

PROJECT MANUAL

Peachtree Court Sanitary Sewer

Prepared For:



Bid Date: 4/1/2025

Prepared By:

Rochester | **DCCM**

A 1240 Highway 54 West, Fayetteville, Georgia 30214

P 770.716.8123

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ADVERTISEMENT FOR BIDS

Project Name: Peachtree Court Sanitary Sewer Date of Issue: 3/1/25
Project No.: 2025-300 Bid Date: 4/1//2025
Owner Contract No.: 2025-300 Time: 2 pm

Owner

Peachtree City Water & Sewerage Authority
1127 Highway 74 South
Peachtree City, GA 30269
(phone) 770-487-7993
Contact: Larry McNeil, info@pcwasa.org

Engineer

Rochester | DCCM
(Phone) 678.450.5136
Contact : Jason Truong, PE

The Peachtree City Water & Sewerage Authority will be receiving separate sealed Bids for all material, labor and equipment for the “Peachtree Court Sanitary Sewer”. This includes the following, with all related accessories as shown on the Construction Drawings and called for in the Contract Documents and Technical Specifications:

The scope of work for this project includes constructing approximately 1059 lineal feet of 8” PVC gravity sanitary sewer along Peachtree Court, removing and replacing asphalt pavement along the street where trenching took place, replacing curb and gutter where affected by new trenching, and installing (4) four sanitary manholes.

This contract is local funded.

Contract Documents may be examined at the following locations:

- Peachtree City Water & Sewerage Authority, 1127 Highway 74 South, Peachtree City, GA 30269 (www.pcwasa.org)
- Georgia Procurement Registry (<http://ssl.doas.state.ga.us/PRSapp/>)
- Construct Connect, 30 Technology Parkway South, Suite 100, Norcross, GA 30092 (www.ConstructConnect.com)

Bidding documents are available in a downloadable electronic format. Contact Holden Harris at Rochester & Associates, LLC (HHARRIS@DCCM.COM, 678-450-5401) to request a copy of the bidding documents. If an addendum is issued it will be sent to all parties who have requested the bid documents and attended the pre-bid meeting.

Each Bidder must deposit with his bid, security in the amount of 5%, and shall be subject to the conditions provided in Section 00 21 13 “Instruction to Bidders.”

Each Bidder is required to submit a “Construction Contractors Qualification Statement”, “Bid

Security”, “Bid Form”, Non-Collusion Affidavit”, and “Security and Immigration Compliance Affidavit” as outlined in Section 00 22 13 “Supplementary Instructions to Bidders.”

The Peachtree City Water & Sewerage Authority will receive sealed bids until 2pm on 4/1/2025 at 1127 Highway 74 South, Peachtree City, GA 30269. Bids received after this time will not be accepted. Bids will be opened and publicly read aloud. The contract will be awarded to the low, responsive, and responsible bidder with reservation of right to reject all bids. Bids may not be withdrawn by Bidders for 60 days following opening of the bids.

The project shall be Substantially Complete within 90 calendar days from the date of Notice to Proceed of the contract. Liquidated Damages shall be assessed in the amount of \$250.00 per day for each calendar day required to achieve Substantial Completion.

The project shall be Final Complete within 30 days after substantial complete. Liquidated Damages shall be assessed in the amount of \$250.00 per day for each calendar day required to achieve Final Completion.

There will be a required “Pre-Bid” meeting on 3/18/2025 at 2pm located at the Peachtree City Water & Sewerage Authority office. All contractors submitting a Bid are required to attend.

The Peachtree City Water & Sewerage Authority provides assurances to Bidder that all anticipated Federal, State, and Local Permits along with anticipated Rights of Way and Easements have been obtained or will be obtained by NTP.

The Peachtree City Water & Sewerage Authority will not issue or cause to be issued any addenda modifying the Project Manual or Construction Drawings within a period of 72 hours prior to the advertised time for opening bids, excluding Saturdays, Sundays, and State of Georgia Legal Holidays.

END OF SECTION

INSTRUCTIONS TO BIDDERS

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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. Peachtree City Water & Sewerage Authority– The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered, otherwise known as issuing office.
 - B. Business Day(s) – 24 hours measured from midnight to next midnight excluding weekend and State of Georgia observed holidays.
 - C. Calendar Day(s) – 24 hours measured from midnight to next midnight including weekend and State of Georgia observed holidays.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder’s qualifications to perform the Work, within five (5) business days of Owner’s request, Bidder shall submit written evidence of any data requested by Owner over and above what is to be provided in Section 00 45 13 “Bidder’s Qualifications.”
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder’s representations and certifications.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

- 4.01 *Subsurface and Physical Conditions, if applicable in Section 00 31 00*
- A. The Supplementary Conditions identify:
 - 1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site.
 - 2. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

- B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of 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.

4.02 *Underground Facilities*

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition, if applicable in Section 00 31 00*

- A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of 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.

- 4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.

- 4.05 On request and subsequent approval of Owner and Property Owner, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates. Bidder to provide a description of tests, etc. prior to approval.

- 4.06 A. If a reference is made to Article 7 of the Supplementary Conditions for the

identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. if provided in Section 00 31 00, Available Project Information carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";
- E. consider the information known to Bidder; 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

- 4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

- 5.01 There will be a required “Pre-Bid” meeting on **March 18th** located at the Peachtree City Water & Sewerage Authority office. All contractors submitting a Bid are required to attend. Representatives of Owner and Engineer will be present to discuss the Project. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 – SITE AND OTHER AREAS

- 6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing via Email Communication to Nathan Brooks, contracts@pcwasa.org and JTRUONG@DCCM.COM. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda emailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than five business days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer. No Addenda shall be issued later than three business days prior to the date fixed for opening the Bids. Failure of any Bidder to receive any such Addendum shall not relieve the Bidder from any obligation under his Bid submitted. All Addenda so issued shall become a part of the Contract.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% of Bidder’s maximum Bid price and in the form of a certified check, bank money order,

or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 business 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. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven calendar days after the Effective Date of the Agreement or 61 calendar days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven calendar days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of calendar days within which, or the dates by which, [Milestones are to be achieved and] the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or “or-equal” materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or “or-equal” item. No item of material or equipment will be considered by Engineer as a substitute or “or-equal” unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 calendar days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. 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 proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five business days after Bid opening, submit to Owner a

list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable 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.

- 12.02 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- 13.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein. In the case of optional alternatives the words "No Bid," "No Change," or "Not Applicable" may be entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.
- 13.04 A Bid by a partnership shall 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 shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder's name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such

authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS

14.01 Lump Sum

A. Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate. In the comparison of Bids, alternates will be applied in the same order as listed in the Bid form.

14.02 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 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.

14.03 Allowances

A. For cash allowances the Bid price shall include such amounts as the Owner deems proper 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 11.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. Or, if Bidding Documents are all electronic, it will be the Contractor's responsibility to print from online resource. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the following documents:

A. See Section 00 22 13 for a list of documents typically required to be submitted with the Bid.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall 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 shall 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 shall be enclosed in a

separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Peachtree City Water & Sewerage Authority, 1127 Highway 74 South, Peachtree City, GA 30269.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be modified or 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.
- 16.02 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, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 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 within five business days after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 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 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 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.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided

in the Supplementary Conditions.

- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 business days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten business days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

END OF SECTION

SECTION 00 22 13

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

With each copy of the Project Manual, the Bidder shall print one separate unbound copy of the Bidding Documents. The unbound copy of the Bidding Documents is to be completed and submitted, which includes the following documents:

1. Bid Form – Section 00 41 00
2. Bid Security – Section 00 43 13
3. Bidder's Qualifications – Section 00 45 13
4. Non-Collusion Affidavit – Section 00 45 19
5. Security and Immigration Compliance – Section 00 45 20

Place all of the above in a sealed envelope clearly marked as follows:

BID PROPOSAL FOR

Peachtree City Water & Sewerage Authority

Peachtree Court Sanitary Sewer

NOTE: The envelope should bear on the outside the **NAME** and **ADDRESS** of the **QUALIFIED BIDDER**, and **Georgia Utilities Contractors License Number (if applicable)**.

If mailed, this envelope should be placed inside the mailing envelope.

Bids will be opened at 2pm on 4/1/25 at 1127 Highway 74 South, Peachtree City, GA 30269.

END OF SECTION

AVAILABLE PROJECT INFORMATION

1.01 SUMMARY

- A. Document Includes:
 - 1. Construction Drawings
- B. Available Project information has been furnished by Owner to Engineer for use in designing this Project.
 - 1. Each Bidder shall be fully familiar with available Project information, which has been prepared for Owner by separate consultants. Documents prepared by Owner's separate consultants is believed to be reliable.
 - 2. In preparing their Bids, Bidders shall consider and evaluate data contained in available Project information as well as Contract Documents prepared by Architect/Engineer.

END OF SECTION

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to: Peachtree City Water & Sewerage Authority
1127 Highway 74 South
Peachtree City, GA 30269

This Bid is submitted from: _____

(Name and Address of Individual, Partnership, or Corporation)

Georgia Utility Contractor No. (if applicable)

This Bid is for: Peachtree Court Gravity Sewer System PTC
4/1/25 at 2:00 pm

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 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No. Addendum Date

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all (if applicable): (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."
- E. Bidder has considered the information known to Bidder; 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 Site-related reports (if applicable) and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. 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.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- 1. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. 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;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “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;
 - 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.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

PEACHTREE COURT SANITARY SEWER					
ITEM NO.	ITEM AND DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	General Conditions & Mobilization	LS	1	\$	\$
2	Inlet Protection, Curb Type (Sd2-P)	EA	4	\$	\$
3	Concrete Washout Basin	EA	1	\$	\$
4	100' PVC Sewer Service Lateral w/ Cleanout	EA	14	\$	\$
5	8" PVC Gravity Sewer 0-10' Depth	LF	127	\$	\$
6	8" PVC Gravity Sewer 10-15' Depth	LF	932	\$	\$
7	4' Dia Precast Manhole Base (0'-6')	EA	4	\$	\$
8	4' Dia Precast Manhole Riser and cover	VF	24	\$	\$
9	Connect To Existing Sewer	EA	1	\$	\$
10	Clean & Test Gravity Sewer	LF	1,059	\$	\$
11	Sawcut and Replace Asphalt Pavement	SY	570	\$	\$
12	Sawcut and Replace Concrete Curb and Gutter	LF	5	\$	\$
13	Trench Rock Excavation Allowance	CY	235	\$	\$
14	Trench Unsuitable Soils Allowance	CY	235	\$	\$
15	Traffic control	LS	1	\$	\$
16	Owners Testing and Inspection Allowance	LS	\$ 2,000	\$	\$
Project Cost				\$	\$

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

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

A. All documents as outlined in Section 00 22 13 “Supplementary Instructions to Bidders.”

A. All documents as outlined in Section 00 22 13 "Supplementary Instructions to Bidders."

ARTICLE 8 – DEFINED TERMS

8.01 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 9 – BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in Georgia is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

State Contractor License No. _____ . [If applicable]

END OF SECTION

SECTION 00 43 13
BID SECURITY FORM

BIDDER (*Name and Address*):

SURETY (*Name and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Peachtree City Water & Sewerage Authority
1127 Highway 74 South
Peachtree City, GA 30269

BID

Bid Due Date: 4/1/2025 at 2pm

Description: The scope of work for this project includes constructing approximately 1059 lineal feet of 8" PVC gravity sanitary sewer along Peachtree Court, removing and replacing asphalt pavement along the street where trenching took place, and replacing curb and gutter where affected by new trenching, installing (4) four sanitary manholes, and installing 6" PVC Sewer Service Lateral w/ Cleanout

BOND

Bond Number:

Date (*Not earlier than Bid due date*):

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

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 shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur 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 shall 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 shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall 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 Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall 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 Registered or Certified Mail, return receipt requested, postage pre-paid, and shall 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 shall 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 shall govern and the remainder of this Bond that is not in

conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

END OF SECTION

CONTRACTOR's General Business Information

Check if:

- Corporation Partnership Joint Venture Sole Proprietorship

If Corporation:

a. Date and State of Incorporation: _____

b. List of Executive Officers:

Name	Title
_____	_____
_____	_____
_____	_____
_____	_____

If Partnership:

a. Date and State of Incorporation: _____

b. List of Current General Partners:

c. Type of Partnership:

- General Publicly Traded
 Limited Other (describe): _____

If Joint Venture:

a. Date and State of Organization: _____

b. Name, Address and Form of Organization of Joint Venture Partners: (Indicate managing partner by an asterisk *)

If Sole Proprietorship:

a. Date and State of Incorporation: _____

b. Name and Address of Owner or Owners:

1. On Schedule A, attached, list major engineered construction projects completed by this organization in the past five (5) years. (If joint venture, list each participant's projects separately.)

2. On Schedule B, attached, list current projects under construction by this organization. (If joint venture, list each participant's projects separately.)

3. Name of surety company and name, address, and phone number of agent:

4. Is your organization a member of a controlled group of corporations as defined in Internal Revenue Code Sec. 1563?
 Yes No
If yes, show names and addresses of affiliated companies.

5. Furnish on Schedule C, attached, details of the construction experience of the principal individuals of your organization directly involved in construction operations.

6. Has your organization ever failed to complete any construction contract awarded to it?
 Yes No
If yes, describe circumstances on attachment.

7. Has any Corporate officer, partner, joint venture participant or proprietor ever failed to complete a construction contract awarded to him or her in their own name or when acting as a principal of another organization?
 Yes No

If yes, describe circumstances on attachment.

8. In the last five years, has your organization ever failed to substantially complete a project in a timely manner?

Yes No

If yes, describe circumstances on attachment.

9. Indicate general types of work performed with your own work force.

10. Describe the permanent safety program you maintain within your organization. Use attachment if necessary.

11. If required by OWNER during Bid evaluation, Bidder agrees to provide balance sheet for two or more years audited by a registered CPA.

12. Furnish the following information with respect to an accredited banking institution familiar with your organization.

Name of Bank: _____

Address: _____

Account Manager: _____

Telephone: () _____

13. Has your organization, or any officer or partner thereof, ever been party to any criminal litigation as a result of construction methods, costs, etc.? _____.

If yes, state case number, case name, and provide pertinent details, including judgment:

(Attach extension sheet if necessary)

14. Has your organization, or any officer or partner thereof, ever been party to any civil litigation as result of construction methods, costs, etc.? _____.

If yes, state case number, case name, and provide pertinent details, including judgment:

(Attach extension sheet if necessary)

15. Describe your organizational structure, including the number of permanent employees engaged in estimating, purchasing, expediting, detailing, and engineering, field supervision, field engineering, and layout:

(Use extension sheet if necessary)

16. Percentage of Work to be Performed with Own Forces:

17. Name of Proposed Subcontractors with Whom You Intend to Affiliate. (What phase and percentage of work will each subcontractor perform?)

18. Give total contract value of work accomplished by your organization in each of the last three (3) years:

20__ - \$ _____ 20__ - \$ _____ 20__ - \$ _____

19. What is the largest contract (dollar costs) ever performed by your organization?

Name of Work: _____

Total Contract Amount: _____

Amount of Your Contract: _____

20. Give contract value of work now pending award to your organization:

\$ _____ State amount requiring bond if awarded: \$ _____

21. Give the value of any judgments or liens outstanding against your organization:

\$ _____

Explain: _____

22. Give names of Surety Companies & Agent under which you have functioned within the last three (3) years:

20__ _____

20__ _____

20__ _____

23. Estimate your maximum bonding capacity: \$ _____

How much is unencumbered as of this date? \$ _____

24. Has any Surety Company refused to write you a bond on any construction work? _____

If yes, explain: _____

I hereby certify that the information submitted herewith, including any attachment is true to the best of my knowledge and belief.

By: _____

Title: _____

Dated: _____

SCHEDULE A MAJOR ENGINEERING CONSTRUCTION PROJECTS COMPLETED IN PAST 5 YEARS						
Name, Location and Description of Project	Owner	Design Engineer	Date Completed	Contract Price	Reference/Contact Include Address and Phone	

SCHEDULE B
CURRENT PROJECTS UNDER CONSTRUCTION

Name, Location and Description of Project	Owner	Design Engineer	Contract Price	Amount Completed	Date of Scheduled Completion	Reference/Contact Include Address and Phone

**SCHEDULE C
PERSONNEL**

Name	Position	Date started with this organization	Date started in construction	Prior positions and experience in construction

END OF SECTION

SECTION 00 45 19

NON-COLLUSION AFFIDAVIT

State of Georgia
County of _____

_____, being first duly sworn, deposes and says that:

(1) He is (owner, partner, officer, representative, or agent) of _____
the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all
pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives,
employees, or parties in interest, including this affiant, has in any way colluded, conspired,
connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a
collusive or sham Bid in connection with the Contract for which the attached Bid has been
submitted or to refrain from bidding in connection with such Contract, or has in any manner,
directly or indirectly, sought by agreement or collusion or communication or conference with
any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other
Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any
other bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement
any advantage against the _____ or any person interested in the
proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by
any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of
its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

Title _____

Subscribed and sworn before me
on this the _____ day of _____, 20____

Notary Public
My Commission Expires:

END OF SECTION

SECURITY AND IMMIGRATION COMPLIANCE

Federal Work Authorization Program (O.C.G.A. § 13-10-91)

The Owner may not enter into a contract for the physical performance of services unless the contractor registers and participates in the federal work authorization program. "Physical performance of services" is defined as the building, altering, repairing, improving, or demolishing of any public structure or building or other public improvements of any kind to public property within Georgia, including the construction, reconstruction, or maintenance of all or part of a public road; or any other performance of labor for a public employer within Georgia under a contract or other bidding process".

Although the Georgia law for private employers has a structured phase-in timeline in an attempt to ease private employers into compliance based upon their business size, only those companies registered with, authorized to use and currently using the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91, shall be considered.

Before a bid for the physical performance of services is considered by the Owner, the bid must include a signed, notarized affidavit from the contractor attesting to the following:

- (1) The affiant has registered with, is authorized to use, and uses the federal work authorization program.
- (2) The user identification number and date of authorization for the affiant;
- (3) The affiant will continue to use the federal work authorization program throughout the contract period;

and

- (4) The affiant will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the same information as required in numbers 1-3 above.

If a contractor does not have any employees and does not intend to hire any employees, in lieu of the above affidavit the contractor may provide a copy of state-issued driver's license or identification card to the Owner for each independent contractor utilized in satisfaction of part or all of the contact with the Owner. However, a driver's license or identification card will be acceptable if it is issued by a state that verifies lawful immigration status. The Georgia Attorney General will provide a list of states that verify lawful immigration status and post this list on its website. The Owner must confirm that all of the copies of driver's licenses and identification cards presented to it come from states that verify lawful immigration status.

Systematic Alien Verification for Entitlements Program (SAVE)

Upon award, consistent with state law, Bidder shall complete the Affidavit Verifying Status for Owner Public Benefit Application.

Sample form is attached.

CONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Peachtree City Water & Sewerage Authority has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

Federal Work Authorization User Identification Number

Date of Authorization

Company Name / Contractor Name

Name of Project

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 20__ in _____ (Owner), _____ (state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

Subscribed and sworn before me

on this the _____ day of _____, 20__

Notary Public

My Commission Expires: _____

SUBCONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b)(3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm, or corporation which is engaged in the physical performance of services under a contract with _____ (name of Contractor) on behalf of Peachtree City Water & Sewerage Authority has registered with, is authorized to use and uses federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the sub-contractor with the information required by O.C.G.A. § 13-10-91 (b).

Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

Federal Work Authorization User Identification Number

Date of Authorization

Company Name / Subcontractor Name

Name of Project

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 20____ in _____ (Owner), _____ (state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

Subscribed and sworn before me

on this the _____ day of _____, 20____

Notary Public

My Commission Expires: _____

END OF SECTION

SECTION 00 51 00

NOTICE OF AWARD

Project: Peachtree Court Sanitary Sewer

Owner: Peachtree City Water & Sewerage Authority

Owner's Contract No.: 2025-300

Bidder:

Engineer's Project No.: F223003.PTC.00

Bidder's Address:

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for Governors Square Gravity Sewer System PTC.

The Contract Price of your Contract is _____ Dollars (\$_____).

_____ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [_____] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent: _____

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 ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Owner

By: _____

Authorized Signature

Title

Copy to Engineer

END OF SECTION

SECTION 00 52 00

AGREEMENT

THIS AGREEMENT is by and between Peachtree City Water & Sewerage Authority (“Owner”) and _____ (“Contractor”).

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:

Peachtree Court Sanitary Sewer

ARTICLE 2 – The Project

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

The scope of work for this project includes constructing approximately 1059 lineal feet of 8” PVC gravity sanitary sewer along Peachtree Court, removing and replacing asphalt pavement along the street where trenching took place, and replacing curb and gutter where affected by new trenching

ARTICLE 3 – Engineer

3.01 The Project has been designed by Rochester | DCCM (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – Contract Times

4.01 *Time 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.

4.02 *Days to Achieve Substantial Completion and Final Payment*

A. The Work will be substantially completed within 90 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph

14.07 of the General Conditions within 30 days after the date when the Contract Times commence to run.

4.03 *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 loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. 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), Contractor shall pay Owner \$250.00 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$250.00 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.
- B. Liquidated damages for each of the required dates and times are independent and additive; i.e., if Substantial Completion is not achieved by day 240 and Final Completion is not achieved, liquidated damages will be in effect for both Substantial and Final Completion, in total amount of \$250.00 per day.

ARTICLE 5 – Contract Price

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

- A. For all Work other than Unit Price Work, a lump sum of: \$ _____
All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.
- B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item:

UNIT PRICE WORK

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Bid Unit Price</u>	<u>Bid Price</u>
-----------------	--------------------	-------------	---------------------------	-----------------------	------------------

Total of all Bid Prices (Unit Price Work)

\$ _____

The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

ARTICLE 6 – Payment Procedures

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 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 account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of 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 in the General Requirements.

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 Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

a. 100 percent of Work completed (with the balance being retainage).

b. 100 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

c. "Balance Being Retainage" as noted above shall be considered as 5 percent of the progress payment amount until the job is 100 percent satisfactorily complete. Payment upon Substantial Completion shall be noted as below.

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 as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price

as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – Interest

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate allowed per O.C.G.A. § 13-11-17.

ARTICLE 8 – Contractor’s Representations

8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all, if any: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
- E. Contractor has considered the information known to Contractor, if any; 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor’s safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that 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 Documents.
- G. 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.

- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – Contract Documents

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to __, inclusive).
 - 2. Performance bond (pages ____ to ____, inclusive).
 - 3. Payment bond (pages ____ to ____, inclusive).
 - 4. General Conditions (pages ____ to ____, inclusive).
 - 5. Supplementary Conditions (pages ____ to ____, inclusive).
 - 6. Specifications (as listed in the table of contents of the Project Manual).
 - 7. Drawings (as listed in the table of contents of the Project Manual).
 - 8. Addenda (numbers ____ to ____, inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor’s Bid (pages ____ to ____, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages ____ to ____, inclusive).
 - c. *[List other required attachments (if any), such as documents required by funding or lending agencies].*
 - 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages ____ to ____, inclusive).
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 9.01.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 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – Miscellaneous

10.01 Terms

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

10.02 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are 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 Documents.

10.03 Successors and Assigns

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

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall 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.

10.05 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 10.05:
 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing 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.

10.06 *Other Provisions*

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

OWNER:

Peachtree City Water & Sewerage Authority

By: _____

Title: _____

Attest: _____

Title: _____

Address for giving notices:

1127 Highway 74 South

Peachtree City, GA 30269

CONTRACTOR

By: _____

Title: _____

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

Attest: _____

Title: _____

Address for giving notices:

License No.: _____

(Where applicable)

Agent for service of process:

END OF SECTION

SECTION 00 55 00

NOTICE TO PROCEED

Project: Governors Square Gravity Sewer System PTC

Owner: Peachtree City Water & Sewerage Authority

Owner's Contract No.: 2025-300

Contractor:

Engineer's Project No.: F223003.PTC.00

Contractor's Address:

You are notified that the Contract Times under the above Contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. No field work to proceed prior to this date. In accordance with Article 4 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

_____	<u>Peachtree City Water & Sewerage Authority</u>
_____	Owner
_____	<u>Given by:</u>
_____	Authorized Signature
_____	_____
_____	Title
_____	_____
_____	Date

Copy to Engineer

END OF SECTION

SECTION 00 61 13

PERFORMANCE BOND

CONTRACTOR (name and address):

SURETY (name and address of principal place of business):

OWNER: Peachtree City Water & Sewerage Authority
1127 Highway 74 South
Peachtree City, GA 30269

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description: Peachtree Court Sanitary Sewer

The scope of work for this project includes constructing approximately 1059 lineal feet of 8" PVC gravity sanitary sewer along Peachtree Court, removing and replacing asphalt pavement along the street where trenching took place, and replacing curb and gutter where affected by new trenching, installing (4) four sanitary manholes, and installing 6" PVC Sewer Service Lateral w/ Cleanout

BOND

Bond Number:

Date (not earlier than the Effective Date of the Agreement of the Construction Contract):

Amount:

Modifications to this Bond Form: [] None [] See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (seal)

Surety's Name and Corporate Seal (seal)

By: Signature

By: Signature (attach power of attorney)

Print Name

Print Name

Title

Title

Attest: Signature

Attest: Signature

Title

Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

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 shall 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 shall 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 shall 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 shall 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 shall 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 shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall 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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall 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 shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
16. Modifications to this Bond are as follows:
<Contractor/surety to list if any>

END OF SECTION

SECTION 00 61 15

PAYMENT BOND

CONTRACTOR (name and address):

SURETY (name and address of principal place of business):

OWNER: Peachtree City Water & Sewerage Authority
1127 Highway 74 South
Peachtree City, GA 30269

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description: The scope of work for this project includes constructing approximately 1059 lineal feet of 8" PVC gravity sanitary sewer along Peachtree Court, removing and replacing asphalt pavement along the street where trenching took place, and replacing curb and gutter where affected by new trenching, installing (4) four sanitary manholes, and installing 6" PVC Sewer Service Lateral w/ Cleanout

BOND

Bond Number:

Date (not earlier than the Effective Date of the Agreement of the Construction Contract):

Amount:

Modifications to this Bond Form: [] None [] See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (seal)

Surety's Name and Corporate Seal (seal)

By: Signature

By: Signature (attach power of attorney)

Print Name

Print Name

Title

Title

Attest: Signature

Attest: Signature

Title

Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

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 shall 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 shall 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 shall 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 shall 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 shall 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 shall 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 satisfy 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 shall 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 shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed

incorporated herein. When so furnished, the intent is that this Bond shall 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:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
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;
4. A brief description of the labor, materials, or equipment furnished;
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;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
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 shall be 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:
<Contractor/surety to list if any>

END OF SECTION

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: Governors Square Gravity Sewer System PTC

Owner: Peachtree City Water & Sewerage Authority

Owner's Contract No.: 2025-300

Engineer's Project No.: F223003.PTC.00

This [tentative] [definitive] Certificate of Substantial Completion applies to:

- All Work under the Contract Documents:
- The following specified portions of the Work:

Date of Substantial Completion

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 Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. 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.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

- Amended Responsibilities
- Not Amended

Owner's Amended Responsibilities:

Contractor's Amended Responsibilities:

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

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.

Executed by Engineer

Date

Accepted by Contractor

Date

Accepted by Owner

Date

END OF SECTION

AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

TO OWNER:
Peachtree City Water & Sewerage Authority

PROJECT NO.:
2025-300

PROJECT:
Peachtree Court Sanitary Sewer

CONTRACT DATED:

STATE OF: Georgia

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all material and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED CONTRACTOR: *(name and address)*
HERE TO:

1. Consent of Surety to Final Payment.
2. Contractor's Affidavit of Release of Liens.

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

By: _____
(Signature of authorized representative)

(Printed name and title)

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

END OF SECTION

AFFIDAVIT OF PAYMENT RELEASE OF LIENS

TO OWNER:
Peachtree City Water & Sewerage Authority

PROJECT NO.:
2025-300

PROJECT:
Peachtree Court Sanitary Sewer

CONTRACT DATED:

STATE OF: Georgia

COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED CONTRACTOR: *(name and address)*
HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

By: _____
(Signature of authorized representative)

(Printed name and title)

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

END OF SECTION

SECTION 00 65 21

CONSENT OF SURETY TO FINAL PAYMENT

TO OWNER:
Peachtree City Water & Sewerage Authority

PROJECT NO.:
2025-300

PROJECT:
Peachtree Court Sanitary Sewer

CONTRACT DATED:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(insert name and address of Surety)

(insert name and address of Surety), SURETY,
on bond of
(insert name and address of Contractor)

(insert name and address of Contractor), CONTRACTOR,
herby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to
(insert name and address of Owner)

(insert name and address of Owner), OWNER,
as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(insert in writing the moth followed by the numeric date and year)

(Surety)

(Signature of authorized representative)

Attest:
(Seal):

(Printed name and title)

END OF SECTION

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
 12. *Contract Documents*—Those items so designated in the Agreement. Only printed

or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 U.S.C.A. § 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the

Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of content.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 U.S.C.A. § 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.
40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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 thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, 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 Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to

differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. 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 Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. 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 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean 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, shall mean 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, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. 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 Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement 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 Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

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

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
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.

2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial 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 for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall 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 component

parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one 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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 - 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

- 1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
- 2. *Contractor's Review of Contract Documents During Performance of Work:* If,

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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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 Amending and Supplementing Contract Documents

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 3. Engineer's written interpretation or clarification.

3.05 Reuse of Documents

- A. Contractor and any Subcontractor or Supplier 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 editions; or
 2. 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.

- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor 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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- 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 the Work is to be performed 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.

4.02 *Subsurface and Physical Conditions*

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

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “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; or
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.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of

Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
 - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

- A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and

Contractor shall have full responsibility for:

- a. reviewing and checking all such information and data;
- b. locating all Underground Facilities shown or indicated in the Contract Documents;
- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated:

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *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.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “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; or
 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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, or both, as a result of

such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. 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 or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until

completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation

on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed 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:
1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity

obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property

(including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and

the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

- B. 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:
 - 1. loss 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 perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the

Work and the cost thereof covered by an appropriate Change Order.

- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method,

technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *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 at all times maintain good discipline and order at the Site.
- B. 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 shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *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.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall 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 shall 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.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

- 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
- 2) it 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; and
- 3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
- 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph

6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

- a) perform adequately the functions and achieve the results called for by the general design,
- b) be similar in substance to that specified, and
- c) be suited to the same use as that specified;

2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
- b) 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
- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

- a) all variations of the proposed substitute item from that specified, and
- b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or

substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual

or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *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 a particular 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 shall be disclosed by Owner 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.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *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. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *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.

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
 3. 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 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 by or based upon Contractor's performance of the Work.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall 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 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 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 property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings,

Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *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. 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, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. 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. Contractor shall notify owners of adjacent property and of Underground Facilities and other 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.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. 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.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.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 (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).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of 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.

6.16 *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 threatened 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 thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will 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 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. 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 6.17.D.

B. 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. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. 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, conform to the information given in 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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

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.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper 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.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 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 or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. 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 performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury 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 6.20.A shall 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.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the

Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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 Documents.

8.12 *Compliance with Safety Program*

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 pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 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 Documents.

9.02 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 9.09. 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.

9.03 Project Representative

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 Authorized Variations in Work

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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, subject to the provisions of Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 shall 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 Paragraph 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the 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; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 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.

10.05 Claims

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall 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. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall 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 shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall 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, who 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 shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including 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, and hand tools not owned by the workers, 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.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the 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 property insurance established in accordance with Paragraph 5.06.D), 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 shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.
- B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety

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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. 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.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 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:*
1. Contractor agrees that:
 - a. 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
 - b. 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 on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a 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 on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five 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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR

ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will 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 therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. 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.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense

unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. 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, or both, 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *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, 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 shall 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.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay 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 correction or removal (including but not limited to all costs of repair or

replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *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 terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If 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. 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 correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. 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.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, 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.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *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 rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. 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 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. 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. 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 shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment

recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. 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;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not,

will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 tentative list.

14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or

occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and

- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

B. Engineer's Review of Application and Acceptance:

1. 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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. 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. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such

payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site,

and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. 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
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven 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;
 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven 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 15.03.
- 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, seven 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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the

Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

- A. When any period of time is referred to in the Contract Documents 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.

17.03 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 Documents. 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.

