10) feet horizontally from any existing or proposed sanitary sewer, storm sewer or sewer manhole. The distance shall be measured edge-to-edge.
 - b. When local conditions prevent a horizontal separation of 10 feet, the water main may be laid closer to a sewer (on a case-by-case basis) provided the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer. It is advised that the sewer be constructed of materials and with joints that are equivalent to water main standards of construction and be pressure tested to assure water-tightness prior to backfilling.

D. PULL BACK:

After successfully reaming bore hole to the required diameter, Contractor will pull the pipe through the bore hole. In front of the pipe will be a swivel and appropriate tools per the contractor's approved Work Plan. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole. During pull-back operations Contractor will not apply more than the maximum safe pipe pull force at any time. Maximum allowable tensile

force imposed on the pull section shall be equal to 80% of the pipe manufacturer's safety pull (or tensile) strength.

1. Torsional stress shall be minimized by using a swivel to connect a pull section to the reaming assembly.
2. The pullback section of the pipeline shall be supported during pullback operations so that it moves freely and the pipe is not damaged.
3. External pressure shall be minimized during installation of the pullback section in the reamed hole. Damaged pipe resulting from external pressure shall be replaced at no cost to the Town.
4. Buoyancy modification shall be at the discretion of the Contractor and shall be approved by the Engineer of Record and Owner. The Contractor shall be responsible for any damage to the pull section resulting from such modifications.
5. In the event that pipe becomes stuck, Contractor will cease pulling operations to allow any potential hydro-lock to subside and will commence pulling operations. If pipe remains stuck, Contractor will notify the Engineer of Record and Owner. The Engineer of Record, Owner and Contractor will discuss options and then work will proceed accordingly.

3.02 PIPE ASSEMBLY

A. GENERAL:

Pipe shall be welded/fused together in one length, if space permits. HDPE Pipe may be placed on pipe rollers before pulling into bore hole to minimize damage to the pipe. FPVC pipe shall be placed on pipe rollers, in accordance with manufacturer's recommendations, before pulling into bore hole to minimize damage to the pipe. It is critical that all original oxidized pipe surface be removed in order for fusion to take place. The scraping process requires that approximately 0.10" of the outer "skin" be removed in order to penetrate the oxidation and contamination barrier. Oxidized pipe surface simply will not bond.

B. ACCEPTABILITY OF DAMAGED PIPE:

Cuts or gouges that reduce the wall thickness by more than 10% are not acceptable and must be cut out and discarded. C. BUTT FUSION LOG:

Each butt fusion shall be recorded and logged by an approved electronic monitoring device (Reference paragraph 2.04 F.2.) affixed to the fusion machine.

1. Joint data shall be submitted for review and approval to the Engineer/Owner prior to initiating pullback operations.
2. Joint data shall also be submitted as part of the As-Recorded information, in accordance with this specification.
3. Joint fusion reports shall reference station number and street name for geographical reference of installed location. D. BUTT FUSION TESTING:

When requested by the Engineer of Record and Owner, butt fusion testing will be performed. The test fusion shall be allowed to cool completely, and then fusion test coupons shall be cut out. The test shall involve McElroy's "In Field Tensile Tester" which utilizes test coupons (conducted in accordance with manufacturer's recommendations) or Town pre-approved test methods and/or manufacturer. E. MECHANICAL JOINING:

Polyethylene pipe and fittings may be joined together or to other materials by means of flanged connections (flange adapters and back-up rings) or mechanical couplings designed for joining polyethylene pipe or for joining polyethylene pipe to another material. Mechanical couplings shall be fully pressure rated and fully thrust restrained such that when installed in accordance with manufacturer's recommendations, a longitudinal load applied to the mechanical coupling will cause

the pipe to yield before the mechanical coupling disjoins. External joint restraints shall not be used in lieu of fully restrained mechanical couplings.

F. GENERAL REQUIREMENTS FOR OPEN-CUT CONSTRUCTION:

Mains shall be constructed of the materials specified and as shown on the drawings. Pipe and fittings shall be carefully handled to avoid damage, and if feasible, while they are suspended over the trench before lowering, they shall be inspected for defects and to detect cracks. Defective, damaged or unsound pipe or fittings shall be rejected. Each section of the pipe shall rest upon the pipe bed for the full length of its barrel. Any pipe which has its grade or joint disturbed after laying shall be taken up and re-laid. Only suitable soils shall be utilized in the backfill operation. All precautions shall be taken to prevent sand or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any time the pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Town. Plugs shall remain in pipe ends until all water is removed from the trench. Any sand or foreign material that enters the pipe shall be removed from the pipe immediately. No pipe shall be installed when trench conditions (standing water, excess mud, etc.) or the weather (rain, etc.) is unsuitable for such work, except by permission of the Engineer of Record and Owner. Any section of pipe already laid which is found to be defective or damaged shall be replaced with new pipe. Lines shall be located as shown on the drawings. The Contractor shall investigate well in advance of pipe laying any conflicts which may require readjustments in planned locations and advise the Engineer of Record and Owner of the results of these investigations so that the necessary modifications may be determined.

Refer to Town Standards for Water and Sewer Design and Construction and other sections of the Technical Specifications for additional requirements.

3.03 SWABBING

- A. The purpose of swabbing a new pipeline is to conserve water while thoroughly cleaning the pipeline of all foreign material, sand, gravel, construction debris and other items not found in a properly cleaned system. Prior to pressure testing of a new pipeline, swabbing shall be utilized as indicated below.
- B. All new watermain shall be hydraulically cleaned with a polypropylene swabbing device to remove dirt, sand and debris from main.
- C. If swabbing access and egress points are not provided in the design drawings, it will be the responsibility of the Contractor to provide temporary access and egress points for the cleaning, as required.
- D. Passage of cleaning poly swabs through the system shall be constantly monitored, controlled and all poly swabs entered into the system shall be individually marked and identified so that the exiting of the poly swabs from the system can be confirmed.
- E. Cleaning of the system shall be done in conjunction with, and prior to, the initial filling of the system for its hydrostatic test.
- F. The Contractor shall insert flexible polyurethane foam swabs (two pounds per cubic foot density) complete with rear polyurethane drive seal, into the first section of pipe. The swabs shall remain there until the pipeline construction is completed. A Town representative shall be present for the swabbing process including swab insertion and retrieval.
- G. The line to be cleaned shall only be connected to the existing distribution system at a single connection point.
- H. Locate and open all new in-line valves beyond the point of connection on the pipeline to be cleaned during the swabbing operation.

- I. At the receiver or exit point for the poly swab, the Contractor is responsible for creating a safe environment for collection of debris, water and the swab. Considerations shall be made for protecting surrounding personnel and property and safe retrieval of the swab.
- J. Only with Town personnel on-site shall the supply valve from the existing distribution system be operated. Cleaning and flushing shall be accomplished by propelling the swab down the pipeline to the exit point with potable water. Flushing shall continue until the water is completely clear and swab(s) is/are retrieved.
 - 1. Re-apply a series of individual swabs in varying diameters and/or densities as required, to attain proper cleanliness of pipeline.
 - 2. Swabbing speed shall range between two and five feet per second.
- K. After the swabbing process, pressure testing and disinfection, as appropriate, of the pipe shall be completed in accordance with the Town Standards for Water and Sewer Design and Construction and this specification.

3.04 TESTING

A. DISINFECTION TESTS:

- 1. Upon satisfactory completion of the hydrostatic testing, all new water lines and other pipe related installations which may have been contaminated by the work shall be disinfected prior to being placed in service. Disinfection shall follow the applicable provisions of AWWA Standard C651 – AWWA Standard for Disinfecting Water Mains, the Rules for Safe Drinking Water as published by the South Carolina Environmental Protection Division, and as outlined in the Town Standards for Water and Sewer Design and Construction.

B. HYDROSTATIC (PRESSURE AND LEAKAGE) TESTS:

- 1. Contractor shall test FPVC pipelines installed under this Contract in accordance with Section 15044: Pressure Testing of Piping.
- 1. Contractor shall test HDPE pipelines installed under this Contract in accordance with these specifications prior to acceptance of the pipeline by the Town. All field tests shall be made in the presence of the Town Representative. Except as otherwise directed, all pipelines shall be tested. Unless approved otherwise by Town, all fusible or butt weld joints shall be tested, including MJ adapter fittings associated with the new construction. All piping to operate under liquid pressure shall be tested in sections of approved length. The pressure testing of an HDPE line section shall be tested separately from the PVC and DIP line sections. Where impractical, the HDPE test section shall include only a minimum amount of PVC and DIP within the test section. If at all possible, the PVC and DIP test sections shall be left exposed during the pressure test for visual leakage observation. For these tests, the Contractor shall furnish clean water, suitable temporary testing plugs or caps, and other necessary equipment, and all labor required. Town may elect to furnish suitable pressure gauges for these tests. If not, the Contractor will furnish suitable pressure gauges, calibrated by an approved testing laboratory, with increments no greater than 2 psi. Gauges used shall be of such size that pressures tested will not register less than 10% or more than 90% of the gauge capacity. All valved sections shall be hydrostatic tested to insure sealing (leak allowance) of all line valves. All HDD over 100 linear feet shall be air pressure tested (above ground) @ 5 PSI for a period of 15 minutes, prior to insertion. There shall be no pressure loss allowed.
- 2. Unless it has already been done, the section of pipe to be tested shall be filled with potable water and air shall be expelled from the pipe. If blow offs or other outlets are not available at high points for releasing air, the Contractor shall provide 1 inch (minimum taps and blow-off valves (at the 12:00 position), as necessary. The cost of constructing blow-off valves and plugging them, after a successful pressure test, shall be included in the unit price bid amount for the HDD installation.

3. Hydrostatic testing shall consist of 150 psig test pressures, based on the elevation of the highest point of the line or section under test. Pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Town Representative. The pump, pipe connection and all necessary apparatus shall be furnished by the Contractor and shall be subject to the approval of the Town Representative.
5. Maximum duration for pressure test, including initial and final phase of the test, shall not exceed eight (8) hours. If the test is not completed due to leakage, equipment failure, etc., depressurize the test section, and then allow it to “relax” for at least eight (8) hours before bringing the test section up to test pressure again.
6. Initial Phase of Pressure Testing: First, all air must be removed from the test section. The pressure test shall be completed after the line is backfilled. If possible, all flanged or mechanical joint valves and fittings shall be left exposed for visual leak inspection. If possible all PVC and DIP test sections shall be left exposed for visual leak inspection. Initially, the pressure within the test section should be raised to approximately 160 psi and then allowed to be idle (no additional make-up water/pressure to be injected), for approximately 3 hours. During this 3 hour period, the test section shall be allowed to stabilize and come to an equilibrium stage. No additional make-up water/pressure shall be applied to the test section during this 3 hour stabilization period unless the line pressure drops below 140 psi. In this case, make-up water/pressure shall only be applied to the test section to maintain a minimum of 140 psi (during the 3 hour stabilization period).
7. Final Phase of Pressure Testing:

The final phase of the pressure test shall involve applying make-up water/pressure to achieve an “initial test pressure” of 150 psi (minimum)/155 psi (maximum). The test section is then allowed to be idle (no make-up water/pressure is added) for a period of 2 hours. After this 2 hour period, make-up water/pressure is applied and measured to re-establish the “initial test pressure”. The quantity of water utilized to re-pump the line shall be measured and compared to the allowable quantities as determined by the table below. If the actual make-up water quantity is equal or less than the allowable amount, the pressure test passes. If the actual make-up water quantities are greater than the allowable amount, the pressure test fails (see enclosed Town test form).

Table 1: Allowable Make Up Amount			
Make-up Water Allowance			
Nominal Pipe Size (inches) (Gallons/Linear feet of Pipe)			
2hour test			
6			0.0030
8	0.0050	10	0.0065
12			0.0115
14			0.0140
16			0.0165
18			0.0215
20			0.0275
22			0.0350
24			0.0440
26			0.0500
28			0.0555
30			0.0635
32			0.0715
34			0.0810
36			0.0900
42			0.1155
48			0.1350
54			0.1570

8.

In the event a section fails to pass the tests, the Contractor shall do everything necessary to locate, uncover (even to the extent of uncovering the entire section), and replace the defective pipe, valve, fitting or joint. Visible leaks shall be corrected regardless of total leakage. Lines which fail to meet these tests shall be retested as necessary until test requirements are complied with. All testing shall be performed at the Contractor's expense.

9. If, in the judgment of the Engineer of Record and Owner, it is impracticable to follow the foregoing procedures exactly for any reason, modifications in the procedure shall be made with approval; but, in any event, the Contractor shall be responsible for the ultimate tightness of the piping within the above requirement. Re-disinfection of water mains shall be required if the line is de-pressurized for repairs prior to tying.

C. LOCATE WIRE:

Two locate wires shall be provided on all HDPE and FPVC installations. For HDD projects, locate wire shall be 10 AWG high strength copper-clad carbon steel with 30 mils (min) insulation. For open-cut portions of the project, the locate wire construction and testing shall meet the requirements as listed in the General Notes and Construction Details in the Construction Drawings. The external color shall be blue for water and green for wastewater. Locate wire shall be brought to grade within

a valve box or locate station box at all “entry point locations” and all “exit point locations”. For HDD projects, there is no maximum length or interval between locate wire stations. The testing and report requirements within the General Notes of the Construction Drawings shall be required except as modified herein. If both locate wires break or are not continuous (from end to end), the Contractor shall, at the Contractor’s expense, provide soft-digs for the portions of the main with 12-feet or less cover (every 25 LF along main) to confirm as-built data. This soft-dig data shall be recorded on the as-built record drawings.

D. TRACER WIRE AND DETECTION TAPE:

Contractor shall furnish and install locate wiring on all non-metallic watermain in accordance with JWSC Standard Details. Locate wire shall be brought to grade outside a valve box or locating station box, as required, at four hundred and seventy five (475') foot intervals (maximum). In addition, all watermain shall have deflection tape installed two (2') feet above the pipe. Tracer wire and detection tape shall be as specified in paragraphs above.

Installed locate wiring shall be tested by the contractor as part of the inspection process, using a qualified tester and suitable testing equipment. The contractor shall notify the JWSC Inspector at least 48 hours in advance of the locate wire field testing schedule.

Town RECORD of PRESSURE and LEAKAGE TEST (HDPE PIPE)

Project: _____

BGJWSC REPRESENTATIVE: _____ SIGNATURE _____

_____/_____/_____ TEST TIME: _____ BEGIN _____ END _____

TEST SECTION:

TEST DATE:

OTHER TEST PHASE ATTENDEE'S:

PRESSURE AND LEAKAGE TEST CALCULATIONS:

_____WATER MAIN WASTEWATER FORCE MAIN _____RECLAIMED WATER MAIN

Line Pressure Test:

Start: _____ PSI (Minimum of 150 PSI or 2x operating pressure)

End: _____ PSI

PSI Difference: _____ PSI (IF GREATER THAN 5 PSI, THE TEST FAILS)

TYPE OF HDPE PIPE (DR RATING) (1)	DIAMTER OF PIPE (INCHES) (2)	LINEAR FEET (3)	2-HOUR TEST FACTOR (see Town TABLE) (4)	TOTAL ALLOWABLE LEAKAGE (3X4) (5)

Total Allowable Leakage Amount (Gallons):

Allowable Leakage Amount _____ Gal _____ Oz. (32 oz per qt; 120 of per gal)

Actual Leakage Amount _____ Gal _____ Oz.

Pressure and Leakage Test Results (Pass or Fail) _____

The above is based on the average pressure test of 150 PSI, 2 hour test period. If the actual leakage amount is equal or less than the allowable leakage amount, the leakage test is acceptable.

Town 2 HOUR TEST FACTORS						
NOMINAL PIPE SIZE (inches) – ALLOWABLE LEAKAGE AMOUNT (Gallons/Linear Feet of Pipe)						
4" – 0.0020	6" – 0.0030	8" – 0.0050	10" – 0.0065	12" – 0.0115	14" - 0.0140	16" – 0.0165

18" – 0.0215	20" – 0.0275	22" – 0.0350	24" – 0.0440	26" – 0.0500	28" – 0.0500	30" – 0.0635
32" – 0.0715	34" – 0.0810	36" – 0.0900	42" – 0.1155	48" - 0.1350	54" – 0.1570	

File No. _____

END OF SECTION

SECTION 02660 PRESURE PIPING SYSTEM

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall furnish and install a pressure pipe and/or sanitary forcemain piping system, complete, tested and ready for operation. The work shall also include such connections, reconnections, temporary service and all other provisions in regard to the existing operation and modification as is required to perform the new work. All references to Industry Standards (ASTM, ANSI, AWWA, etc.) shall be to the latest revision unless otherwise stated. Only those materials included in the Town of Ridgeland Standard Water and Sewer Specifications, details and testing shall be installed, unless otherwise approved by Owner or Engineer. All materials shall be new unless specifically called for otherwise.
- B. Shop Drawing Submittals
- Complete shop drawings, actual catalog data, brochures and descriptive literature will be required and shall meet the requirements of the Town of Ridgeland Water and Sewer Standards. Submittals shall be in accordance with Section 01340: Shop Drawings, Working Drawings, and Samples. The Engineer may at any time require the Contractor to provide a complete detailed shop drawing submittal for any material which may, in the Engineer's opinion, not be in compliance with the Town of Ridgeland Water and Sewer Standards.
1. The Contractor shall make submittals in the format(s) noted in Section 01340: Shop Drawings, Working Drawings, and Samples for the approval of the Engineer.
 2. The Contractor shall submit all drawings and schedules sufficiently in advance of construction requirements to allow ample time for checking, correcting, resubmitting, and rechecking; no claim by the Contractor for delays arising from his failure in this respect shall be allowed.
 3. All shop drawings submitted must bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings without this stamp of approval shall not be considered and will be returned to the Contractor for resubmission. If documents vary from the requirements of the Contract Documents because of standard shop practice or other reason, the Contractor shall make mention in such letter of variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment; otherwise, the Contractor shall not be relieved of the responsibility of executing the work in accordance with the Contract Documents even though such shop drawings have been approved.
 4. Where a shop drawing is submitted by the Contractor indicates a departure from the Contract which the Engineer deems to be a minor adjustment in the interest of the Town and which does not involve a change in Contract Price or extension of time, the Engineer will approve the drawings.
 5. The approval by the Engineer of shop drawings will be general and shall not relieve the Contractor from the responsibility for inherent error which may exist.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All material shall be free from defects impairing strength and durability, shall be of the best commercial quality for the purpose specified, and shall have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

B. Pipe

Pipe for pressure lines in sizes up to and including 48 inches shall be ductile iron, or polyvinyl chloride (PVC) as shown on the drawings and as herein specified. Pipe for pressure lines larger than 48 inches shall be ductile iron. Pipe to be used as a casing in sizes 4 inches and larger shall be welded steel pipe as shown on the drawings and as herein specified. Pipe to be installed underground shall be push-on joint type. Pipe installed on bridges, piles or other above ground installations shall be restrained joint ductile iron pipe or flanged ductile iron pipe as described in these specifications. PVC pipe shall not be used in above ground applications. Underground pipe shall be furnished in nominal 18 or 20-foot laying lengths unless indicated otherwise on the drawings. Pipe shall be cut to length as required to fit installation conditions. Pipe sizes and applications shall conform to the following chart.

PIPE	PIPE SIZE	JOINT TYPE	APPLICATION
Ductile Iron	3 inches and larger	Mechanical joint, push-on joint, flanged joint, ball joint, etc.	pressure pipe and services-3 inches & 4 inches for services only
PVC DR 14, DR 18	14 inches thru 48 inches	Push-on joint	pressure pipe and services-4 inches for services only
PVC, DR 14, DR 18 (C900)	4 inches thru 12 inches	Mechanical joint, restrained	Water fire mains / lines
SDR 21 PVC	2 inches only	Push-on joint	pressure pipe only
Polyethylene	2 inches and smaller	No joints in pipe	services only
Galvanized	smaller than 3 inches	I.P.T.	flushing valves and contaminated soil sites
Steel	4 inches and larger	Welded	casing only

1. Ductile Iron Pipe

Ductile iron pipe wall thickness and pressure class shall conform to ANSI Specification ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151) with pressure class 150 as a minimum. Pipe shall also be certified by ISO 9000 by an accredited registrar. Each length shall be clearly marked with the name of the manufacturer, location of the foundry, pressure rating, thickness or pressure class, nominal pipe diameter, weight of pipe without lining and length. All pipe furnished by the manufacturer shall be cast and machined at one foundry location to assure quality control and provide satisfactory test data. All ductile iron pipes shall be externally coated and internally lined as specified in this section. All ductile iron pipe shall be color coded blue by field painting a blue stripe, 3 inches wide, along the crown of the pipe barrel. **Ductile iron pipe requires a Protecto 401 interior coating or approved equal.**

2. Polyvinyl Chloride Pressure Pipe

- a. Pressure pipe 4" and larger shall be constructed of Polyvinyl Chloride (PVC) pipe with a dimension ratio (DR) of 18 or 14 suitable for a working pressure of 150 PSI at 73.4 F. Pipe shall conform to AWWA Standard C900 for Polyvinyl Chloride Pressure Pipe, 4" through 12" for water distribution, latest edition or revision. Pipe shall be manufactured to cast iron equivalent diameters. PVC DR 25 pipe shall conform to AWWA Standard C905 for 16-inch pipe. Pipe is to be manufactured to ductile iron pipe equivalent outside

diameters.

- b. Pressure pipe and fittings smaller than 4" shall be Polyvinyl Chloride (PVC) pipe SDR 21 PR 200 and shall conform to ASTM D2241, latest revision. The pipe shall have a gasketed bell with rubber ring conforming to ASTM F477. Fittings for 2" pressure pipe shall be compatible with the type pipe specified except for flushing connections which shall use solvent weld fittings. Pipe for flushing connections shall be Polyvinyl Chloride (PVC) pipe, Schedule 40 and shall conform to ASTM D1785.
- c. Fittings for four inch (4") and larger pipe shall be ductile iron and shall conform to the type of pipe being installed. The fittings shall have a minimum working pressure of 150 psi. Fittings shall be cement lined in accordance with AWWA C104/ANSI A21.4 American National standard for Cement- Mortar Lining for Ductile-Iron pipe and Fittings for Water and shall be furnished with an external asphaltic coating.
- d. Buried Warning and Identification Tape: Polyethylene plastic and metallic core or metallic-faced, acid and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, three inch (3") minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar working. Color and printing shall be permanent, unaffected by moisture or soil.
 - i. Warning Tape Color Codes: Blue (Water Systems)
 - ii. Tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to three feet (3') deep.
- e. Locate Wire: All pressure pipe shall be provided with 12-gauge continuous wire on top of pressure pipe. All 12-gauge wiring shall be terminated inside valve boxes or at a maximum of 475' intervals with a minimum of 36 inches excess wiring rolled up inside the valve box.

3. Steel Casing Pipe

- a. Steel casing pipe shall be per specification 02400 (jack and bore operation), in conjunction with the approving agency's requirements. The governing authority's minimum requirements shall not be deviated from for this project.

C. Service Lines

1. Polyethylene Tubing

All services 2 inches and smaller shall be polyethylene tubing. Tubing shall be manufactured of PE 3408, High Density Polyethylene (HDPE), in accordance with AWWA C901, ASTM D1248, ASTM D2239, ASTM D2737 and ASTM D302660. The tubing shall have a minimum working pressure of 200 psi. Polyethylene tubing shall be copper tube size SDR9 and shall be colored blue. HDPE pipe shall have ultraviolet (UV) inhibitors for protection against direct sunlight for 4 years. Inserts for polyethylene tubing shall be 316 stainless steel. Tubing shall be approved for use with pressure pipe by the National Sanitation Foundation (NSF-14) and shall be continuously marked at intervals of not more than two feet with the following:

- a. Nominal size
- b. Pressure rating

- c NSF seal
- d Manufacturer's name or trademark
- e Standard dimension ratio
- f ASTM specification

D. Fittings

Fittings shall have joints that match the type of pipe furnished except as follows or as otherwise specified. Fittings on 2-inch PVC pipe may be PVC with push-on bell type joint or solvent weld. Fittings 3-inches and larger on push-on joint pipe installed underground shall be ductile iron with mechanical joint ends or PVC with restrained push-on bell type joint. Fittings 3 inches and larger installed above ground shall be ductile iron with flanged ends or restrained joints unless shown otherwise on the drawings. Fittings for fire hydrant laterals shall be ductile iron, including tee to lateral.

FITTING MATERIAL	FITTING SIZE	JOINT TYPE
Ductile Iron	3 inches and larger	mechanical joint, flanged joint, ball joint
PVC DR18	4 inch through 12 inch	push on joint; restrained joint
SCH 40	2 inches only	solvent weld
SCH 80	2 inches only	solvent weld, threaded
SDR 21	2 inches only	push on joint
Polyethylene	2 inches only	butt fused, compression joint
Galvanized	2 inches only	I.P.T.

1. Ductile Iron Fittings

Ductile iron fittings shall have a minimum working pressure of 150 psi. Fittings shall conform to ANSI Specification A21.10 (AWWA C110), A21.11 (AWWA C111), A21.15 (AWWA C115) and/or A21.53 (AWWA C153). Fittings shall also be certified by ISO 9000 by an accredited registrar. Compact fittings shall normally be installed. Long body fittings shall be used where the drawings specifically call for long body fittings, where compact fittings are not available, or at the option of the Contractor when the laying length is not controlled by compact fitting patterns. All fittings shall be UL/FM approved and shall conform to NSF Standard 61 as applicable. All fittings furnished by the approved manufacturer shall be cast and machined at one foundry location to assure quality control and provide satisfactory test data. Fittings shall have cast on them the pressure rating, nominal diameter of openings, manufacturer's name, foundry location, plant code and degrees or fraction of the circle. Cast letters and figures shall be on the outside body of the fitting. The Town may require random ductile testing of manufacturer's fittings. All ductile iron fittings shall be externally coated and internally lined as specified in this section.

- a Ductile iron Integral Restraint Joint (IRJ) fittings in sizes 4" through 12" shall meet or exceed the applicable standards cited in this specification. Fittings shall be manufactured of ductile iron (65.45.12) and shall conform to the material and performance requirements of ANSI/AWWA C153/A21.53. Fittings shall be designed for use on ductile iron pipe conforming to ANSI/AWWA C151/A21.51 and PVC pipe conforming to AWWA C900. All fittings shall be provided with integral restraint joints and have seals conforming to ASTM F 477 and the physical testing requirements of AWWA C111. All fittings shall be internally and externally coated as described in paragraph 2.1F. Assembly of fitting joints shall not require beveling of the plain end of a cut pipe and shall not require the use of jacks or power equipment to force the pipe

end past the gasket. Fittings shall be manufactured by (Ebba Iron Restrainers, Uni-flange, or Mega-lugs.), or engineer approved equal.

2. Polyvinyl Chloride Fittings

Fittings that are 2-inch may be PVC with push-on bell type joint or PVC with solvent weld joints as outlined in chart of Section 2.1D. Fittings that are 4 inch and larger shall be restrained push on bell joint. Restraints shall be in accordance with this specification regarding installation and material. The fittings shall conform to the appropriate sections of these specifications for PVC pipe and PVC pipe joints.

a. PVC 1120, Class 150, DR18 Fittings

Fittings shall be PVC injection molded, made from materials meeting or exceeding the requirements of cell class 12454-B material as defined in ASTM D1784. All PVC fittings must comply with, or exceed, AWWA C907. All fittings must be designed to the pressure class of DR18, with a pressure rating of 150 psi and a 2.5 to 1 factor of safety. Virgin materials only shall be used in the manufacture of PVC pressure fittings. These fittings must have UL-FM approval and shall comply with or exceed all ASTM Standards for PVC fittings. All fittings must have NSF-61 approval. The elastomeric gasket shall comply with the requirements specified in ASTM F477 and shall be attached to the bell utilizing glue (AWWA and manufacturer approved type) or rieber ring.

b. PVC 1120, SDR 21, Fittings

SDR 21 fittings shall be injection molded, push on bell type with electrometric rubber seals in accordance with ASTM D3139. Seals shall conform to ASTM F477.

c. PVC 1120, Schedule 40 And Schedule 80 Fittings

Schedule 40 and schedule 80 fittings shall have solvent weld joints and shall be in accordance with ASTM D2672.

3. Polyethylene Fittings

All polyethylene fittings shall comply with NSF-14 requirements. All fittings and couplings shall be thermoplastic nylon 6/6 material suitable for working pressure of 200 psi. Joints on all thermoplastic fittings shall be compression type with 360-degree restraint or threaded as required for a complete installation.