17.04 Survival of Obligations

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

17.05 Controlling Law

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

17.06 Headings

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

END OF SECTION

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC No. C-700, 2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

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

SC-1.01 Defined Terms

SC-1.01.A.52 Add the following paragraphs immediate after Paragraph 1.01.A.52:

53. *Engineer's Consultant* — An individual or entity having a contract with Engineer to furnish services as Engineer's independent professional associate or consultant with respect to the Project. Engineer's Consultants are identified as follows:

a) Engineer used no consultants in the preparation of this Project.

SC-1.01.A.9 Amend paragraph 1.01.A.9 of the General conditions to read as follows:

Change Order: A document which is signed by Contractor, Owner, and by Engineer, and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after Effective Date of the Agreement.

SC1.01.A.14 Amend paragraph 1.01.A.14 of the General Conditions by the addition of the following provision:

Execution for this Agreement by Contractor constitutes an acknowledgement and agreement by Contractor that all Contract Times stated in the Contract Documents are reasonable and are of sufficient duration for the Work required to be performed within such times. Contractor acknowledges that Work on Saturdays, Sundays, or legal holidays requires the prior written consent of Owner and further requires that Contractor shall be responsible for, and shall pay, any and all overtime or extra cost incurred by Owner or Engineer resulting from such Work on Saturdays, Sundays, or legal holidays. Contractor further acknowledges that unless expressly stated otherwise, all days and times set forth in the Contract Documents shall be measured by calendar days.

SC-2.01 Delivery of Bonds and Evidence of Insurance

SC-2.01.B Add the following new paragraph immediately after Paragraph 2.01.B:

1. Provide Owner, at the time Contracts are returned by Owner for execution, three (3) copies of all insurance certificates. In addition, all coverages held jointly in names of Owner and/or Engineer, three (3) additional copies of

policies shall be furnished. Each additional insured identified in the Supplementary Conditions shall be provided one copy of all insurance certificates. Owner reserves the right to request complete copies of policies if deemed necessary to ascertain details of coverage not provided by the certificates. Such policy copies shall be "originally signed copies" and so designated.

SC-2.02 Copies of Documents

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following in its place:

- A. Owner shall furnish to Contractor up to three (3) printed or hard copies of the Drawings and Project Manual and one (1) set in electronic format. Additional copies will be furnished upon request at the cost of reproduction.

SC-2.03 Commencement of Contract Times; Notice to Proceed

SC-2.03.A Add the following paragraph immediately after Paragraph 2.03.A:

- B. Should the Owner require additional time to award a Contract, the time may be extended by the mutual agreement between the Owner and the successful Bidder. If an award of Contract has not been made within 60 days from the Bid date or within the extension mutually agreed upon, the Bidder may withdraw the Bid without further liability on the part of the either party.

SC-2.07 Initial Acceptance of Schedules

SC-2.07.A.3 Add the following language at the end of Paragraph 2.07.A.3:

4. Contractor shall not imbalance their Schedule of Values nor artificially inflates any element thereof. If required by Owner or Engineer, Contractor shall furnish any required documentation to substantiate that the Schedule of Values is balanced and not artificially inflated. Violation of this provision by Contractor may constitute a material breach of this Agreement.

SC-3.01 Intent

SC-3.01.C Add the following language at the end of Paragraph 3.01.C:

In the event of a conflict, discrepancy, contradiction, or inconsistency within the Contract Documents and for the resolution of same, the following order of hierarchy and control shall apply and prevail:

- 1) Contract; 2) Addenda; 3) Supplementary General Conditions; 4) General Conditions; 5) Specifications; 6) Drawings; 7) Instruction to Bidders; 8) Invitation to Bid; 9) Sample Forms.

If a conflict, discrepancy, contradiction, or inconsistency occurs within or between the Specifications and the Drawings, resolution shall be controlled by the following:

1. As between figures, dimensions, or numbers given on Drawings and any scaled measurements, the figures, dimensions, or numbers shall govern;
2. As between large scale drawings and small-scale drawings, the larger scale

drawings shall govern;

3. As between technical specifications and drawings, the technical specifications shall govern;
4. Shop Drawings and Submittals: Shop drawings and other submittals from the Contractor, subcontractors, or suppliers do not constitute a part of the Contract Documents;
5. In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Engineer's interpretation.

SC-4.01 Availability of Lands

SC-4.01.C Add the following new paragraph immediately after Paragraph 4.01.C:

- D. Contractor has received a list of Work areas from Owner where some easements necessary to complete this Project may not have been obtained by Owner at Bid time, and may not be available until an undetermined time during the construction period. Owner will notify Contractor when such easements have been secured and when Contractor may proceed with Work in those areas.
 1. Contractor may request an extension of Contract Times in accordance with Article 10 of the General Conditions if Owner is unable to secure easements within 30 days after the effective date of the Agreement.
 2. Requests for a change in Contract Price for areas that have been identified as unavailable at time of Bid and may impact Contractor's work production will not be considered.

SC-4.02 Subsurface and Physical Conditions,

SC-4.02.A Delete Paragraph 4.02.A and replace it in its entirety with:

- A. In the preparation of Drawings and Specifications, Engineer or Engineer's Consultants did not rely upon reports of explorations or tests of subsurface conditions at the Site, except as noted on Drawings.

SC-4.06 Hazardous Environmental Condition at Site

SC-4.06.A Delete Paragraph 4.06.A and replace it in its entirety with:

- A. In the preparation of Drawings and Specifications, Engineer or Engineer's Consultants did not rely upon reports of Hazardous Environmental Conditions at the Site, except as noted on Drawings.

SC-5.02 Licensed Sureties and Insurers

SC-5.02.A Add the following language at the end of Paragraph 5.02.A:

In order to determine financial strength and reputation of insurance carriers, all companies providing the coverages required shall be licensed or approved by the Insurance Bureau of the State in which the Work is performed and shall have a

financial rating not lower than VI and a policyholder's service rating no lower than A- as listed in A.M. Best's Key Rating Guide, current edition. Certificates of insurance shall note A.M. Best's Rating. All bonds and insurance coverages shall be with sureties or insurance companies that are acceptable to OWNER.

SC-5.03 Certificates of Insurance

SC-5.03.E Add the following new paragraphs at the end of Paragraph 5.03.E:

- F. The identity of the additional insureds that are to be included on Contractor’s insurance policies are:
 - 1. Peachtree City Water & Sewerage Authority and including all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and their board members, employees, and volunteers.
 - 2. Peachtree City – Peachtree City including all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and their board members, employees, and volunteers.
 - 3. Rochester & Associates, LLC
 - 4. Integrated Science & Engineering, Inc.

SC-5.04 Contractor’s Liability Insurance

SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:

- C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
 - 1. Workers’ Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal (i.e., Longshoreman’s): Statutory
 - c. Employer’s Liability:
 - 1) Each Accident: \$500,000
 - 2) Disease Employee Limit: \$500,000
 - 3) Each Employee: \$500,000
 - 2. Contractor’s General Liability under Paragraphs 5.04.A.3 through A.5 of the General Conditions which shall include Commercial General Liability, Contractual Liability, and Products/Complete Operations Liability, Owners and Contractors Protective Liability, and Personal Injury Liability Insurance covering all operations required to complete the work, including coverage for damage caused by explosion, collapse or structural injury, and damage to underground utilities with the following minimum limits of liability:

<u>Contract Amount</u>	<u>Insurance Liability</u>
------------------------	----------------------------

\$1,000,000.00 or less	\$1,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.
Over \$1,000,000.00	\$5,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability – each occurrence.

The Products/Completed Operations Liability Insurance shall be provided for a period of at least one year after completion of the work.

The Contractual Liability Insurance Coverage insuring the performance of the contractual obligations assumed by the Contractor by acceptance of this Contract, including specifically, but without limitation thereto, the above- mentioned agreement, included herein.

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions: Comprehensive Automobile Liability Insurance with the following minimum limits of liability:

<u>Contract Amount</u>	<u>Insurance Liability</u>
\$5,000,000.00 or less	\$1,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.
Over \$5,000,000.00	\$3,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.

This insurance is to apply to all owned, non-owned, and hired automobiles and other vehicles used by the Contractor in the performance of the work.

4. Contractor’s General Liability under Paragraphs 5.04.A.3 through A.5 of the General Conditions which shall include Excess or Umbrella Liability (Occurrence Form):

General per contract:

1. Aggregate: \$ 3,000,000.00
2. Each Occurrence: \$ 3,000,000.00

SC-5.06 Property Insurance

SC-5.06.A Delete Paragraph 5.06.A in its entirety and insert the following in its place:

- A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:
 1. Include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer’s Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as

an insured or additional insured listed in Paragraph SC-5.03.E;

2. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;
3. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
4. Cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
5. Allow for partial utilization of the Work by Owner;
6. Include testing and startup; and
7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
8. Contractor shall be responsible for any deductible or self-insured retention.
9. The policy will not cover Contractor's or its subcontractor's or supplier's equipment, tools or other property that is not consumed during construction or does not become a part of the Project. Contractor shall bear the expense of any additional policy to cover these items.
10. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Paragraph SC-5.06 shall comply with the requirements of Paragraph 5.06.C of the General Conditions.

SC-5.06.B Delete Paragraph 5.06.B of the General Conditions in its entirety and insert the following in its place:

- B. Contractor shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Engineer, Subcontractors and any other individuals or entities identified in the Specific Project Conditions and/or Supplementary Conditions.

SC-5.06.D Supplement Paragraph 5.06.D of the General Conditions as follows:

If deductibles are included in any of the insurance policies described above, Contractor will be responsible for costs not paid because of these deductibles.

SC-5.06.E Delete Paragraph 5.06.E of the General Conditions in its entirety and insert the following in its place:

E. If Owner requests in writing that other special insurance such as “soft cost” for the protection of the Owner, it will be included in the property insurance policies provided under Paragraph 5.06. Contractor shall, if possible, include such insurance, and the cost thereof will be charged to Owner by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, Contractor shall in writing advise Owner whether or not such other insurance has been procured by Contractor. The Contractor may add “soft cost” coverage for the benefit of the Contractor at the Contractor’s expense. If the contractor adds such coverage, the Contractor shall advise the Owner.

SC-5.07 Waiver of Rights

SC-5.07.A Delete the last sentence of Paragraph 5.07.A of the General Conditions in its entirety and insert the following in its place:

None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Contractor as trustee or otherwise payable under any policy so issued.

SC-5.07.B Delete Paragraph 5.07.B of the General Conditions in its entirety.

SC-5.07.C Amend Paragraph 5.07.C of the General Conditions to read as follows:

With respect to all insurance required from Contractor by the Contract Documents, Contractor waives any and all rights of subrogation against Owner, Engineer and each additional named insured. Furthermore, all such insurance, and any insurance required by law, shall be maintained in full force and effect by Contractor until full and final completion of the Work and until payment therefore by Owner. Nothing contained in the within and foregoing insurance provisions shall in any way limit or release Contractor from any of its duties, obligations or liabilities arising under or relating to the Contract Documents.

SC-5.07 Add the following new paragraph immediately after Paragraph 5.07.C:

D. Any insurance policy maintained by Contractor covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Owner, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

SC-5.08 Receipt and Application of Proceeds

SC-5.08.A In the first sentence of Paragraph 5.08.A amend “... Paragraph 5.06 will be adjusted with Owner and ...” to read “... Paragraph 5.06 will be adjusted with Contractor and ...”. The remaining language in Paragraph

5.08.A shall not be altered and remain in effect.

SC-5.08.B Delete Paragraph 5.08.B in its entirety and replace with:

- B. Contractor as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Contractor's exercise of this power. If such objection be made, Contractor as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Contractor as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Contractor as fiduciary shall give bond for the proper performance of such duties.

SC-6.01 Supervision and Superintendence

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

1. Contractor's resident superintendent shall be dedicated full-time to the project. The superintendent shall have no less than three (3) years experience as a superintendent on one or more projects similar in nature, size and scope of the Project. Contractor shall furnish to Engineer a detailed resume setting forth the qualifications of the superintendent prior to their assignment to the Project. The qualifications of the superintendent must be acceptable to Owner.

SC-6.08 Permits

SC-6.08 Add the following new paragraphs immediately after Paragraph 6.08.A:

- B. OWNER has secured or will secure the following permits, approvals and licenses and has paid or will pay any associated charges and fees. Contractor shall pay all inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement.
 1. Soil Erosion and Sediment Control Permit.

SC-6.09 Laws and Regulations

SC-6.09.C Add the following new paragraphs immediately after Paragraph 6.09.C:

- D. While not intended to be inclusive of all Laws or Regulations for which Contractor may be responsible for under Paragraph 6.09, the following Laws or Regulations are included as mandated by statute or for the convenience of Contractor:
 1. In accordance with Title VII of the Civil Rights Act of 1964 (Pub. L. 88-352) (Title VII) as amended, as it appears in volume 42 of the United States Code beginning at section 2000e, a Contract to which the State, a political subdivision, or an agency thereof is a party shall contain a covenant by Contractor and his subcontractors not to discriminate against an Employee or Applicant for employment with respect to hire, tenure, conditions, or privileges of employment, or a matter directly or indirectly related to employment because of race, color, religion, national origin or

ancestry, age, sex, height, weight, or marital status. Breach of this covenant may be regarded as a material breach of the Contract.

2. Prevailing Wages: Contractor shall pay not less than the prevailing rate of wages in accordance with O.C.G.A. § 34-4-3.
3. Hours of Labor: Employees that qualify, per O.C.G.A. § 21-2-404, may take two hours off from work to vote in an election.
4. Discrimination: Per O.C.G.A. § 34-1-2, Contractor, Subcontractor, nor any person on its behalf, shall refuse to hire, employ, or license, nor bar or discharge from employment, any individual between the ages of 40 and 70 years, solely upon the grounds of age, when the reasonable demands of the position do not require such an age distinction, provided that individual is qualified physically, mentally, and by training and experience to perform satisfactorily the labor assigned to them or for which they apply.
5. Notification Requirements for Excavations: Prior to blasting or excavating with mechanized excavating equipment, Contractor shall notify, within 72 hours, the Utilities Protection Center per O.C.G.A. § 25-9-6.
6. "Georgia Security and Immigration Compliance Act" of 2006: Senate Bill 529 (The GA Security and Immigration and Compliance Act) requires contractors to file an affidavit that the contractor and its subcontractors have registered and participate in a federal work authorization program intended to insure that only lawful citizens or lawful immigrants are employed by the contractor or subcontractor. This requirement of SB529 is a phased-in affidavit filing requirement based on the size of the contractor. Contractors with 500 or more employees are required to file an affidavit of compliance beginning 7/1/07. However, because the requirement is set forth in O.C.G.A. § 13-10-91 which is a part of Chapter 10 of Title 13 governing public works contracts, the affidavit filing requirements of SB529 therefore only apply to public works contracts.

SC-6.11 Use of Site and Other Areas

SC-6.11.A.3 Add a new paragraph immediately after Paragraph 6.11.A.3:

4. Contractor is responsible to ensure that all activities required to perform the Work are confined to the limits of Owner's property and easements established for the Work. Permanent structures placed outside the limits of Owner's property or defined permanent easements shall be relocated as necessary at no additional change in Contract Price.

SC-6.11.E Add a new paragraph 6.11.E immediately following Paragraph 6.11.D of the General Conditions:

Barricades and Warning Signs: Contractor shall provide, erect, maintain and finally remove all barricades and detour signs necessary to properly protect and divert traffic. Such barricades and signs shall be illuminated at night. Contractor will be held responsible for all damage to the Work due to failure of the signs and barricades to properly protect the Work from traffic, pedestrians, animals and

from all other sources. Construction of all barricades shall be such as acceptable to Owner and any and all governmental agencies and departments having jurisdiction and control over traffic.

SC-6.17 Shop Drawings and Samples

SC-6.17.E Add the following new paragraphs immediately after Paragraph 6.17.E:

- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required review of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring review and Contractor shall reimburse Owner for Engineer's charges for such time.
 - 1. In the event that Contractor requests a substitution for a previously reviewed item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

SC-6.21 Delegation of Professional Design Services

SC-6.21.B Add the following new paragraph immediately after Paragraph 6.21.B:

- 1. Where Performance Specifications are used, required systems, equipment, and/or materials to be incorporated in the Project are specified in terms of required results, without mandating specific means for achieving the required results. The functional requirements for the systems, equipment, and/or materials are defined together with the operating conditions and/or environment in which they must operate and general standards which must be satisfied. Performance Specifications establish minimum standards that must be met.

SC-6.21.D Add the following new paragraph immediately after Paragraph 6.21.D:

- 1. Observations or requirements that Engineer may communicate to Contractor or others are for clarification only and shall not alter the responsibility of any party nor be interpreted to impose on Owner or Engineer any liability to Contractor, subcontractors, suppliers, or manufacturers related to systems, equipment, or materials supplied pursuant to a Performance Specification. Neither Contractor nor anyone claiming rights by virtue of this Contract or any subcontract or order placed hereunder shall seek to recover from Owner or Engineer any losses or damages suffered as a result of any deficiency, defect, or performance problem in any systems, equipment, or materials supplied pursuant to a Performance Specification.

SC-7.01 Related Work at Site

SC-7.01.A.2 Add the following new paragraph immediately after Paragraph 7.01.A.2:

- 3. Owner has executed contracts for Goods and Special Services for other portions of this Project and has assigned these contracts to Contractor. Contractor's costs for assuming these contracts, unloading and handling

on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the assignment of the contract have been included in the Contract Price and not in the assignment costs. No change in Contract Price on account of any of the foregoing will be valid. The following equipment will be assigned to Contractor:

- a. (List all Owner purchased equipment here, including reference to any contract numbers.)

SC-7.02 Coordination

SC-7.02.B Add the following new paragraphs immediately after Paragraph 7.02.B:

- C. The following tasks shall become Contractor's responsibility upon assignment of equipment purchased by Owner:
 1. Coordination of all systems interfacing with equipment.
 2. Scheduling and coordinating equipment delivery, loading, unloading, handling on the Site, and installation.
 3. Scheduling and coordination of manufacturer's services as indicated in Owner's procurement contract.
 4. Equipment warranty to remain with manufacturer.
 5. Payments as indicated in Owner's procurement contract.

SC-9.03 Project Representative

SC-9.03 Add the following new paragraphs immediately after Paragraph 9.03.A:

- B. The Resident Project Representative (RPR) will be a member of the Engineer's firm. The responsibilities, authority and limitations of the RPR shall be in accordance with Article 9 of the General Conditions. Additional responsibilities, authority and limitations of the RPR shall be:
 1. Review the Work at the Site during the periods as stipulated in the Owner-Engineer Agreement, and in accordance with Paragraph 9.02.
 2. Communicate between the Owner, Contractor and Engineer.
 3. Retain a copy of shop drawing submittals, testing results, Applications for Payment, Change Orders, Claims, and other correspondence at the Site.
 4. Review Contractor's Application for Payment and Change Orders prior to submission to Engineer in accordance with Paragraph 9.06.
 5. Perform the preliminary determination of the actual quantities and classifications of Unit Price Work performed by Contractor for the Engineer in accordance with Paragraph 9.07.
 6. RPR will not participate in specialized field or laboratory tests or inspections conducted by others, except as specifically authorized by Engineer.

SC-11.01 Cost of the Work

SC-11.01.A.5.c Delete Paragraph 11.01.A.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery:

- 1) Rentals of all construction equipment and machinery, and the parts thereof in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the Blue Book, Building and Construction (Georgia). An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include 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, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-11.03 Unit Price Work

SC-11.03.D Delete Paragraph 11.03.D in its entirety and insert the following in its place:

- D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment in the Contract Price under the following conditions:
1. if the Bid price of a particular item of Unit Price Work amounts to five percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than twenty five percent from the estimated quantity of such item indicated in the Agreement; and
 2. if there is no corresponding adjustment with respect to any other item of Work; and
 3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SC-12.01 Change of Contract Price

SC-12.01.C.2.f Add the following new paragraphs immediately after Paragraph 12.01.C.2.f:

g. An example of how the procedure works is:

Cost of Work Performed or Furnished by Sub-Subcontractor	\$10,000.00
Sub-Subcontractor's Fee (15%)	\$1,500.00
Total Cost Paid by Subcontractor to Sub-Subcontractor	\$11,500.00
Subcontractor's Fee (5%)	575.00
Total Cost Paid by Contractor to Subcontractor	\$12,075.00
Contractor's Fee (5%)	603.75
Total Cost of Work Plus Fee	\$12,678.75

SC-12.03 Delays

SC-12.03.F Add the following immediately after Paragraph 12.03.E:

Average Number of Days in which precipitation is in excess of 0.10 inches per day is tabulated below for the region in which the project is located. Completion time will not be extended for normal weather conditions. The time for completion as stated in the Contract Documents includes due allowance for calendar days on which work cannot be performed. For the purpose of this Contract, the Contractor agrees that he may expect to lose calendar days due to weather in accordance with the following table:

Jan.	10 days	May	8 days	Sep.	7 days
Feb.	9 days	June	8 days	Oct.	6 days
Mar.	9 days	July	11 days	Nov.	7 days
Apr.	8 days	Aug.	9 days	Dec.	8 days

Also, the Contractor agrees that the measure of extreme weather during the period covered by this Contract shall be the number of days in excess of those shown for each month in the table above, in which precipitation exceeded 0.10 inch and the average temperature failed to exceed 40 degrees F., averaged from the Peachtree City Airport, Georgia. This is the same source of data used to determine normal weather losses. If the total accumulated number of calendar days lost to weather, from the start of work until the completion of project exceeds that total accumulated number to be expected for the same period from the table above, time for completion will be extended by the number of calendar days needed to include the excess number of calendar days lost. Request for extension in contract time shall be done in accordance with the General Conditions.

No change in Contract Sum will be authorized because of adjustments of Contract Time due to Owner's acceptance of Contract Claims for adjustments to Time due to abnormal weather conditions.

SC-14.02 Progress Payments

SC-14.02.A.3 Delete Paragraph 14.02.A.3 in its entirety and insert the following in its place:

3. Owner shall retain five percent (5%) of the amount of total payment due to the contractor until the project is 100% satisfactorily complete. When the Work is Substantially Complete, and upon written notice from Contractor, the retained amount may be further reduced to an amount of 200% of the value of the

work remaining for Final Completion as determined by the Engineer.

SC-14.02.C.1 Delete Paragraph 14.02.C.1 in its entirety and insert the following in its place:

1. Thirty (30) days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor; except when funds with which payments are made are provided by a department or agency of the State or Federal government, in which case payment to Contractor shall be made within fifteen (15) days after Owner receives said funds.
2. If Owner fails to make payment as herein provided, interest will accrue to each such payment that is past due in the amount as allowed per O.C.G.A. § 13-11-17.

END OF SECTION

DRUG-FREE WORKPLACE CERTIFICATION

The undersigned vendor hereby certifies that it will provide a drug-free workplace program by:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the vendor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
2. Establishing a continuing drug-free awareness program to inform its employees about:
 - A. The dangers of drug abuse in the work place;
 - B. The vendor's policy of maintaining a drug-free workplace;
 - C. Any available drug counseling, rehabilitation, and employee assistance programs; and
 - D. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
3. Giving all employees engaged in performance of the contract a copy of the statement required by subparagraph (1):
4. Notifying all employees, in writing, of the statement required by subparagraph (1), that as a condition of employment on a covered contract, the employee shall:
 - A. Abide by the terms of the statement; and
 - B. Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than five (5) calendar days after such conviction;
5. Notifying Owner in writing within ten (10) calendar days after receiving notice under subdivision (4)(A) above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include name and the position title of the employee;
6. Within thirty (30) calendar days after receiving notice under subparagraph (4) of a conviction, taking one or more of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
 - A. Taking appropriate personnel action against such employee, up to and including termination; and/or
 - B. Requiring such employee to satisfactorily participate in and complete a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and
7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs (1) through (6)

As the person authorized to sign this statement, I certify that this firm fully complies with the above requirements.

Signature: _____ Date: _____

Print Name: _____

Company: _____

END OF SECTION

SECTION 00 94 39

FIELD ORDER

No. _____

Date of Issuance: _____

Effective Date: _____

Project: Peachtree Court Sanitary Sewer	Owner's Contract No.: 2025-300
Owner: Peachtree City Water & Sewerage Authority	Date of Contract:
Contractor:	Engineer's Project No.: F223003.PTC.00

Attention:

You are hereby directed to promptly execute this Field Order issued in accordance with General Conditions Paragraph 9.04.A, for minor changes in the Work without changes in Contract Price or Contract Times. If you consider that a change in Contract Price or Contract Times is required, please notify the Engineer immediately and before proceeding with this Work.

Reference: _____
(Specification Section(s)) (Drawing(s) / Detail(s))

Description:

Attachments:

Engineer:

Receipt Acknowledged by Contractor: _____ Date: _____

Copy to Owner

END OF SECTION

SECTION 00 94 49

WORK CHANGE DIRECTIVE

No. _____

Date of Issuance:	Effective Date:
Project: Peachtree Court Sanitary Sewer	Owner's Contract No.: 2025-300
Owner: Peachtree City Water & Sewerage Authority	Date of Contract:
Contractor:	Engineer's Project No.: F223003.PTC.00

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

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

Authorization for Work described herein to proceed on the basis of Cost of the Work due to:

- Nonagreement on pricing of proposed change.
- Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price \$ _____ (increase/decrease) Contract Time _____ (increase/decrease) days

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Received for Contractor by:	Date
Received by Funding Agency (if applicable):	Date:

END OF SECTION

SECTION 00 94 63

CHANGE ORDER

No. _____

Date of Issuance:	Effective Date:
Project: Peachtree Court Gravity Sewer System PTC	Owner's Contract No.: 2025-300
Owner: Peachtree City Water & Sewerage Authority	Date of Contract:
Contractor:	Engineer's Project No.: F223003.PTC.00

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

Description:

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE:

CHANGE IN CONTRACT TIMES:

Original Contract Price:
\$ _____

Original Contract Times: Working days Calendar days
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____:
\$ _____

[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____:
Substantial completion (days): _____
Ready for final payment (days): _____

Contract Price prior to this Change Order:
\$ _____

Contract Times prior to this Change Order:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

[Increase] [Decrease] of this Change Order:
\$ _____

[Increase] [Decrease] of this Change Order:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

Contract Price incorporating this Change Order:
\$ _____

Contract Times with all approved Change Orders:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

RECOMMENDED:
By: _____
Engineer (Authorized Signature)

ACCEPTED:
By: _____
Owner (Authorized Signature)

ACCEPTED:
By: _____
Contractor (Authorized Signature)

Date: _____

Date: _____

Date: _____

Approved by Funding Agency (if applicable):

Date: _____

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Location of Work
- B. Scope of Work
- C. Substantial Completion requirements
- D. Final Completion requirements
- G. Contractor use of premises
- H. Owner Occupancy
- I. Protection of Owner, agents of the Owner, workmen, and the public
- I. Project Utility Sources

1.02 PROJECT LOCATION

Project is generally located at the intersection of Peachtree Court and Georgia Highway 54. Contractor access to the site will be Peachtree Court.

1.03 SCOPE OF WORK

- A. Demolition, Gravity Sewer & Pavement Restoration
- B. The scope of work for this project includes constructing approximately 1059 lineal feet of 8" PVC gravity sanitary sewer along Peachtree Court, removing and replacing asphalt pavement along the street where trenching took place, and replacing curb and gutter where affected by new trenching, installing (4) four sanitary manholes, and installing 6" PVC Sewer Service Lateral w/ Cleanout

Major Components New Construction includes: Installation of new Gravity Sewer Line.

1.04 SUBSTANTIAL COMPLETION REQUIREMENTS

Project to be substantially complete within 90 days of the “Notice to Proceed”

1.05 FINAL COMPLETION REQUIREMENTS

Project to be final complete within 30 days beyond Substantial Completion.

Complete with all “punch list” items identified with the establishment of substantial completion, Asphalt, Sod, and curb & gutter to be restored, be final complete in all respects, and comply with additional final completion requirements as specified in the General and Supplementary Conditions.

1.06 CONTRACTOR’S USE OF PREMISES

- A. Limit the use of the OWNER's property to the areas indicated on the Drawings. Do not disturb the OWNER's or adjacent properties beyond the areas indicated on the Drawings. The CONTRACTOR shall:
 - 1. Allow for OWNER and ENGINEER occupancy.
 - 2. Keep driveways and entrances clear and clean. Do not use these areas for parking and/or material storage. Schedule deliveries to minimize on-site storage of materials and equipment. On-site storage of materials and equipment shall be limited to areas within the project site.
- B. Coordinate the use of the premises with the ENGINEER.
- C. CONTRACTOR shall assume full responsibility for security of all its and all of its subcontractors stored materials and equipment either on or off-site.
- D. Immediately move any stored items, which interfere with the operations of the OWNER and other contractors as directed by the OWNER.
- E. Obtain and pay for additional storage and/or work areas as needed to complete the Work required by this Contract.

1.07 OWNER OCCUPANCY

- A. The Owner will occupy the site during the entire period of construction.
- B. Cooperate with Owner to minimize conflict, and to facilitate Owner’s operations.
- C. Schedule the Work to accommodate this requirement.

1.08 PROTECTION OF THE OWNER, AGENTS OF THE OWNER, WORKMEN AND THE PUBLIC

The Contractor and the Superintendent are requested to carefully read the Articles of the General Conditions relating to protection of the Owner, agents of the Owner, workmen, and the public, such as Insurance, Indemnity, Licenses, Permits, Compliance with Laws, Ordinances and Regulations, Safety Warning Signs and Barricades, Public Conveniences, Sanitary Provisions, etc. This request is made to stress the importance of safe prosecution of the work, and does not imply that the Contractor and his Superintendent should not be completely familiar with all Articles of the General Conditions and all other provisions of the Contract Documents. Under the terms and Conditions of the Contract, the Engineer shall not be required to act as Safety Engineer or Safety Supervisor since such responsibility remains solely with the Contractor, who, in the prosecution of his work, is bound by the requirements of "Safety and Health Regulations for Construction Occupational Safety and Health Administration, U.S. Government Department of Labor" and other authorities having jurisdiction. It is recommended the Contractor seek the advice of the Safety Inspector for his Insurance Carrier in regard to job safety, and that he observe all precautions and safety provisions as outlined in the "Manual of Accident Prevention in Construction" as published by the Associated General Contractors of America, to the extent that such provisions are not inconsistent with applicable laws or regulations.

PART 2 EQUIPMENT - (NOT USED)

PART 3 EXECUTION - (NOT USED)

END OF SECTION

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

This section contains procedures for measuring work performed by the contractor and subsequent payment of that work. It also contains descriptions related to measurement and payment.

1.02 SECTION INCLUDES

- A. Descriptions
- B. Unit Price Payment Items
- C. Cash Allowances
- D. Testing and Inspection Allowances
- E. Schedule of Values
- F. Application for Payment
- G. Change Procedures
- H. Defect Assessment

1.03 DESCRIPTIONS

- A. The Bid lists each item of the Project for which payment will be made. No payment will be made for any items other than those listed in the Bid.
- B. Required items of work and incidentals necessary for the satisfactory completion of the work which are not specifically listed in the Bid, and which are not specified in this Section to be measured or to be included in one of the items listed in the Bid, shall be considered as incidental to the work. All costs thereof, including Contractor's overhead costs and profit, shall be considered as included in the lump sum or unit prices bid for the various Bid items. The Contractor shall prepare the Bid accordingly.
- C. Work includes furnishing all plant, labor, equipment, tools and materials, which are not furnished by the Owner and performing all operations required to complete the work satisfactorily, in place, as specified and as indicated on the Drawings.
- D. Measurement of an item of work will be by the unit indicated in the Bid.
- E. Final payment quantities shall be determined from in-place quantities. The precision of final payment quantities shall match the precision shown for that item in the Bid.

- F. Payment will include all necessary and incidental related work not specified to be included in any other item of work listed in the Bid.
- G. Unless otherwise stated in individual sections of the Specifications or in the Bid, no separate payment will be made for any item of work, materials, parts, equipment, supplies or related items required to perform and complete the work. The costs for all such items required shall be included in the price bid for item of which it is a part.
- H. Payment of lump sum items shall be based upon progress of the Work as developed through proper updating of the construction Schedule. Estimates of percent complete established by the Engineer and Contractor shall be the basis by which earned value will be calculated and payments will be authorized.
- I. Payment of unit price items will be made by extending unit prices multiplied by quantities provided and then summing the extended prices to reflect actual work. Such price and payment shall constitute full compensation to the Contractor for furnishing all plant, labor, equipment, tools and materials not furnished by the Owner and for performing all operations required to provide to the Owner the entire Project, complete in place, as specified and as indicated on the Drawings.

1.04 UNIT PRICE ITEMS

- 1. General Conditions. Shall include but is not limited to; Payment & Performance Bonds, Builders Risk Insurance, Owners/Contractors Protective Insurance, Workers Comprehensive Insurance, Pre-Construction Photographs & Video, Project Mobilization, Permit Fees, Stake Out Surveying, Schedule of Values, Project Schedule, and Initiation of Shop Drawings.
 - A. Measurement shall be by demonstration to Owner and Engineer that above items have been accomplished.
 - B. Payment shall be in full when measurement has been demonstrated less retainage as required by the contract documents. Amount may not exceed 6% of the total contract amount.
- 2. Inlet Protection, Curb Type (Sd2-P). Shall include, but not limited to, all equipment, materials, and labor required to furnish and install inlet protection as shown in the plans.
 - A. Measurement: The actual number of inlet protection, curb type (SD2-P) installed as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of (SD2-P) installed times the unit price identified in the Bid Schedule.
- 3. Concrete Washout Basin. Shall include, but not limited to, all equipment, materials, and labor required to furnish and install inlet sediment trap as shown in the plans.
 - A. Measurement: The actual number of concrete washout basins installed as directed by the Engineer.

- B. Payment will be made based on multiplying the actual number of concrete washout basins installed times the unit price identified in the Bid Schedule.
- 4. 100' PVC Sewer Service Lateral w/ Cleanout. Shall include, but not limited to, all equipment, materials, and labor required to furnish and install service laterals with cleanouts as shown in the plans.
 - A. Measurement: The actual number of service laterals with cleanouts installed as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of service laterals with cleanouts installed times the unit price identified in the Bid Schedule.
- 5. 8" PVC Gravity Sewer 0-10' Depth. Shall include, but not limited to, all equipment, materials, and labor required to furnish and install 8" PVC Gravity sewer as shown in the plans.
 - A. Measurement: The actual number of linear feet of 8" PVC Gravity sewer installed at a depth of 0-10' as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of linear feet of 8" PVC Gravity Sewer installed at a depth of 0-10' times the unit price identified in the Bid Schedule.
- 6. 8" PVC Gravity Sewer 10-15' Depth. Shall include, but not limited to, all equipment, materials, and labor required to furnish and install 8" PVC Gravity sewer as shown in the plans.
 - A. Measurement: The actual number of linear feet of 8" PVC Gravity sewer installed at a depth of 10-15' as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of linear feet of 8" PVC Gravity Sewer installed at a depth of 10-15' times the unit price identified in the Bid Schedule.
- 7. 4' Diameter Precast Manhole Base 0'-6'. Shall include, but not limited to, all equipment, materials, and labor required to furnish and install 4' Diameter Precast Manhole Base as shown in the plans.
 - A. Measurement: The actual number of 4' Diameter Precast Manhole Base installed as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of 4' Dia Precast Manhole Base installed times the unit price identified in the Bid Schedule.
- 8. 4' Dia Precast Manhole Riser Shall include, but not limited to, all equipment, materials, and labor required to furnish and install 4' Dia Precast Manhole Risers as shown in the plans. This also includes installation of the top riser with lid.

- A. Measurement: The actual number of vertical feet of 4' Dia Precast Manhole Riser installed as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of vertical feet of 4' Dia Precast Manhole Riser installed times the unit price identified in the Bid Schedule.
9. Connect To Existing Sewer. Shall include, but not limited to, all equipment, materials, and labor required to connect to existing sewer as shown in the plans.
- A. Measurement: The actual number of connections installed as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of connections installed times the unit price identified in the Bid Schedule.
10. Clean & Test Gravity Sewer. Shall include, but not limited to, all equipment, materials, and labor required to clean and test the gravity sewer as directed by the Engineer.
- A. Measurement: The actual number of linear feet cleaned & tested as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of linear feet cleaned and tested times the unit price identified in the Bid Schedule.
11. Sawcut and Replace Asphalt Pavement Shall include, but not limited to, all equipment, materials, and labor required to sawcut and replace asphalt pavement as shown in the plans. Also includes disposal of sawcut asphalt.
- A. Measurement: The actual number of square yards of asphalt pavement removed and replaced as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of square yards of asphalt pavement removed and replaced times the unit price identified in the Bid Schedule.
12. Sawcut and Replace Concrete Curb and Gutter. Shall include, but not limited to, all equipment, materials, labor required to furnish & install sawcut and replace concrete curb and gutter as shown in the plans. This includes disposal of sawcut concrete curb and gutter.
- A. Measurement: The actual number of linear feet of Curb & Gutter removed and replaced as directed by the Engineer.
 - B. Payment will be made based on multiplying the actual number of linear feet of Curb & Gutter removed and replaced times the unit price identified in the Bid Schedule.
13. Trench Rock Excavation Allowance. Shall include, but not limited to, all equipment, materials, and labor required to excavate rock found in the trench pipeline as outlined below and shown in the plans.

- A. Rock excavation shall be paid for as an extra in addition to payment for pipe provided for elsewhere in these Specifications. Payment will be made for the measured quantity of rock excavated, at the unit price bid for Rock Excavation.
 - B. The unit price bid for Rock Excavation shall include all costs for rock excavation including the cost of additional bedding and backfill material.
 - C. The maximum allowable volume of rock excavation for payment shall be based on a trench width equal to the outside diameter of the pipe barrel plus 18-inches, but not less than 36-inches, and depth of rock on the pipe centerline, from the top of the rock to the bottom of the rock or the specified bottom of the trench, whichever has the higher elevation.
 - D. The Engineer must be given reasonable notice to measure all rock.
 - E. No allowance shall be made for excavating to extra widths for construction of manholes or other appurtenances, for excavating to sloping sides, or for excavations made necessary by the physical limitations of the Contractor's equipment. Cost of such additional rock excavation shall be included in the unit price bid for the item to which it pertains.
 - F. Payment for blasting monitoring shall be made by the Contractor.
14. Trench Unsuitable Soils Allowance. Shall include, but not limited to, all equipment, materials, and labor required to undercut unsuitable pipe bedding material and stabilize with structural fill.
- A. Measurement. The actual number of cubic yards of unsuitable soil excavation below existing grade at time of construction based on a trench width equal to the outside diameter of the pipe barrel plus 18-inches, but not less than 36-inches, and the depth of the unsuitable soil on trench centerline, from the top of the unsuitable soils to minimum of 2-feet below the bottom of pipe as directed by the soil test and/or Engineer in excess of that required for the construction as shown on the Contract Documents and/or as specified in the Contract Documents, and the placement of stabilization filter fabric and compaction of structural fill material in the excavation of the trench.
 - B. Payment will be made based on multiplying the actual number of cubic yards of excavation times the unit price identified in the Bid Schedule. Payment will include proper disposal of the excavated material by the Contractor, and supply of structural fill material under building foundations.
 - C. The Engineer must be given reasonable notice to measure all unsuitable soil.
15. Traffic Control Shall include all equipment, labor, and incidentals required to install and maintain traffic control devices and conduct traffic control activities during all phases of the project to include provision of a Traffic Control Plan prior to project commencement; implementation of controls to reduce the speed limit in areas where

workers are present or where site conditions create a potential hazard from construction or maintenance activities in accordance with Georgia Law (Code Section 40-6-188); adherence to the Manual on Uniform Traffic Control Devices (MUTCD).

A. Measurement: Shall be in accordance with the accepted Schedule of Values.

B. Payment: Shall be in sections outlined in Schedule of Values.

16. Owner's Testing and Inspection Allowance

A. Costs Included in Testing and Inspecting Allowances:

1. Cost of engaging testing and inspecting agency.
2. Costs of testing services used by Contractor separate from Contract Document requirements.
3. Execution of tests and inspecting.
4. Reporting results.

B. Costs Not Included in Testing and Inspecting Allowance but Included in Contract Sum/Price:

1. Costs of incidental labor and facilities required to assist testing or inspecting agency.
2. Costs of retesting upon failure of previous tests as determined by Architect/Engineer.

C. Payment Procedures:

1. Submit one copy of inspecting or testing firm's invoice with next Application for Payment.
2. Pay invoice upon approval by Engineer.

D. Testing and Inspecting Allowance Schedule:

3. Include sum of \$2,000 for payment of testing laboratory services.

1.05 CASH ALLOWANCES

A. General

1. The Contractor shall include in the Bid Total all allowances stated in the Contract Documents if any. These allowances shall cover the net cost of the services provided by a firm selected by the Owner. The Contractor's handling costs, labor, overhead, profit and other expenses contemplated for the

original allowance shall be included in the items to which they pertain and not in allowances.

2. No payment will be made for nonproductive time on the part of testing personnel due to the Contractor's failure to properly coordinate testing activities with the work schedule or the Contractor's problems with maintaining equipment in good working condition.
 3. No payment shall be provided for services which fail to verify required results.
- B. Should the net cost be more or less than the specified amount of the allowance, the Contract will be adjusted accordingly by change order. The amount of change order will not recognize any changes in handling costs at the site, labor, overhead, profit and other expenses caused by the adjustment to the allowance.
- C. Documentation
1. Submit copies of the invoices with each periodic payment request from the firm providing the services.
 2. Submit results of services provided which verify required results.

1.07 SCHEDULE OF VALUES

- A. Submit printed schedule on EJCDC C-620 or Contractor's standard form or electronic media printout will be considered for this use.
- B. Submit Schedule of Values within 20 days after date established in Notice to Proceed.
- C. Format: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section. Also identify site mobilization, and bonds and insurance.
- D. Include in each line item amount of allowances as specified in this Section. For unit cost allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.
- E. Include within each line item, direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders with each Application for Payment.

1.08 EXISTING CONDITIONS PHOTOGRAPHS AND VIDEO

- A. Contractor shall provide to Owner complete and detailed photographs and video of entire project site, indicating existing site conditions. Contractor to submit with Schedule of Values.

1.09 APPLICATION FOR PAYMENT

- A. For each item, provide a column for listing each of the following:
1. Item Number.
 2. Description of work
 3. Scheduled Values.
 4. Previous Applications.
 5. Work in Place and Stored Material under this Application.
 6. Authorized Change Orders.
 7. Total Completed and Stored to Date of Application.
 8. Percentage of Completion.
 9. Balance to Finish.
 10. Retainage.
 11. Construction Photographs.
- B. Submittal Procedures
1. Submit six (6) copies of each Application for Payment.
 2. Submit and updated construction schedule with each application for Payment.
 3. Payment Period: Submit on the 25th of each month.
 4. Submit with transmittal letter as specified for Submittals in Section 01 33 00.
 5. Submit waivers showing that suppliers and sub-contractors have been paid the amount due from the previous invoice.
 6. The first application will be processed after owner agreement with the construction schedule.
- C. Substantiating Data for Progress Payments
1. When the Engineer requires substantiating data, submit suitable information with a cover letter identifying:
 - a. Project.
 - b. Application for Payment number and date.
 - c. Detailed list of enclosures.
 - d. For stored products:
 - 1) Item number and identification as shown on the Application for Payment.
 - 2) Description of specific material
 - 3) Invoices for stored products
 2. Submit one copy of data and cover letter for each copy of the Application for Payment.

3. Maintain an updated set of drawings to be used as record drawings in accordance with Section 01 70 00. Exhibit the updated record drawings for review by the Engineer.

1.10 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
 1. Use CSI Form 13.2A - Request for Interpretation or Contractor's standard for requesting interpretations.
 2. Engineer may respond with a direct answer on the Request for Interpretation form.
- D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions in Section 00 94 39 Field Order.
- E. Engineer may issue Notice of Change in Section 00 94 49 Work Change Directive including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change. Contractor will prepare and submit estimate within <__7__> days.
- F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation.
- G. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract in Section 00 94 63 Change Order.
- H. Correlation of Contractor Submittals:
 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise sub schedules to adjust times for other items of Work affected by the change, and resubmit.
 3. Promptly enter changes in Record Documents.

1.11 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Engineer and Owner.
- D. Defective Work will be partially repaired according to instructions of Engineer and Owner, and unit sum/price will be adjusted to new sum/price at discretion of Engineer and Owner.
- E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Engineer and Owner to assess defects and identify payment adjustments is final.
- G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contractor coordination requirements.
- B. Preconstruction meeting.
- C. Progress meetings.
- D. Preinstallation meetings.
- E. Closeout meeting.
- F. Alteration procedures.

1.2 CONTRACTOR COORDINATION REQUIREMENTS

- A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, Erosion control measures and sanitary sewer replacement work.
- B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as practical; place runs parallel with lines of building. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
 - 1. Coordination Drawings: Prepare as required to coordinate all portions of Work. Show relationship and integration of different construction elements that require coordination during fabrication or installation to fit in space provided or to function as intended. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are important.
- D. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.
- E. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion.

- F. After Owner's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

1.3 PRECONSTRUCTION MEETING

- A. Owner/Engineer will schedule and preside over meeting after Notice of Award.
- B. Attendance Required: Engineer, Owner, and Contractor.
- C. Minimum Agenda:
 - 1. Owner-Contractor Agreement Review.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of products, schedule of values, and Progress Schedule.
 - 5. Designation of personnel representing parties in Contract.
 - 6. Communication procedures.
 - 7. Procedures and processing of requests for interpretations, field decisions, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
 - 8. Scheduling.
 - 9. Critical Work sequencing.
 - 10. Scheduling activities of testing agencies, utilities verification, etc.
- D. Owner will: Record minutes and email to participants within ten days after meeting.

1.4 PROGRESS MEETINGS

- A. Contractor to schedule and administer meetings throughout progress of the Work at bi-weekly intervals.
- B. Attendance Required: Job superintendent, major Subcontractors, and Engineer, and Owner, as appropriate to agenda topics for each meeting.
- C. Minimum Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems impeding planned progress.
 - 5. Review of submittal schedule and status of submittals.
 - 6. Review of off-Site fabrication and delivery schedules.

7. Maintenance of Progress Schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on Progress Schedule and coordination.
 13. Other business relating to Work.
- D. Contractor will record minutes and email to participants within five days after meeting.

1.5 PREINSTALLATION MEETINGS

- A. When required in individual Specification Sections, convene preinstallation meetings at project site before starting Work of specific Section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific Section.
- C. Notify Engineer Seven days in advance of meeting date.
- D. Prepare agenda and preside over meeting:
 1. Review conditions of installation, preparation, and installation procedures.
 2. Review coordination with related Work.

1.6 CLOSEOUT MEETING

- A. Contractor will schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.
- B. Attendance Required: Contractor, Subcontractors, Engineer, Owner, and others appropriate to agenda.
- C. Notify Engineer Seven days in advance of meeting date.
- D. Minimum Agenda:
 1. Start-up of facilities and systems.
 2. Operations and maintenance manuals.
 3. Testing, adjusting, and balancing.
 4. System demonstration and observation.
 5. Operation and maintenance instructions for Owner's personnel.
 6. Contractor's inspection of Work.

7. Contractor's preparation of an initial "punch list."
 8. Procedure to request Engineer inspection to determine date of Substantial Completion.
 9. Completion time for correcting deficiencies.
 10. Inspections by authorities having jurisdiction.
 11. Certificate of Occupancy and transfer of insurance responsibilities.
 12. Partial release of retainage.
 13. Final cleaning.
 14. Preparation for final inspection.
 15. Closeout Submittals:
 - a. Project record documents.
 - b. Operating and maintenance documents.
 - c. Operating and maintenance materials.
 - d. Affidavits.
 16. Final Application for Payment.
 17. Contractor's demobilization of Site.
 18. Maintenance.
- E. Engineer to record minutes and email to participants within [**five**] days after meeting.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 ALTERATION PROCEDURES

- A. Traffic to be maintained at all times. Cooperate with Owner in scheduling operations to minimize conflict and to permit continuous usage.
 1. Perform Work not to interfere with operations of occupied areas.
 2. Keep utility and service outages to a minimum and perform only after written approval of Owner.
 3. Clean Owner-occupied areas daily. Clean spillage, mud, and heavy collection of dust in Owner-occupied areas immediately.
- B. Materials: As specified in product Sections; match existing products with new products for patching and extending Work.

- C. Employ skilled and experienced installer to perform alteration and renovation Work.
- D. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion. Comply with Section 01 70 00 - Execution and Closeout Requirements.
- E. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Prepare surface and remove surface finishes to permit installation of new Work and finishes.
- H. Remove, cut, and patch Work to minimize damage and to permit restoring products and finishes to original condition.
- I. Where new Work abuts or aligns with existing Work, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Engineer for review.
- K. Finish surfaces as specified in individual product Sections.

END OF SECTION

PART 1 GENERAL

1.01 SCOPE

General procedures and requirements for submittals during the course of construction.

1.02 SECTION INCLUDES

- A. Submittal Procedures.
- B. Construction progress schedules.
- C. Shop drawings.
- D. Product data.
- E. Samples
- F. Miscellaneous Submittals.
- G. Construction photographs / videos.
- H. Resubmission requirements.

1.03 SUBMITTAL PROCEDURES

- A. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix. (Example 1-A, 1-B, etc.)
- B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail number, and specification Section number, as appropriate.
- C. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with the requirements of the work and Contract Documents.
- D. Submit submittal to Engineer.
- E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed work.
- F. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
- G. In scheduling, allow sufficient time for the Engineer's review following the receipt of the submittal.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit 3 copies of initial progress schedule within 20 days after date of Owner-Contractor Agreement established in Notice to Proceed for Engineer review.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- E. Indicate estimated percentage of completion for each item of work at each submission.
- F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery including those furnished by Owner and under Allowances.

1.05 SHOP DRAWINGS

- A. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared. In addition to the number of copies required for return by the contractor submit 5 additional copies for Engineer.
- B. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, specification section, schedule or room numbers shown on the Contract Drawings.
- C. Engineer Review
 - 1. Allow a minimum of 30 days for the Engineer's initial processing of each submittal requiring review and response, except allow longer periods where Shop Drawings, Product Data and Samples processing must be delayed for coordination with subsequent submittals. The Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the Engineer on each submittal as to whether processing time is critical to progress of the Work, and therefore the Work would be expedited if processing time could be foreshortened.
 - 2. Acceptable submittals will be marked "**No Exceptions Taken**". A minimum of five copies will be retained by the Engineer for Engineer's and the Owner's use and the remaining copies will be returned to the Contractor.
 - 3. Submittals requiring minor corrections before the product is acceptable will be marked "**Make Corrections Noted**", The Contractor may order, fabricate and ship the items included in the submittals, provided the indicated

corrections are made. Drawings must be resubmitted for review and marked "No Exceptions Taken" prior to installation or use of products,

4. Submittals marked "**Revise and Resubmit**" must be revised to reflect required changes and the initial review procedure repeated.
 5. The "**Rejected**" notation is used to indicate products which are not Acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial review procedure utilizing acceptable products.
 6. Only two copies of items marked "Revise and Resubmit" and "Rejected" will be reviewed and marked. One copy will be retained by the Engineer and the other copy with all remaining unmarked copies will be returned to the Contractor for resubmittal.
- D. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The Contractor shall maintain at the job site a complete set of shop drawings bearing the Engineer's stamp.
- E Substitutions: In the event the Contractor obtains the Engineer's approval for the use of products other than those which are listed first in the Contract Documents, the Contractor shall, at the Contractor's own expense and using methods approved by the Engineer, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.
- F Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the Contractor of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The Engineer's review shall not relieve the Contractor of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. The Contractor is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

1.06 PRODUCT DATA

- A. Product data includes standard printed information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.
- B. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.

1.07 SAMPLES

- A. Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or, where indicated, for more detailed testing and analysis.
- B. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples, not less than three units, where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where the Engineer's selection is required. Prepare samples to match the Engineer's sample where indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the Engineer. Engineer will note "test" samples, except as otherwise indicated, for other requirements, which are the exclusive responsibility of the Contractor.

1.08 MISCELLANEOUS SUBMITTALS

Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the Work but not processed as shop drawings, product data or samples.

1.09 PROGRESS PHOTOGRAPHS / VIDEOS

- A. Provide photographs and video of entire site depicting existing conditions as indicated in 01 20 00 Price and Payment Procedures.
- B. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to the Engineer and Owner.
- C. Construction Photographs: Take construction photographs prior to each application for payment of the work accomplished for that payment period and as follows:
 - 1. Site clearing.
 - 2. Excavations and installed underground utilities.
 - 3. Foundations/subgrade.
 - 4. Infrastructure installations.
 - 5. Paving
 - 6. Erosion control measures.
 - 7. Equipment installations.

8. Final completion.
- D. Aerial Photographs Not Required.
 1. Provide aerial photographs from four cardinal views at project completion.
 2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
 - E. Deliver photographs with each Application for Payment with transmittal letter specified in this Section. Final completion photographs are to be delivered with request for final payment. Delivery of photographs may be in printed or digital format. If printed, each photograph shall be a minimum of 4-inches by 6-inches in dimension and shall be labeled to describe the photograph subject, location and date. If provided digitally, the photographs shall be provided in JPEG format and accompanied with a PDF format document describing each photograph with subject, location and date.
 - F. Deliver prints with each Application for Payment with transmittal letter specified in this Section. Final prints are to be delivered with request for final payment.

1.10 RESUBMISSION REQUIREMENTS

- A. Shop Drawings
 1. Revise initial drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.
 2. Indicate on drawings all changes which have been made other than those requested by the Engineer.
- B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal with the resubmittal number shown.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Regulatory requirements.
- B. Quality control.
- C. Tolerances.
- D. References standards.
- E. Labeling.
- F. Mock-up requirements.
- G. Manufacturer's field services.

1.02 REGULATORY REQUIREMENTS

- A. Permits: Unless otherwise noted in the bidding documents or specification section 01 10 00 Summary, the Contractor shall, without additional expense to the Owner, be responsible for obtaining all necessary licenses and permits, including building permits, etc.
- B. The contractor shall take proper safety and health precautions to protect the Work, the workers, the public and the property of others.
- C. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the Work.

1.03 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that

Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.04 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.05 REFERENCE STANDARDS

- A. Whenever reference is made to conforming to the standards of any technical society, organization, body, code or standard, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the time of advertisement for Bids. This shall include the furnishing of materials, testing of materials, fabrication and installation practices. In those cases where the Contractor's quality standards establish more stringent quality requirements, the more stringent requirement shall prevail. Such standards are made a part hereof to the extent which is indicated or intended.
- B. The inclusion of an organization under one category does not preclude that organizations' standards from applying to another category
- C. In addition, all work shall comply with the applicable requirements of local codes, utilities and other authorities having jurisdiction.
- D. All material and equipment, for which a UL standard, and AGA or NSF approval or and ASME requirements is established, shall be so approved and labeled or stamped. The label or stamp shall be conspicuous and not covered, painted, or otherwise obscured from visual inspection.
- E. The standards which apply to this Project are not necessarily restricted to those organizations which are listed below.

F. STANDARD ORGANIZATIONS

1. Piping and Valves

ACPA	American Concrete Pipe Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
AWWA	American Water Works Association
CISPI	Cast Iron Soil Pipe Institute

DIPRA Ductile Iron Pipe Research Association
 FCI Fluid Controls Institute
 MSS Manufacturers Standardization Society
 NCWPB National Certified Pipe Welding Bureau
 NCPI National Clay Pipe Institute
 NSF National Sanitation Foundation
 PPI Plastic Pipe Institute
 Uni-Bell PVC Pipe Association

2. Materials

AASHTO American Association of State Highway and Transportation
 Officials
 ANSI American National Standards Institute
 ASTM American Society for Testing and Materials

3. Painting and Surface Preparation

NACE National Association of Corrosion Engineers
 SSPC Steel Structures Painting Council

4. Electrical and Instrumentation

AEIC Association of Edison Illuminating Companies
 AIEE American Institute of Electrical Engineers
 EIA Electronic Industries Association
 ICEA Insulated Cable Engineers Association
 IEEE Institute of Electrical and Electronic Engineers
 IES Illuminating Engineering Society
 IPC Institute of Printed Circuits
 IPCEA Insulated Power Cable Engineers Association
 ISA Instrument Society of America
 NEC National Electric Code
 NEMA National Electrical Manufacturers Association
 NFPA National Fire Protection Association
 TIA Telecommunications Industries Association
 UL Underwriter's Laboratories
 VRCI Variable Resistive Components Institute
 IEC International Electrotechnical Commission
 IESNA Illuminating Engineering Society of North America
 LPI Lighting Protection Institute
 NECA National Electrical Contractors Association
 NETA International Electrical Testing Association

5. Aluminum

AA Aluminum Association
 AAMA American Architectural Manufacturers Association

6. Steel and Concrete

ACI American Concrete Institute

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|----|--|--|
| | AISC | American Institute of Steel Construction, Inc. |
| | AISI | American Iron and Steel Institute |
| | CRSI | Concrete Reinforcing Steel Institute |
| | NRMA | National Ready-Mix Association |
| | PCA | Portland Cement Association |
| | PCI | Prestressed Concrete Institute |
| 7. | Welding | |
| | ASME | American Society of Mechanical Engineers |
| | AWS | American Welding Society |
| 8. | Government and Technical Organizations | |
| | AIA | American Institute of Architects |
| | APHA | American Public Health Association |
| | APWA | American Public Works Association |
| | ASA | American Standards Association |
| | ASAE | American Society of Agricultural Engineers |
| | ASCE | American Society of Civil Engineers |
| | ASQC | American Society of Quality Control |
| | ASSE | American Society of Sanitary Engineers |
| | CFR | Code of Federal Regulations |
| | CSI | Construction Specifications Institute |
| | EDA | Economic Development Administration |
| | EPA | Environmental Protection Agency |
| | FCC | Federal Communications Commission |
| | FmHA | Farmers Home Administration |
| | FS | Federal Specifications |
| | IAI | International Association of Identification |
| | ISEA | Industrial Safety Equipment Association |
| | ISO | International Organization for Standardization |
| | ITE | Institute of Traffic Engineers |
| | NBFU | National Board of Fire Underwriters |
| | NFPA | National Fluid Power Association |
| | NBS | National Bureau of Standards |
| | NISO | National Information Standards Organization |
| | OSHA | Occupational Safety and Health Administration |
| | SI | Salt Institute |
| | SPI | The Society of the Plastics Industry, Inc. |
| | USDC | United States Department of Commerce |
| | WEF | Water Environment Federation |
| 9. | General Building Construction | |
| | AHA | American Hardboard Association |
| | AHAM | Association of Home Appliance Manufacturers |
| | AITC | American Institute of Timber Construction |
| | APA | American Parquet Association, Inc. |
| | APA | American Plywood Association |

BHMA	Builders Hardware Manufacturers Association
BIFMA	Business and Institutional Furniture Manufacturers Association
DHI	Door and Hardware Institute
FM	Factory Mutual Fire Insurance Company
HPMA	Hardwood Plywood Manufacturers Association
HTI	Hand Tools Institute
IME	Institute of Makers of Explosives
ISNATA	International Staple, Nail and Tool Association
ISDSI	Insulated Steel Door Systems Institute
IWS	Insect Screening Weavers Association
MBMA	Metal Building Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers
NAGDM	National Association of Garage Door Manufacturers
NCCLS	National Committee for Clinical Laboratory Standards
NFPA	National Fire Protection Association
NFSA	National Fertilizer Solutions Association
NKCA	National Kitchen Cabinet Association
NWMA	National Woodwork Manufacturers Association
NWWDA	National Wood Window and Door Association
RMA	Rubber Manufacturers Association
SBC	SBCCI Standard Building Code
SDI	Steel Door Institute
SIA	Scaffold Industry Association
SMA	Screen Manufacturers Association
SPRI	Single-Ply Roofing Institute
TCA	Tile Council of America
UBC	Uniform Building Code
10.	Roadways
AREA	American Railway Engineering Association
DOT	Department of Transportation
SSRBC	Standard Specifications for Road and Bridge Construction, Georgia Department of Transportation
11.	Plumbing
AGA	American Gas Association
NSF	National Sanitation Foundation
PDI	Plumbing Drainage Institute
SPC	SBCCI Standard Plumbing Code
12.	Refrigeration, Heating, and Air Conditioning
AMCA	Air Movement and Control Association
ARI	American Refrigeration Institute
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers

CGA	Compressed Gas Association
CTI	Cooling Tower Institute
HEI	Heat Exchange Institute
IAR	International Institute of Ammonia Refrigeration
NB	National Board of Boilers and Pressure Vessel Inspectors
PFMA	Power Fan Manufacturers Association
SAE	Society of Automotive Engineers
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SMC	SBCCI Standard Mechanical Code
TEMA	Tubular Exchangers Manufacturers Association

13. Equipment

AFBMA	Anti-Friction Bearing Manufacturers Association, Inc.
AGMA	American Gear Manufacturers Association
ALI	Automotive Lift Institute
CEMA	Conveyor Equipment Manufacturers Association
CMAA	Crane Manufacturers Association of America
DEMA	Diesel Engine Manufacturers Association
MMA	Monorail Manufacturers Association
OPEI	Outdoor Power Equipment Institute, Inc.
PTI	Power Tool Institute, Inc.
RIA	Robotic Industries Association
SAMA	Scientific Apparatus Makers Association

1.06 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by 5applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 1. Model number.
 2. Serial number.
 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.07 MOCK-UP REQUIREMENTS

- A. Tests will be performed under provisions identified in this Section and identified in individual product Specification Sections.
- B. Assemble and erect specified or indicated items with specified or indicated

attachment and anchorage devices, flashings, seals, and finishes.

- C. Accepted mockups shall be comparison standard for remaining Work.
- D. Where mockup has been accepted by Engineer and is specified in product Specification Sections to be removed, remove mockup and clear area when directed to do so by Architect/Engineer.

1.08 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting, and balancing of equipment, commissioning, etc. as applicable, and to initiate instructions when necessary.
- B. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 SCOPE

- A. This Section includes testing which the Owner may require, beyond that testing required of the manufacturer, to determine if materials provided for the Project meet the requirements of these Specifications.
- B. This work also includes all testing required by the Owner to verify work performed by the Contractor is in accordance with the requirements of these Specifications, i.e., concrete strength and slump testing, soil compaction, etc.
- C. This work does not include materials testing required in various sections of these Specifications to be performed by the manufacturer, e.g., testing of pipe.

1.02 SECTION INCLUDES

- A. Selection of Testing Laboratory.
- B. Laboratory Duties.
- C. Payment for Testing Services.
- D. Contractor Responsibilities.
- E. Schedules for Testing.
- F. Transporting Samples.

1.03 SELECTION OF TESTING LABORATORY

The testing laboratory or laboratories will be selected by the owner. The testing laboratory or laboratories will work for the owner.

1.04 LABORATORY DUTIES

- A. Cooperate with the Owner, Engineer and Contractor.
- B. Provide qualified personnel promptly on notice.
- C. Perform specified inspections, sampling and testing of materials.
 - 1. Comply with specified standards, ASTM, other recognized authorities, and as specified.
 - 2. Ascertain compliance with requirements of the Contract Documents.
- D. Promptly notify the Engineer and Contractor of irregularity or deficiency of work

which are observed during performance of services.

- E. Promptly submit three copies (two copies to the Engineer and one copy to the Contractor) of report of inspections and tests in addition to those additional copies required by the Contractor with the following information included:
 - 1. Date issued
 - 2. Project title and number
 - 3. Testing laboratory name and address
 - 4. Name and signature of inspector
 - 5. Date of inspection or sampling
 - 6. Record of temperature and weather
 - 7. Date of test
 - 8. Identification of product and Specification section
 - 9. Location of Project
 - 10. Type of inspection or test
 - 11. Results of test
 - 12. Observations regarding compliance with the Contract Documents
- F. Perform additional services as required.
- G. The laboratory is not authorized to release, revoke, alter or enlarge on requirements of the Contract Documents, or approve or accept any portion of the Work.