4. Nonstandard Fittings and Wall Castings (N/A THIS PROJECT)

5. Tapping Sleeves

a. Stainless Steel

Stainless steel tapping sleeves shall be used on 4-inch pipe and larger. Stainless steel tapping sleeves shall be all 304 stainless steel, including flanges, bolts and nuts and shall be rated for 150 psi minimum operating pressure and 200 psi minimum test pressure. The tapping sleeve shall have a pilot flange recessed for tapping per MSS SP-60. The pilot flange shall be pressure rated Class D according to AWWA C207 with 125-pound drilling conforming to ANSI B16. Each sleeve shall be supplied with a flange gasket bonded to the flange. The body gasket shall be a full circle, grid pattern, covering the entire length of the sleeve, cloth reinforced, with attached stainless-steel bridge to support the gasket at the lugs. The gasket shall be made of SBR rubber or similar material, compounded for use with water, salt solution, mild acids, bases and sewage. The sleeve shall have a 3/4-inch NPT bronze or stainless-steel test plug. All

welds shall conform to ASTM A380 and shall be fully passivated.

- E. Joints: Type of joint used shall be approved by the Engineer prior to installation. Joints shall be made in accordance with approved printed instructions of the manufacturer, and shall be absolutely watertight.
1. Mechanical Joints

All jointing materials for mechanical joints shall be provided by the pipe and/or fitting manufacturer. Material assembly and bolting shall be in accordance with ANSI Specification A21.11 (AWWA C111). All glands shall be made of ductile iron only.
 2. Push-On Joints
 - a. Ductile Iron

Push-on joints shall be in accordance with ANSI Specification A21.11 (AWWA C111). All joint material shall be provided by the pipe manufacturer and installation shall be in accordance with the manufacturer's recommended practice.
 - b. Polyvinyl Chloride (PVC)

PVC pipe joints shall be the manufacturer's standard push-on bell type with rubber sealing ring in accordance with ASTM D3139. Electrometric gaskets shall conform to ASTM F477.
 3. Ball and Socket Joints (N/A THIS PROJECT)
 4. Flanged Joints

Ductile iron flanged joints shall conform to ANSI A21.10 (AWWA C110) and ANSI A21.15 (AWWA C115). Flanges shall be in accordance with ANSI Specification B16.1, Class 125 with any special drilling and tapping as required to ensure correct alignment and bolting. Screwed flanges shall be screwed in tight at the foundry by machine before they are faced and drilled. Flanges for flanged joints and flanged specials shall be integrally cast at right angles to the axis, accurately faced, and drilled smooth and true. Gaskets shall be rubber ring type, cloth inserted, minimum thickness of 1/8 inch and shall be used on all flanges. The entire gasket, including the retainer and sealing ring, shall be one continuous piece. Retainers glued together will not be accepted. Flanged joints shall be made with bolts, bolt studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same ANSI standard as the flanges. All flange bolts and nuts shall be 316 stainless steel. Bolt studs shall be of the same quality as machine bolts. Bolts shall be tightened so as to distribute evenly the stress in the bolts and bring the pipe in alignment. The Contractor shall provide suitable filling rings where the layout of the flange piping is such as to necessitate their use. In materials, workmanship, facing and drilling, such rings shall conform to ANSI B16.1 Class 125.
 5. Machined Surfaces

Machined surfaces shall be cleaned and coated with a suitable rust preventive coating at the shop immediately after being machined.
 6. Steel Casing Pipe Joints

Steel casing pipe joints shall be electric fusion (arc) welded by operators whose qualifications meet the requirements of the American Welding Society Standard procedures and in conformance with AWWA C206.
 7. Polyvinyl Chloride Solvent Weld Joints

Pipe joints for schedule 40 or schedule 80 pipe shall be solvent weld joints. The solvent cement

shall comply with ASTM D2564. The joint shall be made in accordance with ASTM D2855. The joint shall conform to ASTM D2672.

8. Polyethylene Joints

Polyethylene joints shall be butt-fused, done with polyethylene fittings or brass compression fittings.

9. Restrained Joints

a Restrainers

The restrainer shall be manufactured of ductile iron and shall meet or exceed all the requirements of ANSI A21.11 (AWWA C111) and ASTM A536. The restrainer system shall provide anchoring of PVC pipe to mechanical joint fittings or bell to spigot PVC pipe joints. Restraints shall provide a full 360-degree contact with sufficient gripping action to secure the clamp to the pipe and be designed so that restraint action is increased as a result of increases in line pressure. The restrainer shall accommodate the full working pressure rating of the pipe plus surge allowance.

b Retainer Glands

Retainer glands shall be manufactured of ductile iron grade 64-42-10, ASTM A536 or the pre- approved equal and shall be designed to fit standard mechanical joint bells conforming to applicable sections of ANSI A21.10 (AWWA C110), ANSI A21.11 (AWWA C111) and ANSI A21.53 (AWWAC153). The restraining device shall be rated for the full working pressure of the pipe type used including surge allowance and a 2:1 safety factor. Mechanical restraints shall include a restraining mechanism which, when actuated, imparts a wedging action against the pipe, increasing its resistance as the pressure increases. The restraint shall be compatible with the type of joint being installed. The joint deflection shall not exceed 80% of the pipe manufacturer's recommended maximum deflection. Deflection, if necessary shall be made before tightening the set screws. Bolts and set screws shall be tightened alternately, 180 degrees apart, to the torque recommended by the manufacturer. Retainer glands having set screws that make point contact with the pipe without using a pad to disperse point loading shall not be used on PVC pipe. The restraining device shall not damage or lower the working pressure of the pipe installed. Retainer glands shall be either EBBA Iron or Uni-flange.

10. Flange Adapters

Flange adapters shall be ductile iron manufactured to ASTM A536 standards. Bolt circles and bolt holes shall meet ANSI B16.1 for 125 pounds. Adapter flanges shall meet or exceed all test requirements of AWWA C900, ASTM D2241 and ASTM D1599.

11. Pipe Couplings

The Contractor shall furnish and install pipe couplings as required to complete the work. Pipe couplings used to join two pieces of ductile iron pipe or PVC pipe shall be sized to match the outside diameter of the pipeline. Transition couplings shall be used to join pipes of different outside diameters. The coupling sleeve shall be manufactured of ductile iron conforming to ASTM A536 and be coated with 14 mils of epoxy. The bolts shall be manufactured of a metal of high corrosion resistance and shall conform to ANSI 21.11 (AWWA C111). Gaskets shall be wedge-type and manufactured of virgin SBR for water and sewer service. The installation of all couplings shall be in accordance with manufacturer's recommendations. After installation, all coupling surfaces including bolts and nuts shall be coated with an approved coating as specified in this section of these specifications. Couplers and adapters for polyethylene pipe shall be brass conforming to AWWA C800 and shall be female IPT, pack joint or compression nut.

12. Full Circle Repair Clamps

Full circle repair clamps shall have type 304 stainless steel shells, lugs, bolts, nuts and washers as per ASTM A193, A194, A240, or shall have type 304 stainless steel shells per ASTM A240, ductile iron lugs as per ASTM A536, and 304 stainless steel bolts, washers and nuts. Gaskets for both types shall be virgin SBR as per ASTM D2000 for water and sewer service.

F. Corrosion Protection for Ductile Iron Pipe Interior Lining

The interior of all ductile iron pipe, fittings and specials shall be thin cement lined. The lining shall comply with ANSI Standard A21.4 (AWWA C104).

1. Exterior Coating

All ductile iron pipe and fittings except on bridges or as otherwise noted, shall receive an exterior bituminous coating as specified in ANSI A21.51. The finished coating shall be continuous smooth, neither brittle when cold nor sticky when exposed to the sun and be strongly adherent to the fitting. All bolts, nuts, studs and other uncoated parts of joints for underground installation shall be coated with asphalt or coal-tar prior to backfilling. Pipes crossing under ditches, culverts, rivers, creeks, etc., shall be considered as buried pipe. All ductile iron pipe shall be color coded blue by field painting a blue stripe, 3 inches wide, along the crown of the pipe barrel.

2. Polyethylene Wrap

a. Material

The polyethylene material shall meet or exceed the requirements of AWWA C105 in all respects. The wrap shall be virgin, high density polyethylene, 4 mils thick minimum. The polyethylene wrap shall be white with 2 each, 6-inch wide, continuous blue tapes located at the 2:00 and 10:00 o'clock position on the pipe.

b. Installation

Although not intended to be a water-tight enclosure, the polyethylene shall prevent contact between the pipe and the surrounding backfill. Installation shall be done according to one of the methods described in AWWA C105, subject to approval by the Engineer and the manufacturer.

G. Piping Supports

1. Casing Spacers shall be used for all carrier pipes installed within steel casings, in accordance with the manufacturer's recommendations and the contract drawings. Casing spacers shall be constructed of high-density polymer, stainless steel, or other approved non-corrosive materials designed to support the carrier pipe, maintain proper alignment, and provide uniform annular spacing throughout the length of the casing. Spacers shall be sized to accommodate the outside diameter of the carrier pipe and the inside diameter of the casing while supporting all anticipated dead, live, and installation loads without deformation or damage to the carrier pipe coating. Spacers shall be installed at intervals recommended by the manufacturer, but not exceeding 8 feet unless otherwise approved by the Engineer.
2. Additional spacers shall be provided adjacent to joints, fittings, and at each end of the casing as required to prevent sagging or displacement of the carrier pipe. The completed installation shall maintain the carrier pipe centered within the casing, prevent metal-to-metal contact, facilitate installation, and ensure unobstructed placement of casing end seals. All materials shall be resistant to corrosion, moisture, chemicals commonly encountered in soil and groundwater, and shall provide a minimum service life equivalent to that of the carrier pipe system

H. Material Warranty

The manufacturer of materials furnished on the project shall supply to the Town of Ridgeland, a one (1) year unconditional warranty. The warranty shall be limited to the material which shall constitute complete replacement and delivery to the site of materials only to replace defective materials with new materials conforming to the specifications. This warranty is contingent upon determination of

failure by a private independent testing laboratory. The testing shall prove that the failure was caused by failure of the material. The testing laboratory shall be selected by and agreed upon by both parties involved. This warranty is in addition to any warranty required for pipe linings herein before specified.

I Material Testing

The Town of Ridgeland requires all materials furnished to conform to the following standards. The entire product of any manufacturer or of any one part may be rejected when, in the opinion of the Town of Ridgeland, the methods of manufacture fail to secure uniform results acceptable to the requirements of these specifications. Pipe and materials shall be tested in, and for conformity with, the latest editions of the following:

<u>Item</u>	<u>Specifications</u>
Ductile Iron Pipe and Fittings	ANSI A21.50 (AWWA C150) ANSI A21.51 (AWWA C151) ANSI A21.53 (AWWA C153)
Polyvinyl Chloride Pipe and Fittings	ASTM D1598 ASTM D1599 ASTM D1784 ASTM D1785 ASTM D2122 ASTM D2241 ASTM D2564 ASTM D2672 ASTM D2837 ASTM D2855 ASTM D3139 ASTM F477 AWWA C900 AWWA C905 AWWA C907
Polyethylene Tubing	ASTM D1248 ASTM D2239 ASTM D2737 ASTM D302660 AWWA C901

PART 3 - EXECUTION

3.1 REFERENCE POINTS AND LAYOUT

The Contractor shall be responsible for setting all grade, lines and levels. The Contractor or Contractor's Surveyor will provide centerline of construction; the engineer will provide a reference benchmark. Any reference points, points of intersection, property corners, or benchmarks, which are disturbed during construction, shall be restored by a Land Surveyor registered to practice in the State of South Carolina, and all costs thereof shall be borne by the Contractor. The Contractor shall assume all responsibility for the correctness of the grade and alignment stakes.

3.2 HANDLING AND CUTTING PIPE

Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe, scratching or marring machined surfaces, and abrasion of the pipe coating. Any fitting showing a crack and any fitting or pipe which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. In any pipe showing a distinct crack in which it is believed there is no incipient fracture beyond the limits of the visible crack, the cracked portion, if so approved by the Town of Ridgeland, may be cut off before the pipe is laid so that the pipe used shall be perfectly sound. The cut shall be made in the sound barrel at a point at least 12 inches from the visible limits of the crack. Except as otherwise approved, all cutting shall be done with a power driven cut off saw. All cut ends shall be examined for possible cracks caused by cutting.

3.3 PIPE INSTALLATION

A. General Requirements

Pressure pipe shall be constructed of the materials specified and as shown on the drawings. All PVC C900/C905 pipe shall be laid in accordance with AWWA C605. Pipe and fittings shall be carefully handled to avoid damage, and if feasible, while they are suspended over the trench before lowering, they shall be inspected for defects and to detect cracks. Defective, damaged or unsound pipe or fittings shall be rejected. Each section of the pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints. Any pipe which has its grade or joint disturbed after laying shall be taken up and re-laid. All precautions shall be taken to prevent sand or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any time the pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. Any sand or foreign material that enters the pipe shall be removed from the pipe immediately. No pipe shall be installed when trench conditions (standing water, excess mud, etc.) or the weather (rain, etc.) is unsuitable for such work, except by permission of the Engineer. Any section of pipe already laid which is found to be defective or damaged shall be replaced with new pipe.

B. Pipe Cover

The cover over all piping shall be a minimum of 30 inches in unpaved areas and 36 inches in paved areas with a maximum of 60 inches unless specifically approved otherwise. Cover for pipe under pavement shall be measured from the finished grade. Any reduction in pipe cover will require approval from the Town of Ridgeland and the Engineer. Greater depths will be permitted where required to miss obstructions only. Lines shall be located as shown on the drawings. The Contractor shall investigate well in advance of pipe laying any conflicts which may require readjustments in planned locations and advise the Engineer of the results of these investigations so that the Engineer may give instructions as to the modifications required. Refer to backfill and compaction requirements in Section 02640 Sewer System Construction.

C. Installation of Iron Piping

All iron pipe and fittings shall be laid in accordance with the pipe manufacturer's recommendations and the American Water Works Association Specification AWWA C600.

D. Thrust Restraint

1. All non-flanged fittings and valves shall be restrained using one of the following methods:
 - a. Mechanical restraint at fittings and valves and mechanical restraint along adjacent joints of pipe to a length as specified in the following table.

All Mechanical Joint Fittings must be restrained using either EBBA Iron Restrainers, Uni-flange, or Mega-lugs. Rod restraints will be approved on an

individual basis only.

No thrust blocks will be used without prior approval of Town of Ridgeland Water and Sewer Department.

CHART “F”

MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (FEET)									
NOMINAL PIPE SIZE (INCHES)	11 1/4° Horizontal Elbow	22 1/2° Horizontal Elbow	45° Horizontal Elbow	90° Horizontal Elbow	Horizontal Tees	Horizontal Plugs and Valves	45° Vertical Offset Upper length/low per length	22½° Vertical Offset Upper length/lower length	Reducer (to 1 size smaller) Length on Larger Size Side
4	2	4	8	20	20 - run 1 – branch	50	20/3	8 / 1	n/a
6	2	5	10	28	20 - run 1 – branch	70	28/4	11 / 2	28
8	3	6	14	36	20 - run 1 - branch	90	36/5	14 / 3	30
10	4	8	18	40	20 - run 1 - branch	110	45/6	17 / 3	29
12	4	9	20	50	20 - run 1 - branch	120	52/8	20 / 4	50
14	5	10	23	56	20 - run 10 - branch	140	60/9	23 / 4	30
16	6	11	26	60	20 - run 26 - branch	160	67/10	26 / 5	30
18	6	12	29	69	20 - run 41 - branch	180	74/12	29 / 5	29
20	7	13	32	75	20 - run 55 - branch	195	80/13	36 / 6	29
24	7	15	33	76	20 - run 58 - branch	200	81/14	37 / 7	55
30	9	18	36	88	20 - run 77 - branch	235	97/16	44 / 8	77
36	10	20	40	100	20 - run 115 - branch	270	110/20	51 / 10	77

NOTE: Table assumptions: PVC pipe, Safety Factor = 1.5, Soil = GM or SM, 3 ft. bury depth to top of pipe, trench type 3, branch on tee is one size smaller than run of tee size and 20 feet of pipe is installed past the tee on the run side (smaller branch sizes must be calculated by the engineer). Vertical offsets are 3 feet deep on top and 8 feet deep on bottom. Reducers are calculated for one size reduction. Test pressure of 150 psi.

The use of thrust blocks shall be limited to situations such as point repair where exposing several

joints of pipe is not feasible due to existing ground conditions and also must be used with mechanical joint restraining devices when, in the judgment of the Engineer, the nature and criticality of an installation is such as to require positive assurance of stability. Concrete collars with tie rods may be used on dead end lines at the Contractor's discretion.

Concrete used for this purpose shall be 2,500 psi minimum. When applicable, schedule and details for the required thrust blocks are included on the drawings. The use of thrust blocks will only be approved by the Town of Ridgeland for special conditions.

2. Joint Restraints within Carrier Pipe

- a. Where indicated on the Contract Drawings or required by the Engineer, the Contractor shall provide restrained joints on carrier pipe installed within casings to prevent longitudinal movement resulting from thrust forces, thermal expansion and contraction, installation loads, or other operational forces.
- b. Restrained joints shall be compatible with the pipe material and pressure class and shall be designed to develop not less than the full tensile strength required to prevent joint separation under the maximum anticipated operating and test pressures.
- c. Acceptable restraint systems include factory-manufactured restrained push-on joints, mechanical joint restraints, welded joints, flanged connections, or other Engineer-approved restraint systems specifically designed for the pipe material. Field-fabricated restraint methods shall not be permitted unless specifically approved by the Engineer.
- d. Restrained joints shall be installed in accordance with the pipe and restraint manufacturer's written instructions, with all bolts, wedges, locking segments, and other restraint components properly installed and tightened to the specified torque values.
- e. The Contractor shall verify that restrained joints are properly engaged prior to insertion of the carrier pipe into the casing. The restraint system shall not damage or compromise the pipe lining, coating, or corrosion protection system and shall be capable of maintaining joint integrity throughout the design life of the pipeline.
- f. Where restrained joints are required within a casing, the restraint system shall be designed to permit installation without interfering with casing spacers or casing end seals and shall maintain the alignment and structural integrity of the carrier pipe under all anticipated service conditions.

3. Casing Spacer Installation

- a. Prior to installation, the Contractor shall verify that the carrier pipe, casing pipe, and casing spacers are clean, free of damage, and compatible with one another. Casing spacers shall be installed in strict accordance with the manufacturer's written instructions, with the runners positioned to facilitate smooth insertion of the carrier pipe into the casing. Spacers shall be securely fastened to the carrier pipe using stainless steel bands, bolts, or other manufacturer-approved fastening devices to prevent movement during installation. Spacers shall be installed at the spacing specified in the Contract Documents or as recommended by the manufacturer, with additional spacers provided at pipe joints, fittings, bends, and near each end of the casing to maintain proper alignment and prevent sagging.
- b. The carrier pipe shall be carefully inserted into the casing using equipment and methods that prevent damage to the carrier pipe, protective coatings, casing spacers, and casing. Excessive pulling forces, impacts, or dragging that could damage the pipe or displace the spacers shall not be permitted. Following installation, the Contractor shall verify that the carrier pipe is properly centered within the casing, that all spacers remain securely in place, and that sufficient annular clearance exists for the installation of casing end seals. Any damaged or displaced spacers shall be replaced at no additional cost to the Owner before the installation is accepted.

E. Water Main and Non-Water Main Separation Requirements

1. Separation of water pipe and sewers shall conform to the requirements of South Carolina DES (formerly DHEC) State Primary Drinking Water Regulations 61-58, Finished Water Pumping, Storage and Distribution Facilities section D. Distribution Systems (12).
 - (a) Parallel installation - Pressure pipe shall be laid at least ten (10) feet horizontally from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten-foot separation, the Department may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a sewer, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least eighteen (18) inches above the top of the sewer.
 - (b) Crossings - Pressure pipe crossing sewers shall be laid to provide a minimum vertical separation of eighteen (18) inches between the outside of the water main and the outside of the sewer. This shall be the case whether the water main is either above or below the sewer line. Whenever possible, the water main shall be located above the sewer line. Where a new water main crosses a new sewer line, a full length of pipe shall be used for both the water main and sewer line and the crossing shall be arranged so that the joints of each line will be as far as possible from the point of crossing and each other. Where a new water main crosses an existing sewer line, one full length of water pipe shall be located so both joints will be as far from the sewer line as possible. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the water main.
 - (c) Special Conditions - When it is impossible to obtain the distances specified in R.61-58.4(D)(12)(a) and (b) the Department may allow an alternative design. Any alternative design shall:
 - (i) maximize the distances between the water main and sewer line and the joints of each;
 - (ii) use materials which meet the requirements R.61-58.4(D)(1) for the sewer line; and,
 - (iii) allow enough distance to make repairs to one of the lines without damaging the other.
 - (d) Force mains - There shall be at least a ten (10) foot horizontal separation between pressure pipe and sanitary sewer force mains. There shall be an eighteen (18) inch vertical separation at crossing as required in R.61-58.4(D)(12)(a) and (b).
 - (e) Sewer manholes - No water pipe shall pass through or come in contact with any part of a sewer manhole. Water lines may come in contact with storm sewers or catch basins if there is no other practical alternative, provided that ductile iron is used, no joints of the water line are within the storm sewer or catch basin and the joints are located as far as possible from the storm sewer or catch basin.
 - (f) Drain-fields and Spray-fields - Pressure pipe lines shall not be laid less than twenty-five (25) feet horizontally from any portion of a waste-water tile-field or spray- field or shall be otherwise protected by the method approved by the Department.

F. System Connections

All connections and ties to the Town of Ridgeland Water System and transfer of services will be

performed by the Contractor under supervision of the Town of Ridgeland's representative.

1. Water Main Connections

Tapped connections in the barrel of a pipe shall be less than the diameter of pipe being tapped except 4-inch pipe which may be tapped with a 4-inch tapping sleeve and valve. No taps shall be made within 5 feet of a joint. When making 2-inch PVC water main connections to pressure pipe, a flexible connection shall be made using 2-inch polyethylene pipe one foot long (minimum). The polyethylene pipe shall tie to the existing water main and then tie to the new 2-inch PVC water main. There shall be a stainless-steel nipple between saddle and valve on 2-inch water main connections.

G. Field Testing

1. Disinfection Tests

- a. All water pipe and fittings of whatever size and wherever installed on pressure pipe lines shall be thoroughly disinfected prior to being placed in service. Disinfection shall follow the applicable provisions of the procedure established for the disinfection of pressure pipe as set forth in AWWA Standard C651 entitled "AWWA Standard for Disinfecting Pressure pipe".

Temporary blow-offs shall be installed for the purpose of clearing the water main. Blow-offs installed on pressure pipe up to and including 12 inches shall be the same diameter as the water main. Blow-offs installed on 16-inch pressure pipe and larger shall be the next smaller size, in diameter, than the water main being tested. Temporary blow-offs shall be removed and plugged after the main is cleared. The Town of Ridgeland Representative shall be present prior to and during the operation of blow-offs. The main shall be flushed prior to disinfection.

The new water main shall be connected to the existing water main at one point only for flushing purposes (no looping). The new main MUST have a blow off on the end as required previously. After the new main is thoroughly flushed, the open end shall be sealed and restrained and the main shall be thoroughly disinfected as specified.

The contractor may use a separate source of water for flushing purposes. Upon completion of the flushing, the contractor shall proceed with disinfection as specified.

Anytime the new line is reopened (to repair defective joints or pipe, defective fitting or valve) the complete disinfection process shall be repeated.

Once bacteriological clearance (on 2 days of samples) has been approved, the main may be pressure tested against an existing system valve.

No new water main may be put in service until a Certification of Completion has been approved by the South Carolina Department of Environmental Services (SCDES (formerly SCDHEC)). The contractor must supply to the Engineer SCDES-acceptable record drawings or As-Builts, accurately depicting installed conditions for the Certification of Completion. The Contractor shall allow time for this process to be completed.

2. Leakage and Pressure Tests

See Section 15045 Pressure Testing

3. Locate Wiring Testing

Installed locate wiring shall be tested by the contractor with an approved testing company using approved equipment. Locate wire testing company must be provided a copy of the As-Builts.

4. Soil and Density Tests

Reference soil and density testing requirements in Section 02640 Sewer System Construction, paragraph 3.2 Field Quality Control.

H. Inspection

All pipe and fittings shall be subject to inspection at time of delivery and also in the field just prior to installation. All pipe and fittings which in the opinion of the Engineer do not conform to these specifications will be rejected and shall be removed by the Contractor at the Contractor's expense. An authorized Town of Ridgeland representative must be present for all pressure and leakage testing, connections to the Town's existing lines and the collection of water samples.

I. State Highway Crossings

Permits for all work within the right-of-way of a State Highway will be obtained by the Engineer. The Contractor shall, however, verify the existence of the permit before commencing work in this area. All work related to the State Highway crossing shall be in full compliance with the requirements of the South Carolina Department of Transportation permit and in accordance with the South Carolina Department of Transportation standard specifications. Unless otherwise shown on the drawings or specified herein, State Highway crossings shall be made by jacking a steel pipe casing, of the size shown on the drawings and shown in the Town of Ridgeland Standard Details, under the highway at the elevations and locations shown. The water main shall then be placed in the casing with approved casing spacers as specified in this section. All joints within carrier pipe shall be mechanically restrained joints. After inspection, the ends of the casing shall be filled with 2500 psi concrete not less than 8 inches thick.

J. Railroad Crossings

The Encroachment Agreement for all work within the right-of-way of a railroad has been obtained, and is located within the Appendix. The Contractor shall, however, verify the existence of the documents before commencing work in this area. All work related to the railroad crossing shall be in full compliance with the requirements of CSX and in accordance with the encroachment agreement. The railroad crossings shall be made by jacking a steel pipe casing, of the size shown on the drawings, under the railroad at the elevations and locations shown. The ductile iron forcemain shall then be placed in the casing with approved casing spacers as specified in the Contract Documents. All joints within carrier pipe shall be mechanically restrained joints.

K. Locate Wiring

Contractor shall furnish and install #12 copper locate wiring and warning tape on all PVC pressure pipe and polyethylene and PVC water services installed. Locate wire on services shall be limited to a continuous loop of wire extending 3 feet along the service from the main. Locate wire must be attached to pressure pipe and services with plastic zipper type ties at each side of bell joint or fitting and at 10-foot intervals along pipeline. Locate wire shall be brought to within 8 inches of grade within a valve box or water meter box flush with finished surface with 36 inches of locate wire rolled up inside box at 475-foot intervals. Locate wire shall be installed in box and along pipeline as detailed in the Town of Ridgeland Standard Details. Locate wire shall be installed in either the 1:00 or 11:00 position on the pipe. Locate wire shall be attached to intersecting ductile iron or galvanized pipeline using a three-way splice and brass split ground clamp with wire installed around brass nipple. Locate wiring must have the ability to conduct an electrical current; therefore, the wiring must be continuous without any breaks in the line spliced as per the Town of Ridgeland Standard Details. Locate wire shall be spliced with the Town of Ridgeland approved wire connectors.

1. General

Where a new water main is installed or where an existing water main is relocated or replaced, as shown on the drawings or where necessary due to a direct conflict with proposed construction and when approved by the Engineer, the Contractor shall install new piping from the water main to each existing water meter.

L. Contractor Warranty

The Contractor shall supply to the Town of Ridgeland a one (1) year unconditional warranty. The warranty shall include materials and installation and shall constitute complete replacement and

delivery to the site of materials and installation of same to replace defective materials or defective workmanship with new materials/workmanship conforming to the specifications.

END OF SECTION 02660

SECTION 02661
PRESSURE VALVES & APPURTENANCES

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall furnish, install, joint, and test all gate valves, butterfly valves, check valves and other special valves and appurtenances as shown on the drawings and herein specified. All references to Industry Standards (ASTM, ANSI, AWWA, etc.) shall be to the latest revision unless otherwise stated. Only those materials included in the Town of Ridgeland Water and Sewer Standards, Details and Materials Manual shall be installed. All materials shall be new unless specifically called for otherwise.

1.2 ROTATION OF OPENING

- A. All valves larger than two inches installed within a watermain or forcemain system to be the Town of Ridgeland owned shall open by turning to the left or counterclockwise, when viewed from the stem.

1.3 EXTENSION STEMS

- A. Where extension stems are required substantial, adjustable wall brackets and extension stems shall be furnished and located as directed. Extension stems shall be provided on all buried valves when the operating nut is deeper than 30 inches below the final grade. Sufficient stem extension shall be provided so that the nut will be no more than 30 inches below finished grade.

1.4 PAINTING OF VALVES AND VALVE BOX LIDS

- A. The top side of all water valve box covers shall be painted blue except for gate valves at fire hydrants. Top of valve box covers at fire hydrants shall be painted yellow. Valve boxes for sanitary forcemain systems shall be painted green. Oil based, traffic-rated paint shall be used.

1.5 HYDROSTATIC AND LEAKAGE TEST

- A. The Contractor shall be required to perform a separate hydrostatic/leakage field test on each valve installed to insure it is bubble tight. The duration of this test shall be 15 minutes at 150 psi and conform to AWWA C504. The method of performing this test shall be left up to Contractor with the Engineer's approval. The failure of the valve to perform will result in its removal from the job site and replacement by the Contractor at the contractor's expense.

1.6 LOCATING MARKERS FOR VALVES

- A. A 'V' cut shall be carved in the curb closest/adjacent to a below grade valve. This 'V' cut shall be painted blue or green, depending on the pressure pipe (blue for water, green for forcemain).

PART 2 - PRODUCTS

2.1 GATE VALVES

- A. General

Gate valves 3 to 12 inches in diameter shall be designed for 200 psi minimum working pressure. Valves over 12 inches in diameter shall be designed for 150 psi minimum working pressure. When fully open,

gate valves shall have a clear waterway equal to the nominal diameter of the pipe. The operating nut or wheel shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's distinctive marking, pressure rating and year of manufacture cast on the body. Prior to shipment from the factory, each valve shall be tested by applying to it a hydraulic pressure equal to twice the specified working pressure.

B. Buried Valves

Buried gate valves shall be iron body, bronze mounted, rubber encapsulated, resilient seat, solid wedge, non-rising stem type with operating nuts and adjustable valve boxes and covers. Operating nuts shall be two inches square. Resilient seat gate valves shall conform to applicable sections of AWWA Standards C509 resilient seat. All gate valves 20 inches or larger must be bevel geared for both horizontal and vertical installations. All valves shall be installed vertically unless additional depth of bury is impossible due to physical obstructions. Gate valves shall open counterclockwise.

C. Above Ground Valves

Gate valves located above ground or inside structures shall be hand wheel operated, non-rising stem type with flanged ends and be of the same general construction as buried valves.

D. Valve Joints

All gate valves shall have mechanical joint ends, flanged ends, or screw joints to fit the pipe run in which they are used, except valves installed on push-on joint pipe shall have mechanical joint ends unless otherwise specified.

2.2 MISCELLANEOUS VALVES AND APPURTENANCES

A. Tapping Valves

1. General

Tapping valves shall be iron body, bronze mounted gate valves, non-rising stem, open left, resilient seat, 2-inch square operating nut for vertical mounting in approximately level setting on buried water lines. The valve ends shall be mechanical joint for use with ductile iron pipe on one side and standard flanged (Class 125) on the other. Valves shall conform to the applicable section of these specifications.

2. Disinfection of Tapping or Drilling Machine

Prior to tapping a potable water main, the drilling machine's pilot drill, shell cutter, and cutter hub shall be sterilized in accordance with the following procedure:

Four gallons of potable water shall be combined with 8 oz. of sodium hypochlorite (household bleach); the pilot drill, shell cutter and cutter hub shall be swabbed until clean or totally immersed in the sterilizing solution and allowed to remain wet at least five minutes before tapping operation commences. It is not necessary to rinse the sterilizing solution from tapping components prior to use.

3. Hydrostatic and Leakage Test

After installing a tapping sleeve and valve, and prior to tapping of a pressurized main, a hydrostatic and leakage test shall be performed. The test will be conducted by introducing water into tap or test hole located at the neck of the outlet half of the sleeve, on sleeves furnished with

said tap, and with the tapping valve in the closed position. Sleeves shall be provided with a test plug. The sleeve and valve shall be capable of maintaining a test pressure of 150 psi for 30 minutes duration with no sign of visible leaks. All leaks shall be repaired by removing and replacing defective items with items free of defects, after which the sleeve and valve shall be re-tested. Such repair and re-testing shall be done until the installation passes the specified test. The Contractor shall furnish and install any necessary temporary restraints, gauges, pumps, and other incidental and appurtenant items necessary to complete this work and shall remove same upon completion of the test. A watertight plug shall then be inserted into the test hole.

B. Ball Valves

Ball valves shall be limited to 3/4 inch through 2 inches in size and shall have cast bronze body, bronze tee head, stem with check, full roundway opening and provisions for locking in a closed position. Ball valves for use with copper services shall have an inlet connection with a flare nut fitting for Type K copper tubing and an outlet connection with female iron pipe thread or shall have an inlet connection with a compression joint (insert stiffener will be used with plastic service connections) and an outlet connection with female iron pipe thread. Ball valves for use with Schedule 40 PVC pipe shall have an outlet connection with female iron pipe threads and an inlet connection with either a compression joint or female iron pipe threads. The latter will require the use of an approved Schedule 40 PVC Adapter (MIPT X SLIP). Compression joints will require insert stiffeners. Below grade ball valves on water mains must have two inch (2") operating nuts and be installed in standard valve boxes.

C. Service or Tapping Saddle

Water services to be made with service saddle for C.I. or AC to be double strapped JCM 402, Mueller H- 10500, Smith-Blair 313, or Ford 202 and must be CC threads (AWWA) unless otherwise indicated in the contract plans.

Service saddles for PVC C-900 water pipe are Mueller (H-134—series or Ford S90). Taps to existing water mains will be made with an approved stainless steel tapping sleeve and resilient seat tapping valve.

Taps to existing water mains will be made with an approved stainless steel tapping sleeve and resilient seat tapping valve.

2.3 FIRE HYDRANTS

A. General

Fire hydrants shall be 4 ½ inch ductile iron body, fully bronze mounted, for 150 psi working pressure, complying with AWWA Standard C502. Fire hydrants to be Mueller #A421 or #A423, Clow Medallion, or M&H AWWA C-502 style 129 Traffic Model, 4½" main valve size. Unless otherwise stated, all drain holes must be rocked with 57 stone. The inlet connection shall be mechanical joint type, with accessories, for 6-inch ductile iron pipe. The hydrant foot shall be epoxy coated and have integral cast tie-back lugs. The integral shut-off valve shall be compression type opening against water pressure, right hand openings. Valve diameter and general interior design shall be sufficient to provide head loss/flow quantity ratios less than specified in the above cited Standard. The main valve seat and the threaded portion of the hydrant into which it screws shall be bronze. The hydrant barrel drain valve and port shall be bronze. The hydrant barrel drain shall be actuated by operation of the main valve stem. The stem operating threads and thrust bearing shall be sealed by "O" rings, from exposure to moisture and shall be provided with means for lubrication. The hose nozzles shall be bronze with National Standard fire hose coupling screw threads, one 4-inch pumper nozzle and two 2 ½ inch hose nozzles. The hydrant operating nut and nozzle cap nuts shall be 1¼" square. Pipe used for fire hydrant

laterals shall be ductile iron Pressure Class 350, or Class 150 DR18 PVC. Tees and bends leading to fire hydrants shall be ductile iron only. The nozzle caps shall be securely chained to the hydrant barrel. The chains shall be free from rust or corrosion and painted to match the color of the hydrant. The hydrants shall be "Traffic" type with a frangible flange or lugs and operating stem section at the ground line. The hydrant shall be painted with the above ground finish color "Traffic Yellow".

B. Installation

Fire hydrants shall be installed at the locations shown on the drawings in accordance with the Town of Ridgeland Standard Details.

C. Independent Valve

Independent valve furnished with each hydrant shall be 6-inch, non-rising stem gate valve with mechanical joint ends in conformance with the sub-section entitled "Gate Valves" of these specifications. Independent valves shall be provided with a cast iron valve box in conformance with the sub-section entitled "Valve Boxes".

D. Hydrostatic and Leakage Test

Hydrostatic and leakage tests shall be conducted in accordance with AWWA C502, Section 5.

2.4 VALVE BOXES

A. General

The Contractor shall furnish, assemble and install a valve box for each buried valve. Each valve box installed in non-paved areas shall be installed with a 24-inch round, 6-inch-thick concrete collar with #4 reinforcing bars, poured around the top of the valve box cover. The concrete shall have a minimum strength of 3000 psi. Provide brass identification tag with "Water", or "Sanitary" valve size and valve type epoxied or riveted to interior of valve box. Tag shall be 2-inch diameter, 1/8-inch-thick brass, located a maximum of 2 inches below the top of the valve box.

B. Valve Boxes

Adjustable valve boxes of suitable length shall be used. Cover shall be marked "Water" or "Sanitary". The top section shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade. The base shall be centered over the valve and shall be online with a nut at the top of the valve stem and the entire assembly shall be plumb. Boxes for paved areas shall be cast iron. Boxes for non-paved areas may be PVC. Cast iron castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM Designation A48, Class 20B, Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections, or other harmful defects and shall be coated with a single thin coat of coal tar epoxy. The cover will not rock after it has been seated in any position in its associated jacket.

C. Debris Cap

Debris caps shall be required in all valve boxes. The debris cap shall be comprised of a hollow member having a cylindrical outer surface, a closure for one end and three-point resilient contact pads projecting from the outer surface. One contact pad shall be movable by means of a cam having a low angle of advance whereby external forces applied to the cam via the movable contact pad will not cause rotation of said cam. The cap shall have a flexible skirt providing an outward seal preventing debris from getting past the cap. The cap must withstand without slippage, a minimum vertical force of 50 lbs. at a loading

rate of 1.0 inches/minute. The cap shall have retaining prongs to retain a standard locating coil and shall be capable of installing a standard fitting for "Lock-out/Tag-out" in compliance to all standards and requirements of State and Federal OSHA guidelines.

2.5 BACKFLOW PREVENTION DEVICES

A. Backflow Preventers for Water Service

1. General: Backflow preventers shall work on the reduced pressure principle. The backflow preventer assembly shall consist of two (2) spring-loaded check valves, automatic differential pressure relief valve, drain valves and shut-off valves. The body material shall be bronze or cast iron for a working pressure of not less than 150 psi, with bronze or stainless-steel trim. Drain lines with air gaps shall be provided. Rock type hot box enclosure shall be provided to enclose backflow preventer assembly.
2. Manufacturers:
 - a. Febco, Fresno, CA.
 - b. Hersey, Cleveland, NC.
 - c. Ames, Woodland, CA.
 - d. Watts Regulator Co., N. Andover, MA.
 - e. Wilkins, Paso Robles, CA.
 - f. Conbraco, Matthews, NC.

PART 3 - WARRANTY

3.1 MATERIAL WARRANTY

The manufacturer of materials furnished on the project shall supply to the Town of Ridgeland a one (1) year unconditional warranty. The warranty shall be limited to the material which shall constitute complete replacement and delivery to the site of materials only to replace defective materials with new materials conforming to the specifications. This warranty is contingent upon determination of failure by a private independent testing laboratory. The testing shall prove that the failure was caused by failure of the material. The testing laboratory shall be selected by and agreed upon by both parties involved. This warranty is in addition to any warranty required for pipe linings herein before specified.

3.2 CONTRACTOR WARRANTY

The Contractor shall supply to the Town of Ridgeland one (1) year unconditional warranty. The warranty shall include materials and installation and shall constitute complete replacement and delivery to the site of materials and installation of same to replace defective materials or defective workmanship with new materials/workmanship conforming to the specifications.

END OF SECTION 02661

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SECTION 02922
LOAMING, SEEDING, AND MULCHING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope of Work: The Contractor shall furnish all labor, materials, equipment, and incidentals necessary and place loam finish grade, seed, and maintain all seeded areas as specified herein including all areas disturbed by the Contractor's operations where solid sodding is not specifically required.

1.2 GUARANTEE

- A. All restoration and revegetation work shall be subject to the one (1) year guarantee period of the Contract as specified in the General Conditions of the Contract herein.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Loam (topsoil) shall be fertile, natural soil, typical of the locality, free from large stones, roots, sticks, peat, weeds, and sod and obtained from naturally well-drained areas. It shall not be excessively acid or alkaline nor contain toxic material harmful to plant growth. Topsoil stockpiled under other Sections of this Division may be used, but the Contractor shall furnish additional loam at his own expense, if required. All areas disturbed by the Contractor's operations, which are not identified to be sodded shall be seeded as specified herein, in addition to those areas delineated on the plans for seeding.
- B. Fertilizer shall be complete commercial fertilizer, 5-10-10 grade. It shall be delivered to the site in the original unopened containers each showing the manufacturer's guaranteed analysis. Store fertilizer so that when used it shall be dry and free flowing.
- C. Lime shall be ground limestone.
- D. Seed shall be from the same or previous year's crop; each variety of seed shall have a percentage of germination not less than 90, a percentage of purity not less than 85, and shall have not more than one percent weed content.
- E. Seed shall be a Scarified Argentine Bahia applied at a rate of 400 pounds per acre.
- F. Seed shall be delivered in sealed containers bearing the dealer's guaranteed analysis.
- G. Mulch shall be clean small-grain straw.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Loam shall be placed to a minimum depth of 4 inches.
- B. Lime shall be applied at the rate necessary to achieve a pH of 6 to 7.
- C. Fertilizer shall be applied at the rate of 800 pounds per acre.
- D. The subgrade of all areas to be loamed and seeded shall be raked and all rubbish, sticks, roots, and stones larger than 2-inches shall be removed. Loam shall be spread and lightly compacted to finished grade. Compacted loam shall not be less than the depth specified. No loam shall be spread in water or while frozen or muddy.
- E. After the loam is placed and before it is raked to true lines and rolled, limestone shall be spread evenly over loam surface and thoroughly incorporated with loam. Lime shall be added in sufficient quantity to provide a soil pH of 6 to 7.
- F. Fertilizer shall be uniformly spread and immediately mixed with the upper 2-inches of topsoil.
- G. Immediately following this presentation, the seed shall be uniformly applied and lightly raked into the surface. Lightly roll the surface and water with fine spray.
- H. All seeded areas shall be mulched with clean small-grain straw at a rate of 1-1/2 to 2 tons per acre. Asphalt emulsion shall be applied uniformly at a rate of 300 gallons per acre to tack the mulch, unless otherwise shown on the plans. Mechanical tacking will be considered on a case-by-case basis as approved by the Engineer.
- I. The Contractor shall keep all seeded areas watered and in good condition, reseeding if and when necessary, until a good, healthy, uniform growth is established over the entire area seeded, and shall maintain these areas in an approved condition until final acceptance of the Contract.
- J. On slopes, the Contractor shall provide against washouts by an approved method. Any washout, which occurs shall be regraded and reseeded at the Contractor's expense until good sod is established.
- K. The Contractor shall maintain the areas in grass in a neat manner by watering, mowing, raking clippings and leaves, and appurtenances until the project is completed.

END OF SECTION 02922

SECTION 02961

TEMPORARY SEWER BYPASS PUMPING OPERATIONS

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall design and furnish all tools, supplies, materials, labor, equipment, power, and maintenance necessary for the installation, testing, placing into operation, maintaining, and monitoring of a temporary bypass pumping system for the purpose of diverting the existing sewer flows around work areas for the project. At no point during the setup, installation, operation, or demobilization of the temporary bypass pumping systems shall interruption of any pump stations and/or sewer collection systems be caused.
- B. The design, installation, operation, and monitoring of the temporary bypass pumping system shall be the Contractor's responsibility. The Contractor shall employ the services of a vendor who can demonstrate to the Owner and Engineer that it specializes in the design and operation of temporary bypass pumping systems. The vendor shall provide at least five (5) references of projects of a similar size and complexity as this project performed by the vendor's firm within the past ten years.
- C. The bypass system shall meet the requirements of all Federal, State, and Local codes and regulatory agencies having jurisdiction.
- D. Measurement and Payment: No separate payment shall be made for temporary bypass pumping operations. The cost of such operations shall be included in the appropriate unit price item.

1.2 DEFINITIONS

- A. "Interruption of pumping operations" is defined as any activity that will result in a change in the current method of operation. Contractor shall request such "interruption of pumping operations" from the Owner no less than ninety-six (96) hours in advance. The Owner may defer the request as allowed by Article 2.01 A. 4 of this Section.
- B. "Partial Utilization", "Substantial Completion", and "Warranty Period for Items in Continuous Service": Refer to the "Contract Documents" for definition.
- C. The terms "open, close, start, stop, operate, verify, energize, de-energize, transfer, switchover, etc" when used in conjunction with permanent equipment that is in-service or about to be placed in-service are understood to mean: Owner's operation or maintenance staff shall perform the operation upon written request from the Contractor.
- D. The term "operational test" refers to the period of specified duration that the installed system is tested to verify operational integrity of a system prior to placing the system in-service. Operational testing requires that representatives of the equipment manufacturers be on-site for timely identification and resolution of system issues.
- E. "Low Flow Period" refers to the time of day when the pump station flow rate reaches the diurnal minimum. It typically occurs between the hours of 3 AM and 7 AM.

1.3 SUBMITTALS

- A. Bypass Pumping Plan: The Contractor shall submit to the Engineer detailed Drawings and shop drawings outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. The plan will be signed and sealed by a Professional Engineer registered in the state of South Carolina for all bypassing operations necessary for taking a Town of Ridgeland pump station offline. The plan shall be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials, connections, and all other incidental items necessary and/or required to insure proper protection of Owner facilities, including protection of the access and bypass pumping locations. No bypassing operations shall begin until all provisions and requirements have been reviewed and approved by the Owner and Engineer. The plan shall include, but is not limited to, the following details:
1. Detailed drawings showing all required equipment and staging areas for pumps within facility sites or right-of-way areas or other approved areas;
 2. Plugging methods and types of plugs;
 3. Number, size, material, location and method of installation of suction piping;
 4. Number, size, material, method of installation and location of installation of discharge piping;
 5. Bypass pump sizes, capacity, number of each size to be on site and power/fuel requirements;
 6. Pump curves showing pump operating range are to be submitted;
 7. Thrust and restraint block sizes and locations as necessary in accordance with manufacturer/supplier of LineStops, Insert Valves, and other equipment to be installed within piping, if any;
 8. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill, and any equipment necessary to maintain clearance for construction activities;
 9. Method of noise control for each pump. Facilities are located within residential areas.
 10. Any temporary pipe supports and anchoring required;
 11. Design for access to bypass pumping locations indicated on the Drawings;
 12. Selection of bypass pumping pipe size;
 13. Schedule for installation of and maintenance of bypass pumping lines.
 14. Emergency plan for adverse weather and flooding for various phases of the Work.
 15. Contractors plan for providing continuous monitoring of the bypass pumping operations including qualifications of any onsite monitoring persons and specifications of any electronic monitoring operations. Automatic dialer shall be installed to notify emergency contacts.

B. Sequence of Construction Plan

1. Contractor shall submit the proposed Sequence of Construction to the Engineer for review and approval. The Sequence of Construction shall define work to be performed, including the following items:
 - a. Definition of the start date, duration and end date for each of the segments of the work.
 - b. For each segment of work, define activities to be performed by or witnessed by the Owner and date on which these activities are to be performed.
 - c. Scheduling/timing of manufacturer's field services, as specified.
2. Provide complete list of equipment and material that is required to perform each segment of work.

1.4 SPECIAL PRECAUTION

- A. The Contractor is notified that the bypass pumping operations are critical and must be maintained at all times. If any spills of raw wastewater occur due to the failure of the Contractor to maintain the temporary bypass pumping when needed, the Contractor shall be responsible for any fines levied on the Owner by the SC DES (formerly SCDHEC) or any other applicable agency.

PART 2 – PRODUCTS

2.1 PUMPING EQUIPMENT

A. General:

1. The noted project areas are critical parts of the Owner's sewer system and the flow conveyance must be kept in service at all times. It is essential to the operation of the existing wastewater system that there be no interruption in the conveyance of wastewater to and from any project work area throughout the duration of the project. To this end, the Contractor shall provide, maintain, operate, and monitor all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power/fuel, and all other labor and equipment necessary to intercept the wastewater flow before it reaches the point where it would interfere with the construction work, carry it past the work and return it to the existing system downstream of the work.
2. It is the Contractor's responsibility to provide equipment that is adequate for the performance of the temporary bypassing operations under this Contract within the time specified. All equipment shall be kept in satisfactory operating condition, shall be capable of safely and efficiently performing the required operations, and shall be subject to review by the Owner's representative at any time within the duration of the Contract. All operations hereunder shall conform to the applicable requirements of the OSHA Standards for construction.

3. Should the Contractor fail to maintain the continuous operation of the bypass pumping system and operations, the Owner shall repair/operate the bypass pumping system to maintain station operation. Owner shall look to recover the costs for labor, materials, sewage hauling and any other activities required and costs incurred during operation/repair of the temporary bypass system from monies owed the Contractor for other portions of the project work.
 4. Pump station operational requirements take precedence over Contractor activities. Therefore, interruption of pump station operations shall be coordinated and are subject to the operational requirements of the Owner. Contractor shall assume that any interruption of pumping system operations may be deferred by up to one week from the requested time due to operational constraints.
 5. The Contractor shall provide for utilities and services for its own operations. The Contractor shall furnish, install and maintain all temporary utilities during the contract period including removal upon completion of the project work.
 6. Pumps used shall be fully automatic self-priming units that do not require the use of foot-valves in the priming system.
 7. The pumps shall be engine driven on skid bases or highway trailer with centralized lifting bracket and integral fuel tank. The pump shall be direct coupled to an electric start diesel engine.
 8. All pumps used shall be constructed to allow dry running for long periods of time to accommodate the cyclical nature of the flows.
 9. All pumps shall be High Pressure Solids Handling Self-Priming Pumps as manufactured by Thompson Pump & Manufacturing Co., Inc. in state of Florida, Godwin Pumps of America, Inc., or Engineer approved equal.
 10. Furnish each pump with the necessary stop/start controls.
 11. Contractor shall not be permitted to stop or impede the main flows under any circumstances except as otherwise defined and approved by Owner and Engineer under the sequence of construction. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.
 12. The Contractor shall protect water resources, wetlands and other natural resources.
- B. Temporary Bypass Pumping Requirements: The Contractor shall be responsible for the construction of the temporary bypass facilities as described herein and indicated on the Drawings. Requirements for the bypass pumping system are as follows:
1. Bypass pumping system shall be operated 24 hours per day once put into operation until such time as new/rehabilitated sewer facilities are approved for operation by Owner and Engineer.
 2. Provide two pumps at each bypass pumping location, consisting of one duty pump and one standby pump. The standby pump shall be piped into the suction and discharge headers and shall be on-line and ready for use in the event it is needed. The two pumps

combination shall consist of two sound attenuated, diesel driven pumpsets (lead, backup).

3. Bypass pump shall each have a performance curve that meets or exceeds the performance curve for the required bypass operations at each bypass pumping location.
 - a. For sewer rehabilitation, all existing project gravity sewers are 8-inch or 10-inch. Additional information can be provided by Town and Engineer during construction.
4. Contractor shall provide continuous monitoring of the bypass pumping operations whether by electronic monitoring operations or by personnel monitoring operations during entire period of active bypass operations to ensure continuous operation of the system. Automatic dialer shall be installed to notify emergency contacts.
5. The bypass pumps shall be quiet models producing no more than 70 dBA at a distance of 23 feet.
6. Provide all necessary pipeline plugs, LineStops, Insert Valves, pumps of adequate size to handle peak flows, and temporary suction and discharge piping and fittings to ensure that the total current flow capacity of pump station or sewer main can be safely diverted around the project work area while the facility is modified and/or not in operation.
7. If removal or modification of any portion of the upstream manhole(s) is necessary to utilize as a suction location(s), contractor is responsible for securing the area and prohibiting public access to the manhole(s). Contractor shall restore the manhole(s) to pre-construction condition or as noted in the construction documents.
8. The Contractor shall make all arrangements for temporary bypass pumping operations during the time when the pump station or sewer main is shut down for any reason. The bypass system must overcome any existing force main pressure on the discharge.
9. Discharge Piping shall be constructed of steel, ductile iron, or polyethylene pipe with positive, restrained joints. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the Engineer.
10. Operation: The bypass pumps shall have variable capacity by controlling the speed of the diesel engine. Each pump shall have a separate control panel.
11. Provide vacuum and pressure gauges on the suction and discharge headers.
12. Provide controls to automatically start, stop, and vary the pump operations in accordance with the approved control sequence.
13. Control Sequence – Contractor shall coordinate with the Owner operations staff to determine appropriate set points and controls for temporary bypass pumping operations.

2.2 EMERGENCY RESPONSE

- A. Contractor shall provide technician(s) capable of maintaining and trouble- shooting the bypass

system on-call in case of an emergency on a 24 hour basis to maintain or re-establish pump sets. Technician shall submit incident reports and turn them into the Owner within 24 hours of any incident.

- B. The Contractor and the Owner's Representative shall be linked by cell phone 24 hours a day during the course of the bypass operations. Any alarms shall initiate a call to the Contractor and the Owner. Contractor and Owner shall each have a minimum of three (3) individuals listed within the "calling tree". Starting with Contractor contacts, if the first contact does not confirm receipt of the alarm call, then the next contact shall be called until the alarm is either confirmed and/or all contacts are called. Owner's link into the alarm status is only for informational purposes. The Contractor shall be responsible for all bypass alarm conditions and shall be required to resolve the condition that is causing the alarm to occur.

PART 3 – EXECUTION

3.1 PREPARATION

- A. The Contractor shall be responsible for locating any existing utilities in the area where the Contractor selects to locate the bypass pumps and pipelines. The Contractor shall locate the bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from Owner and the Engineer. All costs associated with relocating utilities and obtaining all approvals shall be paid by the Contractor. Construction activities shall not be impeded by bypass piping.
- B. During bypass pumping operations, the Contractor shall protect the pump station, sewer mains, and force main from damage inflicted by the Contractor's equipment and operations. The Contractor shall be responsible for all physical damage to the sewer facilities caused by human or mechanical failure.
- C. During bypass pumping, do not allow sewage to be leaked, dumped, or spilled in or onto any area outside of the existing sanitary sewer system.
- D. In the event of accidental spill or overflow, immediately stop the discharge and take action to clean up and disinfect the spill. Promptly notify the Owner and Engineer so that required reporting can be made.
- E. In the event of accidental spill or overflow, the Contractor is responsible for any damages that may have occurred to public or private property including cleaning, disinfection, and other corrections to the satisfaction of the Engineer at no cost to the Owner.

3.2 INSTALLATION AND REMOVAL

- A. The Contractor shall pipe sections or make connections to the existing sewer and discharge forcemain and construct temporary bypass pumping structures only at the locations indicated on the Drawings or in the approved Bypass Pumping Plan, and as may be required to provide an adequate suction and discharge conduit, unless otherwise approved by the Owner and Engineer.
- B. As necessary, plugging or blocking of wastewater flows shall be performed with the use of approved plugs for gravity pipes and with the use of LineStops and/or Insert Valves on force mains which shall be installed by contractors approved by the Owner. When plugging or blocking is no longer needed for performance of the work, the plugs shall be removed in a

manner that permits the wastewater flow to slowly return to normal without surge, surcharging, or causing other major disturbances downstream.

- C. The installation of the bypass pipelines is prohibited in all wetland or ditch areas.
- D. At the conclusion of the bypass pumping operations, when all of the modifications to the sewer facilities are complete, tested, and ready for operation, the Contractor shall demonstrate the new system in automatic mode for 72 hours. At the completion of the demonstration period, and upon receipt of Engineer's written approval, the Contractor shall remove all the piping and bypass pumping equipment, restore all property to pre- construction condition and restore all pavement.

3.3 QUALITY CONTROL AND MAINTENANCE

- A. Testing: Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The Engineer and Owner shall be given 24 hours notice prior to testing.
- B. Inspection: Contractor shall inspect the bypass pumping system a minimum of twice daily, typically at the beginning and end of the work day, to ensure that the system is working correctly.
- C. Maintenance Service: Contractor shall insure that the temporary bypass pumping system is properly maintained and a responsible operator shall inspect the bypass pumping equipment a minimum of once daily during all times when pumps are operating.
- D. Monitoring: The Contractor shall be responsible for monitoring the bypass operations 24 hours per day, 7 days per week. All electronic monitoring must be detailed in the comprehensive written Bypass Pumping Plan and approved by the Owner and Engineer.
- E. Extra Materials: Spare parts for pumps and piping shall be kept on site as required. Adequate hoisting equipment for each pump and accessories shall be maintained on the site. Adequate diesel fuel storage for pumps shall be provided to maintain constant operations of the pumps.