1.05 PAYMENT FOR TESTING SERVICES

- A. The cost of testing services required by the Contract shall be paid for by the Owner. This includes concrete, soil, and asphalt. This cost may or may not be provided for as an allowance in the Bid Schedule.
- B. The cost of additional testing services not specifically required in the Specifications, but requested by the Owner or Engineer, shall be paid for by the Owner.
- C. The cost of material testing described in various sections of these Specifications or as required in referenced standards to be provided by a material manufacturer, shall be included in the price bid for that item and shall not be paid for by the Owner.
- D. The cost of retesting any item that fails to meet the requirements of these Specifications shall be paid for by the Contractor. Retesting shall be performed by the testing laboratory working for the Owner.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Contractor will be furnished contact information for the selected laboratory. Contractor will be required to schedule ALL testing.
- B. Cooperate with laboratory personnel, provide access to Work and/or manufacturer's requirements.
- C. Provide to the laboratory, representative samples, in required quantities, of materials to be tested.
- D. Furnish copies of mill test reports.
- E. Furnish required labor and facilities to:
 - 1. Provide access to Work to be tested;
 - 2. Obtain and handle samples at the site (if certified to do so);
 - 3. Facilitate inspections and tests;
 - 4. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.
- F. Notify the laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.
- G. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory agency, the sample(s) shall be selected by such laboratory or agency, or the Engineer, and shipped to the laboratory by the Contractor at Contractor's expense.
- H. Copies of all correspondence between the Contractor and testing agencies shall be provided to the Engineer.
- I. If the Contractor disagrees with the approved Engineers testing agency's methods or results during an onsite test, the Contractor may have another testing agency conduct an independent evaluation at the Contractor's expense. After an independent evaluation is performed, the contractor will submit their results to the engineer for review.

1.07 SCHEDULES FOR TESTING

- A. Establishing Schedule
 - 1. The Contractor shall, by advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings, and make all arrangements for the testing laboratory to be on site to provide the required testing.
 - 2. Provide all required time within the construction schedule.
- B. When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.

- C. When the testing laboratory is ready to test according to the determined schedule, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra costs for testing attributable to the delay will be back-charged to the Contractor and shall not be borne by the Owner.

1.08 TRANSPORTING SAMPLES

The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. CONTRACTOR shall furnish all materials, equipment and labor for the installation and continuous maintenance of traffic control devices throughout the project.
- B. This item of work shall include furnishing, installing, maintaining, relocating and removing all traffic control devices used to regulate, warn or direct traffic and pedestrians, if necessary, through the construction work zone.
- C. Upon completion of work, warning devices are to be removed by the CONTRACTOR.

1.02 SAFETY

- A. The CONTRACTOR shall furnish sufficient flaggers, signs, warning lights, channelization devices and other safety devices as may be necessary to properly protect, warn and safeguard the traveling public and protect onsite construction workers.
- B. No work shall be started on any phase of the project until all appropriate traffic control devices are in place and in operation.
- C. CONTRACTOR is to take all practical precautions needed to maintain traffic flow, and provide safety for workers and the general public.
- D. The contractor is to immediately clear the roadway of all dirt and debris to maintain safe travel lanes.
- E. When not relevant to the current phase of construction, traffic control devices shall be removed or covered so as not to be visible to traffic.

1.03 REFERENCES

- A. Manual for Uniform Traffic Control Devices (MUTCD) (current edition).
- B. Georgia Department of Transportation (Georgia DOT) Special Provisions Section 150.
- C. Georgia Department of Transportation (Georgia DOT) Construction Standards and Details (current edition).
- D. The Plans.
- E. Applicable Supplemental Specifications.

- F. Project Specifications.

PART 2 PRODUCTS

2.01 TRAFFIC CONTROL DEVICES

- A. Traffic Control Devices include, but are not limited to: signs and their supports, signals, pavement markings, barricades, channelizing devices, warning lights, arrowboards, flaggers, or any other device used for the purpose of regulating, warning or guiding traffic through the construction zone.
- B. All Traffic Control Devices used on this project shall conform to the plans, Georgia DOT specifications, and the MUTCD.
- C. Traffic Control Devices shall be in proper, acceptable condition when in use. Devices which are unclear, excessively weathered, damaged, or not correctly positioned shall be promptly restored to fully operational condition.

PART 3 EXECUTION

3.01 PLAN AND EXECUTION

- A. CONTRACTOR is responsible for preparing his/her own traffic control plan and instituting the plan in compliance with all applicable Georgia DOT requirements.
- B. The CONTRACTOR shall be responsible for the proper location, installation, and arrangement of all traffic control devices and the use of traffic flaggers.
- C. The contractor shall verify that construction warning signs, channeling devices and other devices guiding traffic are in agreement with the actual conditions in existence at any given time. Devices which are inconsistent or not applicable with current conditions shall be covered or removed. The purpose of this provision is to make sure that clear, correct and concise information is being provided to vehicular traffic without any conflicting information.
- D. Construction signs referring to flagmen ahead or daytime lane closures during working hours shall be removed or covered during non-working hours.
- E. The CONTRACTOR shall ensure all Traffic Control Devices are operational and visible 24 hours a day in all weather conditions. Provide additional inspections at regular intervals.
- F. When traveling in lanes open to public traffic, the contractor's vehicles shall always move with and not against or across the flow of traffic. These vehicles shall enter or leave work areas in a manner which will not be hazardous to, or interfere with, traffic and shall not park or stop except within designated work areas. Personal vehicles shall not park within the right of way except in specific areas designated by the CITY.

- G. Access shall be maintained at all times to individual parcels of property unless alternative arrangements have been agreed to in writing with the owner/tenant.
- H. **Flaggers** shall be provided by the contractor as required to coordinate traffic flow. All traffic flaggers shall be certified from a Georgia DOT approved training program and shall have their certification card with them whenever they are providing flagging services. In addition to being certified, it is the contractor's responsibility to verify that flaggers are sufficiently experienced to handle traffic flagging under specific traffic conditions.
- I. The CONTRACTOR shall arrange his operation to keep lane closures and other major traffic interruptions to an absolute minimum. Efforts should be made to avoid scheduling work that substantially impacts traffic flow in peak-hour volume times.
- J. Pedestrian considerations - All existing pedestrian facilities, including access to transit stops, shall be maintained. Where pedestrian routes are closed, alternate routes shall be provided.
- K. Worksite Traffic Control Supervisor - The Contractor shall designate a qualified individual as the Worksite Traffic Control Supervisor (WTCS) who shall be responsible for administering traffic control provisions. The Worksite Traffic Control Supervisor (WTCS) shall meet the requirements set forth in the Georgia DOT Special Provision Section 150.
- L. Traffic Interruption Reports (TIR) are required to be filed with the Georgia DOT for all work that could potentially impact traffic flow on state roads. The report shall be filed by the contractor and must describe current and planned road closures, emergency road closures, and other road conditions including, but not limited to, travel lane closures, shoulder closures, traffic paces, and/or moving operations.
- M. Traffic control devices and warning signs should be documented with video recordings as soon after installation as practicable and again after each major staging change to document the changes.
- N. When any provisions of this Specification or the Plans do not meet the minimum requirements of the MUTCD, the MUTCD shall control.

END OF SECTION

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Field engineering.
- B. Closeout procedures.
- C. Starting of systems.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Spare parts and maintenance products.
- G. Product warranties and product bonds.
- H. Examination.
- I. Execution.
- J. Cutting and patching.
- K. Protecting installed construction.
- L. Final cleaning.

1.2 FIELD ENGINEERING

- A. Construction staking shall include all of the surveying work required to layout the work and control the location of the finished Project. The Contractor shall have the full responsibility for constructing the Project to the correct horizontal and vertical alignment, as shown on the Drawings, as specified, or as ordered by the Owner. The Contractor shall assume all costs associated with rectifying work constructed in the wrong location.
- B. Owner will locate and Contractor shall protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- C. Control datum for survey is established by Owner-provided survey indicated on Drawings.
- D. Prior to beginning Work, verify and establish elevations of existing facilities to ensure that new Work will meet existing elevations in smooth and level alignment except where specifically detailed or indicated otherwise.
- E. Verify setbacks and easements; confirm Drawing dimensions and elevations.

- F. Provide field engineering services. Establish elevations, lines, and levels using recognized engineering survey practices.
- G. Maintain complete and accurate log of control and survey Work as Work progresses.
- H. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.
- I. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- J. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.3 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
 - 1. Submit maintenance manuals, Project record documents, digital images of construction photographs, videos made during construction, and other similar final record data in compliance with this Section.
 - 2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.
 - 3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
 - 4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
 - 5. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
 - 6. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
 - 7. Perform final cleaning according to this Section.
- B. Substantial Completion Inspection:
 - 1. When Contractor considers Work to be substantially complete, submit to Engineer and/or Owner:

- a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
 2. Within **[seven]** days after receipt of request for Substantial Completion, Engineer and/or Owner will make inspection to determine whether Work or designated portion is substantially complete.
 3. Should Engineer and/or Owner determine that Work is not substantially complete:
 - a. Engineer and/or Owner will promptly notify Contractor in writing, stating reasons for its opinion.
 - b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Engineer and/or Owner.
 - c. Engineer and/or Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's and/or Owner's inspection.
 4. When Engineer and/or Owner finds that Work is substantially complete, Engineer and/or Owner will:
 - a. Prepare Certificate of Substantial Completion on **[EJCDC C-625 - Certificate of Substantial Completion]** <_____>, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Engineer and Owner (final punch list).
 - b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
 5. After Work is substantially complete, Contractor shall:
 - a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - b. Complete Work listed for completion or correction within time period stipulated.
 6. Owner will occupy all of the Work as specified in Section 01 10 00 - Summary.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
 1. When Contractor considers Work to be complete, submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been examined for compliance with Contract Documents.

- c. Work has been completed according to Contract Documents.
 - d. Work is completed and ready for final inspection.
2. Submittals: Submit following:
- a. Final punch list indicating all items have been completed or corrected.
 - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 - d. Accounting statement for final changes to Contract Sum.
 - e. Operating and maintenance data, instructions to Owner's personnel: according to this Section.
 - f. Spare Parts and Maintenance Materials: according to this Section.
 - g. Record Drawings with annotations made by the contractor during construction of the work, and including As-Built coordinates and elevations on all structures, pipe inverts and key locations as required by Engineer.
 - h. The Contractor shall furnish the Owner with certified copies of paid invoices (or other proof) indicating Georgia Sales Tax paid on items for which the Owner is eligible for tax refunds. Tax refunded will be to the Owner, with none credited to the Contractor.
 - i. Retainage will not be paid until the above documents have been submitted and are satisfactory and acceptable to the Owner.
 - j. Contractor's affidavit of payment of debts and claims per Section 00 65 19.
 - k. Contractor affidavit of release of liens per Section 00 65 20.
 - l. Consent of surety to final payment per Section 00 65 21.
3. Perform final cleaning for Contractor-soiled areas according to this Section.

D. Final Completion Inspection:

- 1. Within **seven** days after receipt of request for final inspection, Engineer and/or Owner will make inspection to determine whether Work or designated portion is complete.
- 2. Should Engineer and/or Owner consider Work to be incomplete or defective:

- a. Engineer and/or Owner will promptly notify Contractor in writing, listing incomplete or defective Work.
 - b. Contractor shall remedy stated deficiencies and send second written request to Engineer and/or Owner that Work is complete.
 - c. Engineer and/or Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Rochester & PTC WASA's inspection.
3. Final Payment: Upon Final Completion of the Work in accordance with the Contract Documents, the Contractor will be authorized to prepare a final estimate of the work and a Final Payment request. The Engineer will review the final payment request and will, if all items are satisfactory, recommend approval to the Owner. The Engineer will submit to the Owner the final estimate and the final payment request, together with a certification stating that the work is complete and in substantial conformance with these Contract Documents. The entire balance found to be due the Contractor including any retainages, except such sums as may be lawfully retained by the Owner, will be paid to the Contractor.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for startup of various equipment and systems.
- B. Notify Engineer and/or Owner **seven** days prior to startup of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute startup under supervision of manufacturer's representative or Contractors' personnel according to manufacturer's instructions.
- G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.
- H. Submit a written report according to Section 01 33 00 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, product data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates used.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings: Legibly mark each item to record actual construction as follows:
 - 1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 - 2. Include locations of concealed elements of the Work.
 - 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 - 4. Identify and locate existing buried or concealed items encountered during Project.
 - 5. Field changes of dimension and detail.
 - 6. Details not on original Drawings.
- G. Submit marked-up paper copy documents to Engineer with claim for final Application for Payment.
- H. Submit PDF electronic files of marked-up documents to Engineer with claim for final Application for Payment.

1.6 OPERATION AND MAINTENANCE DATA

- A. Submit in PDF composite electronic indexed file.

- B. Submit data bound in 8-1/2 x 11-inch text pages, three D side ring binders with durable covers.
- C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project, and subject matter of binder when multiple binders are required.
- D. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- F. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - g. Safety precautions to be taken when operating and maintaining or working near equipment.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Shop Drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Copies of warranties and bonds.

1.7 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.

1.8 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.
- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include table of contents and assemble in three D side ring binder with durable cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within [ten] days after acceptance.
 - 2. Make other submittals within [ten] days after date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within [ten] days after acceptance, listing date of acceptance as beginning of warranty or bond period.
- H. The Contractor shall warrant and guarantee for a period of one year from the date of Substantial Completion of the Work, that the completed Work is free from all defects due to faulty products or workmanship. The Contractor shall promptly make such corrections as may be necessary by reason of such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect throughout the warranty period.
- I. The Contractor shall not be obligated to make replacements which become necessary because of ordinary wear and tear, or as a result of gross negligence operation or maintenance, or as a result of improper work or damage by another Contractor or the Owner, or to perform any work which is normally performed by a maintenance crew during operation.
- J. The Contractor shall, at Contractor's own expense, furnish all labor, materials, tools and equipment required and shall make such repairs and removals and shall perform such work or reconstruction as may be made necessary by any structural or functional defect or failure resulting from neglect, faulty workmanship or faulty materials, in any part of the Work performed by the Contractor. Such repair shall also include refilling of trenches, excavations or embankments which show settlement or erosion after backfilling or placement.

- K. Except as noted on the Drawings or as specified, all structures such as embankments and fences shall be returned to their original condition prior to the completion of the Contract. Any and all damage to any facility not designated for removal, resulting from the Contractor's operations, shall be promptly repaired by the Contractor at no cost to the Owner.
- L. The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for a period of one year from the date of Substantial Completion. In the event the repairs and maintenance are not made immediately and it becomes necessary for the owner of the road to make such repairs, the Contractor shall reimburse the owner of the road for the cost of such repairs.
- M. In the event the Contractor fails to proceed to remedy the defects upon notification within 15 days of the date of such notice, the Owner reserves the right to cause the required materials to be procured and the work to be done, and to hold the Contractor and the sureties on Contractor's bond liable for the cost and expense thereof.
- N. Notice to Contractor for repairs and reconstruction will be made in the form of a registered letter addressed to the Contractor at Contractor's home office.
- O. Neither the foregoing paragraphs nor any provision in the Contract Documents, nor any special guarantee time limit implies any limitation of the Contractor's liability within the law of the place of construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
- E. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
 - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- F. Adjust operating products and equipment to ensure smooth and unhindered operation.
- G. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.4 CUTTING AND PATCHING

- A. Employ skilled installers to perform cutting and patching.
- B. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and nonconforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- C. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.
- D. Cut masonry and concrete materials using masonry saw or core drill.
- E. Restore Work with new products according to requirements of Contract Documents.

- F. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
- G. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
- H. Identify hazardous substances or conditions exposed during the Work to Engineer for decision or remedy.

3.5 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- D. Prohibit traffic from landscaped areas.

3.6 FINAL CLEANING

- A. In addition to the standards described in this Section, comply with all pertinent requirements of governmental agencies having Jurisdiction.
- B. The Contractor shall handle hazardous waste and materials in accordance with applicable local, state, and federal regulations. Waste shall also be disposed of in approved landfills as applicable.
- C. Burning or burying rubbish and waste materials on the site shall not be allowed.
- D. Disposal of hazardous wastes or materials into sanitary or storm sewers shall not be allowed.
- E. Unless otherwise shown on the Drawings, specified or directed, the Contractor shall legally dispose off the site all surplus materials and equipment from demolition and shall provide suitable off-site disposal site, or utilize a site designated by the Owner.
- F. At least each week, and more often if necessary, completely remove all scrap, debris and waste material from the job site.
- G. Hose down all paved areas on the site and all public sidewalks directly adjacent to the site; rake clean other surfaces of the grounds. Completely remove all resultant debris.
- H. Cleanup all evidence of temporary construction facilities, haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other evidence of construction, as directed by the Engineer.

- E. Any landscape feature damaged by the Contractor shall be restored as nearly as possible to its original condition at the Contractor's expense. The Engineer will decide what method of restoration shall be used.
- J. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning of the occupied spaces shall remain with the Contractor.

END OF SECTION

Peachtree City Water and Sewerage Authority Standards and Specifications

Appendices

- A Standard Details
- B Standard Forms
- C Supervisory Control and Data Acquisition (SCADA) Specifications

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

Section 1

Policies and Procedures

SECTION 1 - POLICIES AND PROCEDURES

1.1 General Provisions

1.1.1 Authority and Title

1.1.1.1 Authority

These Standards and Specifications are adopted by the Peachtree City Water and Sewerage Authority under the authority of the Constitution of the State of Georgia.

1.1.1.2 Title

These regulations shall be known as “Peachtree City Water and Sewerage Authority Standards and Specifications,” and may be referred to generally as “Standards and Specifications.”

1.1.2 Purpose and Intent

The purpose of this document is to set forth the policies, procedures, design requirements, material requirements, and construction requirements of the Peachtree City Water and Sewerage Authority for the design, installation, and construction of sanitary sewerage systems. It is intended that these Standards and Specifications will provide guidance for the design of sanitary sewerage systems and will protect and promote the health, safety, and welfare of the general public as it relates to sanitary sewerage systems.

1.1.3 Variance

Any variance from these Standards and Specifications shall be approved in writing by the Peachtree City Water and Sewerage Authority.

1.1.4 Amendments and Revisions

The Peachtree City Water and Sewerage Authority shall amend and/or revise these “Standards and Specifications” whenever it is determined to be necessary in order to improve the performance and integrity of the sanitary sewerage systems.

Peachtree City Water and Sewerage Authority Standards and Specifications

Section 1

Policies and Procedures

1.2 Definitions

ACI – American Concrete Institute

ANSI – American National Standards Institute

ASTM – American Society for Testing and Materials

AWWA – American Water Works Association

Contractor – Any individual, firm, or corporation with whom a contract is made by the developer or the PCWASA for the purpose of constructing the sanitary sewerage systems described herein.

Developer – Any individual, firm, or corporation who contracts with a contractor to construct a sanitary sewerage system.

Developer Engineer – The engineer or land surveyor who is hired by the Developer and is in responsible charge of the sanitary sewerage system design. Developer's engineer or land surveyor shall be licensed by the Georgia State Board of Registration for Professional Engineers and Land Surveyors.

DIP – Ductile Iron Pipe

DIPRA – Ductile Iron Pipe Research Association

Domestic Wastewater – Wastewater from sanitary fixtures such as toilets and urinals.

Food Service Facility – Any facility which cuts, cooks, bakes, prepares, or serves food, or which disposes of food related wastes.

GIS – Geographic Information System

GPD – Gallons per day

GPM – Gallons per minute

Grease – A material composed primarily of fats, oil, and grease from animal or vegetable sources. The terms fats, oil, and grease shall be deemed as Grease by definition. Grease may also include petroleum based products.

HDPE – High density polyethylene

PCWASA – Peachtree City Water and Sewerage Authority

PCWASA Engineer – The Peachtree City Water and Sewerage Authority's engineer or authorized representative.

PCF – Pounds per cubic foot

PSI – Pounds per square inch

PVC – Polyvinyl chloride

Sanitary Sewer Lateral – A pipe that extends from a sanitary sewer main to the public street right-of-way or easement for the purpose of providing sewer service to a parcel.

Sanitary Sewer Main – A gravity sewer line which has one or more sanitary sewer laterals connected to it.

SCADA – Supervisory Control and Data Acquisition System

Peachtree City Water and Sewerage Authority Standards and Specifications

Section 1

Policies and Procedures

1.3 General Sanitary Sewerage System Requirements

1.3.1 Sanitary Sewer Requirements

Sanitary sewers are required for all new single family, multi-family, commercial, institutional, and industrial developments where sanitary sewerage service is available. Sanitary sewerage service shall be considered “available” when a gravity sewer runs within 100-feet of the property line. An exception to this requirement is for single family homes constructed on lots 1-acre and larger which may utilize septic tanks if approved by the Peachtree City Planning Department and the Fayette County Health Department.

1.3.2 Sewer Availability

Prior to preparing and submitting construction plans for a sanitary sewerage system, the Developer/Owner shall notify the PCWASA of the proposed development. One or more meetings, as required, shall be conducted with PCWASA to determine if there is sewer availability for the proposed development. A proposed development that would cause the existing sanitary sewerage system to exceed PCWASA or Georgia EPD limits, or would adversely affect the system, will not be connected to the PCWASA sanitary sewerage system.

Information that shall be submitted to the PCWASA when inquiring about sewer availability includes the following.

- A Letter of Intent that clearly states the proposed use of the development and the estimated time period for construction.
- A Preliminary Site Plan that clearly presents the following minimum information.
 - Location of proposed development (identify all adjacent roads that will be used to access proposed development).
 - Overall size of proposed development.
 - Land Lot(s) and District(s) that the proposed development is located in.
 - Current and proposed zoning classification.
 - Proposed lot layout (identify total number of proposed lots).
 - Topography
 - Show existing sanitary sewer line sizes and locations. If an extension of the sanitary sewerage system is required, a preliminary route of the proposed extension shall be provided. Preliminary profiles of a proposed sanitary sewer extension may be required.
 - Preliminary Site Plan shall be dated and the date shall correspond with the submittal to the County or City.
 - A statement of whether or not the property is located within a protected watershed as defined by the Peachtree City Code of Ordinances and/or the Fayette County Watershed Protection Ordinance.
 - If the property is located within a protected watershed, include proposed minimum lot sizes, estimate of impervious surface area, required stream buffers, and statement of whether or not the property is within the Water Quality Critical area.
- Any additional information that the PCWASA Engineer determines is necessary in order to determine sewer availability.

If it is determined that sewer capacity is available, a Sewer Availability Letter will be issued. Sewer Availability Letters are valid for twelve (12) months. If no development activity commences within twelve (12) months after issuance of the Sewer Availability Letter, the letter shall become invalid and the applicant shall be required to submit a new application. If the applicant is unable to commence development within twelve (12) months of the issuance of the Sewer Availability Letter, a one-time

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Section 1

Policies and Procedures

extension of six (6) months may be considered by the PCWASA. The request for extension must be in writing and must be received prior to the expiration of the original Sewer Availability Letter.

1.3.3 Sewer Responsibility

It shall be the responsibility of the Developer/Owner of the structure or structures being connected to the PCWASA sanitary sewer system to determine the elevation, grade, and alignment of sanitary sewer lines necessary to serve the structure(s) prior to constructing the structure, and to design and construct the connecting sewer in accordance with these Standards and Specifications.

1.3.4 Dry Sewers

Dry sewers shall be required for all new developments which sanitary sewer service is not currently available, but which is projected by the PCWASA to be available within 10 years from the date of application. If sanitary sewer service is not projected to be available within 10 years, the Developer/Owner shall provide an easement for future installation of sanitary sewer lines.

1.3.5 Underground Power

Where underground power service is present or proposed to be installed, the PCWASA reserves the right not to approve plans and specifications until the plans have been approved, in writing, by the power company.

1.3.6 Grease Traps and Sand Traps

All commercial food service facilities shall have a grease trap. All wastewater shall pass through the grease trap prior to being discharged in to the PCWASA sanitary sewerage system.

All dischargers whose wastewater contains large quantities of grit, sand and/or gravel shall have a sand trap. All wastewater shall pass through the sand trap prior to being discharged into the PCWASA sanitary sewerage system. The PCWASA Engineer will determine when a sand trap is required.

All car/truck wash systems shall have a sand trap. All wastewater shall pass through the sand trap prior to being discharged into the PCWASA sanitary sewerage system.

Commercial facilities such as hair salons and pet washing/grooming (inclusive of pet salons, veterinarian clinics, animal shelters, etc.) facilities shall (or may) be required to install an indoor (above floor or underneath slab) grease trap or outside grease interceptor whose wastewater contains grease.

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

Section 1

Policies and Procedures

Addendum (January 8, 2019)

Commercial facilities such as hair salons and pet washing/grooming (inclusive of pet salons, veterinarian clinics, animal shelters, etc.) facilities shall (or may) be required to install an indoor (above floor or underneath slab) grease trap or outside grease interceptor whose wastewater contains grease.

Peachtree City Water and Sewerage Authority Standards and Specifications

Section 1

Policies and Procedures

1.4 Plan Review and Approval Process

1.4.1 General

PCWASA only approves plans and specifications for the design and construction of the sanitary sewerage system portion of a development project. The Developer/Owner is responsible for obtaining all other required approvals and permits from other agencies prior to beginning construction.

Plan approval by the PCWASA Engineer does not relieve the Developer/Owner of his responsibility to comply with all applicable laws and regulations.

1.4.2 Plan Preparation

1.4.2.1 General

All sanitary sewerage system designs and plans shall conform to these standards and specifications.

1.4.2.2 Licensed Professionals

All sanitary sewerage system design and plan preparation shall be performed by a professional engineer who is knowledgeable in the design of sanitary sewage systems and who is licensed by the Georgia State Board of Registration for Professional Engineers and Land Surveyors.

Likewise, all structural, electrical, etc. design and plan preparation shall be performed by a professional engineer who is knowledgeable in the particular discipline and who is licensed by the Georgia State Board of Registration for Professional Engineers and Land Surveyors.

1.4.2.3 Reference Documents and Standards

The design of all sanitary sewerage systems shall conform to the Peachtree City Water and Sewerage Authority Standards and Specification and the following standards.

- American Concrete Institute (ACI) Standards, latest editions
- American National Standards Institute (ANSI) Standards, latest editions
- American Society for Testing and Materials (ASTM) Standards, latest editions
- American Water Works Association (AWWA) Standards, latest editions
- Georgia Department of Transportation (GDOT) Standard Specifications, latest editions
- *Recommended Standards for Wastewater Facilities, latest edition*, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers
- *Utility Accommodation Policy and Standards, latest edition*, Georgia Department of Transportation

When standards conflict with one another, the PCWASA Engineer shall determine the applicable standard.

1.4.2.4 CAD Requirements

PCWASA requires that Record Drawings be submitted prior to final acceptance of the sanitary sewerage system. Record Drawings shall be submitted on an external drive, flash drive, etc. and shall be in AutoCAD (.dwg), ESRI shapefile (.shp), and portable document (.pdf) formats.

1.4.2.5 Plan Requirements

Engineering plans shall be prepared on 22"x34" or 24"x36" sheets of paper.

All drawings shall be sealed and signed by a design professional licensed by the Georgia State Board of Registration for Professional Engineers and Land Surveyors.

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

Section 1

Policies and Procedures

Engineering plans shall contain the following drawings and information as applicable.

- Cover Sheet
 - Show project name
 - Show location map with street names, north arrow, and scale (minimum scale shall be 1" = 2000')
 - Show Developer/Owner's name, address, and telephone number
 - Show engineer's name, address, and telephone number
 - Show name and telephone number of a 24-hour contact person
 - State land lot number(s) and district number(s) of proposed development location
 - Georgia 811 logo
- Overall Site Plan Sheet(s)
 - Show north arrow and scale (minimum scale shall be 1" = 500')
 - Show property lines with bearings and distances
 - Show land lot lines and district lines
 - Show any jurisdictional (city or county) boundary lines
 - Show names of adjacent property owners
 - Show all existing and proposed structures, roads, etc.
 - Show all roads adjacent to and within proposed development
 - Show all streams, lakes, and wetland areas
 - Show all State waters located within 200 feet of the project site
 - Show all undisturbed buffers
 - Show a minimum of two (2) benchmarks referenced to the Georgia State Plain coordinate system for horizontal and vertical control
 - State the total acreage of the development
 - State the total disturbed acreage
 - State the acreage of contributing drainage basins to the proposed development
 - State the total number of lots or units in the proposed development
 - State the coordinate system that the design is referenced to
 - Georgia 811 logo
 - Table that identifies each lateral, its length, and its station
 - Table that identifies each manhole, its station, and the interior angle of the sewer passing through the manhole
 - Table that shows a tabulation of linear footage of sanitary sewers by size, number of manholes, and other items
- Grading Plan Sheet(s)
 - Show north arrow and scale (minimum scale shall be 1" = 50')
 - Show existing topography (in gray scale) and proposed topography with contour intervals in accordance with the following.

Ground Slope	Contour Interval
Flat (0% to 2%)	0.5 foot or 1 foot
Rolling (2% to 8%)	1 foot or 2 foot
Steep (greater than 8%)	2 foot, 5 foot, or 10 foot

- Show existing and proposed spot elevations as required
- Show clearing limits
- Georgia 811 logo

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- Sanitary Sewer System Plan Sheet(s)
 - Show north arrow and scale
 - Show proposed sewer line and manhole locations with staking information (include sewer line size and material)
 - Show all existing and proposed utilities
 - Show all stormwater drain lines and structures (include line size, material, and invert data)
 - Show all property lines, right-of-way lines, permanent easement lines, temporary easement lines
- Sanitary Sewer System Profile Sheet(s)
 - Show horizontal and vertical scale (minimum horizontal scale shall be 1" = 50'; minimum vertical scale shall be 1" = 20')
 - Show proposed sanitary sewer profile (include sanitary sewer size and material)
 - Show slope of each section of sanitary sewer
 - Show location of existing utilities that are crossing proposed sanitary sewer
 - Show "invert in," "invert out," and "rim" elevations for each proposed and existing manhole in profile
 - Show existing and proposed ground surface profile
 - Show approximate creek bottom elevation when lines are running adjacent to a creek
- Sanitary Sewage Lift Station Plan Sheet(s)
 - Show north arrow and scale
 - Show Top View of lift station with appropriate dimensions
 - Show Bottom View of lift station with appropriate dimensions
- Sanitary Sewage Lift Station Section Sheet(s)
 - Show pertinent elevation sections
 - Show pertinent dimensions
 - Show critical elevations (top of slab, bottom of wet well, etc)
 - Show pump control points (high level alarm, pump on, pump off, low level alarm, etc.)
 - Show pump curve and system head curve
 - Show pump design point
- Sanitary Sewer Force Main Plan Sheet(s)
 - Show north arrow and scale (minimum scale shall be 1" = 50')
 - Show proposed sanitary sewer force main location with staking information (include force main size and material)
 - Show grading plan in gray scale
 - Show all existing utilities (in gray scale) and proposed utilities
 - Show all stormwater drain lines and structures in gray scale (include line size, material, and invert data)
 - Show all property lines, right-of-way lines, permanent easement lines, temporary easement lines
 - Show names of property owners and/or Parcel ID numbers
 - Show all State water buffers, wetland areas, and 100-year flood plain elevation
- Sanitary Sewer Force Main Profile Sheet(s)
 - Show horizontal and vertical scale (minimum horizontal scale shall be 1" = 50'; minimum vertical scale shall be 1" = 20')
 - Show proposed sanitary sewer force main profile (include force main size and material)
 - Show location of existing utilities that are crossing proposed sanitary sewer force main

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- Show existing and proposed ground surface profile
- Show approximate creek bottom elevation when lines are running adjacent to a creek
- Standard Detail Sheet(s)
 - Use PCWASA standard details where applicable
 - Other standard details approved by PCWASA
 - Details of all special sewer joints and cross sections
 - Details of special appurtenances such as manholes, service connections, elevated sewers, piers, pipe bedding, special highway crossings, railroad crossings, etc.

1.4.2.6 Survey Datum

Survey data shall be geo-referenced to the State Plane Coordinate System, NAD 83, Georgia West Zone, US Survey Feet.

1.4.3 Plan Submittal

1.4.3.1 Plan Review Fees

The PCWASA charges a fee for the review of sanitary sewerage system plans and specifications. The current Plan Review Fee Schedule can be obtained by visiting the PCWASA web site at www.pcwasa.org.

Payment of the Plan Review Fee is due once plans are approved by PCWASA.

1.4.3.2 Plan Submittal Process

Construction plans and specifications for sanitary sewerage systems shall be submitted to the PCWASA. If the property that is to be developed has been rezoned, the Developer/Owner shall have obtained a Sewer Availability Letter prior to submitting construction plans and specifications for review.

The plan submittal process is as follows.