3.4 SEQUENCE OF CONSTRUCTION

- A. Contractor shall thoroughly familiarize itself with all constraints of maintaining operations of the sewer facilities. Contractor shall propose a Sequence of Construction incorporating these constraints and secure concurrence of the Owner and Engineer prior to starting work.
- B. The Contractor shall submit a construction plan and schedule, which details the interruptions to be made which the Contractor shall be fully responsible for. One week prior to connections being made to existing structures or pipes, a coordination meeting shall be held between the Contractor, Engineer, and Owner to discuss the approved construction plan.
- C. Schedule of construction, interconnecting details, and other revisions necessary for proper interfacing of the Work shall be subsequently modified by Contractor accounting for results of said coordination meeting. The Engineer and Owner shall be notified 24 hours prior to any actual interruptions or connections being made. No bypassing operations shall begin prior to securing the Owner's approval of respective connection plan and work schedule.
- D. Temporary Bypass Pumping System Requirements:

1. Contractor shall provide air and vacuum release valve on suction piping to bleed off trapped air.
2. Temporary bypass pump operations and equipment shall include installation of isolation and check valves.
3. Install pressure gauge on pump discharge header and pressure and/or vacuum gauge on suction header. Gauges shall have isolation valves and diaphragm seals.
4. For pump station improvements, demonstrate the bypass pumping system by running it in automatic mode for 72 hours for bypassing operations at pump stations. If the system operates successfully during this period, the existing pumps can be removed from service. If the system does not operate successfully, make repairs/modifications and restart the demonstration period.
5. Provide temporary lighting in the yard for pump maintenance, service, and operation at night, as necessary.

END OF SECTION 02961

SECTION 15045 PRESSURE TESTING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. This section specifies the leakage testing of pressure piping systems.
2. It is the intent of this specification section that all piping be pressure tested. At a minimum, the pipe shall be tested at 1.5 times the working pressure for a duration of two (2) hours, unless specified otherwise herein or in other specification Sections.
3. Measurement and payment of testing covered in this section is considered incidental to the cost of installation of the piping to be tested and such cost shall be included in the bid form pricing for the associated piping.

B. Test Pressures and Times: PVC, ductile iron, and stainless-steel pipe for water, wastewater, or reclaimed water service mains shall be tested for a minimum of two (2) hours at 150 psi, unless otherwise required by Town.

C. HDPE Piping, if any, shall be pressure tested in accordance with the separate High-Density Polyethylene Pipe requirements.

D. The Contractor shall test pipelines installed under this Contract in accordance with these specifications prior to acceptance of the pipeline by the Town of Ridgeland or connecting pipeline to any existing pipeline or facility. All field tests shall be made in the presence of the Engineer and/or Town's Representative. Except as otherwise directed, all pipelines shall be tested.

All piping to operate under liquid pressure shall be tested in sections of approved length. For these tests, the Contractor shall furnish clean water, suitable temporary testing plugs or caps, and other necessary equipment, and all labor required. If the Contractor chooses to pressure test against an existing Town of Ridgeland main/valve, the Town of Ridgeland will not be responsible for failure of the pressure test due to the existing valve leaking. If positive test results cannot be obtained because the Town of Ridgeland valves will not hold the test pressures, the Contractor shall be required to disconnect from the Town of Ridgeland System and re-test independent of the Town of Ridgeland System and at the Contractor's expense.

E. Testing Records:

1. Provide record of each piping installation during the testing. These records shall include:
 - a. Date of test.
 - b. Identification of pipeline tested or retested.
 - c. Identification of pipeline material.
 - d. Identification of pipe section tested.
 - e. Test pressure.
 - f. Remarks: Leaks identified (type and location), types of repairs, or corrections made.

- g. Certification by Contractor that the leakage rate measured conformed to the specifications.
 - h. Signature of Town's representative witnessing pipe test.
- 2. Submit three (3) copies of the pressure test form to the Town's representative upon completion of the testing.

PART 2 – PRODUCTS

2.01 GENERAL:

- A. Testing fluid shall be water.
- B. The Contractor will use suitable pressure gauges, calibrated by an approved testing laboratory, with increments no greater than 2 psi. Gauges used shall be of such size that pressures tested will not register less than 10% nor more than 90% of the gauge capacity. Leakage and pressure testing shall be in accordance with AWWA C600 and as outlined below.

2.02 MATERIALS AND EQUIPMENT

- A. Provide pressure gauges, pipes, bulkheads, pumps, and meters to perform the hydrostatic testing.

PART 3 – EXECUTION

3.01 TESTING PREPARATION

- A. Pipes shall be in place and anchored before commencing pressure testing.
- B. Conduct hydrostatic tests on exposed and above ground piping after the piping has been installed and attached to the pipe supports, hangers, anchors, expansion joints, valves, and meters.
- C. Before conducting hydrostatic tests, flush pipes with water to remove dirt and debris.
- D. Test new pipelines which are to be connected to existing pipelines by isolating the new line from the existing line by means of pipe caps, special flanges, or blind flanges. After the new line has been successfully tested and cleared by relevant regulatory agencies, remove caps or flanges and connect to the existing piping.
- E. Conduct hydrostatic tests on buried pipe after the trench has been completely backfilled. The pipe may be partially backfilled, and the joints left exposed for inspection for an initial leakage test. Perform the final test, however, after completely backfilling and compacting the trench.

3.02 TESTING

- A. Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe. If blow-offs or other outlets are not available at high points for releasing air, the Contractor shall make the necessary taps at such points and shall plug said holes after completion of the test.
- B. Hydrostatic testing shall consist of a combined pressure test and leakage test. Specified test pressures, based on the elevation of the highest point of the line or section under test, and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. The pump, pipe connection, and all necessary apparatus shall be furnished by the Contractor and shall be subject to the approval of the Engineer. All valved sections shall be hydrostatic tested to ensure sealing (leak allowance) of all line valves.

1. All piping shall be pressure and leakage tested for a minimum of two hours duration at the test pressure noted in paragraph 1.01 for the relevant type of service. Pressure tests shall be conducted with a pressure loss of not more than 5 psi regardless of length being tested. No pipe will be accepted if pressure loss is greater than 5 psi regardless of leakage test results. All exposed pipe, fittings, valves and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings or valves that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory. Repairing, replacing, and retesting shall be done at the Contractor's expense.
2. Leakage tests shall be conducted simultaneously with the pressure tests. At the end of the pressure test, the line will be pumped back to initial test pressure. The quantity of water used to repump the line shall be measured and compared to the limitations calculated using the leakage equation below. No pipe installation will be accepted if the leakage is greater than determined by the following formula which is applicable to DIP, PVC, or combination of both:

$$L = \frac{SD P^{1/2}}{148,000}$$

In which L is the allowable leakage in gallons per hour; S is the length of pipeline tested, in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch. If any test discloses leakage greater than that specified above, the Contractor shall, at its own expense, locate and repair the defective material and retest until the leakage is within the specified allowance.

In the event a section fails to pass the tests, the Contractor shall do everything necessary to locate, uncover (even to the extent of uncovering the entire section), and replace the defective pipe, valve, fitting, or joint. Visible leaks shall be corrected regardless of total leakage. Lines which fail to meet these tests shall be retested as necessary until test requirements are complied with. All testing shall be performed at the Contractor's expense.

6. If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedures exactly for any reason, modifications in the procedure shall be made with approval; but, in any event, the Contractor shall be responsible for the ultimate tightness of the piping within the above requirement. For water mains, re-disinfection shall be required if the line is de-pressurized for repairs prior to tying into the Town of Ridgeland system.

END OF SECTION 15045

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TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX A

SOUTH CAROLINE DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMITS FOR
PERMIT NO. SC DOT #: 200164082 (WATERMAIN)
PERMIT NO. SC DOT #: 200164079 (FORCEMAIN)

The following South Carolina Department of Transportation Standard Detail Drawings are to be considered as part of the Tillman Road Forcemain and Watermain Improvement project.

601-205-01	610-005-00	625-410-00
601-205-03	610-005-10	651-115-01
601-205-05	610-010-00	815-001-01
602-05-00	610-015-00	815-105-00
602-05-03	610-605-00	815-105-05
605-025-01	610-610-00	815-605-00
605-035-02	625-305-01	815-605-05
		a1601-610-005-00
		a1901-610-005-00

9999 Special provisions

- All Pedestals, Hand Holes, Vaults and Pull Boxes shall be placed at the right-of-way line. **They shall not be placed between the roadway and the ditch.**
- All lines shall be placed a minimum of 5' from the edge of pavement.
- All lines placed in the shoulder between the road and the ditch shall be a minimum of 42" deep. Lines placed between the ditch and R/W can have a 36" depth minimum.
- Lines shall be bored 42" minimum under all storm drain pipes.
- Nothing shall be placed in the ditch line.
- All roads and driveways shall be bored.
- All road bores shall be a minimum of 48" deep and all bore pits shall be a minimum of 5' from EOP.
- All lines around a bridge shall be placed at the right-of-way line.
- No pavement cuts are allowed.

Encroachment Permit Number: **200164079**

These Special Provisions are part of the approved encroachment permit package and must be kept with the approved permit and approved plans at the work site. The Permittee is responsible for ensuring that anyone performing work under the permit has access to and complies with all approved permit documents while on site.

Provision No. Special Provision

1103

Before beginning construction within SCDOT right of way, the Permittee shall provide SCDOT with the name, phone number, email address, and other required contact information for the contractor, subcontractor, field supervisor, or other responsible party performing the Work.

1104

When required by SCDOT, the Permittee shall provide a responsible field representative on site while Work is being performed within SCDOT right of way. The representative shall have authority to direct construction activities, coordinate with SCDOT, correct deficiencies, adjust traffic control, and respond to permit, safety, inspection, or field issues identified by SCDOT. The Permittee shall provide the representative's contact information and any required emergency contact information to SCDOT before Work begins and shall keep the information current for the duration of the Work.

1405

When required by SCDOT, the Permittee shall submit as-built plans, drawings, exhibits, or other documentation showing the completed location, alignment, elevation, dimensions, materials, and features constructed within SCDOT right of way. Required as-built documentation shall be submitted after construction is complete and before final acceptance, permit closeout, or release of any bond, letter of credit, or other surety as applicable.

1500

Upon completion of the permitted Work, the Permittee shall request a final inspection from SCDOT. After the final inspection request, the Permittee shall allow SCDOT sufficient time to inspect the Work, identify any punch list items, and issue release or closeout documentation as applicable. Unless otherwise directed by SCDOT, punch list items, release documents, or closeout documentation may take up to three business weeks to be provided.

2302

Trenches shall be properly backfilled, compacted, and restored in accordance with applicable SCDOT standards. The entire disturbed area shall be reshaped, dressed, stabilized, and restored to a condition acceptable to SCDOT.

2307

Open trenches, open cuts, bell holes, or excavations within SCDOT right of way shall not remain open longer than necessary to complete the permitted Work. Open trenches, open cuts, bell holes, or excavations within pavement, shoulder, sidewalk, pedestrian areas, or traveled areas shall be restored the same day unless otherwise approved by SCDOT. When same-day restoration is not possible, the trench, cut, bell hole, or excavation shall be secured and protected with steel plates, barricades, temporary concrete barrier wall, warning devices, or other traffic control measures approved by SCDOT. Protective measures shall be secured, monitored, and maintained by the Permittee until permanent restoration is complete.

2308

The Permittee shall comply with applicable OSHA requirements for trenching, shoring, excavation, and worker protection. Open excavations shall be protected from the traveling public, pedestrians, and adjacent property as required by applicable safety standards and SCDOT-approved traffic control measures.

2400

Valves, manholes, valve boxes, and related utility appurtenances shall be adjusted to match the final roadway, shoulder, or ground elevation as approved by SCDOT. The Permittee is responsible for installing, adjusting, securing, and maintaining any risers, frames, covers, or related components necessary to provide a flush, stable, and acceptable final condition.

2401

Water meters, air valves, electric transformers, communication pedestals, handholes, vaults, splice boxes, utility boxes, fixtures, and similar utility appurtenances shall be placed at or near the right-of-way line and as far from the traveled roadway as practical unless otherwise approved by SCDOT.

2403	Valves, manholes, communication boxes, utility boxes, pedestals, poles, and other utility appurtenances shall not be placed within roadway pavement, within five feet of the edge of pavement, or within any ditch line, swale line, or drainage flow line unless otherwise approved by SCDOT.
2405	The Permittee shall maintain visibility around utility structures located within SCDOT right of way, including air release valves, meters, valves, manholes, pedestals, and similar appurtenances, so the structures can be identified by SCDOT maintenance forces. Vegetation around such structures shall be maintained by the Permittee or utility owner as directed by SCDOT.
2501	The Permittee shall not remove, alter, or disturb any existing roadway crossline pipe, drainage structure, or drainage appurtenance without prior written approval from SCDOT. Utility installations near existing drainage structures shall maintain the offset, clearance, and method of installation required by SCDOT. Where a utility is installed under an existing roadway crossline pipe or drainage structure, the installation shall be performed by directional bore or other trenchless method approved by SCDOT.
4200	The Permittee shall stabilize all disturbed areas in accordance with applicable SCDOT standards, specifications, vegetation management requirements, approved plans, and any applicable erosion control requirements. Topsoil, select material, seeding, grassing, sod, or other stabilization shall be placed as required by SCDOT. Disturbed areas shall be stabilized and maintained until sufficient vegetative cover or other approved stabilization is achieved to prevent erosion.
4602	Debris, waste material, removed materials, excess material, and construction-related refuse generated by the permitted Work shall be removed from SCDOT right of way and disposed of properly. Debris shall be removed within the time period required by SCDOT and before final acceptance or closeout unless otherwise approved by SCDOT.
5000	The Permittee shall furnish, install, maintain, and remove all traffic control devices, signs, lighting, flagging operations, and related traffic control measures required for the permitted Work. Traffic control shall comply with the approved traffic control plan, MUTCD, and applicable SCDOT requirements.
5003	Personnel working within SCDOT right of way and exposed to moving traffic, construction equipment, or other work-zone hazards shall wear high-visibility safety apparel meeting current applicable ANSI/ISEA, MUTCD, OSHA, and SCDOT requirements.
2300	Open cutting is authorized only to the extent necessary to make the approved connection to the existing utility line or facility. The remaining crossing or installation shall be performed by bore or other trenchless method approved by SCDOT.
2700	Excavation, grading, trenching, boring pits, or other ground disturbance near utility poles, guy anchors, pole foundations, or related support features shall be performed in a manner that protects the stability and safe operation of the utility facility. The Permittee shall coordinate with the utility owner and SCDOT before performing work that may affect a pole, anchor, foundation, or support feature. SCDOT may require offset, protection, shoring, relocation, or other measures before work proceeds.
3209	Pavement cores, boring repairs, pavement test holes, or similar pavement openings shall be repaired in accordance with SCDOT requirements and approved repair methods. When required by SCDOT, core holes shall be grout filled, patched with asphalt, and milled or overlaid to the limits required by SCDOT based on the location of the core, wheel path impacts, lane impacts, roadway condition, and approved plans.
3405	Equipment, cabinets, fixtures, signs, utility appurtenances, or other installed features shall not extend over or obstruct a sidewalk, pedestrian path, curb ramp, or pedestrian access route unless otherwise approved by SCDOT. Required pedestrian clearances shall be maintained in accordance with applicable SCDOT and ADA requirements.

Provision No. Special Provision

3406

Sidewalks, pedestrian facilities, or related appurtenances installed under this permit shall be maintained by the Permittee, municipality, property owner, or other entity identified in the approved permit documents or maintenance agreement. Maintenance shall be performed at no cost to SCDOT unless otherwise agreed in writing by SCDOT.

4600

Vegetation, debris, loose material, and other obstructions shall be removed from foundation areas before construction, inspection, or placement of concrete or structural elements. Removed vegetation and debris shall be disposed of outside SCDOT right of way unless otherwise approved by SCDOT.

Encroachment Permit Number: **200164082**

These Special Provisions are part of the approved encroachment permit package and must be kept with the approved permit and approved plans at the work site. The Permittee is responsible for ensuring that anyone performing work under the permit has access to and complies with all approved permit documents while on site.

Provision No. Special Provision

1103

Before beginning construction within SCDOT right of way, the Permittee shall provide SCDOT with the name, phone number, email address, and other required contact information for the contractor, subcontractor, field supervisor, or other responsible party performing the Work.

1104

When required by SCDOT, the Permittee shall provide a responsible field representative on site while Work is being performed within SCDOT right of way. The representative shall have authority to direct construction activities, coordinate with SCDOT, correct deficiencies, adjust traffic control, and respond to permit, safety, inspection, or field issues identified by SCDOT. The Permittee shall provide the representative's contact information and any required emergency contact information to SCDOT before Work begins and shall keep the information current for the duration of the Work.

1405

When required by SCDOT, the Permittee shall submit as-built plans, drawings, exhibits, or other documentation showing the completed location, alignment, elevation, dimensions, materials, and features constructed within SCDOT right of way. Required as-built documentation shall be submitted after construction is complete and before final acceptance, permit closeout, or release of any bond, letter of credit, or other surety as applicable.

1500

Upon completion of the permitted Work, the Permittee shall request a final inspection from SCDOT. After the final inspection request, the Permittee shall allow SCDOT sufficient time to inspect the Work, identify any punch list items, and issue release or closeout documentation as applicable. Unless otherwise directed by SCDOT, punch list items, release documents, or closeout documentation may take up to three business weeks to be provided.

2302

Trenches shall be properly backfilled, compacted, and restored in accordance with applicable SCDOT standards. The entire disturbed area shall be reshaped, dressed, stabilized, and restored to a condition acceptable to SCDOT.

2307

Open trenches, open cuts, bell holes, or excavations within SCDOT right of way shall not remain open longer than necessary to complete the permitted Work. Open trenches, open cuts, bell holes, or excavations within pavement, shoulder, sidewalk, pedestrian areas, or traveled areas shall be restored the same day unless otherwise approved by SCDOT. When same-day restoration is not possible, the trench, cut, bell hole, or excavation shall be secured and protected with steel plates, barricades, temporary concrete barrier wall, warning devices, or other traffic control measures approved by SCDOT. Protective measures shall be secured, monitored, and maintained by the Permittee until permanent restoration is complete.

2400

Valves, manholes, valve boxes, and related utility appurtenances shall be adjusted to match the final roadway, shoulder, or ground elevation as approved by SCDOT. The Permittee is responsible for installing, adjusting, securing, and maintaining any risers, frames, covers, or related components necessary to provide a flush, stable, and acceptable final condition.

2401

Water meters, air valves, electric transformers, communication pedestals, handholes, vaults, splice boxes, utility boxes, fixtures, and similar utility appurtenances shall be placed at or near the right-of-way line and as far from the traveled roadway as practical unless otherwise approved by SCDOT.

2403

Valves, manholes, communication boxes, utility boxes, pedestals, poles, and other utility appurtenances shall not be placed within roadway pavement, within five feet of the edge of pavement, or within any ditch line, swale line, or drainage flow line unless otherwise approved by SCDOT.

2405	The Permittee shall maintain visibility around utility structures located within SCDOT right of way, including air release valves, meters, valves, manholes, pedestals, and similar appurtenances, so the structures can be identified by SCDOT maintenance forces. Vegetation around such structures shall be maintained by the Permittee or utility owner as directed by SCDOT.
2501	The Permittee shall not remove, alter, or disturb any existing roadway crossline pipe, drainage structure, or drainage appurtenance without prior written approval from SCDOT. Utility installations near existing drainage structures shall maintain the offset, clearance, and method of installation required by SCDOT. Where a utility is installed under an existing roadway crossline pipe or drainage structure, the installation shall be performed by directional bore or other trenchless method approved by SCDOT.
4200	The Permittee shall stabilize all disturbed areas in accordance with applicable SCDOT standards, specifications, vegetation management requirements, approved plans, and any applicable erosion control requirements. Topsoil, select material, seeding, grassing, sod, or other stabilization shall be placed as required by SCDOT. Disturbed areas shall be stabilized and maintained until sufficient vegetative cover or other approved stabilization is achieved to prevent erosion.
4602	Debris, waste material, removed materials, excess material, and construction-related refuse generated by the permitted Work shall be removed from SCDOT right of way and disposed of properly. Debris shall be removed within the time period required by SCDOT and before final acceptance or closeout unless otherwise approved by SCDOT.
5000	The Permittee shall furnish, install, maintain, and remove all traffic control devices, signs, lighting, flagging operations, and related traffic control measures required for the permitted Work. Traffic control shall comply with the approved traffic control plan, MUTCD, and applicable SCDOT requirements.
5003	Personnel working within SCDOT right of way and exposed to moving traffic, construction equipment, or other work-zone hazards shall wear high-visibility safety apparel meeting current applicable ANSI/ISEA, MUTCD, OSHA, and SCDOT requirements.
1005	Any work performed outside SCDOT right of way that is intended to tie into, connect to, drain toward, or otherwise depend on future SCDOT approval is performed at the Permittee's risk until the applicable encroachment permit, plans, and related approvals are finalized. SCDOT approval is not guaranteed, and SCDOT may require changes to private-site work, tie-ins, drainage, access, grading, or related improvements before approving work within SCDOT right of way.
2300	Open cutting is authorized only to the extent necessary to make the approved connection to the existing utility line or facility. The remaining crossing or installation shall be performed by bore or other trenchless method approved by SCDOT.
2700	Excavation, grading, trenching, boring pits, or other ground disturbance near utility poles, guy anchors, pole foundations, or related support features shall be performed in a manner that protects the stability and safe operation of the utility facility. The Permittee shall coordinate with the utility owner and SCDOT before performing work that may affect a pole, anchor, foundation, or support feature. SCDOT may require offset, protection, shoring, relocation, or other measures before work proceeds.
3209	Pavement cores, boring repairs, pavement test holes, or similar pavement openings shall be repaired in accordance with SCDOT requirements and approved repair methods. When required by SCDOT, core holes shall be grout filled, patched with asphalt, and milled or overlaid to the limits required by SCDOT based on the location of the core, wheel path impacts, lane impacts, roadway condition, and approved plans.
4600	Vegetation, debris, loose material, and other obstructions shall be removed from foundation areas before construction, inspection, or placement of concrete or structural elements. Removed vegetation and debris shall be disposed of outside SCDOT right of way unless otherwise approved by SCDOT.

TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX B

ARMY CORP OF ENGINEER PERMITS/LETTERS FOR
PERMIT (WATERMAIN)
PERMIT (FORCEMAIN)

July 21, 2026

Dennis Averkin
Town of Ridgeland
PO Box 1119
Ridgeland, SC 29936
daverkin@ridgelandsc.gov

Re: 401 Certification for Authorization Pursuant to Nationwide Permit 58 (Utility Line Activities for Water and Other Substances)

Applicant Permit ID No.: SAC 2026-00785

Applicant: Town of Ridgeland

County: Jasper

Project: Tillman Road Forcemain and Watermain Improvement Project

Dear Dennis Averkin:

On June 18, 2025, the U.S. Army Corps of Engineers (Corps) issued a proposed rule in the Federal Register (90 FR 26100) that announced the reissuance of 56 existing NWP's and the proposal to issue one new NWP. One NWP is not proposed for reissuance. In response to the June 18th proposed rule, the Department initiated actions to certify the proposed NWP's, the Department issued a final certification in accordance with Section 401 of the Federal Clean Water Act (CWA), as amended, and a certification of consistency with the Coastal Zone Management Act (48-39-10 et.seq.).

On January 8, 2026, the Corps published a final rule in the Federal Register (91 FR 768). In this notice, the Corps announced that it was reissuing 56 of 57 existing NWP's with some modifications and associated general conditions and definitions, and to create one new NWP.

On January 7, 2026, the Corps' Charleston District issued their Final Regional Conditions for the 57 NWP. In that notice, the Charleston District denied the Section 401 Water Quality Certification (401 Certification) for NWP 12, 14, 23, 29, 39, 44, 46, 57, and 58 as well as the Coastal Zone Consistency (CZC) for NWPs 14, 29, 39, 42 and 51.

On March 24, 2026, a General State Certification to authorize activities in accordance with S.C. Code Ann. §§ 48-1-10 et seq. and S.C. Code Ann. Regulation 61-101, and S.C. Code Ann. § 48-39-10 et seq. and the S.C. Coastal Zone Management Program document was issued by the South Carolina Department of Environmental Services (SCDES or the Department) for the Nationwide Permits (NWPs) 12, 14, 23, 29, 39, 44, 46, 57, and 58.

The Department has reviewed the above-reference project in accordance with the March 24, 2026 general certification and, provided the applicant adheres to the certification conditions outlined in the attached document, the Department has determined that there is a reasonable assurance that the work authorized will be conducted in a manner consistent with the certification requirements of Section 401 of the Clean Water Act.

If you have any questions, please email me at Morgan.Amedee@des.sc.gov.

Sincerely,

Morgan Amedee

Morgan D. Amedee
Water Quality Certification and Wetlands Section

cc: USACOE Charleston Regulatory Office
Connor Breedlove
BCM

Nationwide Permit Number 58: Utility Line Activities for Water and Other Substances

Proposed Conditions for the 401 Water Quality Certification:

1. This NWP is not certified for pipelines with more than 10 aquatic site crossings (not including directionally bored crossings).
2. This NWP is not certified for activities located in or adjacent to (as determined by SCDES) waters defined (as per Regulation 61-68) as Outstanding National Resource Waters (ONRW), Outstanding Resource Waters (ORW), Trout Waters or, SCDNR designated State Scenic Rivers.
3. This NWP is not certified for activities that cause the loss of more than 300 linear feet of stream bed.

TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX C

SCDHEC COASTAL ZONE CONSISTENCY DETERMINATION FOR
PERMIT (WATERMAIN)
PERMIT (FORCEMAIN)

TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX D

SOUTH CAROLINA DEPARMENT OF ENVIRONMENTAL SERVICES
PERMIT TO CONSTRUCT
PERMIT (WATERMAIN)
PERMIT (FORCEMAIN)

TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX E

**CSX CORPORATION ENCROACHMENT PERMIT/INSURANCE
REQUIREMENTS/AGREEMENT FOR
PERMIT NO. CSX #: 1058047 / 1091971 (FORCEMAIN)**

RAILROAD PROTECTIVE LIABILITY INSURANCE

Evidence required by CSX Transportation, Inc.

You are required to furnish a Railroad Protective Liability insurance policy to protect CSX Transportation, Inc. in connection with activities to be performed on or adjacent to CSX Transportation's Right of Way. The following summarizes Railroad's specifications for proper evidence of insurance:

The insurer must be financially stable and rated A- or better in Best's insurance.

The policy must be written using the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35

Named Insured and Address: CSX Transportation, Inc.
500 Water Street, C-907
Jacksonville, FL 32202

For Conrail property in New York/New Jersey Shared Asset areas:
Consolidated Rail Corporation
c/o CSX Transportation, Inc.

Limits of Liability: \$5,000,000 per occurrence and \$10,000,000 aggregate is required for all locations.

Name and address of Contractor **must** be shown on the Declarations page.

Name and address of the Project Sponsor **must** be shown on the Declarations page, unless the Contractor and Project Sponsor are the same.

Description of operations **must** appear on the Declarations page and must match the project description, including project or contract identification numbers.

Description of the job location **must** appear on the Declarations page.

Coverage

Requirements/Endorsements:

A) Must Include: TRIA
coverage

Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later Delete
Common Policy Conditions - CL/CG 99 01

If policy jacket does not include Common Policy Conditions, this endorsement is not necessary. **B)**

Acceptable/May Include:

Broad Form Nuclear Exclusion - IL 00 21

30-day Advance notice of Non-renewal or cancellation

Required State Cancellation Endorsement Quick
Reference or Index - CL/IL 240 **C)**

Unacceptable/Cannot Include:

A Named Insured other than CSX Transportation, Inc.

Any Pollution Exclusion Endorsement except CG 28 31

Any Endorsement that excludes TRIA coverage

Any Endorsement that limits or excludes Professional Liability coverage

Any Non-Cumulation of Liability or Pyramiding of Limits Endorsement

Any Known Injury Endorsement

Any Punitive or Exemplary Damages Exclusion

A Sole Agent Endorsement

Any Endorsement not named in A or B that Railroad deems unacceptable Any
policy that includes a deductible

The **ENTIRE** original policy or Binder with Endorsements must be submitted for our approval and filing prior to the commencement of any work activities. You may go to the FRA website to get the information needed for the policy. You will need the nearest DOT# near your project (Example: 123456E). This number can be found on the bottom of the CSX sign at the public crossing. You will put in the 6 digit number and letter in the section that says "Select Crossing Pattern. Then hit Run Query and Generate Report. This should give enough information for the insurance company. One policy per project is required.

<http://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Xingqryxing.aspx>

Frequent items that are incorrect on the policy.

Job Description: See description on the first page of the Agreement. (Full description)

Job Location information: See description on the first page of the Agreement (City, County, State and CSXT Milepost Information)

Governmental Agency/Contracting Party: Should be the Licensee and not the contractor **Endorsements:** Endorsements are included that CSXT does not accept. Please see the list above.

Questions concerning RPL requirements should be directed in writing to: Mr. Richard Shephard, CSX Transportation, Inc., 500 Water Street, C-907, Jacksonville, Florida 32202 or email: Richard_shephard@csx.com.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER INSURED	CONTACT NAME: PHONE (A/C, No. Ext): _____ FAX (A/C, No.): _____ E-MAIL ADDRESS: patty.muncy@reaganinsurance.com INSURER(S) AFFORDING COVERAGE <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>INSURER A:</td><td></td></tr> <tr><td>INSURER B:</td><td></td></tr> <tr><td>INSURER C:</td><td></td></tr> <tr><td>INSURER D:</td><td></td></tr> <tr><td>INSURER E:</td><td></td></tr> <tr><td>INSURER F:</td><td></td></tr> </table>	INSURER A:		INSURER B:		INSURER C:		INSURER D:		INSURER E:		INSURER F:	
INSURER A:													
INSURER B:													
INSURER C:													
INSURER D:													
INSURER E:													
INSURER F:													

The Licensee/Lessee/Industry identified in the agreement must be the named insured. CSXT will not accept the contractor's CGL certificate.

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDITIONAL INSURER	SUBROGATION	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PROJECT ☐ LOC	X					EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMPIOP AGG \$
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS ☐ UMBRELLA LIAB ☐ EXCESS LIAB ☐ OCCUR ☐ CLAIMS-MADE DED RETENTION \$	X					COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ EACH OCCURRENCE \$ AGGREGATE \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		X				WC STATUS: ☒ TORY LIMITS ☐ OTHER ☒ E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

The amount in this "Each Occurrence" box must be at least five million dollars (\$5,000,000); or the amount in the box combined with the "Each Occurrence" coverage of any Excess Liability must be at least five million dollars (\$5,000,000)

Combined single limit of not less than one million dollars (\$1,000,000.00)

Standard limits of liability. Must contain a waiver of subrogation in favor of CSXT \$1,000,000.00 per occurrence

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

This box should contain the following: CSX Transportation, Inc., is included as additional insured. This certificate applies to all contracts/agreements between the named Insured and CSXT.

CERTIFICATE HOLDER

CANCELLATION

CSX Transportation, Inc.
500 Water Street, J180
Jacksonville, FL 32202

Per the terms of the agreement this should state: Should any of the above described policies be modified, cancelled, or not renewed, the issuing insurer shall mail 30 days written notice to the certificate holder named herein.

FACILITY ENCROACHMENT AGREEMENT

THIS AGREEMENT, made and effective as of June 18, 2026, by and between CSX TRANSPORTATION, INC., a Virginia corporation, whose mailing address is 500 Water Street, Jacksonville, Florida 32202, hereinafter called "Licensor," and TOWN OF RIDGELAND a municipal corporation, political subdivision or state agency, under the laws of the South Carolina whose mailing address is One Town Square, Ridgeland, South Carolina 29936, hereinafter called "Licensee," WITNESSETH:

WHEREAS, Licensee desires to construct (unless previously constructed and designated as existing herein), use and maintain the below described facility(ies), hereinafter called "Facilities," over, under or across property owned or controlled by Licensor, at the below described location(s):

1. One (1) ten inch (10") diameter sub-grade pipeline crossing, solely for the conveyance of raw/treated sewage, located at or near Ridgeland, Jasper County County, South Carolina, Milepost A-459.265, Latitude N32.:48:23.7., Longitude W-80.:9:82.45;

hereinafter, called the "Encroachment," as shown on print(s) labeled Exhibit "A," attached hereto and made a part hereof;

NOW, THEREFORE, in consideration of the mutual covenants, conditions, terms and agreements herein contained, the parties hereto agree and covenant as follows:

1. LICENSE:

1.1 Subject to Article 17, Licensor, insofar as it has the legal right, power and authority to do so, and its present title permits, and subject to:

(A) Licensor's present and future right to occupy, possess and use its property within the area of the Encroachment for any and all purposes, including Licensor's track(s) structures(s), power lines, communication, signal or other wires, train control system, cellular or data towers, or electrical or electronic apparatus, or any appurtenances thereto ("Licensor's Facilities") and any other facilities as now exist or which may in the future be located in, upon, over, under or across the property

(B) All encumbrances, conditions, covenants, easements, and limitations applicable to Licensor's title to or rights in the subject property; and

(C) Compliance by Licensee with the terms and conditions herein contained;

does hereby grant a non-exclusive license to Licensee for the Encroachment for the sole purpose of permitting Licensee to construct, maintain, repair, renew, operate, use, alter or change the

Facilities at the Encroachment above for the term herein stated, and to remove same upon termination.

1.2 The term Facilities, as used herein, shall include only those structures and ancillary facilities devoted exclusively to the transmission usage above within the Encroachment, and as shown on attached Exhibit A.

1.3 No additional structures or other facilities shall be placed, allowed, or maintained by Licensee in, upon or on the Encroachment except upon prior separate written consent of Licensor.

2. ENCROACHMENT FEE; TERM:

2.1 Licensee shall pay Licensor a one-time nonrefundable Encroachment Fee of SIX THOUSAND SEVEN HUNDRED EIGHTY AND 00/100 U.S. DOLLARS (\$6,780.00) upon execution of this Agreement. Licensee agrees that the Encroachment Fee applies only to the original Licensee under this Agreement. In the event of a successor (by merger, consolidation, reorganization and/or assignment) or if the original Licensee changes its name, then Licensee shall be subject to payment of Licensor's current administrative and document preparation fees for the cost incurred by Licensor in preparing and maintaining this Agreement on a current basis.

2.2 However, Licensee assumes sole responsibility for, and shall pay directly (or reimburse Licensor), any additional annual taxes and/or periodic assessments levied against Licensor or Licensor's property solely on account of said Facilities or Encroachment.

2.3 This Agreement shall terminate as herein provided, but shall also terminate upon: (a) Licensee's cessation of use of the Facilities or Encroachment for the purpose(s) above; (b) removal of the Facilities; (c) subsequent mutual written consent; and/or (d) failure of Licensee to complete installation within five (5) years from the effective date of this Agreement.

2.4 In further consideration for the license or right hereby granted, Licensee hereby agrees that Licensor shall not be charged or assessed, directly or indirectly, with any part of the cost of the installation of said Facilities and appurtenances, and/or maintenance thereof, or for any public works project of which said Facilities is a part. Licensee agrees that it shall not assess Licensor any stormwater or drainage fee associated with such Facilities. Furthermore, Licensee shall be responsible for any stormwater or drainage fees assessed by any County or State agency managing such systems.

3. CONSTRUCTION, MAINTENANCE AND REPAIRS:

3.1 Licensee shall construct, maintain, relocate, repair, renew, alter, and/or remove the Facilities, in a prudent, workmanlike manner, using quality materials and complying with any applicable standard(s) or regulation(s) of Licensor (CSXT Specifications), or Licensee's particular industry, National Electrical Safety Code, or any governmental or regulatory body having jurisdiction over the Encroachment.

3.2 Location and construction of Facilities shall be made strictly in accordance with design(s) and specifications furnished to and approved by Licensor and of material(s) and size(s) appropriate for the purpose(s) above recited.

3.3 All of Licensee's work, and exercise of rights hereunder, shall be undertaken at time(s) satisfactory to Licensor, and so as to eliminate or minimize any impact on or interference with the safe use and operation of Licensor's property and appurtenances thereto.

3.4 In the installation, maintenance, repair and/or removal of said Facilities, Licensee shall not use explosives on or adjacent to Licensor's property of any type or perform or cause any blasting on or adjacent to Licensor's property without the separate express prior written consent of Licensor. As a condition to such consent, a representative will be assigned by Licensor to monitor blasting, and Licensee shall reimburse Licensor for the entire cost and/or expense of furnishing said monitor.

3.5 Any repairs or maintenance to the Facilities, whether resulting from acts of Licensee, or natural or weather events, which are necessary to protect or facilitate Licensor's use of its property, shall be made by Licensee promptly, but in no event later than thirty (30) days after Licensee has notice as to the need for such repairs or maintenance.

3.6 Licensor, in order to protect or safeguard its property, rail operations, equipment and/or employees from damage or injury, may request immediate repair or renewal of the Facilities, and if the same is not performed, may make or contract to make such repairs or renewals, at the sole risk, cost and expense of Licensee.

3.7 All work on the Encroachment shall be conducted in accordance with Licensor's safety rules and regulations.

3.8 Licensee hereby agrees to reimburse Licensor any loss, cost or expense (including losses resulting from train delays and/or inability to meet train schedules) arising from any failure of Licensee to make repairs or conduct maintenance as required by Section 3.5 above or from improper or incomplete repairs or maintenance to the Facilities or Encroachment.

3.9 In the event it becomes necessary for the Licensee to deviate from the approved Exhibit A, Licensee shall seek prior approval from Licensor, or when applicable, an official field representative of Licensor permitted to approve changes, authorizing the necessary field changes and Licensee shall provide Licensor with complete As-Built Drawings of the completed work. As-Built Drawings shall be submitted to Licensor in either electronic or hard copy form upon the substantial completion of the project and upon Licensor's request.

3.10 In the event of large scale maintenance/construction work to railroad bridges Licensee is required to protect power lines with insulated covers or comparable safety devices at their costs during construction/maintenance for safety of railroad employees.

4. PERMITS, LICENSES:

4.1 Before any work hereunder is performed, or before use of the Encroachment for the contracted purpose, Licensee, at its sole cost and expense, shall obtain all necessary permit(s) (including zoning, building, construction, health, safety or environmental matters), letter(s) or certificate(s) of approval. Licensee expressly agrees and warrants that it shall conform and limit its activities to the terms of such permit(s), approval(s) and authorization(s), and shall comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (State, Federal or Local) having jurisdiction over Licensee's activities, including the location, contact, excavation and protection regulations of the Occupational Safety and Health Act (OSHA) (29 CFR 1926.651(b)), et al., and State "One Call" - "Call Before You Dig" requirements.

4.2 Licensee assumes sole responsibility for failure to obtain such permit(s) or approval(s), for any violations thereof, and for costs or expenses of compliance or remedy.

5. MARKING AND SUPPORT:

5.1 With respect to any subsurface installation or maintenance upon Licensor's property, Licensee, at its sole cost and expense, shall:

- (A) support track(s) and roadbed in a manner satisfactory to Licensor;
- (B) backfill with satisfactory material and thoroughly tamp all trenches to prevent settling of surface of land and roadbed of Licensor in a manner satisfactory to Licensor; and
- (C) either remove any surplus earth or material from Licensor's property or cause said surplus earth or material to be placed and distributed at location(s) and in such manner Licensor may approve.

5.2 After construction or maintenance of the Facilities, Licensee shall:

- (A) Restore any track(s), roadbed and other disturbed property in a manner satisfactory to Licensor; and
- (B) Erect, maintain and periodically verify the accuracy of aboveground markers, in a form approved by Licensor, indicating the location, depth and ownership of any underground Facilities or related facilities.

5.3 Licensee shall be solely responsible for any subsidence or failure of lateral or subjacent support in the Encroachment area for a period of three (3) years after completion of installation.

6. TRACK CHANGES:

6.1 In the event that rail operations and/or track maintenance result in changes in grade or alignment of, additions to, or relocation of track(s) or other facilities, or in the event future use of Licensor's rail corridor ("Rail Corridor") or property necessitate any change of location, height or depth in the Facilities or Encroachment, Licensee, at its sole cost and expense and within thirty (30) days after notice in writing from Licensor, shall make changes in the Facilities or Encroachment to accommodate such track(s) or operations.

6.2 If Licensee fails to do so, Licensor may make or contract to make such changes at Licensee's sole risk, cost and expense.

7. FACILITY CHANGES:

7.1 Licensee shall periodically monitor and verify the depth or height of the Facilities or Encroachment in relation to the existing tracks and facilities, and shall relocate the Facilities or change the Encroachment, at Licensee's expense, should such relocation or change be necessary to comply with the minimum clearance requirements of Licensor.

7.2 If Licensee undertakes to revise, renew, relocate or change in any manner whatsoever all or any part of the Facilities (including any change in voltage or gauge of wire or any change in circumference, diameter or radius of pipe or change in materials transmitted in and through said pipe), or is required by any public agency or court order to do so, plans therefor shall be submitted to Licensor for approval before such change. After approval, the terms and conditions of this Agreement shall apply thereto.

8. INTERFERENCE WITH RAIL FACILITIES:

8.1 Although the Facilities/Encroachment herein permitted may not presently interfere with Licensor's Facilities, in the event that the operation, existence or maintenance of said Facilities, in the sole judgment of Licensor, causes: (a) interference (including physical or interference from an electromagnetic induction, or interference from stray or other currents) with Licensor's power lines, communication, signal or other wires, train control system, or electrical or electronic apparatus; or (b) interference in any manner, with the operation, maintenance or use of Licensor's Facilities; then and in either event, Licensee, upon receipt of written notice from Licensor of any such interference, and at Licensee's sole risk, cost and expense, shall promptly make such changes in its Facilities or installation, as may be required in the reasonable judgment of the Licensor to eliminate all such interference. Upon Licensee's failure to remedy or change, Licensor may do so or contract to do so at Licensee's sole risk, cost and expense.

8.2 Without assuming any duty hereunder to inspect the Facilities, Licensor hereby reserves the right to inspect same and to require Licensee to undertake repairs, maintenance or adjustments to the Facilities, which Licensee hereby agrees to make promptly, at Licensee's sole cost and expense.

9. RISK, LIABILITY, INDEMNITY:

With respect to the relative risk and liabilities of the parties, it is hereby agreed that:

9.1 To the fullest extent permitted by State law (constitutional or statutory, as amended), Licensee hereby agrees to, defend, indemnify, and hold Licensors harmless from and against any and all liability, loss, claim, suit, damage, charge, cost or expense (including attorneys' fees) (collectively, "Claims and Losses") which Licensors may suffer, sustain, incur or in any way be subjected to, on account of death of or injury to any person whomsoever (including officers, agents, employees or invitees of Licensors), and for damage to or loss of or destruction of any property whatsoever, arising out of, resulting from, or in any way connected with the construction, repair, maintenance, replacement, presence, existence, operations, use or removal of the Facilities or any structure in connection therewith, or restoration of premises of Licensors to good order or condition after removal, EXCEPT when proven to have been caused solely by the willful misconduct or gross negligence of Licensors. HOWEVER, to the fullest extent permitted by State law, during any period of actual construction, repair, maintenance, replacement or removal of the Facilities, wherein agents, equipment or personnel of Licensee are on the railroad rail corridor, Licensee's liability hereunder shall be absolute, irrespective of any joint, sole or contributory fault or negligence of Licensors.

9.2 Use of Licensors' Rail Corridor involves certain risks of loss or damage as a result of the rail operations. Notwithstanding Section 9.1, Licensee expressly assumes all risk of loss and damage to Licensee's Property or the Facilities in, on, over or under the Encroachment, including loss of or any interference with use or service thereof, regardless of cause, including electrical field creation, fire or derailment resulting from rail operations. For this Section, the term "Licensee's Property" shall include property of third parties situated or placed upon Licensors' Rail Corridor by Licensee or by such third parties at request of or for benefit of Licensee.

9.3 To the fullest extent permitted by State law, as above, Licensee assumes all responsibility for, and agrees to defend, indemnify and hold Licensors harmless from any and all Claims and Losses arising from, under or in connection with or as a consequence of: (a) (i) any sudden or nonsudden pollution of air, water, land and/or ground water on or off the Encroachment area, arising from or in connection with the use of the Encroachment or (ii) any leaking, bursting, spilling, or any escape of the material transmitted in or through the Facilities; (b) any federal or state law dealing with either such sudden or nonsudden pollution of air, water, land and/or ground water arising therefrom or the remedy thereof; (c) any subsidence or failure of lateral or subjacent support of the tracks arising from such Facilities leakage; and (d) any drainage or runoff on or off the Encroachment area as a result of the Facilities/Encroachment herein permitted.

9.4 Notwithstanding Section 9.1, Licensee also expressly assumes all risk of loss which in any way may result from Licensee's failure to maintain either required clearances for any overhead Facilities or the required depth and encasement for any underground Facilities, whether or not such loss(es) result(s) in whole or part from Licensors' contributory negligence or joint fault.

9.5 Obligations of Licensee hereunder to release, indemnify and hold Licensors harmless shall also extend to companies and other legal entities that control, are controlled by,

subsidiaries of, or are affiliated with Licensor, as well as any railroad that operates over the rail corridor on which the Encroachment is located, and the officers, employees and agents of each.

9.6 If a claim is made or action is brought against Licensor, and/or its operating lessee, for which Licensee may be responsible hereunder, in whole or in part, Licensee shall be notified to assume the handling or defense of such claim or action; but Licensor may participate in such handling or defense.

9.7 Notwithstanding anything contained in this Agreement, the limitation of liability contained in the state statutes, as amended from time to time, shall not limit Licensor's ability to collect under the insurance policies required to be maintained under this Agreement.

9.8 Notwithstanding the foregoing in this Section 9, Licensee shall release and hold harmless Licensor from Claims and Losses.

10. INSURANCE:

10.1 Prior to commencement of surveys, installation or occupation of premises pursuant to this Agreement, Licensee shall procure and shall maintain during the continuance of this Agreement, at its sole cost and expense, a policy of

- (i) Statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS (\$1,000,000.00).
- (ii) Commercial General Liability coverage (inclusive of contractual liability) with available limits of not less than FIVE MILLION AND 00/100 U.S. DOLLARS (\$5,000,000.00) per occurrence (limit may be satisfied through a combination of both primary and umbrella/excess liability policies) for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement and naming Licensor, and/or its designee, as additional insured. The evidence of insurance coverage shall be endorsed to provide for thirty (30) days' notice to Licensor, or its designee, prior to cancellation or modification of any policy. Mail CGL certificate, along with agreement, to CSX Transportation, Inc., Speed Code J180, 500 Water Street, Jacksonville, FL 32202. On each successive year, send certificate to RenewalCOI@csx.com.
- (iii) Business automobile liability insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS (\$1,000,000.00) combined single limit for bodily injury and/or property damage per occurrence naming Licensor, and/or its designee, as additional insured.
- (iv) The insurance policies must contain a waiver of subrogation against CSXT and its parent, subsidiaries and affiliates, except where prohibited by law. All insurance companies must be A. M. Best rated A- and Class VII or better.

- (v) Such other insurance as Licensors may reasonably require.
- (vi) Licensee shall require its contractors to meet minimum insurance requirements above when performing work in relation to this Agreement. Licensee will procure and review contractor's insurance certificates to confirm requirements are met. Licensors may request a copy of the insurance certificate.
- (vii) Licensors' acceptance of any certificate of insurance does not constitute a waiver, release or modification of any of the insurance coverages or endorsements required under this Article 10.

10.2 If Licensee's existing CGL policy(ies) do(es) not automatically cover Licensee's contractual liability during periods of survey, installation, maintenance and continued occupation, a specific endorsement adding such coverage shall be purchased by Licensee. If said CGL policy is written on a "claims made" basis instead of a "per occurrence" basis, Licensee shall arrange for adequate time for reporting losses. Failure to do so shall be at Licensee's sole risk.

10.3 Licensors, or its designee, may at any time request evidence of insurance purchased by Licensee to comply with this Agreement. Failure of Licensee to comply with Licensors' request shall be considered a default by Licensee.

10.4 To the extent permitted by law and notwithstanding anything to the contrary in this Agreement, the insurance required and provided by Licensee shall not be subject to the limitations of sovereign immunity.

10.5 (A) In the event Licensee finds it necessary to perform construction or demolition operations within fifty feet (50') of any operated railroad track(s) or affecting any railroad bridge, trestle, tunnel, track(s), roadbed, overpass or underpass, Licensee shall: (a) notify Licensors; and (b) require its contractor(s) performing such operations to procure and maintain during the period of construction or demolition operations, at no cost to Licensors, Railroad Protective Liability (RPL) Insurance, naming Licensors, and/or its designee, as Named Insured, written on the current ISO/RIMA Form (ISO Form No. CG 00 35 04 13) with limits of FIVE MILLION AND 00/100 U.S. DOLLARS (\$5,000,000.00) per occurrence for bodily injury and property damage, with at least TEN MILLION AND 00/100 U.S. DOLLARS (\$10,000,000.00) aggregate limit per annual policy period. The original of such RPL policy shall be sent to and approved by Licensors prior to commencement of such construction or demolition. Licensors reserves the right to demand higher limits.

(B) At Licensors' option, in lieu of purchasing RPL insurance or the 50 foot endorsements from an insurance company (but not CGL insurance), Licensee may pay Licensors, at Licensors' current rate at time of request, the cost of adding this Encroachment, or additional construction and/or demolition activities, to Licensors' Railroad Protective Liability (RPL)

Policy for the period of actual construction. This coverage is offered at Licensor's sole discretion and may not be available under all circumstances.

10.6 Notwithstanding the provisions of Sections 10.1 and 10.2, Licensee, pursuant to State Statute(s), may self-insure or self-assume, in any amount(s), any contracted liability arising under this Agreement, under a funded program of self-insurance, which fund will respond to liability of Licensee imposed by and in accordance with the procedures established by law.

11. GRADE CROSSINGS; PROTECTION SERVICES:

11.1 Nothing herein contained shall be construed to permit Licensee or Licensee's contractor to move any vehicles or equipment over the track(s), except at public road crossing(s), without separate prior written approval of Licensor.

11.2 If Licensor deems it advisable, during any construction, maintenance, repair, renewal, alteration, change or removal of said Facilities, to place watchmen, flagmen, or field construction managers for protection of operations of Licensor or others on Licensor's Rail Corridor at the Encroachment, and to keep persons, equipment or materials away from the track(s), Licensor shall have the right to do so at the expense of Licensee, but Licensor shall not be liable for failure to do so.

11.3 Subject to consent of Licensor, in its sole discretion, and subject to Licensor's operating rules and labor agreements, Licensee may provide flagmen, in place of Licensor's provision, at Licensee's sole risk, cost and expense, and in such event, Licensor shall not be liable for the failure or neglect of such flagmen. Such flagmen shall be approved by Licensor and shall meet all Licensor's requirement for performing such work.

12. LICENSOR'S COSTS:

12.1 Any additional or alternative costs or expenses incurred by Licensor to accommodate Licensee's continued use of Licensor's property as a result of track changes or changes to Licensor's Facilities shall also be paid by Licensee.

12.2 Licensor's expense for wages ("force account" charges) and materials for any work performed at the expense of Licensee pursuant hereto shall be paid by Licensee within thirty (30) days after receipt of Licensor's bill therefor. Licensor may, at its discretion, request an advance deposit for estimated Licensor costs and expenses.

12.3 Such expense shall include cost of railroad labor and supervision under "force account" rules, plus current applicable overhead percentages, the actual cost of materials, and insurance, freight and handling charges on all material used. Equipment rentals shall be in accordance with Licensor's applicable fixed rate. Licensor may, at its discretion, require advance deposits for estimated costs of such expenses and costs.

13. DEFAULT, BREACH, WAIVER:

13.1 The proper and complete performance of each covenant of this Agreement shall be deemed of the essence thereof, and in the event Licensee fails or refuses to fully and completely perform any of said covenants or remedy any breach within thirty (30) days after receiving written notice from Licensor to do so (or within forty-eight (48) hours in the event of notice of a railroad emergency), Licensor shall have the option of immediately revoking this Agreement and the privileges and powers hereby conferred, regardless of encroachment fee(s) having been paid in advance for any annual or other period. Upon such revocation, Licensee shall make removal in accordance with Article 14.

13.2 No waiver by Licensor of its rights as to any breach of covenant or condition herein contained shall be construed as a permanent waiver of such covenant or condition, or any subsequent breach thereof, unless such covenant or condition is permanently waived in writing by Licensor.

13.3 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

14. TERMINATION, REMOVAL:

14.1 All rights which Licensee may have hereunder shall cease upon the date of (a) termination, (b) revocation, or (c) subsequent agreement, or (d) Licensee's removal of the Facility from the Encroachment. However, neither termination nor revocation of this Agreement shall affect any claims and liabilities which have arisen or accrued hereunder, and which at the time of termination or revocation have not been satisfied; neither party, however, waiving any third party defenses or actions.

14.2 Within thirty (30) days after revocation or termination, Licensee, at its sole risk, cost and expense, shall (a) remove the Facilities from the Rail Corridor of Licensor, unless the parties hereto agree otherwise, (b) restore the Rail Corridor of Licensor in a manner satisfactory to Licensor, and (c) reimburse Licensor any loss, cost or expense of Licensor resulting from such removal.

14.3 Notwithstanding the termination, revocation or expiration of this Agreement, and except as otherwise stated in this Agreement, those obligations contained herein that by their terms or nature are intended to survive such termination, revocation or expiration shall do so including the indemnification, Facilities removal, restoration and reimbursement provisions herein.

15. NOTICE:

15.1 Licensee shall give Licensor at least thirty (30) days written notice before doing any work on Licensor's Rail Corridor, except that in cases of emergency shorter notice may be given. Licensee shall provide proper notification as follows:

a. For non-emergencies, Licensee shall submit online via the CSX Property Portal from Licensor's web site, via web link:
https://propertyportal.csx.com/pub_ps_res/ps_res/jsf/public/index.faces

b. For emergencies, Licensee shall complete all of the steps outlined in Section 15.1 a. above, and shall also include detailed information of the emergency. Licensee shall also call and report details of the emergency to Licensor's Rail Operations Emergency Telephone Number: 1-800-232-0144. In the event Licensor needs to contact Licensee concerning an emergency involving Licensee's Facility(ies), the emergency phone number for Licensee is: 843-726-7501.

15.2 All other notices and communications concerning this Agreement shall be addressed to Licensee at the address above, and to Licensor at the address shown on Page 1, c/o CSXT Contract Management, J180; or at such other address as either party may designate in writing to the other.

15.3 Unless otherwise expressly stated herein, all such notices shall be in writing and sent via Certified or Registered Mail, Return Receipt Requested, or by courier, and shall be considered delivered upon: (a) actual receipt, or (b) date of refusal of such delivery.

16. ASSIGNMENT:

16.1 The rights herein conferred are the privileges of Licensee only, and Licensee shall obtain Licensor's prior written consent to any assignment of Licensee's interest herein (by operation of law or otherwise); said consent shall not be unreasonably withheld. Any assignment of this Agreement by Licensee, by operation or law or otherwise, or any interest herein, without the prior written consent of Licensor, shall be void.

16.2 Subject to Sections 2 and 16.1, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors or assigns.

16.3 Licensee shall give Licensor written notice of any legal succession (by merger, consolidation, reorganization, etc.) or other change of legal existence or status of Licensee, with a copy of all documents attesting to such change or legal succession, within thirty (30) days thereof.

16.4 Licensor expressly reserves the right to assign this Agreement, in whole or in part, to any grantee, lessee, or vendee of Licensor's underlying property interests in the Encroachment, upon written notice thereof to Licensee.

16.5 In the event of any unauthorized sale, transfer, assignment, sublicense or encumbrance of this Agreement, or any of the rights and privileges hereunder, Licensor, at its

option, may revoke this Agreement by giving Licensee or any such assignee written notice of such revocation; and Licensee shall reimburse Licensors for any loss, cost or expense Licensors may incur as a result of Licensee's failure to obtain said consent.

17. TITLE:

17.1 Licensee understands that Licensors occupies, uses and possesses lands, rights-of-way and Rail Corridors under all forms and qualities of ownership rights or facts, from full fee simple absolute to bare occupation. Accordingly, nothing in this Agreement shall act as or be deemed to act as any warranty, guaranty or representation of the quality of Licensors' title for any particular Encroachment or segment of Rail Corridor occupied, used or enjoyed in any manner by Licensee under any rights created in this Agreement. It is expressly understood that Licensors does not warrant title to any Rail Corridor and Licensee will accept the grants and privileges contained herein, subject to all lawful outstanding existing liens, mortgages and superior rights in and to the Rail Corridor, and all leases, licenses and easements or other interests previously granted to others therein.