1. Developer's Engineer shall submit one (1) electronic copy of construction plans and specifications in portable document format (.pdf) to PCWASA for the initial review.
2. Upon receipt of the construction plans and specifications, PCWASA will review the plans and specifications for technical adequacy and conformance with these Development Standards and Specifications. PCWASA comments will be marked in red (Redline Comments) on the plans and/or specifications.
3. Developer's Engineer will be notified whether or not PCWASA has comments.
4. If there are comments, Developer's Engineer shall pick up the construction plans and specifications from PCWASA and address the Redline Comments. After the Redline Comments have been addressed, Developer's Engineer shall submit the number of revised sets of construction plans and specifications requested in the Redline Comments along with the original Redline Comments to PCWASA for subsequent review.
5. If and when there are no comments, Developer's Engineer shall submit two (2) full-size paper sets of plans and one (1) electronic copy in portable document format (.pdf) for final approval.

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1.4.4 Expiration of Plan Approval

Plan approval is valid for twelve (12) months. Projects with approved plans that are not initiated within six (6) months of plan approval or projects that are initiated and then become inactive for a six (6) month period shall become invalid. If an approved plan becomes invalid, the PCWASA Engineer shall determine if the plan can be revalidated or if a new design is required.

1.4.5 Plan Modifications

Approved plans shall not be modified or deviated from unless approved in writing by the PCWASA Engineer.

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1.5 Easements and Deeded Property

1.5.1 General

All sanitary sewerage system appurtenances that will be owned by the PCWASA and are not located in a public street right-of-way shall be located in a permanent easement or deeded property that has been conveyed to the PCWASA.

All sanitary sewage lift stations shall be located on property that is platted and deeded to the PCWASA. Any roads required to access the sanitary sewage lift station from the public street right-of-way shall be included as part of the platted and deeded property or given as an access easement at the discretion of the PCWASA Engineer.

PCWASA will not approve any sanitary sewerage system construction until all off-site easements and/or deeded property is conveyed to the PCWASA. A design must be submitted and approved before easement acquisition can begin.

1.5.2 Permanent Easements

A permanent easement is a right granted by an underlying property owner that entitles its holder to a specific use of the property in perpetuity.

1.5.2.1 “On-Site” Permanent Easements

“On-site” permanent easements are permanent easements which fall within the boundaries of the current phase of the development and are shown on the final plat. Permanent easements are conveyed by recording the Deed of Conveyance and final plat.

The Developer/Owner shall grant to the PCWASA, the exclusive right to construct, re-construct, operate, maintain, repair, replace, improve, alter, remove, relocate, and inspect sanitary sewerage systems that are situated over, across, and under the land wherein the sanitary sewerage system lies on the Developer/Owner’s property.

1.5.2.2 “Off-Site” Permanent Easements

“Off-site” permanent easements are permanent easements which fall outside the boundaries of the current phase of the development and must be provided by the Developer/Owner on a PCWASA easement document for each property where an easement is required in order to install the sanitary sewerage system. Plans must be submitted and approved along with an easement plat for each property where an easement is required before the Developer/Owner obtains an easement from the property owner.

Permanent easements through property owned by the Developer/Owner, including sewer lines that will be included in later phases of the same project, shall be treated as routine “off-site” permanent easements.

“Off-site” permanent easements shall be negotiated and acquired by the Developer/Owner.

Sanitary sewerage system plans shall not receive final approval until all “off-site” permanent easements required for system completion are approved and acquired.

1.5.2.3 Permanent Easement Requirements

Permanent easements for gravity sewers and sanitary sewage force mains shall have a minimum width of 20 feet. The gravity sewer or sanitary sewage force main shall be located in the center of the permanent easement.

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Permanent easements shall be accessible from the public street right-of-way. If access from a public street right-of-way is not available, permanent ingress/egress easement(s) shall be provided, as required, to provide PCWASA access to the sewer easement. A sufficient number of permanent ingress/egress easements shall be provided so that all portions of the sewer easement is accessible by the PCWASA from the public right-of-way. The PCWASA Engineer will review all proposed easements and deeded property and determine the number and location, if any, of permanent ingress/egress easements required. In some cases, deeded property may be required for ingress/egress in lieu of a permanent easement. The PCWASA Engineer will determine what is required.

The size and/or width of permanent easements may be increased or decreased at the discretion of the PCWASA Engineer.

1.5.3 Temporary Easements

A temporary easement is a right granted for a specific period of time and once it expires, the rights granted return to the property owner. Temporary easements are typically used for the stockpiling of dirt, the maneuvering of equipment, or the storage of materials.

Temporary easements must be provided by the Developer/Owner on a PCWASA Temporary Construction Easement document for each property where a temporary easement is required in order to install the sanitary sewerage system. Plans must be submitted and approved along with a temporary easement plat for each property where a temporary easement is required before the Developer/Owner obtains a temporary easement from the property owner.

Sanitary sewerage system plans shall not receive final approval until all temporary easements required for system completion are approved and acquired.

Temporary easements shall be of the size required to install the sanitary sewerage system.

The size and/or width of temporary easements may be increased or decreased at the discretion of the PCWASA Engineer.

1.5.4 Deeded Property

1.5.4.1 General

Deeded property is property that is platted and deeded to the PCWASA.

Deeded property must be provided by the Developer/Owner.

1.5.4.2 Deeded Property Requirements

The minimum size of deeded property associated with a sanitary sewage lift station is 100-feet by 100-foot square.

Sanitary sewage lift station plans shall not receive final approval until deeded property is approved and acquired.

The required size of the deeded property may be modified at the discretion of the PCWASA Engineer.

1.6 Installation

1.6.1 General

Sanitary sewerage systems shall be constructed by a PCWASA approved utility contractor.

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Sanitary sewerage systems shall be constructed in accordance with PCWASA approved plans and specifications. A set of PCWASA approved plans shall be present on the job site whenever work is being performed on the sanitary sewerage system and the plans shall be made available to the PCWASA Inspector upon request.

Installation of sanitary sewerage systems shall not commence until PCWASA has granted final approval of the construction plans and specifications and the appropriate agency has issued a Development/Land Disturbance Permit.

1.6.2 Approved Utility Contractors

Utility contractors must be approved by the PCWASA prior to performing any work on the PCWASA sanitary sewerage system.

Prior to being approved, utility contractor must submit copies of their State Utility Contractor's License, insurance information, and references to PCWASA. Contractors will be granted temporary approval status until they have completed at least three (3) jobs for the PCWASA. After the contractor has completed at least three (3) jobs, the PCWASA Engineer will determine if the contractor will be placed on the Approved Contractor List.

1.6.3 Inspections

A PCWASA Inspector, under the direction of the PCWASA Engineer, will inspect the installation of the sanitary sewerage system, on a daily basis; during all phases of construction to ensure that the system is being constructed in accordance with the PCWASA approved plans and specifications.

All work shall be inspected prior to backfill. It is the Developer/Owner's and/or Contractor's responsibility to schedule inspections and verify that work has been inspected before it is backfilled. Any work that is backfilled prior to inspection shall be exposed when directed by the PCWASA Inspector.

The PCWASA Inspector will inform the Developer/Owner and/or Contractor when there are deficiencies in workmanship or when there are deviations from the approved plans and specifications.

Developer/Owner and/or Contractor shall address the deficiencies in a timely manner as determined by the PCWASA Inspector. Failure to address deficiencies in a timely manner may result in the PCWASA issuing a Stop Work order. Failure to address deficiencies and/or disregarding a Stop Work order may result in additional fees and the sanitary sewerage system will not be permitted to connect to the PCWASA system.

Inspection by the PCWASA does not relieve the Developer/Owner and/or Contractor of their responsibility for constructing the sanitary sewerage system in accordance with the PCWASA approved plans and specifications.

1.6.4 Pre-Construction Meetings

Prior to beginning construction of any sanitary sewerage system, Developer/Owner and/or Contractor shall arrange a pre-construction meeting with the PCWASA Engineer. The pre-construction meeting shall be held prior to beginning construction.

The PCWASA Inspector will conduct a separate pre-construction meeting with field personnel prior to commencement of work.

1.6.5 Testing

Sanitary sewerage systems shall be tested at the expense of the Developer/Owner. Testing methods and practices shall be as specified in these Standards and Specifications.

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1.6.6 Warranty

The Developer/Owner and/or Contractor shall warranty the sanitary sewerage system against all defects in materials and workmanship for a period of one (1) year after Final Acceptance. This warranty shall be backed by a one (1) year Letter of Credit.

During the warranty period, the Developer/Owner and/or Contractor shall be responsible for any damage to the sanitary sewerage system.

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1.7 Connecting to the PCWASA System

Connection to the PCWASA sanitary sewerage system will only be allowed provided that the Developer/Owner and/or Contractor has complied with PCWASA policies and procedures and the sanitary sewerage system has been installed in accordance with the PCWASA approved plans and specifications.

The PCWASA Inspector shall be notified a minimum of 48-hours in advance of making a connection to the PCWASA sanitary sewerage system.

The PCWASA Inspector shall be present when the connection is made to the PCWASA sanitary sewerage system.

All materials, equipment, and methods used in making a connection to the PCWASA sanitary sewerage system shall be approved by the PCWASA Inspector.

After the connection has been made to the PCWASA sanitary sewerage system, the Developer/Owner's system shall be immediately valved-off or plugged until Final Acceptance of the system.

Any unauthorized connection or connection that is made without the presence of the PCWASA Inspector shall be subject to a fine and/or refusal of service.

Any noncompliant connection or any damage to the PCWASA system shall be repaired and/or replaced at the expense of the Developer/Owner and/or Contractor. Methods of repair and/or replacement shall comply with these Standards and Specifications.

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1.8 Final Acceptance

1.8.1 General

Prior to Final Acceptance of the sanitary sewerage system for final platting, the PCWASA will make a final inspection after all pavement is installed and the Developer/Owner shall provide the following items to the PCWASA.

1. Deed of Conveyance
2. Contribution of Fixed Assets form
3. Lien waiver(s)
4. Corporate Owner's Affidavit
5. Corporate Contractor's Affidavit
6. Two-year Letter of Credit
7. Two (2) hard copies of the Record Drawings and one (1) digital copy of the Record Drawings
8. Two (2) hard copies of Final Plat and one (1) digital copy of the Final Plat
9. Sanitary sewer television inspection report and video
10. All required fees (recording fees, etc.)
11. Field corrections

1.8.2 Deed of Conveyance

A Deed of Conveyance is a legal document signed and sealed and delivered to effect a transfer of property and to show the legal right to possess it. A Deed of Conveyance shall be provided for all easements and property to be dedicated to the PCWASA.

1.8.3 Contribution of Fixed Assets Form

The Contribution of Fixed Assets form itemizes the public assets that are being dedicated to the PCWASA. This form shall only include "public" materials and appurtenances. "Private" materials and appurtenances shall not be included on the form. The Contribution of Fixed Assets form is included in Appendix B.

1.8.4 Lien Waivers

The PCWASA must ensure that all materials being dedicated as public assets have been paid for; therefore, a lien waiver shall be secured from each supplier that materials and/or equipment is purchased.

1.8.5 Owner's Affidavit

The PCWASA must ensure that all labor and materials required to construct a project have been paid for and that there are no liens on the property; therefore, the Developer/Owner shall prepare a Corporate or Individual Owner's Affidavit and submit it to the PCWASA. Corporate and Individual Owner's Affidavit forms are included in Appendix B.

1.8.6 Contractor's Affidavit

The PCWASA must ensure that the utility contractor has been paid in full and that there are no liens on the property; therefore, the utility contractor shall prepare a Corporate or Individual Contractor's Affidavit and submit it to the PCWASA. Corporate and Individual Contractor's Affidavit forms are included in Appendix B.

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1.8.7 One-Year Letter of Credit

A Letter of Credit shall be provided to the PCWASA as a warranty for the materials and workmanship for the sanitary sewerage system. The term of the Letter of Credit shall be one (1) year and the amount of the Letter of Credit shall be 10 percent of the total cost of the labor and materials required to construct the sanitary sewerage system.

Prior to the expiration of the Letter of Credit, a warranty inspection will be conducted by the PCWASA. The Developer/Owner will be required to correct any deficiencies that are found. Upon satisfactory repair of any deficiencies that are found, the PCWASA will release the Letter of Credit.

A sample Letter of Credit is included in Appendix B.

1.8.8 Record Drawings

Record Drawings shall be submitted to the PCWASA prior to final acceptance of the sanitary sewerage system.

Record Drawings shall:

1. Be sealed and signed by a design professional licensed by the Georgia State Board of Registration for Professional Engineers and Land Surveyors;
2. Show all street names, right-of-way widths, easements, lot numbers and addresses, and location, size, and material of all sanitary sewerage system components;
3. Include a table that identifies each lateral, its length, and its station;
4. Include a table that identifies each manhole, its station, and the interior angle of the sewer passing through it; and
5. Be checked and signed by the PCWASA Inspector prior to final submittal.
6. "RECORD DRAWING" shall be shown in large, bold print on all drawings.

Submit two (2) full-size sets of Record Drawings and one (1) digital file.

1.8.9 Final Plat

Submit two (2) hard copies and one (1) digital file of the Final Plat. Digital file shall be prepared in accordance with PCWASA CAD standards.

1.8.10 Television Inspection Report and Video

All new sanitary sewer lines must be cleaned and television inspected to ensure that they are installed correctly and are clean prior to being placed into service. The PCWASA inspector must be present when the television inspection is conducted and a copy of the video inspection report must be submitted to the PCWASA.

Television inspection reports and videos shall be performed and presented in accordance with the National Association of Sewer Service Companies (NASSCO) standards. Use Pipeline Assessment and Certification Program (PACP) coding for pipelines and Manhole Assessment and Certification Program (MACP) coding for manholes.

1.8.11 Fees

All fees due to the PCWASA shall be paid in full.

1.8.12 Field Corrections

Prior to Final Acceptance, Developer/Owner and/or Contractor shall make all corrections to the sanitary sewerage system as directed by the PCWASA Inspector.

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1.9 Sanitary Sewage Lift Stations

1.9.1 Ownership

In accordance with the Peachtree City Sewer Use Ordinance, no sanitary sewer lift station that serves two or more buildings shall be privately owned or maintained. All lift stations constructed or installed by a private individual or entity shall be dedicated to, and accepted by, the PCWASA for maintenance. The following shall be required before a lift station can be put in operation and the same accepted by the PCWASA.

1. Gravity flow sanitary sewer systems that flow into the lift station shall be designed and installed in accordance with these Standards and Specifications.
2. The lift station and the associated sanitary sewage force main shall be designed and installed in accordance with these Standards and Specifications.
3. The design of the gravity flow sanitary sewer line flowing into the lift station, the lift station, and the associated sanitary sewage force main shall be submitted to the PCWASA in accordance with these Standards and Specifications. Prior to construction and/or installation, the design of the gravity flow sanitary sewer line flowing into the lift station, the lift station, and the associated sanitary sewage force main shall be approved by the PCWASA.
4. Prior to acceptance of any lift station, or any gravity flow sewer line and sanitary sewer force main system, the PCWASA shall inspect the same to ensure that all applicable rules, regulations, and installation, design, and construction standards have been complied with.

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Section 2

Design Requirements

SECTION 2 - DESIGN REQUIREMENTS

2.1 Gravity Flow Sanitary Sewer Systems

2.1.1 General

- A. All gravity flow sanitary sewer systems that will be connected to the PCWASA sanitary sewage system shall be designed in accordance with these standards. Any deviation from these standards shall be approved in writing by the PCWASA Engineer.

2.1.2 Design Flow Rates

2.1.2.1 General

- A. Sanitary sewer system shall be designed for the estimated build-out population of the drainage basin.
- B. Sanitary sewers shall be designed and installed to the uppermost property line of the development being served.

2.1.2.2 Average Daily Flow Rates

- A. The following Average Daily Unit Flow Rates shall be used in the design of sanitary sewerage systems.

Type of Facility	Unit of Flow	Unit Flow Rate (GPD)
Airport	Per Employee	25
Apartment (3 Bedroom)	Per Apartment	300
Apartment (2 Bedrooms)	Per Apartment	250
Apartment (1 Bedroom)	Per Apartment	200
Apartment Club House	Each	500
Center	Per Seat	10
Bar	Per Seat	50
Beauty/Barber Shop	Per Chair	50
Bowling Alley	Per Lane	125
Car Wash (Self Operating)	Per Bay	100
Car Wash (Automatic Bay)	Per Bay	200
Church	Per Seat	5
Coin Laundry	Per Machine	400
Commercial Laundry	Per Machine	640
County Club	Per Member	100
Day Care	Per Child	30
Fast Food	Per Seat	30
Hospital	Per Bed	200
Mobile Home (Single Wide)	Each	250
Mobile Home (Double Wide)	Each	300
Hotel/Motel	Per Room	100
Industrial/Manufacturing	Per Employee	35
Nursing Home	Per Bed	125
Office Space (Standard)	Per 1,000 ft ²	175
Office Space (Medical)	Per 1,000 ft ²	500
Residential (Single Family)	Per House	300
Restaurant	Per Seat	50
Retail	Per 1,000 ft ²	100
Service Station	Per Employee	25
School	Per Student	20

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Type of Facility	Unit of Flow	Unit Flow Rate (GPD)
Stores/Shopping Center	Per 1,000 ft ²	100
Theater	Per Seat	5
Warehouse	Per 1,000 ft ²	25

2.1.2.3 Peak Hour Flow Rates

- A. The Peak Hour Flow Rate for new residential developments shall be calculated using a peaking factor of 3.0.
- B. The Peak Hour Flow Rate for new commercial developments shall be calculated using a peaking factor based upon the proposed use of the development. The minimum peaking factor shall be 2.0.
- C. The Peak Hour Flow Rate for undeveloped areas shall be calculated using the following equation.

$$Q_{PHF} = Q_{ADF} \times \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$$

Where:

Q_{PHF} = Peak Hourly Flow Rate

Q_{ADF} = Average Daily Flow Rate

P = Population in Thousands Based on 100 GPD/Capita

2.1.3 Hydraulics

- A. Sanitary sewers shall be designed using Manning's equation.

$$Q = \frac{1.49}{n} (A)(r_h)^{2/3}\sqrt{S}$$

Where:

Q = Flow Rate, ft³/s

n = Manning's Coefficient

A = Pipe Cross-Sectional Area, ft²

r_h = Hydraulic Radius

S = Slope, ft/ft

- B. The value of the Manning's Coefficient, n, shall be 0.013 for all pipe materials.
- C. Sanitary sewers shall be designed to carry the Peak Hourly Flow Rate at 75 percent of the full depth (d/d_{FULL} = 0.75).
- D. Sanitary sewers shall be designed with a minimum velocity of 2 ft/s, flowing full, based on the Manning's equation and using a Manning's Coefficient of 0.013.
- E. The following table presents the minimum allowable slopes for sanitary sewers; however, slopes greater than these are desirable.

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Nominal Sewer Size	Minimum Slope in Feet per 100 Feet
8 inch	0.50
10 inch	0.28
12 inch	0.22
15 inch	0.15
16 inch	0.14
18 inch	0.12
20 inch	0.11
21 inch	0.10
24 inch	0.08
27 inch	0.07
30 inch	0.06
36 inch	0.05
42 inch	0.04
48 inch	0.04

- F. The maximum slope of a gravity flow sanitary sewer shall be 15 percent unless approved by PCWASA.
- G. Sanitary sewers with slopes greater than 20 percent shall be anchored with concrete anchors (dead-mans). The Developers design professional shall be responsible for calculating the size and spacing of the concrete anchors. Calculations shall be submitted to PCWASA.
- H. The angle formed between the inlet sewer line and outlet sewer line in a manhole shall be greater-than or equal to 90° and less-than or equal to 270°.
- I. Surcharging of manholes shall be prohibited.

2.1.4 Sanitary Sewer Size and Material

- A. Minimum Sanitary Sewer Size
 - 1. Sanitary Sewer Outfalls and Mains: 8” Diameter
 - 2. Sanitary Sewer Service Laterals: 6” Diameter
- B. Acceptable Sanitary Sewer Materials:
 - 3. Ductile Iron Pipe (pressure class to be determined by engineer based on depth of cover)
 - 4. SDR 26 PVC
- C. Use ductile iron pipe when depth of cover is less than 3 feet or greater than 16 feet.
- D. Use ductile iron pipe when slope of sewer line is greater-than or equal to 15 percent.
- E. All creek crossings shall be ductile iron pipe.
- F. All water line and storm water line crossings with less than 18-inches of clearance shall be ductile iron pipe.

2.1.5 Sanitary Sewer Location

- A. Sanitary sewer lines located in the right-of-way shall be located as close to the center of the road as possible.
- B. Sanitary sewer lines located in sanitary sewer easements shall be located in the center of the easement.

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- C. Sanitary sewer lines running parallel to an existing or proposed water line shall be located a minimum of 10 feet horizontally from the water line unless otherwise approved by the PCWASA Engineer. Distances shall be measured outside of pipe to outside of pipe.
- D. Sanitary sewer lines that cross an existing or proposed water line shall have a minimum clearance of 18 inches vertically above or below the water line unless otherwise approved by the PCWASA Engineer. At water line crossings, the sanitary sewer line shall cross in the middle of one (1) full length of water line so that both pipe joints on the water line will be as far from the sanitary sewer line as possible. In cases where the PCWASA Engineer allows a vertical clearance of less than 18 inches, the first two joints on each side of the crossing shall be restrained and the pipe shall be protected as required by PCWASA.

2.1.6 Sanitary Sewer Bury Depth

- A. Sanitary sewer lines shall have a minimum of 48” of cover as measured from top of pipe to ground surface. Where the ground surface above the sanitary sewer line is higher than the edge of pavement of the existing or proposed roadway, the minimum cover shall be measured from the top of pipe to the edge of pavement.

2.1.7 Sanitary Sewer Manholes

2.1.7.1 General

- A. Sanitary sewer manholes shall be precast concrete structures with tongue and groove joints.
- B. The minimum diameter of manholes shall be forty-eight (48) inches.
- C. Manholes shall be provided with reinforced plastic manhole steps. Steps shall have a maximum spacing of twelve (12) inches.
- D. Manholes shall have a minimum 0.10-foot drop from the influent invert to the effluent invert.
- E. Manholes shall have a maximum inside drop of two (2) feet. Manholes that require a drop greater than two (2) feet shall be constructed with outside drops.
- F. Manhole section joints shall be sealed using a preformed butyl joint seal.
- G. Manhole joints shall be sealed watertight with an external rubber seal.
- H. Pipe to manhole connections shall be sealed watertight using resilient connectors.
- I. Use Details 101, 102, 103, 104, 105, and 106 when applicable.

2.1.7.2 Location and Spacing

- A. Manholes shall be installed at the end of each line; at all changes in grade, size, or alignment; and at all intersections.
- B. Maximum distance between manholes shall be 400 linear feet.

2.1.7.3 Rim Elevation

- A. Manholes located in the street, in a sidewalk, or in a landscaped area shall have their lids installed flush with grade.
- B. Manholes located outside of streets and sidewalks in non-landscaped areas shall have their lids installed a minimum of 2 feet above grade, unless otherwise approved by PCWASA.

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2.1.7.4 Manhole Lids

- A. Manhole lids shall have a minimum clear opening of 22-inches.
- B. All manholes located outside of the pavement shall have bolt down, watertight lids.

2.1.8 Sanitary Sewer Service Laterals

- A. All lots shall have a sanitary sewer service lateral stub.
- B. Service lateral shall be low enough to serve the ground level floor and where possible, low enough to serve the basement.
- C. Service laterals shall be installed to a minimum of 5 feet outside of the right-of-way or easement.
- D. Minimum slope of a service lateral shall be 2 percent.
- E. A separate and independent service lateral shall be provided for each building. An exception can be made to this design requirement when a building is located at the rear of another building and no private sewer is available or can be constructed to the rear building through an adjoining alley, courtyard, or driveway. In this case, the front building sewer may be extended to the rear building. This exception must be approved by the PCWASA Engineer.
- F. Service laterals located in paved areas shall have their locations clearly marked by cutting a “^” in the curb and painting the “^” safety fluorescent green.
- G. Service laterals located in non-paved areas and easements shall have their locations clearly marked by the extension of the service lateral for the lot.
- H. Service laterals shall have a straight alignment.
- I. Service laterals shall have a combination cleanout places at the property line or easement line.
- J. Bedding for service laterals shall be the same as bedding for gravity sewers.
- K. Service laterals shall have Mylar marking tape installed 1 foot below grade above the service lateral. The Mylar tape shall extend the entire length of the lateral from the structure to the main line.
- L. Transition joints from ductile iron pipe to SDR 26 polyvinyl chloride pipe are acceptable on service laterals only.
- M. Service laterals shall not cross other lot lines.
- N. Service laterals shall not cross retention basins.
- O. Service laterals shall not be connected to manholes unless approved by the PCWASA Engineer.
- P. Service connection from the service lateral to the user shall be per Georgia State Plumbing Code and shall be installed by a licensed plumber.
- Q. Use Detail 107 when applicable.

2.1.9 Corrosion Protection for Sanitary Sewer Systems

- A. Manholes that that have a sanitary sewage force main discharging into them and manholes that are subject to corrosion shall be manufactured from corrosion resistant composite materials or

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shall be standard concrete manholes lined with a fiberglass reinforced epoxy resin lining system or elastomeric polyurethane lining system.

- B. The manhole that the sanitary sewage force main discharges into plus all manholes located within 1,600 feet downstream of the discharge manhole shall meet the requirements described above.
- C. Existing manholes that exhibit corrosion and/or leaking shall be repaired using polyurethane grouts to stop infiltration and repair mortars to repair the structure prior to coating with a fiberglass reinforced epoxy resin lining system or elastomeric polyurethane lining system.
- D. The sanitary sewer lines that connect these lined manholes shall be ductile iron pipe lined with PROTECTO 401 Ceramic Epoxy or PVC pipe.

2.1.10 Sanitary Sewer Flow Meters

- A. All developments, both residential and non-residential, that generate an average daily flow rate of 100,000 GPD or more in flow shall provide a sanitary sewer flow meter in the last manhole before the flow leaves the development. The type of flow meter that is used shall be approved by PCWASA.

2.1.11 Jack and Bore Installations

- A. Unless otherwise approved, sanitary sewer lines that cross a GDOT roadway, Fayette County DOT roadway, or railroad right-of-way shall be installed with cased jack and bores.
- B. Use Detail 108 when applicable.

2.1.12 Creek Crossings

- A. All pipe used in creek crossings shall be ductile iron.
- B. All crossings shall be perpendicular to the creek unless otherwise approved.
- C. A casing pipe that extends a minimum of 10 feet beyond the top of bank on each side shall be provided on all creek crossings.
- D. The minimum depth of cover above the casing pipe shall be 12 inches.
- E. Use Detail 109 when applicable.

2.1.13 Aerial Crossings

- A. Aerial crossings shall be avoided whenever possible. All aerial crossings shall be pre-approved by PCWASA.
- B. Any piping system that crosses a perennial or annual stream shall not cause an impedance to navigation or cause water to pool upstream of the pipe.
- C. All pipe used in aerial crossings shall be ductile iron.
- D. Aerial pipe supports shall be designed by a structural engineer licensed by the Georgia State Board of Registration for Professional Engineers and Land Surveyors.
- E. Aerial pipe supports shall be situated on suitable soils. The soils on which an aerial support will be placed shall be tested by a soils testing company for bearing capacity and suitability for construction. A soils report shall be submitted with the construction plans and specifications.

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2.1.14 Grease Traps and Sand Traps

- A. Grease traps and sand traps used for restaurants and other eating establishments shall have a capacity of 15 gallons per seat, except that no grease trap shall be smaller than 1,500 gallons or larger than 3,000 gallons.
- B. Grease traps and sand traps used for facilities other than restaurants and other eating establishments shall have a capacity that will provide a retention time of minimum 10 minutes and maximum 30 minutes at the peak 8-hour flow rate. Flow through velocities shall not exceed 1 foot per second at the peak 8-hour flow rate.
- C. In cases where the temperature of the wastewater may prevent the solidification of the oil/grease, the PCWASA may require two grease traps in series. This requirement will be considered on a case-by-case basis.
- D. Use Detail 112 when applicable.

2.1.15 Trenchless Sanitary Sewer Rehabilitation

- A. Acceptable trenchless sanitary sewer rehabilitation methods
 - 1. Pipe Bursting
 - 2. Cured-in-Place
- B. Pipe bursting shall be performed in accordance with the International Pipe Bursting Association (IPBA) *Guideline for Pipe Bursting*.
- C. Reconstruction of pipeline and conduits using the cured-in-place pipe (CIPP) method shall be in accordance with ASTM F1216 and ASTM F1743.

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2.2 Sanitary Sewage Force Mains

2.2.1 General

- A. All sanitary sewage force mains that will be connected to the PCWASA sanitary sewage system shall be designed in accordance with these standards. Any deviation from these standards shall be approved in writing by the PCWASA Engineer.

2.2.2 Hydraulics

- A. Sanitary sewage force mains shall be designed to have a minimum velocity of 2.5 ft/s and a maximum velocity of 6 ft/s. The minimum velocity in the force main when all pumps are operating shall be 3.5 ft/s.

2.2.3 Force Main Size and Material

- A. Minimum Sanitary Sewer Force Main Size: 4" Diameter, unless otherwise approved by the PCWASA Engineer.
- B. Acceptable Sanitary Sewer Force Main Materials:
 - 1. Pressure Class 350 Ductile Iron Pipe and Fittings
 - 2. High Density Polyethylene (HDPE) Pipe and Fittings
 - 3. C900 Polyvinyl Chloride (PVC) Pipe with Ductile Iron Fittings

2.2.4 Force Main Location

- A. Sanitary sewage force mains located in the right-of-way shall be located 5 feet inside the right-of-way and on the opposite side of the road as the water line whenever possible.
- B. Sanitary sewage force mains located in sanitary sewer easements shall be located in the center of the easement.
- C. Sanitary sewage force mains shall be located a minimum of 10 feet horizontally from any existing or proposed water main and 18 inches vertically below any existing or proposed water main. Distances shall be measured outside of pipe to outside of pipe.
- D. Sanitary sewage force mains running parallel to an existing or proposed water line shall be located a minimum of 10 feet horizontally from the water line unless otherwise approved by the PCWASA Engineer. Distances shall be measured outside of pipe to outside of pipe.
- E. Sanitary sewage force mains that cross an existing or proposed water line shall have a minimum clearance of 18 inches vertically above or below the water line unless otherwise approved by the PCWASA Engineer. At water line crossings, the sanitary sewage force main shall cross in the middle of one (1) full length of water line so that both pipe joints on the water line will be as far from the sanitary sewage force main as possible. In cases where the PCWASA Engineer allows a vertical clearance of less than 18 inches, the first two joints on each side of the crossing shall be restrained and the pipe shall be protected as required by PCWASA.
- F. A permanent marker shall be installed along the sanitary sewage force main at 250-foot intervals, at all changes in direction, and at all locations where the force main leaves the right-of-way. Use Detail 113 when applicable.
- G. Tracer wire and marking tape shall be installed on all HDPE sanitary sewage force mains.

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2.2.5 Force Main Bury Depth

- A. Sanitary sewage force mains shall have a minimum of 48” of cover as measured from top of pipe to ground surface. Where the ground surface above the sanitary sewage force main is higher than the edge of pavement of the existing or proposed roadway, the minimum cover shall be measured from the top of pipe to the edge of pavement.

2.2.6 Isolation Valves

- A. All valves on sanitary sewage force mains shall be eccentric plug valves.

2.2.7 Combination Air/Vacuum Valves

- A. Combination air/vacuum valves shall be provided at all locations along the sanitary sewage force main deemed appropriate as determined by the design engineer.
- B. Combination air/vacuum valve locations are subject to review by the PCWASA.
- C. Combination air/vacuum valves shall be sized in accordance with the manufacturer’s recommendations.
- D. Use Detail 114 when applicable.

2.2.8 Thrust Restraint

- A. All fittings, valves, and dead-ends shall have two (2) forms of thrust restraint.
- B. All pipe joints shall be restrained as required.
- C. Acceptable thrust restraint includes restrained joint glands, field lock gaskets, threaded rods, and concrete blocking.
- D. Sanitary sewage force mains shall be restrained, as required, using restrained joint type gaskets. The design engineer shall be responsible for calculating the length of pipe from each fitting that requires restrained joints. Calculations shall be submitted to PCWASA.
- E. Use Details 115 and 116 when applicable.

2.2.9 Jack and Bore Installations

- A. Unless otherwise approved, sanitary sewage force mains that cross a GDOT roadway, Fayette County DOT roadway, or railroad right-of-way shall be installed with cased jack and bores.
- B. Use Detail 108 when applicable.