17.2 The term "license," as used herein, shall mean with regard to any portion of the Rail Corridor which is owned by Licensors in fee simple absolute, or where the applicable law of the State where the Encroachment is located otherwise permits Licensors to make such grants to Licensee, a "permission to use" the Rail Corridor, with dominion and control over such portion of the Rail Corridor remaining with Licensors, and no interest in or exclusive right to possess being otherwise granted to Licensee. With regard to any other portion of Rail Corridor occupied, used or controlled by Licensors under any other facts or rights, Licensors merely waives its exclusive right to occupy the Rail Corridor and grants no other rights whatsoever under this Agreement, such waiver continuing only so long as Licensors continues its own occupation, use or control. Licensors does not warrant or guarantee that the license granted hereunder provides Licensee with all of the rights necessary to occupy any portion of the Rail Corridor. Licensee further acknowledges that it does not have the right to occupy any portion of the Rail Corridor held by Licensors in less than fee simple absolute without also receiving the consent of the owner(s) of the fee simple absolute estate. Further, Licensee shall not obtain, exercise or claim any interest in the Rail Corridor that would impair Licensors' existing rights therein.

17.3 Licensee agrees it shall not have nor shall it make, and hereby completely and absolutely waives its right to, any claim against Licensors for damages on account of any deficiencies in title to the Rail Corridor in the event of failure or insufficiency of Licensors' title to any portion thereof arising from Licensee's use or occupancy thereof.

17.4 Licensee agrees to fully and completely indemnify and defend Licensors from and against any and all Claims and Losses arising out of or in connection with claims or litigation for slander of title, overburden of easement, or similar claims arising out of or based upon the Facilities placement, or the presence of the Facilities in, on or along any Encroachment(s), including claims for punitive or special damages; provided that Licensors shall have the right to participate in the defense of any such claim.

17.5 Licensee shall not at any time own or claim any right, title or interest in or to Licensor's property occupied by the Encroachments, nor shall the exercise of this Agreement for any length of time give rise to any right, title or interest in Licensee to said property other than the license herein created.

17.6 Nothing in this Agreement shall be deemed to give, and Licensor hereby expressly waives, any claim of ownership in and to any part of the Facilities.

17.7 Licensee shall not create or permit any mortgage, pledge, security, interest, lien or encumbrances, including tax liens and liens or encumbrances with respect to work performed or equipment furnished in connection with the construction, installation, repair, maintenance or operation of the Facilities in or on any portion of the Encroachment (collectively, "Liens or Encumbrances"), to be established or remain against the Encroachment or any portion thereof or any other Licensor property.

17.8 In the event that any property of Licensor becomes subject to such Liens or Encumbrances, Licensee agrees to pay, discharge or remove the same promptly upon Licensee's receipt of notice that such Liens or Encumbrances have been filed or docketed against the Encroachment or any other property of Licensor; however, Licensee reserves the right to challenge, at its sole expense, the validity and/or enforceability of any such Liens or Encumbrances.

18. APPROVALS:

18.1 Whenever this Agreement requires the prior approval or consent of Licensor, Licensee shall make a timely written request to Licensor therefor; and such approval or consent shall be obtained in writing. Except where this Agreement expressly obligates Licensor not to unreasonably withhold its approval or consent to any of Licensee's actions or requests, Licensor has the absolute right, in its sole and arbitrary discretion, to refuse any request Licensee makes or to withhold its approval of any of Licensee's proposed or effected actions that require Licensor's approval.

18.2 Licensor makes no warranties or guarantees upon which Licensee may rely, and assumes no liability or obligation to Licensee, by providing any waiver, approval, consent, or suggestion to Licensee in connection with this Agreement, or by reason of any neglect, delay, or denial of any request therefor.

19. GENERAL PROVISIONS:

19.1 This Agreement, and the attachments hereto, contains the entire understanding between the parties hereto, and supersedes all other oral or written agreements and understandings between them, with respect to the subject matter hereof.

19.2 Except as otherwise expressly provided in this Agreement, neither this Agreement, any provision hereof, nor any agreement or provision included herein by reference, shall operate or be construed as being for the benefit of any third person.

19.3 Except as otherwise provided herein, or in any Exhibit, Schedule or other attachment hereto, neither the form of this Agreement, nor any language herein, shall be interpreted or construed in favor of or against either party hereto as the sole drafter thereof.

19.4 This Agreement is executed under current interpretation of applicable Federal, State, County, Municipal or other local statute, ordinance or law(s). However, each separate division (paragraph, clause, item, term, condition, covenant or agreement) herein shall have independent and severable status for the determination of legality, so that if any separate division is determined to be void or unenforceable for any reason, such determination shall have no effect upon the validity or enforceability of each other separate division, or any combination thereof.

19.5 This Agreement shall be construed and governed by the laws of the state in which the Facilities and Encroachment are located. In interpreting this Agreement, the singular shall be read as the plural in each instance as sense shall require. The words "include," "includes" and "including" when used in this Agreement will be interpreted as if they were followed by the words "without limitation."

19.6 If any amount due pursuant to the terms of this Agreement is not paid by the due date, it will be subject to Licensor's standard late charge and will also accrue interest at eighteen percent (18%) per annum, unless limited by local law, and then at the highest rate so permitted.

19.7 Licensee agrees to reimburse Licensor for all reasonable costs (including attorney's fees) incurred by Licensor for collecting any amount due under the Agreement.

19.8 The provisions of this License are considered confidential and may not be disclosed to a third party without the consent of the other party(s), except: (a) as required by statute, regulation or court order, (b) to a parent, affiliate or subsidiary company, (c) to an auditing firm or legal counsel that are agreeable to the confidentiality provisions, or (d) to Lessees of Licensor's land and/or track who are affected by the terms and conditions of this Agreement and will maintain the confidentiality of this Agreement.

19.9 Within thirty (30) days of an overpayment in a cumulative total amount of One Hundred Dollars (\$100.00) or more by Licensee to Licensor, Licensee shall notify Licensor in writing with documentation evidencing such overpayment. Licensor shall refund the actual amount of Licensee's overpayment within one hundred twenty (120) days of Licensor's verification of such overpayment.

19.10 This Agreement may be executed in any number of counterparts, and such counterparts may be exchanged by electronic transmission. Upon execution by the parties hereto, each counterpart shall be deemed an original and together shall constitute one and the same instrument. A fully executed copy of this Agreement by electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Agreement for all purposes.

19.11 Notwithstanding any other provision in this Agreement to the contrary, Licensor expressly reserves and does not waive any rights it may have under the Interstate Commerce Commission Termination Act of 1995, 49 U.S.C. § 10101, *et seq.*, the Federal Railroad Safety Act, 49 U.S.C. § 20101, *et seq.*, and/or any other federal law governing rail transportation and related operations.

[signature page follows]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate (each of which shall constitute an original) as of the effective date of this Agreement.

Witness for Licensors:



CSX TRANSPORTATION, INC.

By: 

Print/Type Name: Eric Horton
Manager - Real Estate

Print/Type Title: _____

Witness for Licensee:


Penelope Daley, Town Clerk

TOWN OF RIDGELAND

By: 

Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the Licensee to the terms and conditions of this Agreement.

Print/Type Name: Dennis E. Averkin

Print/Type Title: Town Administrator

Tax ID No.: 57-6001100

Authority under Ordinance or

Resolution No.05-2026,

Dated: June 18, 2026

CSX Transportation (CSXT) General Notes (Bore and Jack):

- 1) CSXT owns its right-of-way for the primary purpose of operating a railroad, and shall maintain unrestricted use of its property for current and future operations.
- 2) Agency or its contractor shall arrange and conduct its work so that there will be no interference with CSXT operations, including train, signal, telephone and telegraphic services, or damages to CSXT's property, or to poles, wires, and other facilities of tenants of CSXT's property or right-of-way.
- 3) Refer to the CSXT's "Design & Construction Standard Specifications Pipeline Occupancies" revised June 5, 2018 (4 1.2).
- 4) Work schedule is subject to the approval of all required construction submittals by the CSXT Construction Representative, verification that proposed work will not conflict with any CSXT U.G. Facilities, and the availability of CSXT Flagging and Protection Services. Construction submittals will be based upon the proposed scope of work and may include, but are not limited to; proposed work plan, project schedule, means and methods, site access, dewatering, temporary excavation/shoring, soil disposition/management, track monitoring, concrete placement work, structural lifting/rigging plans for hoisting operations, substructure construction plans, steel erection plans, roadwork plans, etc. No work may begin on, over, or adjacent to CSXT property, or that could potentially impact CSXT property, operations or safety without the prior completion and approval of the required aforementioned information and approvals.
- 5) Prior to construction, all signal facilities and/or warning devices at proposed facility crossing, i.e. cantilevers, flashers, and gates must be located and marked/flagged by CSXT. The traditional "One Call" utility locate services are not responsible for locating any CSXT under-grade utilities or facilities. Contractor shall be held liable for any damages to CSXT communication & signal facilities.
- 6) Contractor also has the sole responsibility of ascertaining that all other utilities have been properly located by complying with the local "call before you dig" regulation(s). Contractor shall solely be responsible for notifying owners of adjacent properties and of underground facilities and utility owners when prosecution of the work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property.
- 7) The use of construction safety fencing is required when a CSXT Flagman is not present. Distance of fencing from nearest rail to be determined by the CSXT Track Supervisor and shall be removed upon completion of the project.
- 8) Contractor access will be limited to the immediate project area only. The CSXT property outside the project area may not be used for contractor access to the project site and no temporary at-grade crossings will be allowed.
- 9) All material and equipment will be staged to not block any CSXT access or maintenance roads. No hoisting or auxiliary equipment necessary for the procedure shall be placed on CSXT track structure and / or ballast section. Clear working locations for equipment used will be laid out and approved by CSXT's representative prior to equipment set-up. Agency and contractor shall not store their materials or equipment on CSXT's property or where they may potentially interfere with CSXT's operations.
- 10) CSXT does not grant or convey an easement for this installation.
- 11) CSXT requires contractors, subcontractors, and vendors to participate in job safety briefings daily and as necessary with the CSXT flagger. The scope of work may require that various protection against train movements be discussed, understood, and utilized. Work shall only be undertaken with the presence and permission of the CSXT flagger. If at any time the CSXT flagger perceives that the hoisting procedure is causing or has the potential to cause a hazard or delay to CSXT operations through the project site, work will cease until such time as satisfactory modifications have been reviewed and approved.
- 12) The right of way shall be restored to a condition equal to or better than the condition prior to beginning the project before final acceptance will be provided. Punch lists shall be responded to prior to issuance of an acceptance memorandum signed by the CSXT representative.
- 13) No construction or entry upon the CSXT corridor is permitted until the document transaction is completed, you are in receipt of a fully executed document, and you have obtained authority from CSXT's.
- 14) The front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger from leading the pipe so that no unsupported excavation is ahead of the pipe. The bore head / auger set-up (sketch or photos) shall be submitted by contractor and accepted by assigned CSXT representative prior to start of the jack & bore.
- 15) The operation shall be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.
- 16) The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered.
- 17) Pipeline shall be prominently marked at both sides of the CSXT property lines by durable, weatherproof signs located over the centerline of the pipe in accordance with CSXT specifications.
- 18) If required, a dewatering plan in accordance with CSXT specifications will be submitted to the CSXT representative for review and approval prior to any dewatering operations. Dewatering drawdown level at tracks shall be field verified that it meets the approved dewatering design prior to commencement of jack and bore operations.
- 19) Blasting is not permitted under, on, or adjacent to CSXT property.

Revised January 31, 2023

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CSX1058047

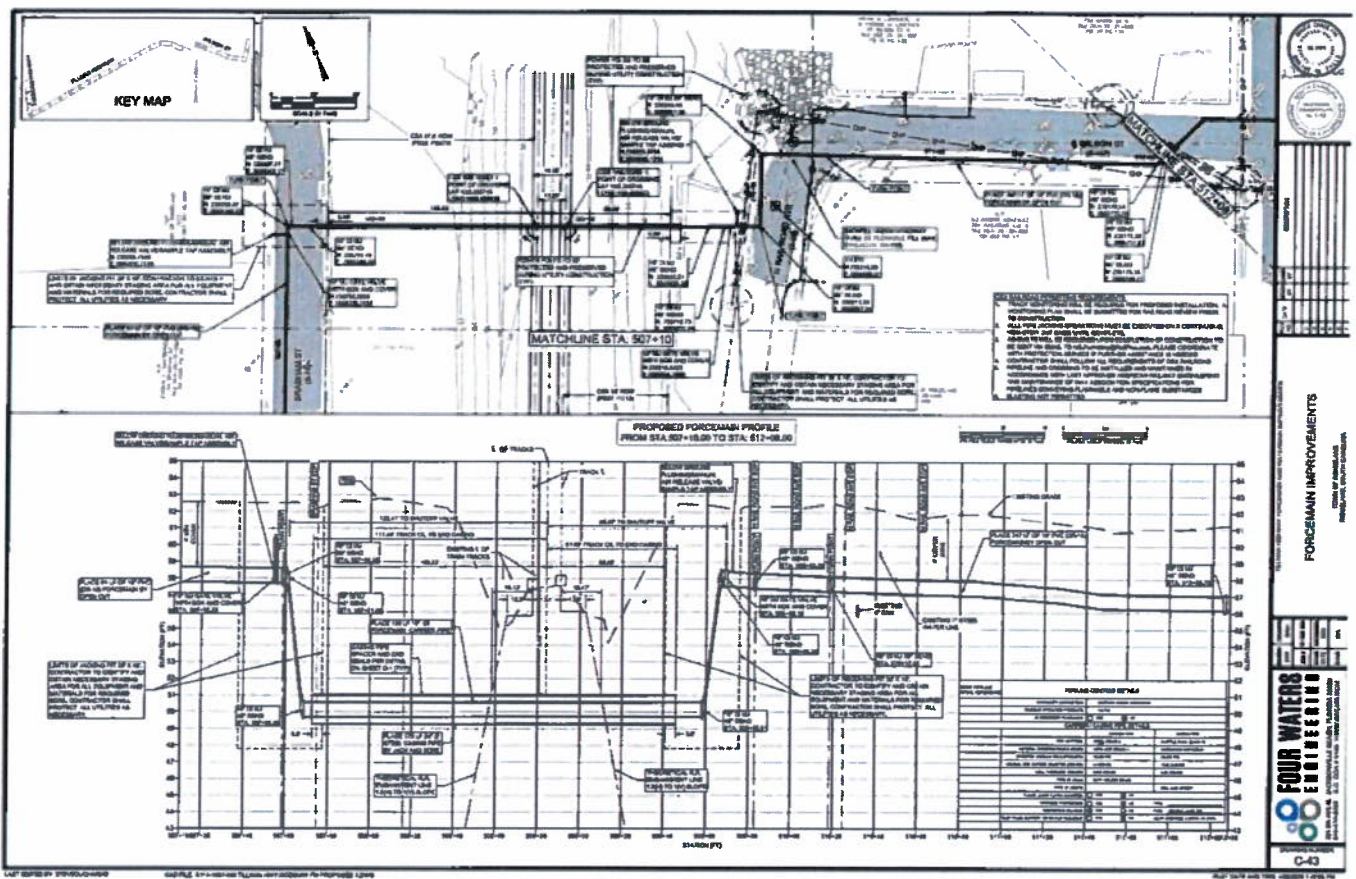
Exhibit A

05/12/2026

- 20) Jacking pit: Identify hazards and put controls in place prior to start of excavation. Contractor shall erect a barrier and construction fence along the face of jacking pit construction limits and not encroach past it when preparing the pit. Stake or mark pit as needed for digging. Erosion control devices shall be placed at the jacking and receiving pits protecting CSXT property and ditches to the satisfaction of the CSXT representative.
- 21) Excavation: If the excavation is 5 feet or greater in depth, the walls may be sloped at 1.5 horizontal to 1 vertical to reduce the risk of cave-ins or slides. A safe manner in which to enter and exit the excavation must be established. The toe of slopes in excavation shall in no case be undercut by power shovels, bulldozers, graders, blasting, or in any manner. Excavation shall not be made in excess of the authorized cross-section.
- 22) Backfill, cover or fence all excavations when unattended. The CSXT representative will approve the protection method and the type of fencing material. Set fencing back at least 3 feet (91 centimeters) from the edges of the excavation. Set fence posts securely in the ground and insure the fencing is securely tied to posts with zip ties or some other tie wrap product.
- 23) For any excavations permitted on CSXT property, all backfill in excavations and trenches shall be compacted to 95% maximum dry density as defined in ASTM standard d1557 and installed in six-inch lifts. In-situ soil shall be used for backfill material. Should additional offsite backfill material be needed, offsite material sources are to meet state and residential clean fill requirements and be preapproved by CSXT's representative. CSXT does not require a specific testing requirement or standard for stone.
- 24) Track monitoring: prior to commencing jack & bore operations, contractor shall be required to conduct and submit a baseline survey along the top of each rail under CSXT flagger protection and in accordance with the preapproved settlement monitoring construction submittal. Additional survey data shall be collected and submitted once each day during casing pipe installation, or as directed by CSXT representative. Contractor shall also take elevation shots at top of tie and top of casing pipe before starting the bore to verify depth of cover proposed for the work has been met.
- 25) Projects that generate soils from CSXT property must adhere to CSXT's soil management policies. CSXT requires soils generated from its property to either be reused on CSXT property or properly disposed in a CSXT approved disposal facility. CSXT environmental department will handle waste characterization and profiling into an approved disposal facility. CSXT prohibits any environmental sampling on its property unless granted through a written environmental right-of-entry or approved in writing by the CSXT environmental department. The management of soils generated from CSXT property should be planned for and properly permitted (if applicable) prior to initiating any work on CSXT property. A list of CSXT approved laboratories and/or disposal facilities may be obtained from the CSXT manager environmental pro.
- 26) CSXT does not represent or warrant the right-of-way dimensions depicted on these drawings. A third party survey is recommended for verification and accuracy.
- 27) Upon completion of project construction, contractor must submit to CSXT the as-built plans showing the final alignment on CSXT property, including actual depth of facility and any field change to location on CSXT property, pipe materials, number of innerducts, etc.

Revised January 31, 2023

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TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX F

TOWN OF RIDGELAND BUSINESS LICENSE APPLICATION

Town of Ridgeland, South Carolina

Business License Application



Town:

Business Information

Corporate name:		
Name shown to public:		Open date:
Organization type: ☐ Sole proprietor ☐ LLC ☐ LLP ☐ LP ☐ Corporation Articles of Organization or Incorporation may be required.		
Business activity/type:		NAICS/SIC/Other code:
Federal ID/SSN #:		State retail sales #:
Mailing address:		
Physical address: ☐ Inside jurisdiction, Tax parcel #: ☐ Outside jurisdiction		
Contact name, title:		
Contact phone:	Ext.	Alternate phone:
Fax:		Email:

Owner or Principal(s) Information

Owner or Principal(s) name(s), title(s):		SSN #:
		SSN #:
Driver's license #:	State:	Expiration date:
Mailing address:		
Work phone:	Ext.	Cell phone:
Fax:		Email:

Job/Project Information

Project start date:		Estimated end date:	
Project location:		Tax parcel #:	
Project type: ☐ New construction ☐ Renovation ☐ Other			
General contractor name:			
State contractor license #:		State:	Expiration date:
Copy may be required			
Master/specialty license #:			
Job contact name:		Phone:	
Total gross revenues of contract amount: \$			
Gross revenues, inside jurisdiction: \$		Gross revenues, outside jurisdiction: \$	
Value of authorized deductions: \$		Deduction type(s):	

**Contact the Town of Ridgeland Town Clerk for questions regarding this form
at 843-726-7502 or pdaley@ridgelandsc.gov**

Other Information

☐ Yes ☐ No	Buying an existing construction business? <i>If yes, purchased business' name:</i>
☐ Yes ☐ No	Business leasing space to another business?
☐ Yes ☐ No	Mail business license renewals to mailing address listed in the business information section on the previous page? <i>If not, corporate address:</i>
☐ Yes ☐ No	Change of use to building?
☐ Yes ☐ No	Erecting a new sign?
☐ Yes ☐ No	Home occupation?
☐ Yes ☐ No	Independent contractors (Form 1099)? <i>If yes, names:</i>
☐ Yes ☐ No	Leasing property? <i>If yes, landlord name and address:</i>
☐ Yes ☐ No	Restrictive covenants? If yes, provide copy.
☐ Yes ☐ No	Do you sell food or beverages that are prepared and/or consumed on your premises?

Applicant Certification

1. I hereby certify that all information provided is true and correct to the best of my knowledge and that the gross revenue is accurately reported or estimated for a new business without any unauthorized deduction.
2. I certify that assessments, delinquencies and personal property taxes due to the jurisdiction are fully paid.
3. I understand that providing false or fraudulent information may result in penalties, business license revocation and/or prosecution to the fullest extent possible.
4. I am aware of and understand the jurisdiction's requirements and codes, and the issuance of a business license is contingent upon strict and consistent compliance with all of the jurisdiction's requirements.
5. I understand that failure to comply with these requirements may result in business license revocation as well as other compliance or legal efforts.
6. I also understand and authorize the jurisdiction and its agents to utilize all information on this application to ensure that all other federal, state and local laws are complied with.

Applicant printed name:

Signature:

Title:

Date:

For Office Use Only

Approved by all necessary departments? ☐ Yes ☐ No		
Comments		
Approved? ☐ Yes ☐ No	Date:	
Business license #:	Rate class:	
Rate Base rate: \$	Every \$1,000 after: \$	
Amount due Fee: \$	Penalties: \$	Total: \$
Decal required? ☐ Yes ☐ No	Cost/each: \$	Total: \$
Receipt Amount paid: \$	Date paid:	Number of decals:
Staff name:	Signature:	Date:

**Contact the Town of Ridgeland Town Clerk for questions regarding this form
at 843-726-7502 or pdaley@ridgelandsc.gov**

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TOWN OF RIDGELAND
TILLMAN HIGHWAY FORCEMAIN AND WATERMAIN IMPROVMENTS
APPENDIX G
WHITAKER LABS GEOTECHNICAL REPORT



2500 Tremont Road • Savannah, Georgia 31405
912.234.0696 • www.whitakerlab.net

July 6, 2026

Four Waters Engineering
150 Milestone Way
Greenville, SC 29601

Attention: Dwaine R. Falls, PE
dfalls@4weng.com
(844) 414-2400x62

Referencing: Geotechnical Services Report
Proposed Utility Improvement Project
Tillman Road, West Main Street & Wilson Street &
Railroad Crossing near West Main Street
Ridgeland, South Carolina
Report No.: 12-15-25-5-R1

Dear Dwaine:

Tillman Road, West Main Street & Wilson Street

Whitaker understands that this utility improvement project consists of installing a watermain and sanitary sewer force main along, Tillman Road, West Main Street, and Wilson Street in Ridgeland, South Carolina. We have been informed that the majority of the utility lines will be installed with open cuts off the shoulder of the paved roadways within the right-of-way of the existing roadways. In addition, horizontal directional drilling will be required at multiple locations. In an effort to provide recommendations for the installation of utility lines for this project, Whitaker performed thirty-four dynamic cone penetration test (DCP) auger borings along the planned alignment of utility lines. These DCP auger borings were performed in the bottom of the existing ditch lines within the right-of-way of the existing roadways and alternated between each side of the existing roadways and extended to depths reaching 5 to 6 feet below existing grades. Ten standard penetration test (SPT) borings were performed within accessible areas to our rubber tire truck rig equipment within the vicinity of the planned horizontal directional drilling. SPT borings extended to depths reaching 15 feet each below existing grades.

We have attached a site location map, a boring location map and the soil test boring logs to this report for your records.

The DCP auger borings and SPT borings were performed in an effort to provide the following:

- Suitability of excavated soils for use as backfill below structural areas (roadways).
- Subgrade improvement requirements (if any) at bottom of utility line excavation elevation to include pipe bedding recommendations.
- Utility line excavation backfills and subgrade preparation recommendations.
- Groundwater level determination (at time of boring).
- Dewatering recommendations during utility line installation.
- Soil parameter recommendations for others use in determining the feasibility/strategy for directional drilling in this area.
- Soil parameter recommendations for others use in design of temporary shoring structures.

Groundwater levels:

See the chart below for the groundwater depth (at the time of boring) at each location on this site:

DCPs:

Location	Depth to Groundwater at time of Boring (feet)	Location	Depth to Groundwater at time of Boring (feet)	Location	Depth to Groundwater at time of Boring (feet)
DCP-1	6+	DCP-13	0.5	DCP-25	6+
DCP-2	6+	DCP-14	4	DCP-26	2.5
DCP-3	2.5	DCP-15	4	DCP-27	5
DCP-4	1	DCP-16	4.5	DCP-28	6+
DCP-5	6+	DCP-17	5	DCP-29	6+
DCP-6	2	DCP-18	4	DCP-30	6+
DCP-7	3	DCP-19	0.67	DCP-31	3
DCP-8	6+	DCP-20	2	DCP-32	3.5
DCP-9	6+	DCP-21	6+	DCP-33	4
DCP-10	4.5	DCP-22	6+	DCP-34	2.5
DCP-11	6+	DCP-23	6+		
DCP-12	6+	DCP-24	6+		

Borings:

Location	Depth to Groundwater at time of Boring (feet)		Location	Depth to Groundwater at time of Boring (feet)
B-3	9.5		B-8	8.5
B-4	9.5		B-9	10
B-5	8		B-10	11
B-6	9		B-11	5
B-7	9		B-12	5

Please note that groundwater elevations can be expected to fluctuate with the season of the year, surrounding ground surface conditions, and with recent rainfall amounts. Thus, groundwater elevations shown on the boring logs should be considered approximate and only for the time and date of observation.

It should be expected for standing water to be present at some locations within the bottom of the existing ditches after rain events. It was noted that a couple of spots contained standing water in the bottom of the existing ditches at the time of our borings.

Due to the groundwater be encountered as shallow as 6 inches below existing grades within our DCP borings and that standing water was observed; temporary dewatering shall be required during the installation of the utility lines along the right-a-way of the existing roadways.

If excavations for directional drilling construction activities require extending to depths reaching 4 plus feet below existing grades at B-11 and B-12 or more than 7 plus feet below existing grades at B-3 through B-10, temporary dewatering will likely be required during construction within these areas.

Temporary Dewatering:

The location and depth of the excavations required to install the utilities on this site will ultimately determine the extent of temporary dewatering required. See above the groundwater depths at each DCP and Boring locations.

The contractor shall be responsible for implementing a successful dewatering plan. Groundwater levels should be maintained at least 2 feet below the bottom of excavations at all times during construction.

Due to the silty/clayey nature of the subsurface profile on this site (SM and SC soils), the use of drainage ditches/trenches with sump pits & pumps installed within the bottom of the excavations should prove to be a successful temporary dewatering strategy throughout the majority of the site.

Please note that some locations consisted of sandy soils (SP-SM) and if sump pits & pumps are not successfully in temporarily dewatering these areas, well points may be required in these sandy areas.

Provisions should be made for installation of a working mat within the bottom of the directional drilling excavations. The working mat should consist of at least 18 inches of #57 stone that is completely wrapped in filter fabric.

Open excavations should be sloped no steeper than a 2 horizontal to 1 vertical slope. Earth retaining systems/excavation boxes can also be utilized as an alternate and/or in addition to open excavations.

All surrounding area ground surface elevations should be sloped away from directional drilling excavation areas. Surface water shall not be permitted to infiltrate the directional drilling construction excavations.

Settlement Concerns:

Lowering the groundwater table causes an increase in stress to underlying soils and can cause ground surface subsidence (settlement) of the ground surface within the vicinity of where the groundwater table is lowered.

If groundwater is lowered by less than 5 feet at the excavation locations, settlement to existing neighboring structures should not be of concern.

If the groundwater table is anticipated to be lowered by more than 5 feet, deep borings shall be performed adjacent to neighboring structures of concern to determine the potential impact that settlement can have on neighboring structures due to lowering the groundwater table.

Injection wells installed between the directional drilling excavations and the neighboring structures of concern may be required in the temporary dewatering plan to maintain groundwater levels at appropriate levels to guard neighboring structures from potentially damaging settlement from the lowering of the groundwater table.

Temporary Retaining Structures:

Horizontal directional drilling construction activities may require the use of temporary retaining structures.

Temporary retaining structures must be capable of resisting the lateral earth pressures that will be imposed on them during and after construction.

Earth pressure coefficients should be selected by the designer based on the type of wall, whether the wall is braced or un-braced and other conditions. For “worst case” design conditions where positive drainage is not provided or is temporarily interrupted, the hydrostatic pressure will have to be added to the earth pressure on the wall. For this design groundwater should be assumed to reside at the ground surface.

Based upon the SPT borings performed, Whitaker Laboratory, Inc. is providing the following soil parameters for your use in the design and construction of the temporary retaining structures at each boring location:

Note: The following soil parameters can also be utilized by jack and bore and/or directional drill contractors in an effort to determine feasibility/installation strategy of such methods of utility installation.