2.2.10 Creek Crossings

- C. All pipe used in creek crossings shall be ductile iron.
- D. All crossings shall be perpendicular to the creek unless otherwise approved.
- E. A casing pipe that extends a minimum of 10 feet beyond the top of bank on each side shall be provided on all creek crossings.
- F. The minimum depth of cover above the casing pipe shall be 12 inches.
- A. Use Detail 109 when applicable.

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2.3 Sanitary Sewage Lift Stations

2.3.1 General

- A. This section shall be used as a guideline for the design of sanitary sewage lift stations.
- B. Lift stations will only be allowed when pre-approved by the PCWASA.
- C. Lift stations are to be avoided whenever possible.
- D. When sanitary sewage lift stations are required, the PCWASA reserves the right to design and construct the necessary lift station(s), with appropriate charges being made to the Developer/Owner. The PCWASA may elect to make the lift station larger than necessary to serve the development so that other property within the drainage basin may be served.
- E. Pumps, motors, and associated lift station appurtenances shall be furnished as a package from a single manufacturer.
- F. The sanitary sewage lift station shall include a standby power system and remote monitoring system as described below.
- G. In addition to complete construction plans and specifications, the following information shall be submitted to the PCWASA Engineer as part of the sanitary sewage lift station design package.
 - 1. Average and Peak Hour design flow rate calculations
 - 2. Total Head calculations
 - 3. System head curve plotted on the manufacturer's pump curve
 - 4. Brake Horsepower (BHP) calculations
 - 5. Net Positive Suction Head Available (NPSHA) calculations
 - 6. Net Positive Suction Head Required (NPSHR) data
 - 7. 100-year flood elevation at the proposed sanitary sewage lift station site
 - 8. Minimum wet well volume calculations/pump cycle time calculations
 - 9. Wet well buoyancy calculations

2.3.2 Hydraulics

- A. Total head shall be calculated using the following equation.

$$TH = h_S + h_f + h_m + h_p + \frac{V^2}{2g}$$

Where:

h_S = Static Head, ft

h_f = Head Loss due to Friction, ft

h_m = Minor Head Losses, ft

h_p = Pressure Head, ft

$V^2/2g$ = Velocity Head, ft

V = Velocity of the fluid in the piping system, ft/s

g = Acceleration due to Gravity, 32.2 ft/s²

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- B. Friction losses shall be calculated using the Hazen-Williams equation.

$$h_f = 10.44 \times \frac{Q^{1.85} \times L}{C^{1.85} \times d^{4.8655}}$$

Where:

h_f = Head Loss due to Friction, ft

Q = Flow Rate, GPM

L = Length of Pipe, ft

C = Hazen-Williams Coefficient

d = Inside Diameter of Force Main, inches

- C. Minor head losses shall be calculated as a fraction of the velocity head.

$$h_m = K \times \frac{V^2}{2g}$$

Where:

h_m = Minor Head Loss, ft

K = Minor Loss Coefficient. The minor loss coefficient is the sum of the head loss coefficients for all of the minor loss elements in the piping system. Use standard published values for "K."

V = Velocity of the fluid in the piping system, ft/s

g = Acceleration due to Gravity, 32.2 ft/s²

2.3.3 Location of Sanitary Sewage Lift Stations

- A. The location of all sanitary sewage lift stations shall be coordinated with and approved by the PCWASA prior to beginning design.
- B. Sanitary sewage lift stations shall be accessible during a 100-year storm event.
- C. All mechanical components of the sanitary sewage lift station shall be located above the 100-year flood elevation.
- D. All electrical components shall be located a minimum of 3 feet above the 100-year flood elevation.

2.3.4 Sanitary Sewage Lift Station Property and Access

- A. Sanitary sewage lift stations shall be located on a minimum 100 foot by 100 foot piece of property. This property shall be platted and deeded to the PCWASA at no cost. PCWASA may require a larger piece of property depending on site conditions.
- B. Any roads required to access the sanitary sewage lift station from the public street right-of-way shall be included as part of the platted and deeded property. The minimum width of the access property shall be 30 feet.

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2.3.5 Lift Station Components

2.3.5.1 Pumps

- A. Pumps shall be submersible, heavy duty sewage pumps.
- B. A minimum of two (2) pumps shall be provided.
- C. The sanitary sewage lift station shall be capable of pumping the Peak Hour flow rate with the largest pump out-of-service.
- D. Pumps shall be capable of passing a 3” diameter sphere.
- E. One (1) complete spare parts kit shall be provided with each pump.

2.3.5.2 Motors

- A. Motors for submersible pumps shall be NEMA B design, induction type with squirrel cage rotor, shell type design, housed in an air filled, watertight chamber.
- B. Motors shall operate on 480 Volt, 3 phase, 60 HZ power, and shall have a 1.15 service factor unless otherwise approved by PCWASA.
- C. Motor shall be non-overloading at all points along the pump curve.

2.3.5.3 Piping

- A. Piping inside the wet well, valve vault, and pump station property fence line shall be appropriately sized ductile iron pipe. Minimum diameter shall be four (4) inches.
- B. A bypass connection shall be provided on the discharge header of the pump station. The size of the discharge connection shall be equal in size to the discharge connection of the pump, but no less than 4-inches.

2.3.5.4 Valves

- A. Check Valves
 - 1. A rubber flap type check valve shall be provided on the discharge of each pump and at other locations as required.
- B. Plug Valves
 - 1. An eccentric plug valve shall be provided on the discharge of each pump.
 - 2. An eccentric plug valve shall be installed on the force main within the lift station property. Location to be coordinated with PCWASA.

2.3.5.5 Pressure Gauge

- A. A pressure gauge shall be installed on the discharge header of the sanitary sewage lift station.
- B. Above ground sanitary sewage lift stations shall have a combination pressure/vacuum gauge installed on the suction side of the pumps.
- C. Pressure gauges shall be liquid filled and shall be provided with a diaphragm seal and isolation ball valve.

2.3.6 General Electrical Requirements

- A. All wiring shall be in accordance with NEC standards.

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- B. All electrical components shall be mounted in NEMA 4X, Type 304 stainless steel enclosure(s).
- C. Power shall be 480 V, 3-phase, 60 HZ unless otherwise approved by PCWASA.

2.3.7 Controls

- A. Pump Controls
 - 1. Pump controls shall be designed and provided by the pump manufacturer.
 - 2. Control panels located in non-hazardous locations shall be NEMA 4X, Type 304 stainless steel. Control panels located in hazardous locations shall be NEMA 7, Type 304 stainless steel.
 - 3. Controls shall be provided which will allow the pumps to be operated either manually or automatically.
- B. Level Control
 - 1. A submersible pressure transducer shall be used to measure the water level in the wet well and turn the pumps on and off.
 - 2. A low level float switch and high level float switch shall be provided as an emergency backup to the submersible level transducer. A cable weight shall be provided with each float switch.

2.3.8 Backup Power System

- A. All sanitary sewage lift stations shall be provided with a backup power system.
- B. Backup power system shall be a diesel fuel driven generator. Diesel fuel driven generators shall be provided with a fuel storage tank that provides a minimum of 24 hours of operation.
- C. Generator shall be sized to operate all pumps and appurtenances without exceeding 85 percent of the generators full capacity.
- D. Generator shall have an acoustical enclosure that reduces the noise level to at least 75 dB at 3 feet.
- E. Generators shall be provided with a platform that provides access to all entry points to the enclosure.
- F. Generator shall have the manufacturer's standard equipment plus the following additional equipment.
 - 1. Insulated fiberglass enclosure
 - 2. Exterior flashing alarm light
 - 3. Critical exhaust silencer
 - 4. Inside insulated exhaust
 - 5. Sound attenuation
 - 6. Heater

2.3.9 Supervisory Control and Data Acquisition (SCADA) System

- A. Sanitary sewage lift station shall be provided with a supervisory control and data acquisition (SCADA) system that communicates with the PCWASA. Specifications for the SCADA system are presented in Appendix C.

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2.3.10 Wet Well

- A. Circular wet wells shall have a minimum inside diameter of 72”.
- B. Rectangular wet wells shall be minimum 72” by 72” square.
- C. The volume between the “Lead Pump On” elevation and the “Pump Off” elevation shall be calculated using the following equation.

$$V_{\min} = \frac{Q \times t}{4}$$

Where:

V_{\min} = Minimum Wet Well Volume, gallons

Q = Flow Rate of Largest Pump, GPM

t = Pump Cycle Time, minutes

- D. The minimum pump cycle time, t, shall be 10 minutes (6 starts per hour). A longer pump cycle time, t, shall be used if required by the pump manufacturer.
- E. The gravity sewer line that is connected to the sanitary sewage lift station shall not be included in the minimum wet well volume.
- F. The distance from the bottom of the wet well to the “Pump Off” level shall be per the pump manufacturer’s recommendation.
- G. The distance between the “Lead Pump On” elevation and the “Lag Pump On” elevation shall be a minimum of six (6) inches.
- H. The distance between the “Lag Pump On” elevation and the “High Level Alarm” shall be a minimum of six (6) inches.
- I. The distance between the “High Level Alarm” and the invert of the gravity sewer line entering the wet well shall be a minimum of six (6) inches.
- J. Wet well walls and piping shall be coated with a corrosion resistant coating system.
- K. Wet well buoyancy calculations shall be prepared by the design engineer and submitted to PCWASA.

2.3.11 Fence and Gate

- A. A six (6) foot tall chain link fence shall be installed around the lift station.
- B. Fence shall have three (3) strands of barbed wire.
- C. A sixteen (16) foot double gate (two 8-foot wide gate panels) shall be provided.

2.3.12 Security Light

- A. A security light and light pole shall be provided.

2.3.13 Potable Water Service Line

- A. A potable water service line shall be provided to the lift station property that terminates at a frost proof yard hydrant.

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- B. A reduced pressure zone (RPZ) backflow preventer shall be provided on the potable water line. RPZ backflow preventer shall be protected from freezing using a fiberglass enclosure with electric heating tape.

2.3.14 Landscape

- A. Property outside of the fenced area shall be landscaped.
- B. Install weed barrier fabric over all areas to receive landscaping.
- C. Install evergreen shrubbery spaced no greater than five (5) feet apart around the fenced area. Shrubby shall have a minimum height of three (3) feet at the time of planting and shall have a mature height of at least six (6) feet. Prepare soil and plant shrubbery in accordance with shrubbery planting instructions.
- D. Install wood mulch, free of dirt, around shrubbery and to the edge of the property. Mulch shall have a minimum depth of three (3) inches.

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Section 3

Material Specifications

SECTION 3 - MATERIAL SPECIFICATIONS

3.1 General

A. All materials and equipment used on sanitary sewerage systems shall be new.

3.2 Ductile Iron Pipe and Fittings

A. Ductile iron pipe shall meet the following specifications:

1. Ductile Iron Pipe:

- a. Ductile iron pipe shall be designed and manufactured in accordance with ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51.
- b. Ductile iron used to manufacture ductile iron pipe shall meet the following minimum physical properties.
 - 1) Minimum Tensile Strength – 60,000 PSI
 - 2) Minimum Yield Strength – 42,000 PSI
 - 3) Minimum Elongation – 10 percent
- c. Ductile iron pipe thickness shall be in accordance with ANSI/AWWA C150/A21.50.
 - 1) 4-inch through 12-inch ductile iron pipe shall be Pressure Class 350.
 - 2) Greater than 12-inch ductile iron pipe shall be minimum Pressure Class 250.

2. Joints:

- a. Buried Pipe:
 - 1) Push-on joints in accordance with ANSI/AWWA C111/A21.11.
- b. Non-Buried Pipe:
 - 1) Flanged joints in accordance with ANSI/AWWA C115/A21.15.

3. Gaskets:

- a. Standard Push-on Joints:
 - 1) Plain rubber gasket in accordance with ANSI/AWWA C111/A21.11.
- b. Restrained Push-on Joints:
 - 1) Plain rubber gasket with restraining teeth meeting the requirements of ANSI/AWWA C111/A21.11.
 - 2) Acceptable manufacturers of restrained joint gaskets:
 - a) American Ductile Iron Pipe Company Fast-Grip Gasket
 - b) McWane SURE STOP 350 Gasket
 - c) U.S. Pipe FIELD LOK 350 Gasket
 - d) PCWASA Approved Equal
- c. Flanged Joints:
 - 1) Sewer Service

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- a) Full face, 1/8" thick, molded, high-quality SBR rubber in accordance with ANSI/AWWA C115/A21.15, Appendix A, Section A2 with a service temperature of 150 °F.
 - 2) Air Service
 - a) Full face, 1/8" thick molded, high-quality FKM rubber in accordance with ANSI/AWWA C115/A21.15, Appendix A, Section A2 with a service temperature of 300 °F.
 - 3) Acceptable manufacturers:
 - a) American Ductile Iron Pipe Company – Toruseal Flange Gasket
 - b) U.S. Pipe and Foundry Company – Flange/Tyte Gasket
 - c) PCWASA Approved Equal
 - 4. Hardware:
 - a. Flanged Joints:
 - 1) Bolts shall be ASTM A193, Grade B8, Type 304 Stainless Steel, heavy hex.
 - 2) Nuts shall be ASTM A194, Grade 8, Type 304 Stainless Steel, heavy hex.
 - 5. Coatings:
 - a. Buried Pipe:
 - 1) Interior:
 - a) Non-corrosive conditions: Standard thickness cement-mortar in accordance with ANSI/AWWA C104/A21.4.
 - b) Corrosive conditions: PROTECTO 401 Ceramic Epoxy in accordance with ASTM A716/A746.
 - 2) Exterior:
 - a) Asphaltic coating in accordance with ANSI/AWWA C151/A21.51.
 - b. Non-Buried Pipe:
 - 1) Interior:
 - a) Non-corrosive conditions: Standard thickness cement-mortar in accordance with ANSI/AWWA C104/A21.4.
 - b) Corrosive conditions: PROTECTO 401 Ceramic Epoxy in accordance with ASTM A716/A746.
 - 2) Exterior:
 - a) Universal primer
- B. Ductile iron fittings shall meet the following specifications:
- 1. Ductile Iron Fittings:
 - a. Standard ductile iron fittings shall be designed and manufactured in accordance with ANSI/AWWA C110/A21.10.
 - b. Compact ductile iron fittings shall be designed and manufactured in accordance with ANSI/AWWA C153/A21.53.

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- c. Ductile iron used to manufacture ductile iron fittings shall meet the following minimum physical properties.
 - 1) Minimum Tensile Strength – 70,000 PSI
 - 2) Minimum Yield Strength – 50,000 PSI
 - 3) Minimum Elongation – 5 percent
 - 2. Joints:
 - a. Buried Fittings:
 - 1) Mechanical joints in accordance with ANSI/AWWA C111/A21.11.
 - 2) Mechanical joints that require restraining shall be restrained with wedge type mechanical joint retainer glands for ductile iron pipe. Retainer glands shall be manufactured from high strength ductile iron in accordance with ASTM A536, Grade 65-45-12. Retainer gland dimensions shall be in accordance with ANSI/AWWA C111/A21.11 or ANSI/AWWA C153/A21.53.
 - 3) Acceptable manufacturers of retainer glands:
 - a) Mega-Lug Series 1100
 - b) Sigma ONE-LOK Series D-SLDE
 - c) Uni-Flange Series 1400
 - d) PCWASA Approved Equal
 - b. Non-Buried Fittings:
 - 1) Flanged joints in accordance with ANSI/AWWA C110/A21.10.
 - 3. Gaskets:
 - a. Mechanical Joints:
 - 1) Plain rubber mechanical joint gasket in accordance with ANSI/AWWA C111/A21.11.
 - b. Flanged Joints:
 - 1) Sewer Service
 - a) Full face, 1/8” thick, molded, high-quality SBR rubber in accordance with ANSI/AWWA C115/A21.15, Appendix A, Section A2 with a service temperature of 150 °F.
 - 2) Air Service
 - a) Full face, 1/8” thick molded, high-quality FKM rubber in accordance with ANSI/AWWA C115/A21.15, Appendix A, Section A2 with a service temperature of 300 °F.
 - 3) Acceptable manufactures:
 - a) American Ductile Iron Pipe Company – Toruseal Flange Gasket
 - b) U.S. Pipe and Foundry Company – Flange/Tyte Gasket
 - c) PCWASA Approved Equal
 - 4. Hardware:
 - a. Mechanical Joints:

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- 1) Bolts shall be low carbon steel, zinc plated, tee-head bolts in accordance with ANSI/AWWA C111/A21.11.
- 2) Nuts shall be low carbon steel, zinc plated in accordance with ANSI/AWWA C111/A21.11.
- b. Flanged Joints:
 - 1) Bolts shall be ASTM A193, Grade B8, Type 304 Stainless Steel, heavy hex.
 - 2) Nuts shall be ASTM 194, Grade 8, Type 304 Stainless Steel, heavy hex.
5. Coatings:
 - a. Buried Fittings:
 - 1) Interior:
 - a) Non-corrosive conditions: Double thickness cement-mortar in accordance with ANSI/AWWA C104/A21.4.
 - b) Corrosive conditions: PROTECTO 401 Ceramic Epoxy in accordance with ASTM A716.A746.
 - 2) Exterior: Asphaltic coating in accordance with ANSI/AWWA C151/A21.51.
 - b. Above Grade (Non-Buried) Fittings:
 - 1) Interior:
 - a) Non-corrosive conditions: Double thickness cement-mortar in accordance with ANSI/AWWA C104/A21.4.
 - b) Corrosive conditions: PROTECTO 401 Ceramic Epoxy in accordance with ASTM A716.A746.
 - 2) Exterior:
 - a) Universal primer
- C. All ductile iron pipe and fittings used on a project shall be new and shall be the product of a single manufacturer, unless otherwise approved by the PCWASA Engineer.
- D. Acceptable manufacturers of ductile iron pipe and fittings:
 1. American Cast Iron Pipe Company
 2. McWane, Inc.
 3. U.S. Pipe and Foundry Company
 4. PCWASA Approved Equal

3.3 Casing Pipe

- A. Steel casing pipe for boring and jacking, open cut installation or micro-tunneling, shall be new longitudinal, electric fusion welded pipe in accordance with ASTM A139, Grade B.
 1. Minimum Tensile Strength: 60,000 PSI
 2. Minimum Yield Strength: 35,000 PSI
 3. Minimum Elongation in 2 Inches: 30%
- B. Minimum Wall Thickness
 1. ≤18" Diameter Pipe: 0.25"

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2. 20" Diameter Pipe: 0.3125"
3. 26" Diameter Pipe: 0.375"
4. 28" Diameter Pipe: 0.4375"
5. 30" Diameter Pipe: 0.4375"
6. ≥36" Diameter Pipe: 0.5"

3.4 Casing Spacers

- A. Panel and riser shall be Type 304 stainless steel.
- B. Band liner shall be 0.09 inches thick elastomeric PVC, with a Durometer "Shore A" hardness of 85-90 and a minimum 58,000 volt dielectric strength in accordance with ASTM D149.
- C. Runners shall be glass reinforced polymer (nylon) or ultra-high molecular weight (UHMW) polyethylene.
- D. Acceptable Manufacturers:
 1. Advance Products & Systems, Inc., Model SSI
 2. Cascade Water Works Manufacturing Company, Model CCS
 3. GPT Industries (Link-Seal), Model S
 4. Power Seal Corporation, Model 4810
 5. PCWASA Approved Equal

3.5 Polyethylene Encasement (Wrapping)

- A. Polyethylene encasement material shall be minimum 8-mil, linear low density, flat tube, virgin polyethylene film in accordance with ANSI/AWWA C105/A21.5.
- B. Polyethylene encasement shall have the following properties.
 1. Tensile Strength: Minimum 3,600 PSI
 2. Elongation: Minimum 800%
 3. Dielectric Strength: Minimum 800 V/mil
 4. Impact Resistance: Minimum 600 grams
 5. Propagation Tear Resistance: Minimum 2,550 grams force
- C. Polyethylene encasement shall be marked with the following information.
 1. Year of manufacture
 2. Type of resin
 3. Specification conformance
 4. Applicable pipe sizes
- D. Color of polyethylene encasement shall be green.
- E. Securing tape shall be 2-inch wide PVC pipe tape, minimum 10 mil thickness, 245-percent elongation, and 30 PSI tensile strength.

3.6 Copper Tubing for Water Service Lines

- A. Buried services line shall be Type K, seamless copper tubing in accordance with ASTM B88.
- B. All above grade (non-buried) service lines shall be Type K, copper pipe in accordance with ASTM B88.

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3.7 PVC Pipe for Gravity Sanitary Sewers

- A. Polyvinyl chloride (PVC) gravity sewer pipe 8” to 15” in diameter shall be SDR 26 in accordance with ASTM D3034.
- B. PVC gravity sewer pipe 18” in diameter and greater shall be minimum PS 46 in accordance with ASTM F679.
- C. PVC shall meet the requirements of Cell Classification 12454-B in accordance with ASTM D1784.
- D. PVC gravity sewer pipe joints shall be Bell and Spigot type in accordance with ASTM D3212.
- E. Gaskets for PVC gravity sewer pipe shall be plain rubber gaskets in accordance with ASTM F477.
- F. PVC gravity sewer pipe shall be colored green.

3.8 High Density Polyethylene (HDPE) Pipe for Pipe Bursting of Gravity Sewer

- A. Polyethylene pipe shall be made from HDPE material having a material designation code of PE4710. The material shall meet the requirements of ASTM D 3350, have a minimum cell classification of PE445574, and be listed as meeting NSF-61.
- B. Pipe pressure class shall be minimum DR-17.
- C. HDPE pipe for pipe bursting shall be colored gray.
- D. Approved manufacturers are:
 - 1. Asahi/American, Inc.
 - 2. ISCO Industries. LLC
 - 3. JM Eagle
 - 4. PCWASA Approved Equal

3.9 Sanitary Sewage Force Mains

3.9.1 High Density Polyethylene (HDPE) Pipe

- A. Polyethylene pipe shall be made from HDPE material having a material designation code of PE4710. The material shall meet the requirements of ASTM D 3350, have a minimum cell classification of PE445574, and be listed as meeting NSF-61.
- B. Pipe and fittings shall be ductile iron pipe size (DIPS) in accordance with ASTM F714 and AWWA C906.
- C. Pipe pressure class shall be as specified by the Engineer but shall be minimum DR-11.
- D. Fittings shall be Butt Fusion; meeting the requirements of ASTM D3261 and AWWA C906; have a pressure rating equal to the pipe, unless otherwise specified on the plans; and may either be molded and/or fabricated.
- E. Approved manufacturers are:
 - 1. Asahi/American, Inc.
 - 2. ISCO Industries. LLC
 - 3. JM Eagle

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4. PCWASA Approved Equal

3.9.2 C900 PVC Pipe

- A. C900 PVC pipe for sanitary sewage force mains shall be in accordance with AWWA C900.
- B. Pipe pressure class shall be as required for application.
- C. PVC shall meet the requirements of Cell Classification 12454 in accordance with ASTM D1784.
- D. Joint assembly for C900 PVC pipe shall be in accordance with ASTM D3139.
- E. Gaskets for C900 PVC pipe shall be plain rubber gaskets in accordance with ASTM F477.
- F. C900 PVC pipe shall be colored green.

3.10 Valves

3.10.1 Plug Valves

- A. Eccentric plug valve.
- B. Valve body shall be ASTM A126, Class B ductile iron.
- C. Valve plug shall be Type 316 stainless steel with resilient coating.
- D. Valve stem shall be Type 316 stainless steel.
- E. Minimum 175 PSI working pressure for valves less than or equal to 12” in size. Minimum 150 PSI working pressure for valves greater than 12” in size.
- F. Operators:
 - 1. Rotary type actuator
- G. End Connections:
 - 1. Buried Valves: MJ x MJ
 - 2. Non-Buried Valves: FLG x FLG
- H. Interior and exterior surfaces shall be coated with fusion-bonded epoxy coating.
- I. Acceptable Manufacturers:
 - 1. APCO/Dezurik
 - 2. M&H Valve Company
 - 3. Val-Matic Valve & Manufacturing Corporation
 - 4. PCWASA Approved Equal

3.10.2 Check Valves for Submersible Sanitary Sewage Lift Stations

- A. Rubber flap type swing check valve in accordance with ANSI/AWWA C508.
- B. Disc material shall be EPDM.
- C. Check valve shall have a mechanical position indicator.
- D. Check valve shall have screw type backflow actuator.
- E. Interior and exterior surfaces shall be coated with fusion-bonded epoxy coating.

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- F. Acceptable Manufacturers:
 - 1. APCO/Dezurik
 - 2. Crispin-Multiplex Manufacturing Company
 - 3. Val-Matic Valve & Manufacturing Corporation
 - 4. PCWASA Approved Equal

3.10.3 Combination Air/Vacuum Valves

- A. Combination air/vacuum valve shall be suitable for potable water or sanitary sewage service.
- B. Valve body shall be Type 316 stainless steel.
- C. Maximum Operating Pressure: 250 PSI
- D. Operating Range: 0 to 250 PSI
- E. Air Release Capacity: 135 CFM
- F. Connection:
 - 1. 2" to 3": FNPT
 - 2. 4" and larger: AWWA C115/ANSI B16.1
- G. 2" to 3" connection nipples and isolation ball valves shall be Type 316 stainless steel.
- H. Interior and exterior of 4" and larger valves shall be epoxy coated.
- I. Acceptable Manufacturers:
 - 1. H-Tec Model 986
 - 2. PCWASA Approved Equal

3.11 Valve Vaults

- A. Valve vaults shall be precast concrete in accordance with ASTM C478.
- B. Concrete Compressive Strength: 4,000 PSI @ 28 days.
- C. Tongue and groove joints with preformed butyl joint sealant.
- D. Meter vault and valve vaults shall have a minimum 48"x48" aluminum access hatch. Access hatch shall be hinged with tamper proof bolts, shall have automatic hold open arm, shall have flush aluminum drop handle, and shall have a staple for pad lock. All hardware shall be Type 316 stainless steel. Access hatch shall be U.S. F. Fabrication Model APD300, or PCWASA approved equal.
- E. Steps shall be located at hatch and hatch shall be offset so that steps are accessible.

3.12 Yard Hydrants

- A. Non-freezing, compression, post type hydrant with stainless steel pipe & operating rod and self-draining barrel.
- B. Suitable for 120 PSI working pressure.
- C. Hose Connection Size: ¾"
- D. Handle shall be capable of locking with a padlock.

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- E. Acceptable Manufacturers:
 - 1. Simmons 800LF Series
 - 2. PCWASA Approved Equal

3.13 Pressure Gauges

- A. Pressure gauges shall be 3½” or 4” diameter, liquid filled, Type 316 stainless steel gauges.
- B. Range of gauge shall be approximately 2 times the normal operating pressure.
- C. Acceptable Manufacturers:
 - 1. Ametek, Model 1550
 - 2. Ashcroft, 1009 Duralife
 - 3. Trerice, 700 Series
 - 4. PCWASA Approved Equal

3.14 Diaphragm Seals

- A. Diaphragm seals shall be Type 316 stainless steel seals with flushing connections.
- B. Acceptable Manufacturers:
 - 1. Ametek, Type SF
 - 2. Ashcroft, 300 PU Series
 - 3. Trerice, Series 5
 - 4. PCWASA Approved Equal

3.15 Manholes

3.15.1 Precast Concrete Manholes

- A. Precast concrete manholes in accordance with ASTM C478.
- B. Concrete Compressive Strength: 4,000 PSI @ 28 days.
- C. Tongue and groove joints for alignment and use with preformed butyl joint seals.

3.15.2 Precast Composite Manholes

- A. Precast composite manholes with tolerances in accordance with ASTM C478.
- B. Polyester or vinyl ester resin systems designed for use with particular application. Resin content shall be minimum 7-percent by weight.
- C. Aggregate, sand, and quartz shall meet requirements of ASTM C33.
- D. Elastomeric gaskets in accordance with ASTM C443.

3.15.3 Preformed Butyl Joint Seal

- A. Preformed butyl joint seals shall be in accordance with ASTM C990.
- B. Preformed butyl joint seals shall be provided in rope form.
- C. Acceptable Manufacturers:
 - 1. Hamilton Kent, Inc. (Kent Seal No. 2)

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2. Henry Company (Ram-Nek Joint Sealant)
3. Press-Seal Gasket Corporation (EZ-STIK)
4. PCWASA Approved Equal

3.15.4 External Rubber Seal

- A. External rubber seals shall be a stretchable, self-shrinking, rubber based designed specifically for sealing manhole joints conforming to ASTM C877.
- B. Seal Width: Minimum 9”
- C. Rubber thickness: Minimum 30 mils
- D. Butyl Adhesive Thickness: Minimum 30 mils
- E. Physical Properties:
 1. Shear Strength, ASTM D816: Minimum 20 PSI
 2. Tensile Strength, ASTM D412: Minimum 50 PSI
 3. Percent Elongation, ASTM D746: Minimum 500%
- F. Acceptable Manufacturers:
 1. Press-Seal Gasket Corporation, Ez-Wrap
 2. Sealing Systems, Inc., Infi-Shield Gator Wrap
 3. PCWASA Approved Equal

3.15.5 Pipe-to-Manhole Connectors

- A. Pipe-to-manhole connectors shall be resilient connectors with stainless steel clamps in accordance with ASTM C923.
- B. Acceptable Manufacturers:
 1. A-Lok Products, Inc.
 2. Trelleborg Pipe Seals Milford, Inc. (Kor-N-Seal)
 3. PCWASA Approved Equal

3.15.6 Manhole Steps

- A. Manhole steps shall be copolymer polypropylene type with ½” Grade 60 steel reinforcing rod conforming to ASTM C478.
- B. Acceptable Manufacturers:
 1. American Step Company, Inc.
 2. M. A. Industries, Inc.
 3. PCWASA Approved Equal

3.15.7 Frames and Covers

- A. Frames and covers subject to H-20 and less loading shall be heavy duty castings manufactured from ASTM A48, Class 35B gray iron.
- B. Frames and covers subject to greater than H-20 loading shall be heavy duty castings manufactured from ASTM A536, Grade 80-5-06 ductile iron.
- C. Minimum Clear Opening: 24”

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- D. Minimum Frame Height (Bottom of Flange to Rim): 6½”
 - E. Manhole frame shall have a mud ring for centering frame on the manhole cone.
 - F. Cover shall have a diamond pattern and two (2) closed pick holes.
 - G. Type 316 stainless steel, hex-head bolts and neoprene gasket shall be provided for bolt down covers.
 - H. The word “SEWER” shall be cast in cover.
 - I. Acceptable Manufacturers:
 - 1. East Jordan Iron Works
 - 2. Neenah Foundry
 - 3. U.S. Foundry
 - 4. PCWASA Approved Equal

3.16 Pipe Supports/Pipe Hangers

- A. Pipe supports, saddles, hangers, etc. shall be manufactured from carbon steel and shall be prime coated in the factory.
- B. Pipe supports shall be adjustable.
- C. Hardware shall be Type 316 Stainless Steel.
- D. Acceptable Manufacturers:
 - 1. Anvil International
 - 2. Cooper B-Line
 - 3. PCWASA Approved Equal

3.17 Cast-In-Place Concrete

- A. Concrete mix design shall be in accordance with ACI 318.
 - 1. 28-Day Strength: 4,000 PSI
 - 2. Cement Content: Minimum 560 pounds per cubic yard
 - 3. Air Content: 5% to 7% in accordance with ASTM C231
 - 4. Water to Cement Ratio: Maximum 0.44
 - 5. Slump Range: 3 to 5 inches in accordance with ASTM C143
 - 6. Use of fly ash shall be approved by PCWASA Engineer
 - 7. Use of admixtures shall be approved by PCWASA Engineer
- B. Materials
 - 1. Cement
 - a. Domestic Portland cement in accordance with ASTM C150, Type II.
 - 2. Fine Aggregate
 - a. Washed, inert, natural sand in accordance with ASTM C33.
 - 3. Coarse Aggregate
 - a. No. 57 stone in accordance with ASTM C33.

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4. Water
 - a. Clean, potable water free from injurious amounts of oils, acids, alkalis, salts, organic matter, or other deleterious substances.
- C. The design mix shall be based on standard deviation data of prior mixes with essentially the same proportions of the same constituents or, if such data is not available, be developed by a testing laboratory, acceptable to the Engineer, engaged by and at the expense of the Contractor. Acceptance of mixes based on standard deviation shall be based on the modification factors for standard deviation tests contained in ACI 318. The water content of the concrete mix, determined by laboratory testing, shall be based on a curve showing the relation between water cementitious ratio and 7 and 28 day compressive strengths of concrete made using the proposed materials. The curves shall be determined by four or more points, each representing an average value of at least three test specimens at each age. The curves shall have a range of values sufficient to yield the desired data, including the specified design strengths as modified below, without extrapolation. The water content of the concrete mixes to be used, as determined from the curve, shall correspond to strengths 16 percent greater than the specified design strengths. The resulting mix shall not conflict with the limiting values for maximum water cementitious ratio and net minimum cementitious content as specified in Table 1.
- D. Provide testing of the proposed concrete mix or mixes to demonstrate compliance with the specified design strength requirements in conformity with the above paragraph.