B-3

Depth (ft, below ground surface)	SPT “N” Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 3.5	9 – 11	SP-SM	112	49.6	28	0	0.361	2.77	0.45
3.5 – 8.5	7 – 11	SC/SP-SM	115	52.6	28	0	0.361	2.77	0.45
8.5 – 13	3	SM	110	47.6	26	0	0.390	2.56	0.45
13 – 15	40	SP-SM	118	55.6	32	0	0.307	3.255	0.45

B-4

Depth (ft, below ground surface)	SPT “N” Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 7	7 – 3	SP-SM	110	47.6	26	0	0.390	2.56	0.45
7 – 9.5	4	SC	112	49.6	26	0	0.390	2.56	0.45
9.5 – 13	11	SM	112	49.6	28	0	0.361	2.77	0.45
13 – 15	38	SP-SM	118	55.6	32	0	0.307	3.255	0.45

B-5

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 3.5	7 – 9	SP-SM	112	49.6	28	0	0.361	2.77	0.45
3.5 – 8.5	4	SC/SP-SM	110	47.6	26	0	0.390	2.56	0.45
8.5 – 13	18	SC	118	55.6	30	0	0.333	3.0	0.45
13 – 15	43	SP-SM	118	55.6	32	0	0.307	3.255	0.45

B-6

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 15	3 – 4	SC/SP-SM	110	47.6	26	0	0.390	2.56	0.45

B-7

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 6	7 – 14	SP-SM	112	49.6	28	0	0.361	2.77	0.45
6 – 13	14 – 23	SC	118	55.6	30	0	0.333	3.0	0.45
13 – 15	16	CH	120	57.6	0	500	1	1	0.45

B-8

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 6	7 – 14	SP-SM	112	49.6	28	0	0.361	2.77	0.45
6 – 13	16 – 23	SC	118	55.6	30	0	0.333	3.0	0.45
13 – 15	13	CH	120	57.6	0	500	1	1	0.45

B-9

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 4	7 – 11	SP-SM	112	49.6	28	0	0.361	2.77	0.45
4 – 8.5	16 – 18	SC	118	55.6	30	0	0.333	3.0	0.45
8.5 -15	27 -13	SP-SM	115	52.6	30	0	0.333	3.0	0.45

B-10

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 6	7 – 11	SP-SM	112	49.6	28	0	0.361	2.77	0.45
6 -15	16 – 22	SP-SM	115	52.6	30	0	0.333	3.0	0.45

B-11

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 4	4	SM	110	47.6	26	0	0.390	2.56	0.45
4 – 8.5	11 – 25	SC-PT/OH	115	52.6	0	0	1	1	0.45
8.5 – 13	25	SP-SM	115	52.6	30	0	0.333	2.77	0.45
13-15	9	SP-SM	112	49.6	28	0	0.361	3.0	0.45

B-12

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 3.5	3 – 7	SP-SM	110	47.6	26	0	0.390	2.56	0.45
3.5 – 8.5	9 – 18	CH	120	57.6	0	500	1	1	0.45
8.5 – 15	13 – 18	SP-SM	115	52.6	30	0	0.333	2.77	0.45

Bottom of Utility Line Excavation:

Bottom of utility line excavations shall consist of sandy soils that are compacted to 95% density in accordance with ASTM D-1557 for the full 12 to 18 inches below bottom of excavation to provide adequate bedding for manhole and/or utility lines.

Based upon the borings/sounding performed, at least half (or more) of the site will likely require soil stabilization to be required at the bottom of utility line excavations. However, DCP testing within bottom of utility line excavations, will ultimately determine the areas that will require soil stabilization.

Recommendations for subgrade soil stabilization may consist of one or a combination of the following depending upon the severity of the instability:

- Drying and recompact of the in-situ soil. Adequate dewatering will dramatically improve the change of drying and recompact these soils.
- Further undercut to a competent material and replace with approved, compacted backfill.
- Placement of stabilization fabric (Mirafi RS 580i or Terra Tex HPG-HM 58).

Prior to placement of utility lines, bottom of excavation shall be compacted to 95% density in accordance with ASTM D-1557 for the full 12 to 18 inches below bottom of excavation and verified by Whitaker.

Appropriate thickness of stone bedding shall be placed above the compacted/stabilized subgrade. Note: If bedding consists of more than 6 inches of open graded stone, stone shall be completely wrapped in filter fabric.

Suitability of Excavated Soil:

Sands and sand clays were predominately encountered to depths reaching 15 feet below existing grades on this site.

Please note however that buried organics and debris were encountered within borings DCP-6, DCP-13, DCP-32, DCP-33, and DCP-34 on this site. In addition, plastic clays (CH) were intermittently encountered at some locations.

The encountered organic free sand (SP-SM) and sand clay (SC) soils encountered on this site can be made suitable for use as backfill. Please note the following recommendations:

- Sand and sand clay soils shall be stockpiled separately.
- The sand clays shall be staged in a staging area where moisture conditioning can be performed if necessary. The encountered sand clays may require being moisture conditioned (placement in a thin layer in a staging area and cultivated with a disc in low humidity, dry weather) prior to use as backfill material.

- The sandy soil shall be utilized first (within deeper backfill areas), especially below the groundwater table.
- Approved sandy type soils (soils containing less than 15% fines) shall be utilized as backfill below as structural areas (pavements).
- Sand clays should be utilized above the groundwater table and in non-structural areas.
- Backfill shall be placed in maximum 8-inch loose lift thicknesses and each lift compacted to at least 95% of ASTM D-1557 prior to placement of subsequent lifts.

In addition, organics, debris, and/or plastic soils should not be used as backfill on this site. all organic/debris and plastic soils shall be removed from the site and/or placed in non-structural areas of the site.

Pavement Section Recommendation

Backfill for roadways should consist of approved, clean sand subgrade compacted to a density of 95% of its maximum dry density as determined by ASTM-D-1557.

Backfill below roadways shall be placed in 8 to 10-inch thick, loose lift thicknesses with each lift compacted by appropriate compaction equipment to a minimum 95% density in accordance with ASTM D-1557.

Backfill shall be placed to bottom of adjacent pavement section elevation. Whitaker recommends that the new pavement section be similar to the layer thickness encountered for the existing pavement section.

Placement of asphalt and GAB shall meet all SCDOT specifications.

Railroad Crossing near West Main Street

Whitaker understands that this utility improvement project consists of installing utility lines under an existing railroad rail line near West Main Street in Ridgeland, South Carolina. We have been informed that jack and bore will be required at this location. In an effort to provide recommendations for the installation of utility lines below the rail line, Whitaker performed two standard penetration test (SPT) borings. SPT borings extended to depths reaching 25 feet below existing grades. Boring locations were performed within accessible areas to our rubber tire truck rig equipment within the vicinity of the Jack and bore utility crossing.

We have attached a site location map, a boring location map and the soil test boring logs to this report for your records.

The borings were performed in an effort to provide the following:

- Groundwater level determination (at time of boring).
- Dewatering recommendations during utility line installation.
- Soil parameters for others use in determining the feasibility/strategy for directional drilling in this area.
- Soil parameter for other use in design of temporary shoring structures.

Groundwater levels:

See the chart below for the groundwater depth (at the time of boring) at each location on this site:

Location	Depth to Groundwater at time of Boring (feet)
B-1	11
B-2	12

Please note that groundwater elevations can be expected to fluctuate with the season of the year, surrounding ground surface conditions, and with recent rainfall amounts. Thus, groundwater elevations shown on the boring logs should be considered approximate and only for the time and date of observation.

If excavations for jack and bore construction activities require extending to depths reaching 10 plus feet below existing grades, temporary dewatering will likely be required during construction.

Temporary Dewatering:

Based upon groundwater levels residing at approximate elevations of 11 to 12 feet below existing grades on this site, temporary dewatering measures will likely be required if excavations extend to depths reaching 9 plus feet below existing grades.

The contractor shall be responsible for implementing a successful dewatering system. Groundwater levels should be maintained at least 2 feet below the bottom of the jack and bore excavations during construction.

Due to the silty/clayey nature of the subsurface profile on this site (SM and SC soils), the use of drainage ditches/trenches with sump pits & pumps installed within the bottom of the jack and bore excavations should prove to be a successful temporary dewatering strategy.

Provisions should be made for installation of a working mat within the bottom of the jack and bore excavations. The working mat should consist of at least 18 inches of #57 stone that is completely wrapped in filter fabric.

Open excavations should be sloped no steeper than a 2 horizontal to 1 vertical slope. Earth retaining systems/excavation boxes can also be utilized as an alternate and/or in addition to open excavations.

All surrounding area ground surface elevations should be sloped away from the jack and bore excavation areas. Surface water shall not be permitted to infiltrate the jack and bore construction excavations.

Settlement Concerns:

Lowering the groundwater table causes an increase in stress to underlying soils and can cause ground surface subsidence (settlement) of the ground surface within the vicinity of where the groundwater table is lowered.

If groundwater is lowered by less than 5 feet at the jack and bore excavation locations, settlement to existing neighboring structures should not be of concern.

If the groundwater table is anticipated to be lowered by more than 5 feet, deep borings shall be performed adjacent to neighboring structures of concern to determine the potential impact that settlement can have on neighboring structures due to lowering the groundwater table.

Injection wells installed between the jack and bore excavations and the neighboring structures of concern may be required in the temporary dewatering plan to maintain groundwater levels at appropriate levels to guard neighboring structures from potentially damaging settlement from the lowering of the groundwater table.

Temporary Retaining Structures:

Jack and bore construction activities may require the use of temporary retaining structures.

Temporary retaining structures must be capable of resisting the lateral earth pressures that will be imposed on them during and after construction.

Earth pressure coefficients should be selected by the designer based on the type of wall, whether the wall is braced or un-braced and other conditions. For “worst case” design conditions where positive drainage is not provided or is temporarily interrupted, the hydrostatic pressure will have to be added to the earth pressure on the wall. For this design groundwater should be assumed to reside at the ground surface.

Based upon the SPT borings performed, Whitaker Laboratory, Inc. is providing the following soil parameters for your use in the design and construction of the temporary retaining structures at each boring location:

Note: The following soil parameters can also be utilized by jack and bore and/or directional drill contractors in an effort to determine feasibility/installation strategy of such methods of utility installation.

B-1

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
0.5 – 4.5	4 – 9	SP-SM	110	47.6	26	0	0.390	2.56	0.45
4.5 – 7	16	SC	118	55.6	30	0	0.333	3.0	0.45
7 – 12	32 – 27	SC	120	57.6	32	0	0.307	3.255	0.45
12 – 17	14	SM	112	52.6	28	0	0.361	2.77	0.45
17 – 22	7	SM	110	47.6	26	0	0.390	2.56	0.45
22 – 25	7	SC	116	53.6	28	0	0.361	2.77	0.45

B-2

Depth (ft, below ground surface)	SPT "N" Range	Soil Classification	Approximate Soil Unit Weight (pcf)		Internal Friction Angle (degrees)	Cohesion (psf)	Earth Pressure Coefficients		
			Sat	Submerged			Active K _a	Passive K _p	At Rest K _o
1 – 3.5	9 – 7	SP-SM	110	47.6	26	0	0.390	2.56	0.45
3.5 – 8.5	14 - 11	SC	118	55.6	30	0	0.333	3.0	0.45
8.5 – 12	22	SC	120	57.6	32	0	0.307	3.255	0.45
12 – 17	14	SC	118	55.6	30	0	0.333	3.0	0.45
17 – 25	9 -7	SC	116	53.6	28	0	0.361	2.77	0.45

It was a pleasure to serve you and we look forward to further opportunities to assist you on this and other projects. If you have any questions or if we can be of further assistance, please do not hesitate to contact us at our office.

Respectfully submitted,
WHITAKER LABORATORY, INC.

A handwritten signature in black ink, appearing to read 'Jason H. Follo'.

Jason H. Follo, P.E.
V.P. & Chief Engineer
SC #20225

A handwritten signature in black ink, appearing to read 'Blake L. Jones'.

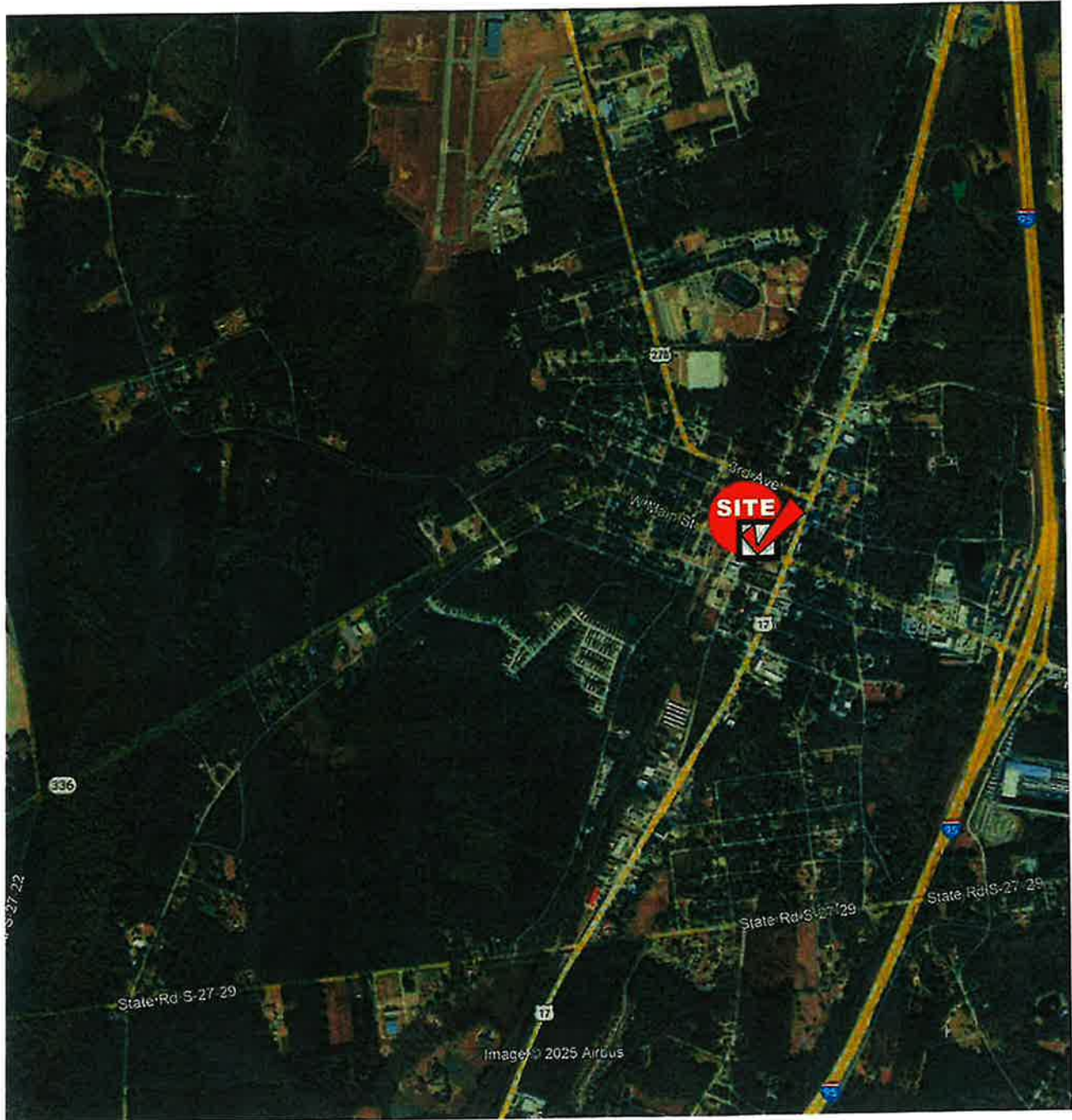
Blake L. Jones, P.E.
Project Engineer
SC #37684

Attachments

Site Vicinity Map

Boring Location Plan

Boring Logs



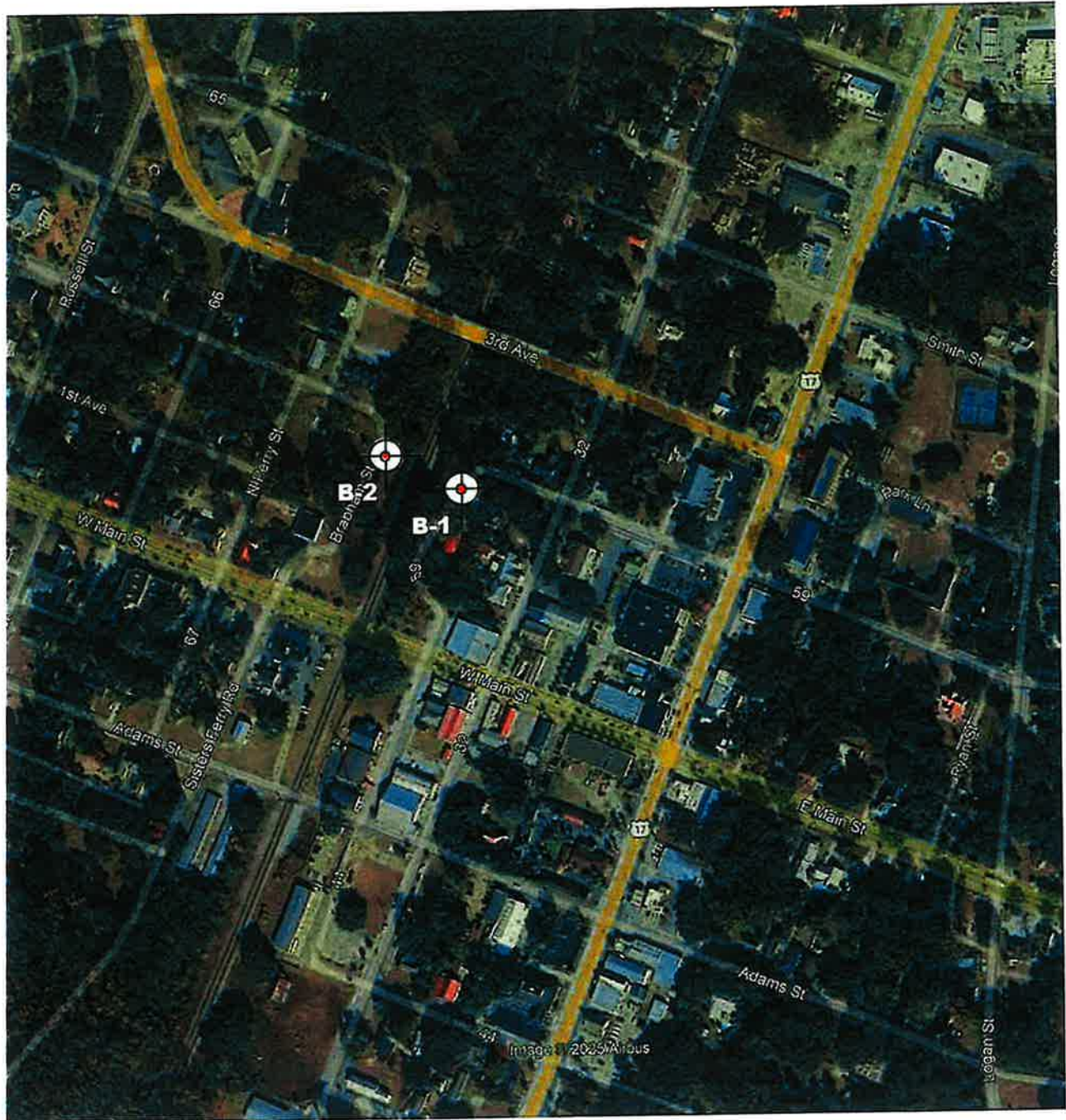
Site Vicinity Map

Tillman Road Utility Extension
Ridgeland, Jasper County, South Carolina



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.

WHITTAKER LABORATORY, INC.



Boring Location Plan

Tillman Road Utility Extension
Ridgeland, Jasper County, South Carolina



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.

WHITAKER LABORATORY, INC.



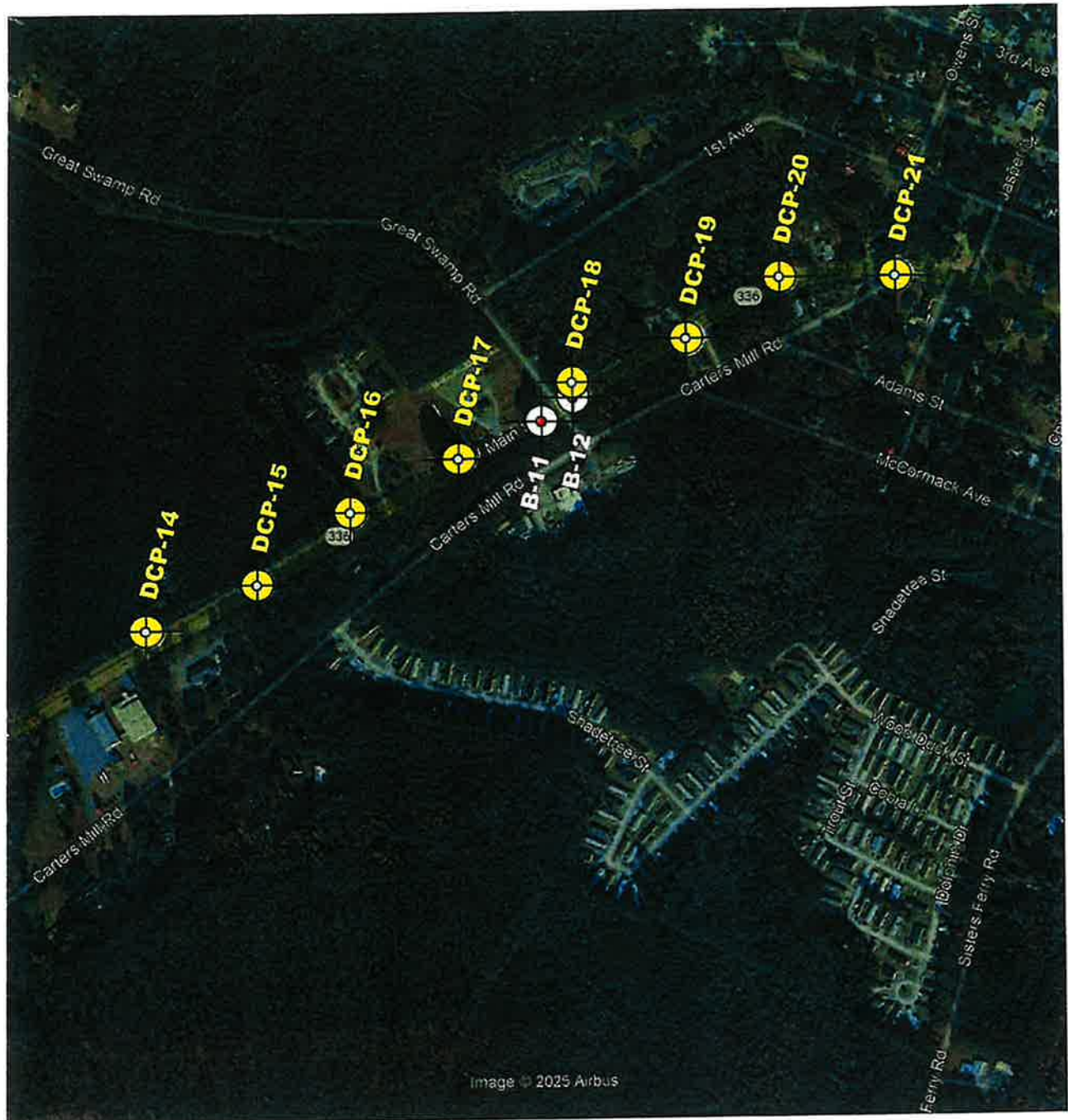
Boring Location Plan

Tillman Road Utility Extension
Ridgeland, Jasper County, South Carolina



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.

WHITAKER LABORATORY, INC.



Boring Location Plan

Tillman Road Utility Extension
 Ridgeland, Jasper County, South Carolina



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.

WHITAKER LABORATORY, INC.



Boring Location Plan

Tillman Road Utility Extension
Ridgeland, Jasper County, South Carolina



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.



WHITAKER LABORATORY, INC.

Client: Four Waters Engineering

Boring No. B-1

Project: Utility Improvement Project

Date: 12/3/25

Location: Ridgeland, SC

Engineer: Follo

SUBSURFACE PROFILE		Sample		Standard Penetration Test blows/ft. (Corrected to N60) 10 20 30 40 50 60 70 80 90	Water Table	Remarks
Depth	Description	Depth	Number Blows/ft			
0	Ground Surface	0				
	SM-PT Topsoil	1	4			
	SP-SM Very loose to loose, brown fine sand	2	9			
5	SC Very stiff to hard, gray/orange fine sand clay	5	16			
		4	32			
10	SC Very stiff, orange/red fine sand clay	10	27			
	SM firm, gray fine silty sand					
15		15	14			
	SM Loose, orange fine silty sand					
20		20	7			
	SC Firm, orange fine sand clay					
25		25	7			
	End of Borehole					
30		30				

Drilled By: Mack (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12/3/25

Sheet: 1 of 1

Client: Four Waters Engineering

Boring No. B-2

Project: Utility Improvement Project

Date: 12/3/25

Location: Ridgeland, SC

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft.(Corrected to N60) 10 20 30 40 50 60 70 80 90	Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft			
0	Ground Surface	0					
	SM-PT Topsoil	1	9				
	SP-SM Loose, brown fine sand	2	7				
5	SC Stiff, brown/orange fine sand clay	5	3	14			
		4	11				
10	SC Very stiff, red fine sand clay	10	5	22			
15	SC Stiff, red/orange medium to fine sand clay	15	6	13			
20	SC Stiff to firm, tan/orange fine sand clay	20	7	9			
25	End of Borehole	25	8	7			
30		30					

Drilled By: Mack (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12/3/25

Sheet: 1 of 1

Client: Four Waters Engineering

Boring No. B-3

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-3-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft			
0	Ground Surface	0					
	Topsoil						
	SP-SM Loose to Firm, Fine Brown Sand		9				
			11				
	SC Firm to Stiff, Gray/Orange Sand Clay		7				
5		5					
			11				
	SP-SM Firm, Fine Brown/Orange Sand						
	SM Very Loose, Fine Brown Silty Sand		3				
10		10					
	SP-SM Dense, Coarse to Fine Brown Sand						
15		15					
	End of Borehole		40				
20		20					

Drilled By: Kicklighter (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-3-2025

Sheet: 1 of 10

Client: Four Waters Engineering

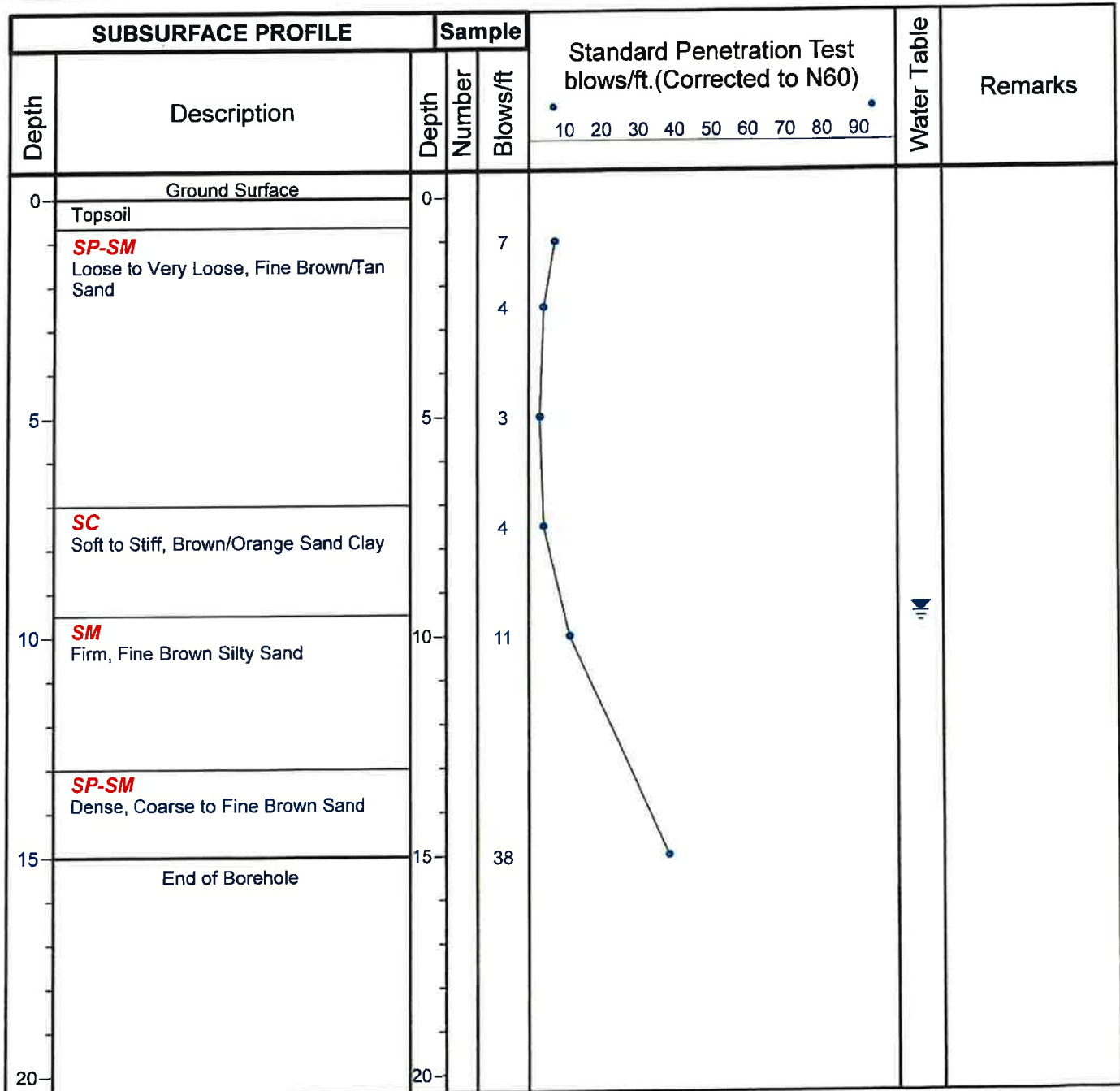
Boring No. B-4

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-3-2025

Location: Ridgeland, South Carolina

Engineer: Follo



Drilled By: Kicklighter (B-48)

WHITAKER LABORATORY, INC.