3.18 Reinforcement

- A. Steel reinforcing bars shall be in accordance with ASTM A615, Grade 60.
- B. Welded wire reinforcement shall be in accordance with ASTM A185.

3.19 Chain Link Fence and Gates

- A. Chain Link Fence Fabric
 1. Chain link fence shall be galvanized fabric in accordance with ASTM A392, Type II, Class 2, 2.0 ounces per square foot.
 2. Fence height shall be six (6) feet.
 3. Core Wire Gauge: No. 9
 4. Pattern: 2-inch diamond-mesh
- B. Posts
 1. Intermediate/Line Posts
 - a. Schedule 40 galvanized steel pipe in accordance with ASTM F1083.
 - b. Diameter: 2.375"
 - c. Weight: Minimum 3.65 pounds per foot
 - d. Zinc Coating: Minimum 1.8 ounces per square foot
 2. End, Corner, Angle, Pull, and Gate Posts
 - a. Schedule 40 galvanized steel pipe in accordance with ASTM F1083.
 - b. Diameter: 4"
 - c. Weight: Minimum 9.1 pounds per foot
 - d. Zinc Coating: Minimum 1.8 ounces per square foot

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3. Top and Brace Rails
 - a. Schedule 40 galvanized steel pipe in accordance with ASTM F1083.
 - b. Diameter: 1.66"
 - c. Weight: Minimum 2.27 pounds per foot
 - d. Zinc Coating: Minimum 1.8 ounces per square foot
4. Gate Frame and Interior Bracing
 - a. Schedule 40 galvanized steel pipe in accordance with ASTM F1083.
 - b. Diameter: 1.90"
 - c. Weight: Minimum 2.72 pounds per foot
 - d. Zinc Coating: Minimum 1.8 ounces per square foot
- C. Fence Fittings
 1. All fence fittings shall be in accordance with ASTM F626.
 2. Barbed wire support arms shall have 45 degree angle and shall support three (3) strands of barbed wire.
- D. Tension Wire
 1. Zinc-coated steel tension wire in accordance with ASTM A824, Type II.
 2. Diameter: 0.177" (7 gauge)
 3. Zinc Coating: 1.20 ounces per square foot
- E. Barbed Wire
 1. Zinc-coated barbed wire in accordance with ASTM A121.
 2. Line Wire:
 - a. Two (2) strands of twisted wire
 - b. Diameter: 12½ gauge
 - c. Zinc Coating: 0.80 ounces per square foot
 3. Barbs:
 - a. Number of Points: 4
 - b. Length: Minimum 3/8"
 - c. Diameter: 14 gauge
 - d. Spacing: 5"
- F. Gates
 1. Gates shall be designed and fabricated in accordance with ASTM F900.
- G. Gate Accessories
 1. Provide gate hinges that are structurally capable of supporting the gate leaf and allow the gate to open and close without binding. Hinges shall be designed to allow the gate to open 180 degrees.
 2. Single gates shall be provided with a gate latch that holds the gate in a closed position and has provisions for a gate lock.
 3. Double gates shall be provided with a drop rod or plunger bar type gate latch arranged to engage the gate stop. Locking devices shall be constructed so that the center drop rod or

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plunger cannot be raised when the gate is locked. Gate latch shall have provisions for a gate lock.

4. Double gates shall be provided with gate stops.
5. Gates with gate leafs greater than 5 feet shall be provided with gate keepers.

3.20 Waterproofing

- A. Water repellent for above grade concrete, brick, and CMU surfaces that are not scheduled to be painted shall be a colorless, totally clean, penetrating water repellent made up of silanes and oligomeric alkoxy siloxanes.
- B. Acceptable Manufacturers:
 1. PROSOCO, Inc. Sure Klean Weather Seal Siloxane WB Concentrate
 2. Tnemec Series 662 Prime-A-Pell Plus, Modified Siloxane/Silane
 3. PCWASA Approved Equal

3.21 Coating Systems

- A. TNEMEC product names and numbers are specified herein. Equivalent materials produced by PCWASA approved manufacturers shall be acceptable.
- B. Coating Systems
 1. Ductile Iron Pipe, Pumps, and Valves – Interior Exposed
 - a. System Type: Epoxy/Epoxy
 - b. Surface Preparation: Per manufacturer’s recommendation
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - d. Finish Coat: TNEMEC Series N69 Hi-Build Epoxoline, 4 to 6 mils DFT
 - e. Total DFT: 7 to 11 mils
 2. Ductile Iron Pipe, Pumps, and Valves – Exterior Exposed
 - a. System Type: Epoxy/Epoxy/Polyurethane
 - b. Surface Preparation: Per manufacturer’s recommendation
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - d. Intermediate Coat: TNEMEC Series 69 Hi-Build Epoxoline, 4 to 6 mils DFT
 - e. Finish Coat: TNEMEC Series 73 Endura-Shield, 2 to 3 mils DFT
 - f. Total DFT: 9 to 14 mils
 3. Ductile Iron Pipe, Pumps, and Valves – Below Grade (Buried) and Immersed
 - a. System Type: Epoxy/Coal Tar Epoxy
 - b. Surface Preparation: Per manufacturer’s recommendation
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - d. Finish Coat: TNEMEC Series 46H-413 Hi-Build Tneme-Tar, 14 to 20 mils DFT
 - e. Total DFT: 17 to 25 mils
 4. Ductile Iron Pipe, Pumps, and Valves – Severe Atmosphere (Inside Pump Station Wet Wells)
 - a. System Type: Vinyl Ester
 - b. Surface Preparation: Per manufacturer’s recommendation

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- c. Prime Coat: TNEMEC Series 120-5002 Vinester, 12 to 18 mils DFT
 - d. Finish Coat: TNEMEC Series 120-5001 Vinester, 12 to 18 mils DFT
 - e. Total DFT: 24 to 36 mils
5. Structural Steel – Interior Exposed
- a. System Type: Epoxy/Epoxy
 - b. Surface Preparation: SSPC-SP6/NACE 3
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - d. Finish Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - e. Total DFT: 6 to 10 mils
6. Structural Steel – Exterior Exposed
- a. System Type: Epoxy/Polyurethane
 - b. Surface Preparation: SSPC-SP6/NACE 3
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - d. Intermediate Coat: TNEMEC Series N69 Hi-Build Epoxoline, 2 to 3 mils DFT
 - e. Finish Coat: TNEMEC Series 73 Endura-Shield, 2 to 5 mils DFT
 - f. Total DFT: 7 to 13 mils
7. Structural Steel – Below Grade (Buried) and Immersed
- a. System Type: Epoxy/Coal Tar Epoxy
 - b. Surface Preparation: SSPC-SP10/NACE 2
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 3 to 5 mils DFT
 - d. Finish Coat: TNEMEC Series 46H-413 Hi-Build Tneme-Tar, 14 to 20 mils DFT
 - e. Total DFT: 17 to 25 mils
8. Structural Steel – Severe Atmosphere (Inside Pump Station Wet Wells)
- a. System Type: Vinyl Ester
 - b. Surface Preparation: SSPC-SP5/NACE 1
 - c. Prime Coat: TNEMEC Series 120-5002 Vinester, 12 to 18 mils DFT
 - d. Finish Coat: TNEMEC Series 120-5001 Vinester, 12 to 18 mils DFT
 - e. Total DFT: 24 to 36 mils
9. Concrete Masonry Unit (CMU) – Interior Exposed
- a. System Type: Epoxy/Epoxy
 - b. Surface Preparation: SSPC-SP13/NACE 6, ICRI CSP1-3, CMU clean and dry
 - c. Prime Coat: TNEMEC Series 130 Envirofill, 60 to 80 square feet per gallon
 - d. Intermediate Coat: TNEMEC Series N69 Hi-Build Epoxoline, 4 to 6 mils DFT
 - e. Finish Coat: TNEMEC Series N69 Hi-Build Epoxoline, 4 to 6 mils DFT
 - f. Total DFT: 8 to 12 mils
10. Concrete Masonry Unit (CMU) – Exterior Exposed
- a. System Type: Acrylate/Acrylate
 - b. Surface Preparation: SSPC-SP13/NACE 6, ICRI CSP1-3, CMU clean and dry
 - c. Prime Coat: TNEMEC Series 130 Envirofill, 60 to 80 square feet per gallon
 - d. Intermediate Coat: TNEMEC Series 156 Enviro-Crete, 4 to 8 mils DFT
 - e. Finish Coat: TNEMEC Series 156 Enviro-Crete, 4 to 8 mils DFT
 - f. Total DFT: 8 to 16 mils
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11. Cast-In-Place and Precast Concrete – Interior Exposed
 - a. System Type: Epoxy/Epoxy
 - b. Surface Preparation: SSPC-SP13/NACE 6, ICRI CSP1-3, concrete cured a minimum of 28 days
 - c. Prime Coat: TNEMEC Series N69 Hi-Build Epoxoline, 4 to 6 mils DFT
 - d. Finish Coat: TNEMEC Series N69 Hi-Build Epoxoline, 4 to 6 mils DFT
 - e. Total DFT: 8 to 12 mils
12. Cast-In-Place and Precast Concrete – Exterior Exposed
 - a. System Type: Waterborne Acrylate/Waterborne Acrylate
 - b. Surface Preparation: SSPC-SP13/NACE 6, clean and dry, concrete cured a minimum of 28 days
 - c. Prime Coat: TNEMEC Series 156 Enviro-Crete, 4 to 8 mils DFT
 - d. Finish Coat: TNEMEC Series 156 Enviro-Crete, 4 to 8 mils DFT
 - e. Total DFT: 8 to 16 mils
13. Cast-In-Place and Precast Concrete – Severe Atmosphere (Inside Pump Station Wet Wells)
 - a. System Type: Vinyl Ester/Vinyl Ester
 - b. Surface Preparation: SSPC-SP13/NACE 6, ICRI CSP5, concrete cured a minimum of 28 days
 - c. Filler: TNEMEC Series 120-5003, fill voids
 - d. Prime Coat: TNEMEC Series 120-5002 Vinester, 12 to 18 mils DFT
 - e. Finish Coat: TNEMEC Series 120-5001 Vinester, 12 to 18 mils DFT
 - f. Total DFT: 24 to 36 mils
14. Coating systems not listed shall be approved by the PCWASA Engineer.

3.22 Manhole Repair Systems

- A. Polyurethane Grouts for Stopping Leaks
 1. Hydrophobic Polyurethane Grout
 - a. Hydrophobic polyurethane grout shall be a grout that when it makes contact with water, is designed to fill large voids in rock fissures, gravel layers, joints, and cracks in concrete structures and is designed for the cut-off of gushing water.
 - b. Acceptable Manufacturers:
 - 1) Hydro Active CUT, De Neef Construction Chemicals, Inc.
 - 2) Prime Flex EXP, Prime Resins, Inc.
 - 3) PCWASA Approved Equal
 2. Hydrophilic Polyurethane Gel
 - a. Hydrophobic polyurethane gel shall be a gel that when it makes contact with water, is designed to foam or gel and quickly cures to a flexible, impermeable foam or gel mass that is unaffected by mildly corrosive environments.
 - b. Acceptable Manufacturers:
 - 1) Hydro Active MultiGel NF, De Neef Construction Chemicals, Inc.
 - 2) Prime Flex Hydro Gel SX, Prime Resins, Inc.

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- 3) PCWASA Approved Equal
- 3. Hydrophilic Polyurethane Resin
 - a. Hydrophilic polyurethane resin shall be a resin that when it makes contact with water, is designed to expand quickly and cure to a tough, flexible, adhesive, closed-cell foam that is essentially unaffected by mildly corrosive environments.
 - b. Acceptable Manufacturers:
 - 1) Hydro Active Sealfoam NF, De Neef Construction Chemicals, Inc.
 - 2) Prime Flex 900 XLV, Prime Resins, Inc.
 - 3) PCWASA Approved Equal
- B. Repair Mortars
 - 1. Calcium Aluminate Repair Mortar
 - a. Calcium aluminate repair mortar shall be a blend of quartz silica, fibers, and calcium aluminate cement designed for areas of moderate hydrogen sulfide concentration.
 - b. Calcium aluminate repair mortar shall have the following characteristics.
 - 1) Compressive Strength: Minimum 8,000 PSI in accordance with ASTM C109 (Modified)
 - 2) Flexural Strength: Minimum 1,200 PSI in accordance with ASTM C293
 - 3) Shrinkage: Maximum 0.040% in accordance with ASTM C596
 - 4) Tensile Strength: Minimum 600 PSI in accordance with ASTM C496
 - 5) Freeze/Thaw After 100 Cycles: No effect in accordance with ASTM C666
 - 6) Bond Strength: Minimum 1,500 PSI in accordance with ASTM C882 (Modified)
 - c. Acceptable Manufacturers:
 - 1) Cem Tec Silatec CAM, A.W. Cook Cement Products
 - 2) PCWASA Approved Equal
 - 2. Microsilica Repair Mortar
 - a. Microsilica repair mortar shall be a blend of Portland cement, dry prozzolanic materials, and a densified microsilica powder admixture.
 - b. Microsilica repair mortar shall have the following characteristics.
 - 1) Compressive Strength: Minimum 8,000 PSI in accordance with ASTM C109
 - 2) Split Tensile Strength: Minimum 570 PSI in accordance with ASTM C496
 - 3) Flexural Strength: Minimum 1,000 PSI in accordance with ASTM C293
 - 4) Density: Minimum 118 pounds per cubic foot
 - c. Acceptable Manufacturers:
 - 1) Reliner MSP Cement, Standard Cement Material, Inc.
 - 2) PCWASA Approved Equal

3.23 Manhole Liner Systems

- A. Flexible Polyurethane Elastomer Liner
 - 1. Flexible urethane elastomer liner shall be a 100% solids material having the following characteristics.

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- a. Abrasion Resistance: 1 kg, 1,000 cycles, CS-17 Wheel – 106 mg loss in accordance with ASTM D4060
 - b. Adhesion: 300 PSI, concrete failure in accordance with ASTM D4541
 - c. Dielectric Strength: Minimum 430 V/mil in accordance with ASTM D149, Method A
 - d. Direct Impact: Steel pipe, 160 inches/pound, no failures in accordance with ASTM D2794
 - e. Durometer Hardness: Shore D 43 in accordance with ASTM D2240
 - f. Elongation: Recoverable 45% at 77 °F in accordance with ASTM D638
 - g. Flexibility: No effect bending 0.5 mm plate coated with 20 mils over mandrel of 8 mm diameter in accordance with ASTM D1737
 - h. Permeability: 0.189 grains per hour per square foot per inch Hg in accordance with ASTM E96
 - i. Thermal Conductivity: 0.133 BTU per hour per foot per °F at 77 °F in accordance with ASTM C177
 - j. Tensile Strength: 1,988 PSI at 77 °F in accordance with ASTM D638
2. Coating System
 - a. Sherwin Williams SherFlex Elastomeric Polyurethane
 - 1) Surface Preparation: SSPC-SP13/NACE 6, concrete cured a minimum of 28 days
 - 2) Prime Coat: Corobond LT Epoxy Primer, 4 to 8 mils DFT
 - 3) Finish Coat: SherFlex Elastomeric Polyurethane, 250 mils DFT
 - 4) Total DFT: 254 to 258 mils
 - b. Spraywall
 - 1) Surface Preparation: SSPC-SP13/NACE 6, concrete cured a minimum of 28 days
 - 2) Finish Coat: Spraywall, 250 mils DFT
 - 3) Total DFT: 250 mils
 3. Acceptable Manufacturers:
 - a. Sherwin Williams
 - b. Sprayroq, Inc.
 - c. PCWASA Approved Equal
- B. Epoxy Liner**
1. Epoxy liner shall be a 100% solids material having the following characteristics.
 - a. Abrasion Resistance: 1 kg, 1,000 cycles, CS-17 Wheel – <100 mg loss in accordance with ASTM D4060
 - b. Adhesion: >2,000 PSI, concrete failure in accordance with ASTM D4541
 - c. Durometer Hardness: Minimum Shore D 83 in accordance with ASTM D2240
 - d. Elongation: Minimum 1.5% in accordance with ASTM D638
 - e. Flexural Strength: Minimum 11,700 PSI in accordance with ASTM D790
 - f. Flexural Modulus: Minimum 530,000 PSI in accordance with ASTM D790
 - g. Compressive Strength: Minimum 13,500 PSI in accordance with ASTM D695
 - h. Tensile Strength: 1,988 PSI at 77 °F in accordance with ASTM D638
 2. Coating System
 - a. Quadex Structure Guard Epoxy

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- 1) Surface Preparation: Substrate must be free of all contaminants, such as oil, grease, rust, scale or deposits and have a surface profile equivalent to CSP2 to CSP5 in accordance with ICRI Technical Guideline No. 03732.
 - 2) Prime Coat: SG 1100 Primer or Structure Guard, 80 mils DFT
 - 3) Finish Coat: Structure Guard, 80 mils DFT
 - 4) Total DFT: 160 mils
3. Acceptable Manufacturers:
- a. Quadex
 - b. PCWASA Approved Equal

3.24 Stabilization Stone

- A. Stabilization stone shall be No. 57 in accordance with Georgia DOT Specification Section 800 – Course Aggregate.
- B. Stabilization stone shall be clean, durable particles of crushed stone or gravel capable of withstanding the effects of handling, spreading, and compacting without degradation.

3.25 Select Earth Backfill

- A. Select earth backfill shall be excavated SM and ML material that is free from rocks larger than 3-inches in diameter, ashes, cinders, refuse, organic material, frozen soil, and other deleterious material.
- B. Material containing more than 10-percent gravel, stones, or shale particles is not acceptable.
- C. Provide imported material if required to accomplish work.

3.26 Underground Utility Marking Tape

- A. Minimum 4 mil polyethylene film formulated to resist degradation due to acid and alkaline soils.
- B. Width shall be 3-inches.
- C. Color shall be green with the words “SEWER” printed continuously along the tape.
- D. Lettering shall be 1-inch high, permanent black type.

3.26.1 Tracer Wire

- A. Direct burial #10 AWG solid, soft drawn, high strength copper clad steel wire.
 - B. 30 volt rating.
 - C. 30-mil high molecular weight, high density, polyethylene jacket complying with ASTM D1248.
 - D. Color shall be green
 - E. Tracer wires shall be connected together using moisture displacement connectors with strain relief.
 - F. Acceptable Manufacturers:
 1. Copperhead Industries, LLC
 2. Pro-Line Safety Products Company
-

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3. PCWASA Approved Equal

3.27 Tracer Wire Access Boxes

- A. Direct bury, anti-corrosion, color coded, and locking cast iron cover Access/Test Station shall be a Lite Duty XL.
- B. For non-roadway/driveway applications.
- C. Color to be green.
- D. Acceptable Manufacturers:
 - 1. Copperhead Industries, LLC
 - 2. CP Test & Valve Products
 - 3. Valvo, Inc.
 - 4. PCWASA Approved Equal

3.28 Other Materials

- A. Materials not covered in these specifications shall be in accordance with the approved plans.

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SECTION 4 - CONSTRUCTION STANDARDS

4.1 General

- A. Sanitary sewerage systems shall be constructed by a PCWASA approved utility contractor.
- B. Sanitary sewerage systems shall be constructed in accordance with plans approved by the PCWASA.

4.1.1 Permits

- A. Construction activities shall not commence until PCWASA has granted final approval of the construction plans and specifications and Peachtree City has issued a Development Permit.
- B. Developer/Owner and/or Contractor shall be responsible for obtaining all permits and approvals required for working in the county or state right-of-way.

4.1.2 Work Hours

- A. Work shall be executed Monday through Friday during normal work hour (7:00 AM to 5:00 PM) unless otherwise approved by PCWASA.
- B. Requests for work outside of normal working hours must be received in writing by the PCWASA a minimum of 36 hours in advance of performing the work.
- C. An inspection fee equal to the employee's time and benefits will be assessed if the Contractor elects to work outside of normal working hours or on Saturday or Sunday.
- D. A fee will be assessed to any Contractor who works on Saturday or Sunday without prior approval from the PCWASA.

4.1.3 Utility Notification

- A. Contractor shall notify Utility Protection Center a minimum of three (3) days prior to beginning any clearing, grading, or excavating activities.

4.1.4 Site Safety

- A. Contractor shall be responsible for site safety. Contractor shall identify a site safety officer who shall be responsible for conducting daily safety meetings and ensuring a safe work environment.
- B. All work shall be conducted in accordance with OSHA standards. In accordance with Safety Resolution 2005-12, PCWASA will issue a "Stop Work" order if an unsafe condition exists.
- C. All equipment and tools used in the construction of sanitary sewerage systems shall be in good working order.
- D. Contractor shall provide, erect and maintain all necessary barricades, signs, lights, and danger signals necessary for the protection of the work and the safety of the public. Contractor shall provide a sufficient number of flagmen whenever it is deemed necessary.
- E. All work shall be planned and performed by the Contractor in such a manner as to minimize interference with vehicular and pedestrian traffic. Whenever work will cause disruption to the normal flow of traffic or pose a potential hazard, the Contractor shall be responsible for implementing safety measures and traffic control procedures in accordance with the "Manual on Uniform Traffic Control Devices," latest edition, published by the U.S. Department of

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Transportation, Federal highway Administration. Contractor shall obtain approval from the Peachtree City DOT, Fayette County DOT, and/or Georgia DOT prior to working in any public right-of-way.

4.2 Materials

4.2.1 General

- A. All materials and equipment provided for the project shall be new and shall be in accordance with these Standards and Specifications.
- B. Contractor shall be responsible for the delivery, handling, storage, and protection of all materials and equipment used on the project.
- C. All materials and equipment shall be boxed, crated, or otherwise protected during transportation, handling, and storage.

4.2.2 Delivery

- A. Contractor shall coordinate the delivery of all materials and equipment.
- B. Contractor shall provide all equipment and tools required for unloading and moving materials and equipment.

4.2.3 Handling

- A. Materials and equipment shall be handled in accordance with the manufacturer's instructions.
- B. Any materials or equipment that are dropped, dumped, improperly handled, or otherwise damaged during construction shall be subject to rejection by the PCWASA without further justification.
- C. Contractor shall provide all equipment and tools required for moving materials and equipment to, from, and around the project site.

4.2.4 Storage and Protection

- A. Materials and equipment shall be stored in accordance with the manufacturer's instructions.
- B. Contractor shall be responsible for the storage and protection of all materials and equipment.
- C. Pipe may be stored along the route; however, pipe shall not be strung out for more than 1,000 feet beyond the point that the pipe is being installed.
- D. Contractor shall be responsible for making the necessary arrangements for obtaining all storage locations/sites required to properly store and protect materials and equipment.
- E. Materials and equipment shall be protected from exposure to the elements and shall be kept dry at all times. The materials and equipment shall be stored above ground level and shall be adequately supported using wood blocking, wood pallets, or other approved support material.
- F. Pumps, motors, valves, electrical and instrumentation equipment, and other mechanical equipment shall be stored in a weather-tight enclosure which is maintained at a minimum air temperature of 60 °F.

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4.3 Erosion and Sedimentation Control

- A. Contractor shall be responsible for complying with all requirements of Peachtree City, Fayette County, the Georgia EPD, and the United States Army Corps of Engineers related to erosion and sediment control. This shall include obtaining all required permits and designing and implementing all erosion and sediment control measures.

4.4 Excavation

4.4.1 General

- A. Prior to beginning any excavation, an investigation shall be conducted to determine the location of existing underground structures and conflicts. The Contractor shall be responsible for repairing damage to existing structures.
- B. When obstructions not indicated on the plans interfere with the progress of work, an alteration of the plans may be required. All alterations or deviations in line and grade, or the removal, relocation, or reconstruction of the obstruction shall be approved in writing by the PCWASA.

4.4.2 Clearing and Grubbing

- A. Areas to be cleared and grubbed shall be limited to the areas shown on the PCWASA approved plans.
- B. Trees located within the area to be cleared or along the clearing limits that are not specified to be removed shall be protected with tree protection fence.
- C. All materials that are cleared and grubbed from the project site shall be properly disposed of offsite.
- D. Burning of debris onsite may be permitted; however, the Contractor must obtain a permit from the appropriate agency prior to burning.

4.4.3 Pavement Removal

- A. When approved by Georgia DOT, Peachtree City DOT, and/or PCWASA, pavement and road surfaces shall be removed as required in order to install the water distribution and/or sanitary sewerage system appurtenances.
- B. Pavement shall be cut using a rotary saw in order to ensure straight lines. If the adjacent pavement is damaged, the damaged pavement shall be cut out.
- C. The width of pavement removal for pipe trenches shall be twelve (12) inches greater than the width of the trench on each side.
- D. Driveways and sidewalks shall be removed to their full width and from control joint to control joint.
- E. Curb and gutter shall be removed from control joint to control joint.
- F. All materials shall be properly disposed of offsite.

4.4.4 Soil Excavation

- A. Excavate soil to the lines, grades, and dimensions shown on the PCWASA approved plans and as necessary to accomplish work. Do not over excavate without authorization from the PCWASA Engineer.

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- B. Excavated soil shall be stockpiled in locations designated on the PCWASA approved plans. If a stockpile area is not designated, soil shall be stockpiled in a manner such that it will not obstruct the work nor endanger the workers or the public, obstruct sidewalks, driveways, roadways, or other structures.
- C. Excavated soil shall not be placed against tree trunks.
- D. Excavated soil that is unsuitable or exceeds the quantity required for fill or backfill shall be disposed of offsite.

4.4.5 Rock Excavation

- A. When rock excavation is necessary, all rock shall be removed to provide a clearance below and on each side of all pipe, valves, and fittings. The required clearance for various nominal diameters of pipe is as follows:

Nominal Pipe Diameter (inches)	Clearance Around Pipe (inches)
4	4
6	6
8 to 18	8
18 to 30	10
Greater Than 30	12

- B. Contractor shall obtain written approval from the PCWASA prior to conducting any blasting activities.
- C. Rock blasting shall be conducted in accordance with Chapter 120-3-10-0.4 of the “Rules and Regulations for Explosives and Blasting Agents” and all other applicable local, state, and federal regulations.
- D. A Blasting Report consisting of a pre-blast report, drilling log, and a post-blast report shall be submitted to PCWASA after rock blasting is complete.
- E. Rock blasting shall be conducted by a licensed blasting contractor.
- F. After rock removal, trench shall be backfilled with No. 57 stabilization stone up to the grade of the pipe or structure to be installed.
- G. Excavated rock shall be disposed of offsite unless otherwise approved by PCWASA.

4.4.6 Trench Excavation

- A. Trenches shall be excavated to the required alignment, depth, and width required to install the pipe or structure and shall conform to all federal, state, and local regulations for the protection of workers.
- B. The Contractor is responsible for trench safety. PCWASA will issue a Stop Work order if unsafe conditions exist.
- C. The width of the trench shall be of sufficient width to install the pipe, accommodate compaction equipment, and make necessary inspections. When required, trenches shall be made wider to permit the placing of shoring.

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- D. Trench bottom shall be constructed to provide a firm, stable, and uniform support for the full length of the pipe. Blocking shall not be used to change pipe grade or to intermittently support pipe across excavated sections.
- E. If unsuitable soil exists, the trench shall be over-excavated to remove the unsuitable soil and backfilled with No. 57, or suitable PCWASA approved, stabilization stone. The PCWASA Inspector shall determine the depth of over excavation.
- F. Open trenches shall be limited to 300 feet in length and shall be backfilled at the end of each work day.
- G. Open trenches shall be barricaded or covered until they are completely backfilled.
- H. Excavated soil that is unsuitable or exceeds the quantity required for backfill shall be disposed of offsite.

4.4.7 Dewatering

- A. Where running or standing water occurs in an excavation or where the soil in the bottom of an excavation displays a “quick” tendency, the water shall be removed by pumping.
- B. The excavation shall be kept free from water during installation operations by suitable means, such as well points, until the pipe has been installed and backfill placed and compacted to a sufficient height to prevent pipe flotation.
- C. Contractor shall provide all labor, materials, and equipment required to remove and control water as required to accomplish work.
- D. Contractor shall properly dispose of water in a manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed work, or adjacent property. Contractor shall be responsible for any damage caused by the dewatering operation.
- E. Contractor shall be responsible for obtaining any required permits, required by regulatory agencies, for discharging water from dewatering operations.

4.5 Installation

4.5.1 General

- A. Pipe shall be laid and maintained on lines and grades established by the PCWASA approved plans and specifications.
- B. Fittings, valves, hydrants, manholes, valve vaults, and other structures shall be installed at the locations shown on the PCWASA approved plans unless otherwise approved in writing by the PCWASA.
- C. Prior to installation, the interior of pipes, fittings, valves, and other appurtenances shall be cleaned free of dirt and debris.
- D. Materials shall be installed in accordance the manufacturer’s recommendations.
- E. Contractor shall provide all labor, materials, and equipment required to install water distribution and/or sanitary sewerage system appurtenances.

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4.5.2 Ductile Iron Pipe

- A. Ductile iron pipe shall be bedded in accordance with ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51, Type 5 Laying Condition unless otherwise approved by the PCWASA Engineer.
 - 1. Ductile iron pipe shall be bedded to its centerline with well compacted No. 57 stabilization stone. There shall be a minimum of 4-inches of No. 57 stabilization stone under the pipe.
 - 2. Backfill from centerline of pipe to top of pipe with No. 57 stabilization stone or select earth backfill. Backfill shall be placed in 6-inch lifts and manually compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D698, prior to placing succeeding lifts.
 - 3. Backfill from top of pipe to finished grade with select earth backfill. Backfill shall be placed in 6-inch lifts and mechanically compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D698, prior to placing succeeding lifts.
- B. Ductile iron pipe that is installed above grade (non-buried) shall be properly supported with pipe supports, as approved by PCWASA.

4.5.3 PVC and HDPE Pipe

- A. SDR 26 PVC pipe and HDPE pipe shall be bedded in accordance with AWWA C605, Type 5 Bedding.
 - 1. PVC and HDPE pipe shall be bedded to crown of pipe with well compacted No. 57 stabilization stone. There shall be a minimum of 4-inches of No. 57 stabilization stone under the pipe.
 - 2. Backfill from top of pipe to finished grade with select earth backfill. Backfill shall be placed in 6-inch lifts and mechanically compacted to a minimum of 90 percent of the maximum dry density, as determined by ASTM D698, prior to placing succeeding lifts.

4.5.4 Valves

- A. Valves shall be installed plumb with the operator straight up and the valve aligned with the direction of the pipe. Valves shall not be used to bring misaligned pipe into alignment during installation.
- B. Valves shall be properly supported so that they do not place any undue stress on the pipe.
- C. Valves shall be placed on top of a minimum of eight (8) inches of No. 57 stabilization stone. No. 57 stabilization stone shall extend up to ½ of the valve diameter and shall extend out twelve (12) inches in all directions from the valve.
- D. A valve box shall be installed plumb over the valve operator and adjusted so that it is flush with the finished grade. A concrete collar shall be cast around the top of the valve box.
- E. Valves installed above grade (non-buried) shall be properly supported with pipe supports.

4.5.5 Yard Hydrants

- A. Yard hydrants shall be set plumb in the locations shown on the PCWASA approved plans.
- B. Yard hydrant shall be placed on top of a minimum of eighteen (18) inches of No. 57 stabilization stone. No. 57 stabilization stone shall extend up six (6) inches above the drain hole and shall extend out six (6) inches in all directions from the yard hydrant. Minimum two (2) cubic feet of No. 57 stabilization stone.

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4.5.6 Thrust Blocking

- A. Thrust blocking shall be installed at all bends, tees, dead-ends, and locations where thrust may be developed in the pressurized pipeline.
- B. Thrust blocking shall consist of cast-in-place concrete, tie rods, combinations thereof, or other methods approved by the PCWASA Engineer.
- C. Thrust blocking shall be placed against undisturbed ground.
- D. A minimum 10-mil plastic sheet shall be placed between the concrete and the pipe and fittings. Concrete shall not cover the bolts and nuts on the valves and fittings.
- E. Pipe that is encased in concrete shall be poly-wrapped.