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-3-2025

Sheet: 2 of 10

Client: Four Waters Engineering

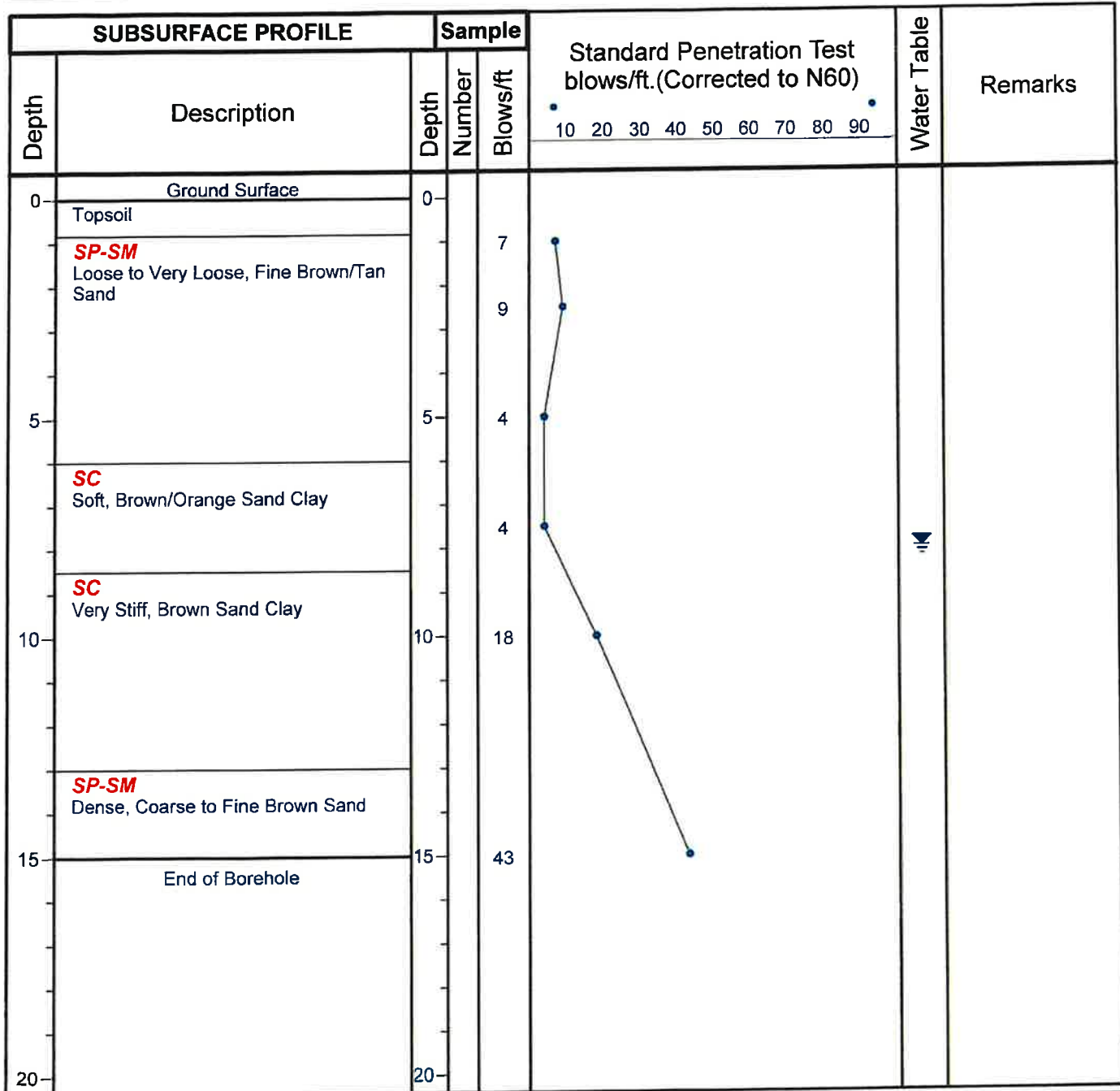
Boring No. B-5

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-3-2025

Location: Ridgeland, South Carolina

Engineer: Follo



Drilled By: Kicklighter (B-48)

WHITAKER LABORATORY, INC.

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-3-2025

Sheet: 3 of 10

Client: Four Waters Engineering

Boring No. B-6

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-3-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE		Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Number Blows/ft			
0	Ground Surface	0				
	Topsoil					
	SP-SM Very Loose, Fine Brown Sand		3			
	SC Soft, Brown/Tan Sand Clay		4			
	SC Soft, Brown/Orange Sand Clay					
5		5	3			
			3			
	SC Soft, Brown Sand Clay					
10		10	3			
	SP-SM Very Loose, Coarse to Fine Brown Sand					
15		15	4			
	End of Borehole					
20		20				

Drilled By: Kicklighter (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

**2500 Tremont Road
Savannah, GA 31405**

Datum:

Drill Date: 12-3-2025

Sheet: 4 of 10

Client: Four Waters Engineering

Boring No. B-7

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-4-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE		Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Number Blows/ft			
0	Ground Surface	0				
	Topsoil					
	SP-SM Loose to Firm, Fine Tan Sand		7			
			9			
5		5	14			
	SC Very Stiff, Tan/Orange Sand Clay		18			
10		10	23			
	CH Very Stiff, Tan/Orange Clay					
15		15	16			
	End of Borehole					
20		20				

Drilled By: Kicklighter (B-48)

**WHITAKER LABORATORY,
INC.**
2500 Tremont Road
Savannah, GA 31405

Hole Size: 6.5"

Drill Method: H.S. Auger

Datum:

Drill Date: 12-4-2025

Sheet: 5 of 10

Client: Four Waters Engineering

Boring No. B-8

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-4-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE		Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Number Blows/ft			
0	Ground Surface	0				
	Asphalt					
	SP-SM Loose to Firm, Fine Brown Sand		7			
			13			
	SP-SM Firm, Fine Tan Sand		14			
5		5				
	SC Firm to Very Firm, Tan/Orange Sand Clay		16			
			23			
10		10				
	CH Stiff, Tan/Orange Clay		13			
15		15				
	End of Borehole					
20		20				

Drilled By: Kicklighter (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-4-2025

Sheet: 6 of 10

Client: Four Waters Engineering

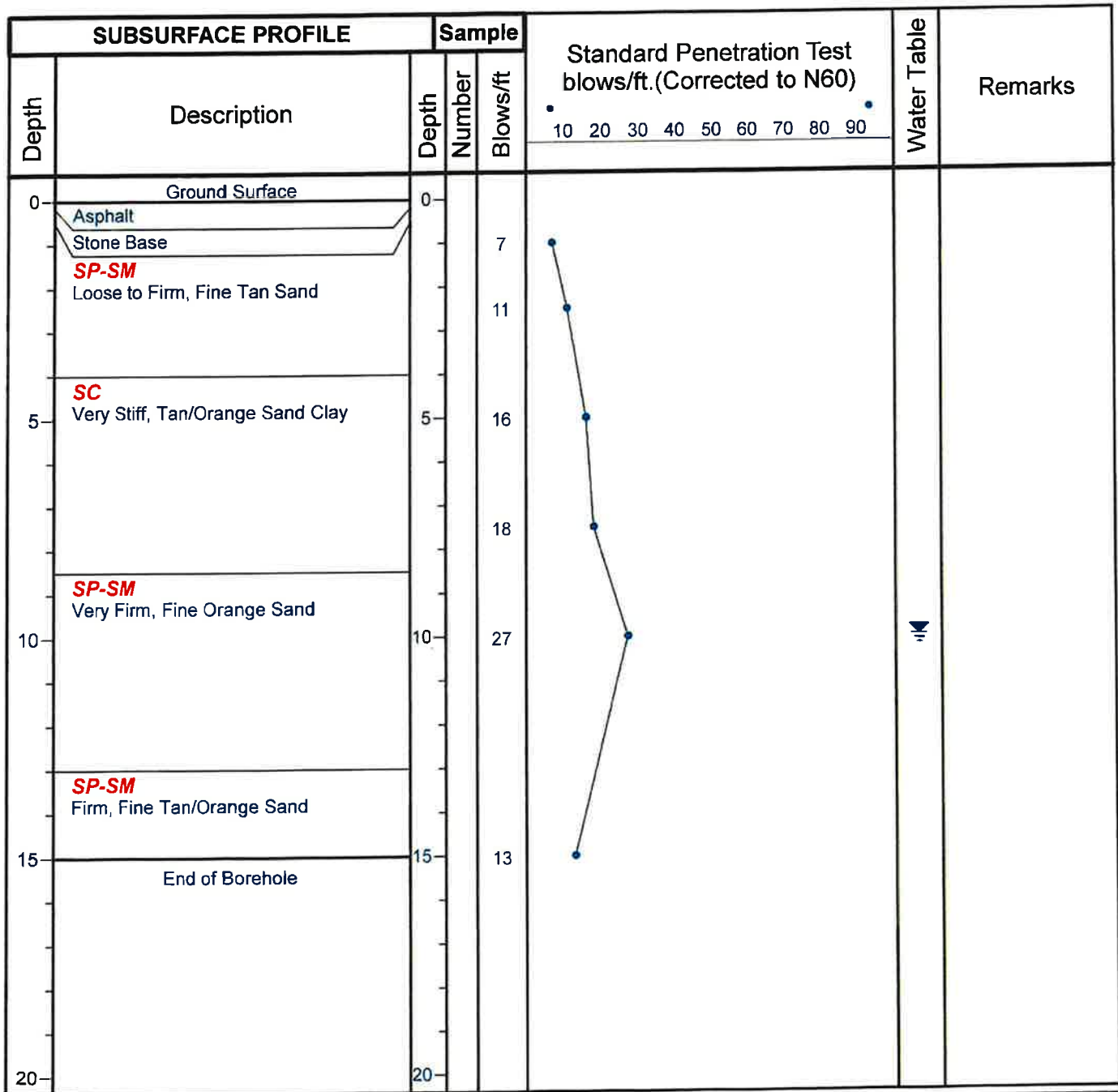
Boring No. B-9

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-4-2025

Location: Ridgeland, South Carolina

Engineer: Follo



Drilled By: Kicklighter (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-4-2025

Sheet: 7 of 10

Client: Four Waters Engineering

Boring No. B-10

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-4-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE		Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Blows/ft			
0	Ground Surface	0				
	Topsoil					
	SP-SM Loose to Firm, Fine Tan Sand	7				
		11				
5		5	9			
	SP-SM Firm to Very Firm, Fine Tan/Orange Sand	20				
10		10	22			
	SP-SM Firm, Medium to Fine Tan/Orange Sand	15	16			
15	End of Borehole	15				
20		20				

Drilled By: Kicklighter (B-48)

WHITAKER LABORATORY, INC.

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-4-2025

Sheet: 8 of 10

Client: Four Waters Engineering

Boring No. B-11

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-4-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft			
0	Ground Surface	0			10 20 30 40 50 60 70 80 90		
	Topsoil						
	SM Very Loose, Fine Brown Silty Sand		4				
			4				
5	OH Stiff, Brown/Gray Clay with Organics	5	11				
	SC-Pt Very Firm, Gray Sand Clay with Organics		25				
10	SP-SM Very Firm to Loose, Medium to Fine Brown/Gray Sand	10	25				
15	End of Borehole	15	9				
20		20					

Drilled By: Kicklighter (B-48)

**WHITAKER LABORATORY,
INC.**

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-4-2025

Sheet: 9 of 10

Client: Four Waters Engineering

Boring No. B-12

Project: Geotechnical for Tillman Road Utility Extension

Date: 12-4-2025

Location: Ridgeland, South Carolina

Engineer: Follo

SUBSURFACE PROFILE			Sample		Standard Penetration Test blows/ft. (Corrected to N60)	Water Table	Remarks
Depth	Description	Depth	Number	Blows/ft			
0	Ground Surface	0			10 20 30 40 50 60 70 80 90		
	Topsoil						
	SP-SM Very Loose to Loose, Fine Brown Sand		3				
			7				
	CH Stiff to Very Stiff, Brown Clay		9				
5		5					
			18				
	SP-SM Firm, Coarse to Fine, Brown/Gray Sand		13				
10		10					
			18				
15	End of Borehole	15					
20		20					

Drilled By: Kicklighter (B-48)

WHITAKER LABORATORY, INC.

Hole Size: 6.5"

Drill Method: H.S. Auger

2500 Tremont Road
Savannah, GA 31405

Datum:

Drill Date: 12-4-2025

Sheet: 10 of 10

Auger Boring Log with DCP Testing

Date: 4-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-1	0 - 12	Very Loose Fine Sand (SP-SM)	-1 = 2-3-6
	12 - 72	Soft to Very Stiff Sand Clay (SC)	-2 = 4-4-4 -3 = 6-9-11 -4 = 5-6-19 -5 = 10-21-25+ -6 = 14-25+

Note: Groundwater was not encountered at time of boring.

DCP-2	0 - 4	Topsoil	-1 = 5-9-11
	4 - 24	Loose Fine Sand (SP-SM)	-2 = 7-9-8
	24 - 72	Firm to Stiff Sand Clay (SC)	-3 = 7-9-9 -4 = 8-8-7 -5 = 6-9-11 -6 = 6-10-10

Note: Groundwater was not encountered at time of boring.

DCP-3	0 - 2	Topsoil	-1 = 10-14-21
	2 - 48	Very Stiff to Stiff Sand Clay (SC)	-2 = 9-6-18
	48 - 60	Stiff to Firm, Coarse to Fine Sand Clay (SC)	-3 = 10-25+
	60 - 72	Loose to Firm, Coarse to Fine Sand (SP-SM)	-4 = 7-14-11 -5 = 8-8-9 -6 = 5-12-12

Note: Groundwater was encountered at 2.5 feet at time of boring.

DCP-4	0 - 6	Sand Clay (SC)	-1 = 7-6-5
	6 - 18	Loose Fine Sand (SP-SM)	-2 = 4-8-10
	18 - 54	Stiff to Firm Sand Clay (SC)	-3 = 9-8-5
	54 - 72	Loose, Coarse to Fine Sand (SP-SM)	-4 = 10-9-11 -5 = 6-7-7 -6 = 4-6-6

Note: Groundwater was encountered at 1 foot at time of boring.

DCP-5	0 - 4	Topsoil	-1 = 10-14-13
	4 - 36	Stiff to Soft Sand Clay (SC)	-2 = 6-6-6
	36 - 72	Very Loose to Loose Fine Sand (SP-SM)	-3 = 3-4-5 -4 = 3-2-3 -5 = 4-3-4 -6 = 3-4-6

Note: Groundwater was not encountered at time of boring.

Auger Boring Log with DCP Testing

Date: 4-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-6	0 - 8	Topsoil	-1 = 5-5-5
	8 - 24	Loose to Very Loose Fine Sand (SP-SM)	-2 = 3-2-3
	24 - 33	Very Loose Fine Sand with Organics	-3 = 2-2-2
	33 - 48	Very Stiff Sand Clay (SC)	-4 = 3-8-25+
	48 - 66	Very Stiff Clay (CH)	-5 = 15-25+
	66 - 72	Firm, Coarse to Fine Sand (SP-SM)	-6 = 23-25+

Note: Groundwater was encountered at 2 feet at time of boring.

DCP-7	0 - 6	Topsoil	-1 = 15-25+
	6 - 60	Very Stiff to Soft Sand Clay (SC)	-2 = 12-17-17
	60 - 72	Loose to Very Loose, Medium to Fine Sand (SP-SM)	-3 = 7-8-6
			-4 = 2-2-4
			-5 = 4-5-6
			-6 = 4-3-3

Note: Groundwater was encountered at 3 feet at time of boring.

DCP-8	0 - 5	Topsoil	-1 = 8-19-25+
	5 - 72	Very Stiff Sand Clay (SC)	-2 = 11-25+
			-3 = 13-25+
			-4 = 13-25+
			-5 = 20-25+
			-6 = 12-25+

Note: Groundwater was not encountered at time of boring.

DCP-9	0 - 48	Stiff to Very Stiff Sand Clay (SC)	-1 = 8-13-18
	48 - 72	Firm to Loose Fine Sand (SP-SM)	-2 = 22-25+
			-3 = 25+
			-4 = 25+
			-5 = 25+
			-6 = 10-9-10

Note: Groundwater was not encountered at time of boring.

DCP-10	0 - 3	Topsoil	-1 = 4-5-7
	3 - 10	Sand Clay (SC)	-2 = 8-8-12
	10 - 36	Firm to Stiff Clay (CH)	-3 = 10-11-13
	36 - 54	Stiff to Very Stiff Sand Clay (SC)	-4 = 10-16-17
	54 - 72	Firm, Medium to Fine Sand (SP-SM)	-5 = 12-16-16
			-6 = 7-16-25+

Note: Groundwater was encountered at 4.5 feet at time of boring.

Auger Boring Log with DCP Testing

Date: 8-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-11	0 - 4	Sand Clay (SC)	-1 = 6-4-5
	4 - 36	Soft to Stiff Clay (CH)	-2 = 3-4-5
	36 - 72	Stiff to Very Stiff Sand Clay (SC)	-3 = 6-10-14
			-4 = 7-21-25+
			-5 = 11-25+
			-6 = 9-25+

Note: Groundwater was encountered at the surface at time of boring.

DCP-12	0 - 6	Topsoil	-1 = 4-7-7
	6 - 72	Firm to Very Stiff Sand Clay (SC)	-2 = 6-8-9
			-3 = 2-5-6
			-4 = 11-15-21
			-5 = 11-13-16
			-6 = 12-12-15

Note: Groundwater was not encountered at time of boring.

DCP-13	0 - 12	Soft Clay (CH)	-1 = 3-4-4
	12 - 48	Soft to Very Stiff Clay with Organics	-2 = 3-5-6
	48 - 60	Very Stiff Sand Clay (SC)	-3 = 6-8-9
	60 - 72	Firm Fine Sand (SP-SM)	-4 = 10-25+
			-5 = 20-25+
			-6 = 25+

Note: Groundwater was encountered at 6 inches at time of boring.

DCP-14	0 - 6	Topsoil	-1 = 4-6-7
	6 - 36	Firm to Stiff Clay (CH)	-2 = 5-7-8
	36 - 44	Firm Sand Clay (SC)	-3 = 7-9-10
	44 - 56	Very Stiff Clay (CH)	-4 = 12-25+
	56 - 66	Very Stiff Sand Clay (SC)	-5 = 25+
	66 - 72	Firm, Medium to Fine Sand (SP-SM)	-6 = 22-25+

Note: Groundwater was encountered at 4 feet at time of boring.

DCP-15	0 - 4	Topsoil	-1 = 5-7-8
	4 - 72	Firm to Very Stiff Sand Clay (SC)	-2 = 5-6-7
			-3 = 7-15-20
			-4 = 5-14-20
			-5 = 5-13-16
			-6 = 10-25+

Note: Groundwater was encountered at 4 feet at time of boring.

Auger Boring Log with DCP Testing

Date: 8-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-16	0 - 4	Topsoil	-1 = 7-9-9
	4 - 48	Firm to Very Stiff Sand Clay (SC)	-2 = 7-5-5
	48 - 72	Firm Fine Sand (SP-SM)	-3 = 9-11-13
			-4 = 17-25+
			-5 = 15-16-19
			-6 = 12-11-12

Note: Groundwater was encountered at 4.5 feet at time of boring.

DCP-17	0 - 36	Very Soft to Firm Sand Clay (SC)	-1 = 3-2-1
	36 - 48	Firm Clay (CH)	-2 = 2-3-4
	48 - 72	Firm Sand Clay (SC)	-3 = 3-6-10
			-4 = 5-6-11
			-5 = 9-8-8
			-6 = 5-6-8

Note: Groundwater was encountered at 5 feet at time of boring.

DCP-18	0 - 12	Firm Sand Clay (SC)	-1 = 3-5-7
	12 - 24	Firm Clay (CH)	-2 = 4-6-6
	24 - 36	Firm to Soft Sand Clay (SC)	-3 = 6-4-4
	36 - 54	Soft to Stiff Clay (CH)	-4 = 5-9-10
	54 - 60	Very Stiff Sand Clay (SC)	-5 = 18-18-14
	60 - 72	Firm, Medium to Fine Sand (SP-SM)	-6 = 13-23-25+

Note: Groundwater was encountered at 4 feet at time of boring.

DCP-19	0 - 5	Topsoil	-1 = 4-3-2
	5 - 42	Very Soft to Stiff Clay (CH)	-2 = 2-2-3
	42 - 72	Very Stiff Sand Clay (SC)	-3 = 4-8-14
			-4 = 10-17-21
			-5 = 14-25+
			-6 = 25+

Note: Groundwater was encountered at 8 inches at time of boring.

DCP-20	0 - 6	Topsoil	-1 = 6-6-4
	6 - 21	Loose Fine Sand (SP-SM)	-2 = 3-2-3
	21 - 60	Very Soft to Stiff Sand Clay (SC)	-3 = 3-6-8
	60 - 72	Stiff to Very Stiff Clay (CH)	-4 = 8-7-8
			-5 = 17-14-14
			-6 = 12-16-16

Note: Groundwater was encountered at 2 feet at time of boring.

Auger Boring Log with DCP Testing

Date: 9-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-21	0 - 3	Topsoil	-1 = 3-5-6
	3 - 21	Loose Fine Sand (SP-SM)	-2 = 4-6-7
	21 - 72	Loose to Firm Fine Sand (SP-SM)	-3 = 4-9-14
			-4 = 10-25+
			-5 = 8-16-23
			-6 = 6-14-25+

Note: Groundwater was not encountered at time of boring.

DCP-22	0 - 4	Topsoil	-1 = 5-5-5
	4 - 24	Loose to Firm Fine Sand (SP-SM)	-2 = 10-11-11
	24 - 72	Stiff to Very Stiff Sand Clay (SC)	-3 = 8-10-14
			-4 = 15-25+
			-5 = 13-25+
			-6 = 25+

Note: Groundwater was not encountered at time of boring.

DCP-23	0 - 4	Topsoil	-1 = 4-3-4
	4 - 48	Very Loose to Firm Fine Sand (SP-SM)	-2 = 3-6-6
	48 - 72	Stiff to Very Stiff Sand Clay (SC)	-3 = 8-12-14
			-4 = 10-16-13
			-5 = 5-10-12
			-6 = 6-16-18

Note: Groundwater was not encountered at time of boring.

DCP-24	0 - 5	Topsoil	-1 = 10-8-7
	5 - 60	Very Loose to Loose Fine Sand (SP-SM)	-2 = 3-2-2
	60 - 72	Stiff Sand Clay (SC)	-3 = 3-2-3
			-4 = 4-3-2
			-5 = 7-7-11
			-6 = 10-14-12

Note: Groundwater was not encountered at time of boring.

DCP-25	0 - 6	Topsoil	-1 = 9-6-5
	6 - 18	Loose Fine Sand (SP-SM) with Rocks	-2 = 4-4-5
	18 - 72	Very Loose to Firm Fine Sand (SP-SM)	-3 = 4-4-5
			-4 = 4-6-6
			-5 = 8-8-10
			-6 = 6-10-16

Note: Groundwater was not encountered at time of boring.

Auger Boring Log with DCP Testing

Date: 5-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-26	0 - 3	Topsoil	-1 = 5-6-8
	3 - 36	Loose Fine Sand (SP-SM) with Gravel and Debris	-2 = 4-4-5
	36 - 72	Firm to Very Stiff Sand Clay (SC)	-3 = 4-4-8
			-4 = 8-11-16
			-5 = 9-20-25+
			-6 = 16-25+

Note: Groundwater was encountered at 2.5 feet at time of boring.

DCP-27	0 - 12	Very Loose Fine Sand (SP-SM) with Gravel and Debris	-1 = 3-4-5
	12 - 72	Soft to Very Stiff Sand Clay (SC)	-2 = 9-10-13
			-3 = 12-18-16
			-4 = 12-10-14
			-5 = 6-9-12
			-6 = 9-8-8

Note: Groundwater was encountered at 5 feet at time of boring.

DCP-28	0 - 6	Topsoil	-1 = 4-5-6
	6 - 48	Very Loose to Firm Fine Sand (SP-SM)	-2 = 3-5-4
	48 - 72	Very Stiff Sand Clay (SC)	-3 = 8-8-13
			-4 = 20-25+
			-5 = 20-25+
			-6 = 25+

Note: Groundwater was not encountered at time of boring.

DCP-29	0 - 8	Topsoil	-1 = 10-16-16
	8 - 72	Firm to Loose Fine Sand (SP-SM)	-2 = 6-8-7
			-3 = 2-4-5
			-4 = 4-6-5
			-5 = 4-6-6
			-6 = 6-11-12

Note: Groundwater was not encountered at time of boring.

DCP-30	0 - 4	Topsoil	-1 = 19-25+
	4 - 8	Fine Sand (SP-SM) with Rocks and Asphalt	-2 = 12-11-10
	8 - 72	Firm to Loose Fine Sand (SP-SM)	-3 = 3-5-5
			-4 = 7-12-13
			-5 = 8-12-14
			-6 = 8-8-8

Note: Groundwater was not encountered at time of boring.

Auger Boring Log with DCP Testing

Date: 5-Dec-25
 Client: Four Waters Engineering
 Project: Tillman Road Utility Extension - Ridgeland, South Carolina

Boring #	Depth (inches)	Material Description	DCP Results
DCP-31	0 - 6	Topsoil	-1 = 4-6-6
	6 - 72	Very Loose to Firm Fine Sand (SP-SM)	-2 = 4-4-4 -3 = 3-5-4 -4 = 3-3-4 -5 = 8-11-15

Note: Groundwater was encountered at 3 feet at time of boring.
 Note: Borehole collapse at 5 feet.

DCP-32	0 - 12	Topsoil	-1 = 9-9-7
	12 - 24	Loose Fine Sand (SP-SM)	-2 = 8-8-6
	24 - 48	Loose Fine Sand with Organics	-3 = 5-6-7
	48 - 72	Loose to Firm Fine Sand (SP-SM)	-4 = 6-7-9 -5 = 8-9-13 -6 = 10-14-20

Note: Groundwater was encountered at 3.5 feet at time of boring.

DCP-33	0 - 24	Very Loose Organic Silty Sand (SM-Pt)	-1 = 2-1-1
	24 - 48	Very Soft to Firm Organic Clay (OH)	-2 = 2-2-1
	48 - 66	Loose Fine Sand (SP-SM)	-3 = 2-3-5
	66 - 72	Firm Sand Clay (SC)	-4 = 9-10-6 -5 = 4-5-6 -6 = 5-5-6

Note: Groundwater was encountered at 4 feet at time of boring.

DCP-34	0 - 36	Loose to Firm Fine Organic Sand (SP-Pt)	-1 = 3-4-6
	36 - 60	Firm Fine Sand (SP-SM)	-2 = 5-9-13 -3 = 12-20-25+ -4 = 5-16-25+ -5 = 4-12-17

Note: Groundwater was encountered at 2.5 feet at time of boring.
 Note: Borehole collapse at 5 feet.

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