4.5.7 Manholes and Wet Wells

- A. Manholes and wet wells shall be set plumb in the locations shown on the PCWASA approved plans.
- B. Manholes and wet wells shall be placed on top of a minimum of six (6) inches of No. 57 stabilization stone. No. 57 stabilization stone shall extend a minimum of six (6) inches beyond the outside of the structure in all directions. Unsuitable ground conditions may require additional and/or larger stabilization stone.
- C. Manholes shall be positioned such that the influent and effluent pipes enter the center of their respective openings and do not pinch the resilient seal. Pipe shall not rest on the invert of the opening.
- D. Prior to joining sections, tongue and groove joints shall be cleaned free of dirt and debris.
- E. Manhole sections shall be aligned such that the interior manhole steps are vertically aligned.
- F. Resilient pipe seal clamps shall be tightened in accordance with the manufacturer's instructions.
- G. Manhole lifting holes shall be sealed using non-shrink grout throughout the entire depth of the hole.
- H. Manholes and wet wells shall be backfilled with select earth backfill. Backfill shall be placed in 6-inch lifts and mechanically compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D698, prior to placing succeeding lifts.
- I. An invert shall be built in each manhole to transition flow from the influent pipe to the effluent pipe. The invert shall have a "U" shape.
- J. Manholes that have a sanitary sewage force main discharging into them plus all manholes located within 1,600 feet downstream of the discharge manhole and all other manholes that are subject to corrosion shall be lined with a fiberglass reinforced epoxy resin lining system or elastomeric polyurethane lining system. Liner shall be installed after the manhole has been set and backfilled. After liner is installed, the manhole shall be Holiday tested to verify coating does not contain any discontinuities.

4.5.8 Valve Vaults

- A. Valve vaults shall be set plumb in the locations shown on the PCWASA approved plans.

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- B. Valve vaults shall be placed on top of a minimum of six (6) inches of No. 57 stabilization stone. No. 57 stone shall extend a minimum of six (6) inches beyond the outside of the vault in all directions.
- C. The top of the valve vault shall be six (6) inches above grade when located “out of pavement” and shall be set flush with grade when located “in pavement.” Valve vaults shall not be set in a depression.
- D. Openings for pipe shall be sealed using non-shrink grout.
- E. Valve vaults shall be backfilled with select earth backfill. Backfill shall be placed in 6-inch lifts and mechanically compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D698, prior to placing succeeding lifts.

4.5.9 Pavement Replacement

- A. Pavement shall be replaced in accordance with Georgia DOT, Fayette County DOT, and/or Peachtree City DOT standard specifications.

4.6 Coatings and Linings

- A. The following items/materials shall be painted or lined with the appropriate coating system.
 - 1. Above grade concrete, brick, and CMU that is scheduled to be painted
 - 2. Above grade (non-buried) and submerged ductile iron pipe and fittings
 - 3. Valves
 - 4. Pipe supports
 - 5. Structural steel
 - 6. Equipment and appurtenances
 - 7. Pump station wet wells
 - 8. Manholes that a force main discharges into plus all manholes within 1,600 feet of the discharge manhole.
 - 9. Other manholes subject to corrosion as determined by the PCWASA Engineer
- B. All above grade concrete, brick, and CMU surfaces that are not scheduled to be painted shall be applied with a clear water repellent.

4.7 Testing

4.7.1 Hydrostatic Testing of Sanitary Sewage Force Mains

- A. Sanitary sewage force mains shall be hydrostatically tested in accordance with AWWA C600.
- B. Hydrostatic test shall be witnessed by the PCWASA Inspector.
- C. Pipe shall be slowly filled with potable water until all air is removed and the line is pressurized to the test pressure. Service lines shall be included as part of the hydrostatic test.
- D. Test pressure shall be 1.5 times the maximum working pressure or 150 PSI, whichever is greater as measured at the lowest point in the system.
- E. Test pressure shall not vary by more than ± 5 PSI for the duration of the test.
- F. Test shall last a minimum of two (2) hours.

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- G. Makeup water shall be added, as required, to maintain the pressure within 5 PSI of the test pressure. The maximum amount of makeup water allowed shall be determined by the following formula.

$$L = \frac{SD\sqrt{P}}{133,200}$$

Where:

L = Testing Allowance (Makeup Water), GPH

S = Length of Pipe Tested, ft

D = Nominal Diameter of Pipe, in

P = Test Pressure, PSIG

- H. Test shall be considered acceptable if pressure remains within the acceptable limits for the entire test period and the makeup water volume does not exceed the maximum allowable.
- I. When unsatisfactory test results are obtained, repair pipe and retest until pipe passes hydrostatic test. Repair visible leaks regardless of quantity of leakage.

4.7.2 Air Pressure Testing of Gravity Sewer Lines

- A. Gravity sewer piping shall be low pressure air tested in accordance with UNI-B-6.
- B. Low pressure air test shall be witnessed by the PCWASA Inspector.
- C. Gravity sewer lines shall be tested from manhole to manhole. Lines shall be free of dirt and debris and no personnel shall be permitted in the manholes when the test is being conducted.
- D. The gravity sewer line shall be pressurized to 4.0 PSIG greater than the average back pressure of any groundwater above the pipe, but no greater than 9.0 PSIG.
- E. After temperatures have equalized and the pressure has stabilized at 4.0 PSIG (greater than the average groundwater back pressure), the air supply shall be shut off. The pressure shall then be decreased to no less than 3.5 PSIG (greater than the average groundwater back pressure).
- F. The time shall then start and the pressure shall not drop more than 1.0 PSIG during the testing period. The minimum test time for various diameter pipes is presented below.

Nominal Pipe Diameter (inches)	Minimum Test Time (min:sec)	Maximum Length for Minimum Test Time (feet)	Test Time for Longer Length (L) Sections (seconds)
8	7:34	298	1.520 L
10	9:26	239	2.374 L
12	11:20	199	3.418 L
15	14:10	159	5.342 L
16	15:07	149	6.078 L
18	17:00	133	7.692 L
20	18:54	119	9.497 L
24	22:40	99	13.674 L
30	28:20	80	21.366 L
36	34:00	66	30.768 L

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- G. In general, lateral sewers may be ignored when computing required test time. However, if a section fails to pass the air test when lateral sewers have been ignored, the test time shall be recomputed to include all lateral sewers using the method of calculation in UNI-B-6.
- H. Test shall be considered acceptable if pressure does not drop more than 1.0 PSIG during the test period.
- I. When unsatisfactory test results are obtained, repair pipe and retest until pipe passes low pressure air test. Repair visible leaks regardless of quantity of leakage.

4.7.3 Television Inspection of Gravity Sewer Lines

- A. Gravity sewer lines shall be television inspected after the trench is backfilled and compacted.
- B. Prior to television inspection, gravity sewer lines shall be cleaned using high pressure water. Water usage for cleaning gravity sewer lines shall be metered.
- C. Television inspection shall be performed by a National Association of Sewer Service Companies (NASSCO) certified contractor using pan and tilt camera.
- D. Pipeline Assessment and Certification Program (PACP) and Manhole Assessment and Certification Program (MACP) coding shall be used in inspection reports.
- E. Television inspection shall be witnessed by the PCWASA Inspector.
- F. Television inspection shall be recorded.
- G. At a minimum, the television inspection shall look for the following deficiencies.
 - 1. Cracks in the pipe and/or lining
 - 2. Rolled gaskets
 - 3. Leaking joints
 - 4. Deviations from line and grade
 - 5. Pipe deformations
 - 6. Other deficiencies
- H. A television inspection report containing the following information shall be submitted to the PCWASA.
 - 1. Length of pipe between manholes
 - 2. Location of services
 - 3. Deficiencies
- I. No paving shall be done until gravity sewer lines are passed by the PCWASA.

4.7.4 Mandrel Testing of Gravity Sewer Lines

- A. If the television inspection indicates that there is excessive deflection of the sewer line or that the sewer line is egg shaped, the sewer lines shall be tested for deformation using a mandrel in accordance with ASTM D3034.
- B. The sewer line shall be capable of passing a mandrel which has a diameter that is 95 percent of the diameter of the sewer line.
- C. Any sewer line that fails the mandrel test shall be re-laid or replaced as required.

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4.7.5 Hydrostatic Testing of Water Retaining Structures

- A. Water retaining structures shall be hydrostatically tested in accordance with ACI 350.1 and 350.1R.
- B. Hydrostatic test shall be witnessed by the PCWASA Inspector.
- C. Hydrostatic testing shall not begin until concrete has cured for a minimum of 14 days.
- D. Water retaining structures shall be filled with potable water to the maximum operating level within the structure. Water level shall be maintained at this level for 72 hours prior to beginning the actual test.
- E. Test shall be considered acceptable when there is no visible sign of flowing or seeping water and no measureable loss of water (HST-NML) which means the drop in water surface shall not exceed 1/8 inch in three (3) days.
- F. When unsatisfactory test results are obtained, repair water retaining structure and retest until structure passes hydrostatic test. Repair visible leaks regardless of quantity of leakage.

4.8 Field Testing and Starting of Systems

- A. Contractor is responsible for start-up of all equipment and mechanical systems.
- B. Contractor shall provide all labor and materials required to perform start-up of all equipment and mechanical systems.
- C. Contractor shall obtain the services of the equipment manufacturer(s), as required, to certify the installation.
- D. Equipment manufacturer(s) shall certify in writing that their equipment has been installed properly, the equipment functions properly, and the equipment warranty is valid. Written certification shall be on the manufacturer's letterhead.
- E. Contractor shall obtain the services of the equipment manufacturer(s), as required, to train PCWASA personnel on the operation and maintenance of their equipment.
- F. A copy of the start-up test report and manufacturer's certification shall be given to the PCWASA.

4.9 Site Cleanup

- A. Contractor shall remove all unused material, excess soil and rock, and all other debris from the construction site as closely behind the work as practical. If the Contractor fails to maintain clean-up responsibilities as directed by the PCWASA Inspector, the PCWASA may issue a "Stop Work" order.
- B. All trenches shall be backfilled and tamped before the end of each work day.
- C. Prior to requesting final completion, the Contractor shall complete the following cleanup tasks.
 - 1. Remove and properly dispose of all accumulated debris and all excess material of any kind from the job site.
 - 2. Repair or replace any work, trees, lawns, shrubs, fences, flower beds, drainage culverts, or any other property damaged by the construction. All items damaged beyond repair shall be replaced with new material of equal quality.

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

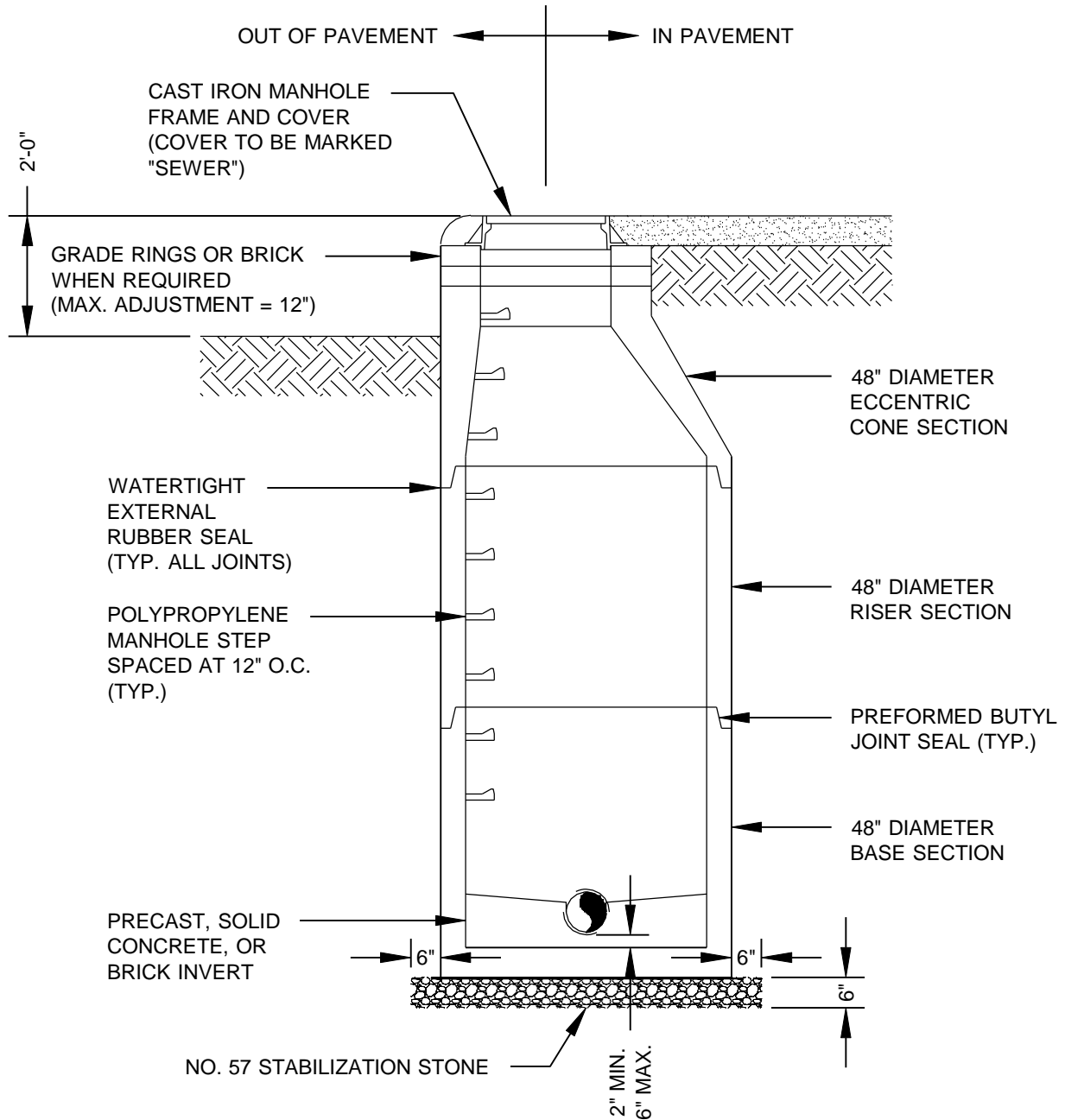
Section 4

Construction Standards

3. Clean all road surfaces.

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

**APPENDIX A
Standard Sewer Details**



NOTES:

1. MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL HAVE BOLT-DOWN LIDS WITH NEOPRENE SEALS.
2. MANHOLES SHALL HAVE A MINIMUM DROP OF 0.10 FEET FROM INFLUENT INVERT TO EFFLUENT INVERT.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

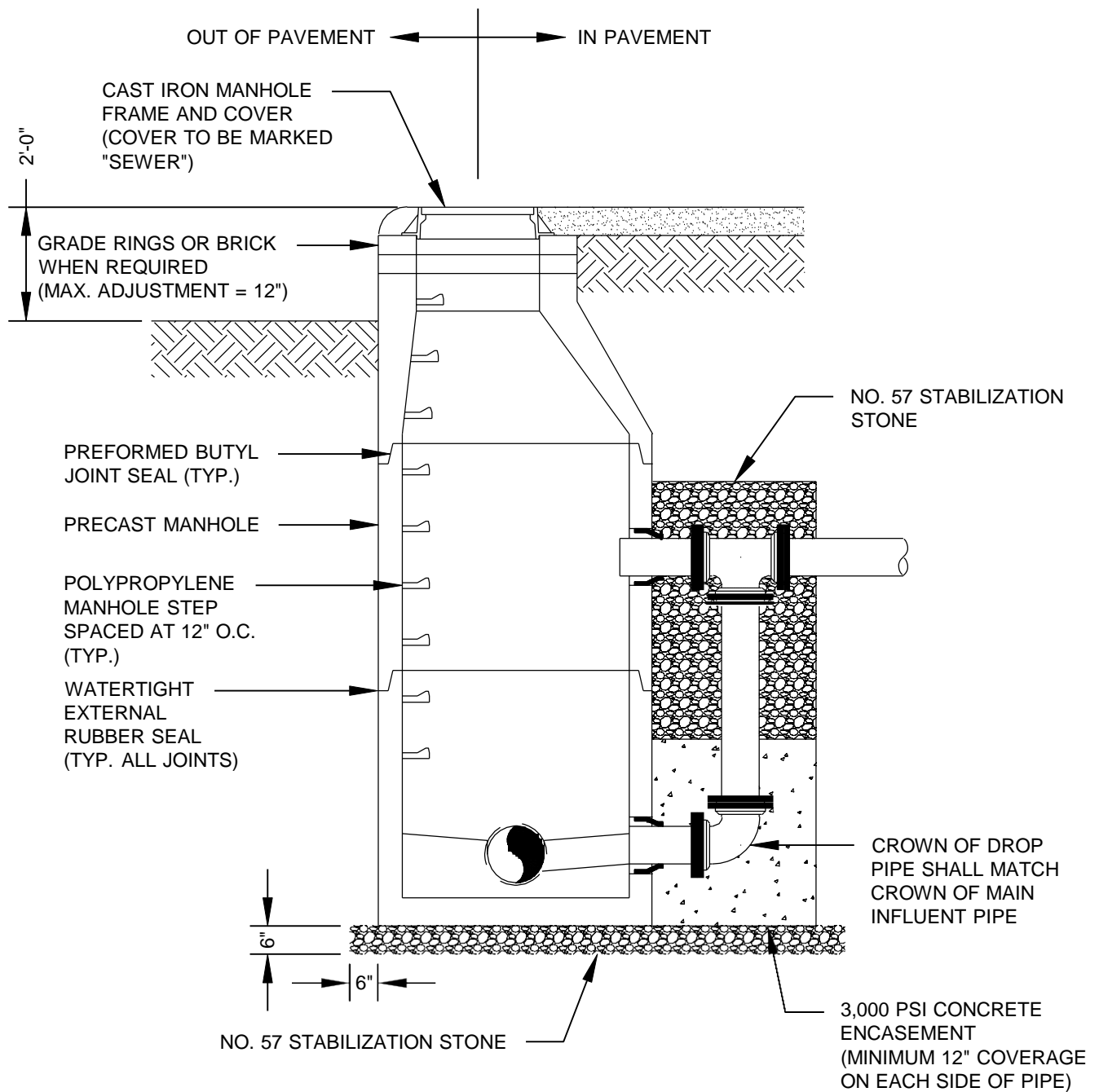
STANDARD PRECAST MANHOLE

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

101



NOTES:

1. OUTSIDE DROPS REQUIRED WHEN INSIDE DROP IS GREATER THAN 2 FEET.
2. MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL HAVE BOLT-DOWN LIDS WITH NEOPRENE SEALS.
3. PIPE ENCASED IN CONCRETE SHALL BE WRAPPED WITH MINIMUM 10 MIL PLASTIC.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

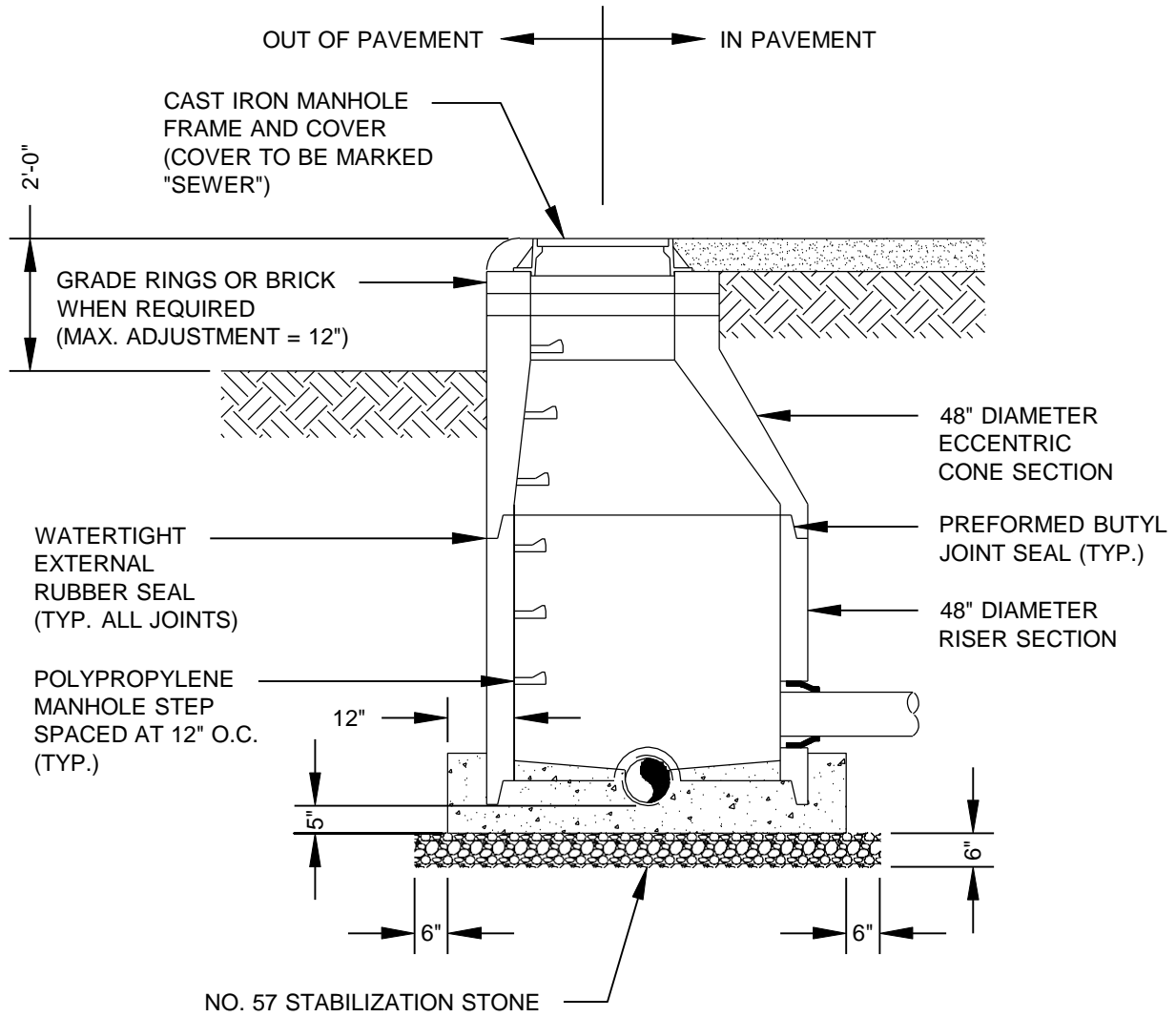
DROP MANHOLE

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

102



NOTES:

1. ALL JOINTS AROUND EXISTING AND PROPOSED SEWER LINE SHALL BE GROUTED WATERTIGHT.
2. AFTER DOGHOUSE MANHOLE CONSTRUCTION IS COMPLETE, TOP HALF OF EXISTING SEWER LINE SHALL BE CUT OUT USING A METHOD APPROVED BY THE HCWSA INSPECTOR.
3. MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL HAVE BOLT-DOWN LIDS WITH NEOPRENE SEALS.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

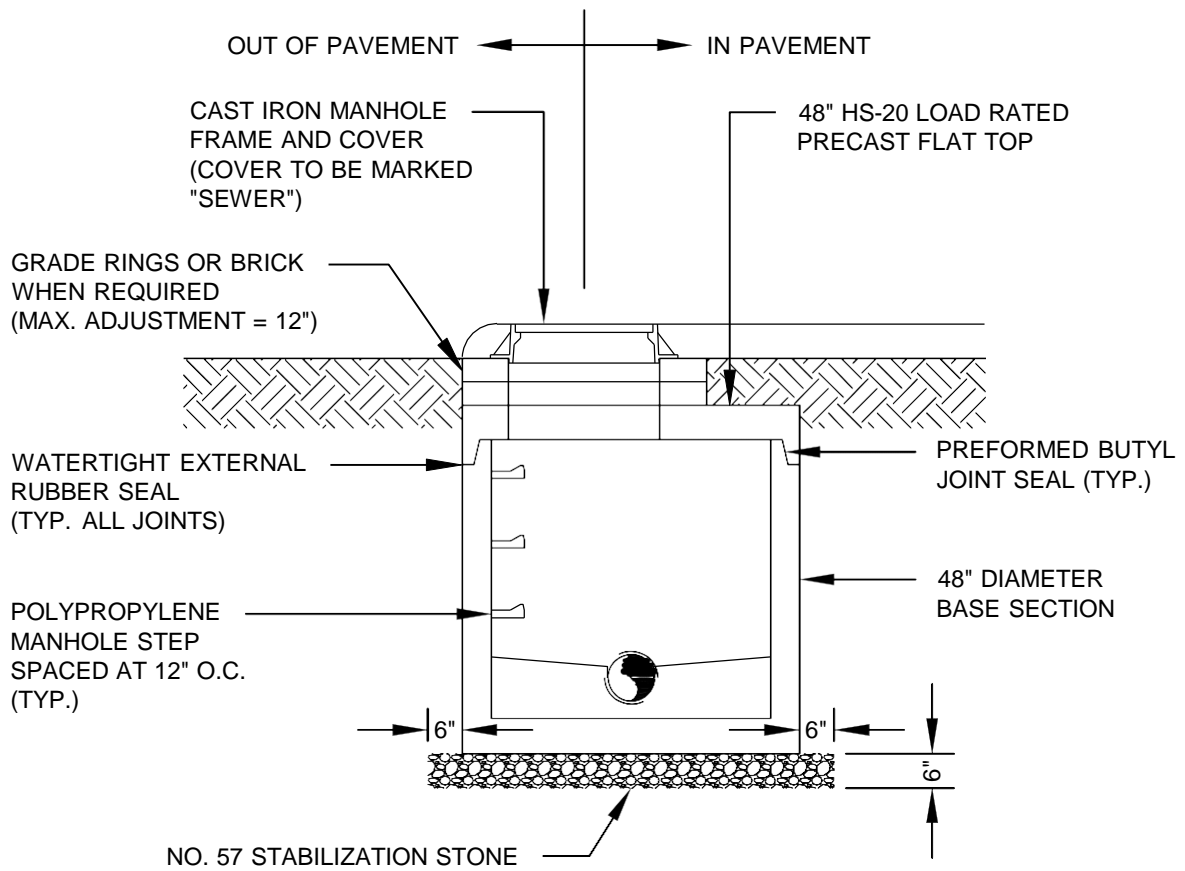
DOGHOUSE MANHOLE

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

103



NOTES:

1. MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL HAVE BOLT-DOWN LIDS AND NEOPRENE SEALS.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

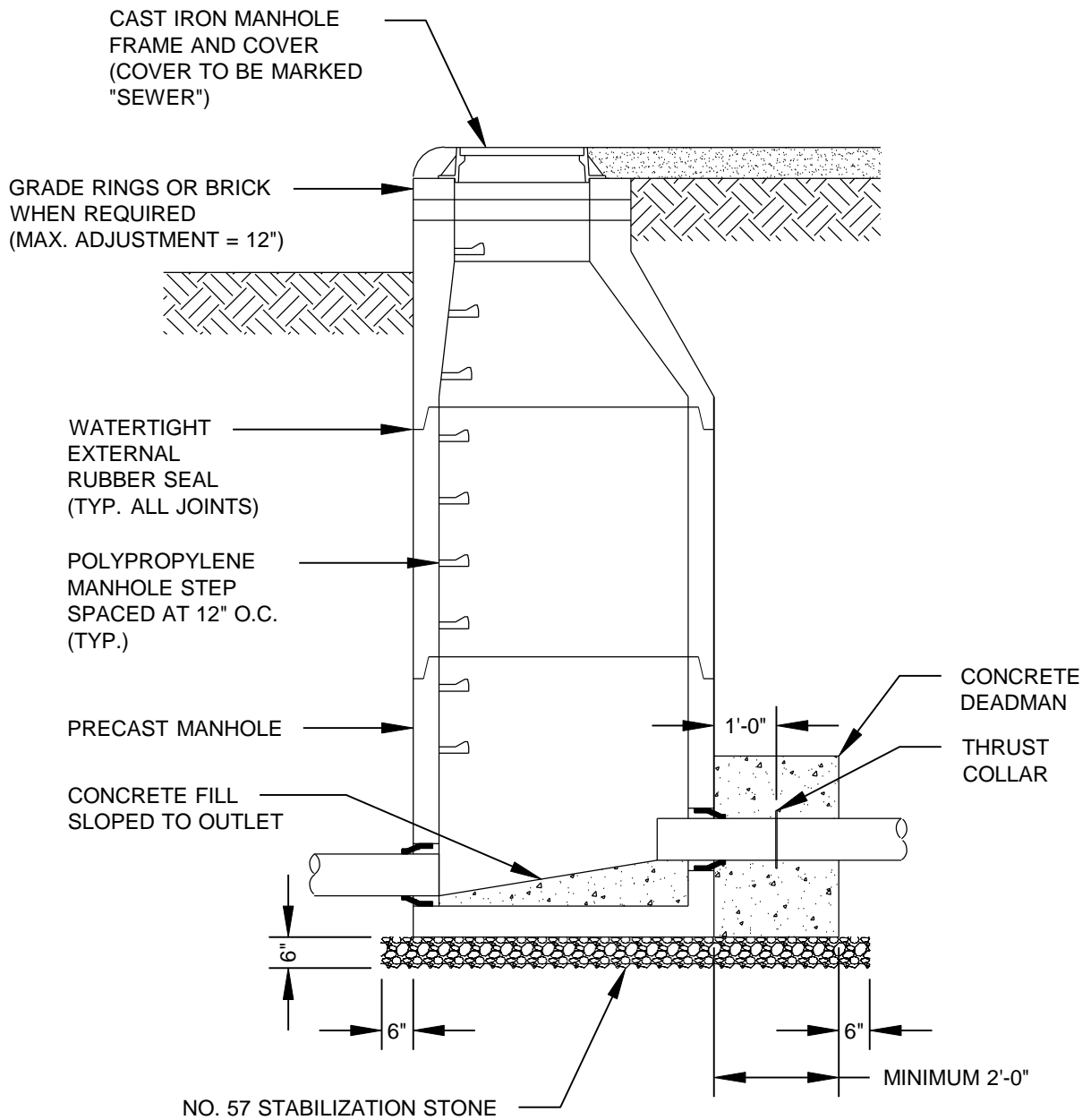
SHALLOW MANHOLE

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

104



NOTES:

- DISCHARGE MANHOLE AND ALL MANHOLES WITHIN 1,600 FEET OF THE DISCHARGE MANHOLE SHALL BE LINED WITH A CORROSION RESISTANT FLEXIBLE ELASTOMERIC POLYURETHANE OR EPOXY LINING SYSTEM.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

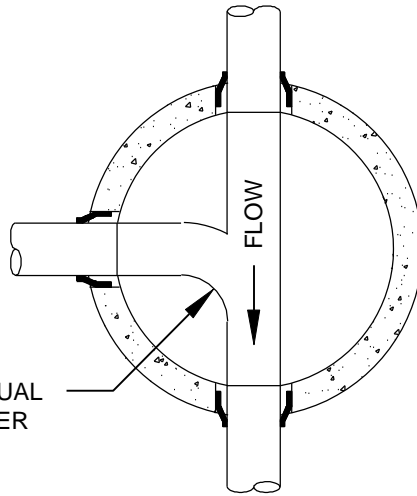
**SANITARY FORCE MAIN
DISCHARGE MANHOLE**

REVISED: 08312015

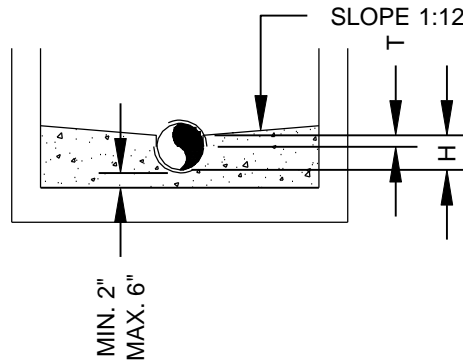
SCALE: N.T.S.

DETAIL NO.

105



MINIMUM RADIUS EQUAL TO NOMINAL DIAMETER OF PIPE



NOMINAL PIPE DIAMETER	VERTICAL TANGENT "T"	HEIGHT OF WATER TABLE "H"
8"	2"	6"
10"	3"	8"
12"	3"	9"
15"	4"	12"
18"	5"	14"
21"	6"	17"
24"	7"	19"
27"	8"	21"
30"	9"	24"
33"	10"	26"
36"	0'-11"	29"

NOTES:

- "H" AND "T" DIMENSIONS APPLY ONLY AT THE UPSTREAM INSIDE EDGE OF MANHOLE.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

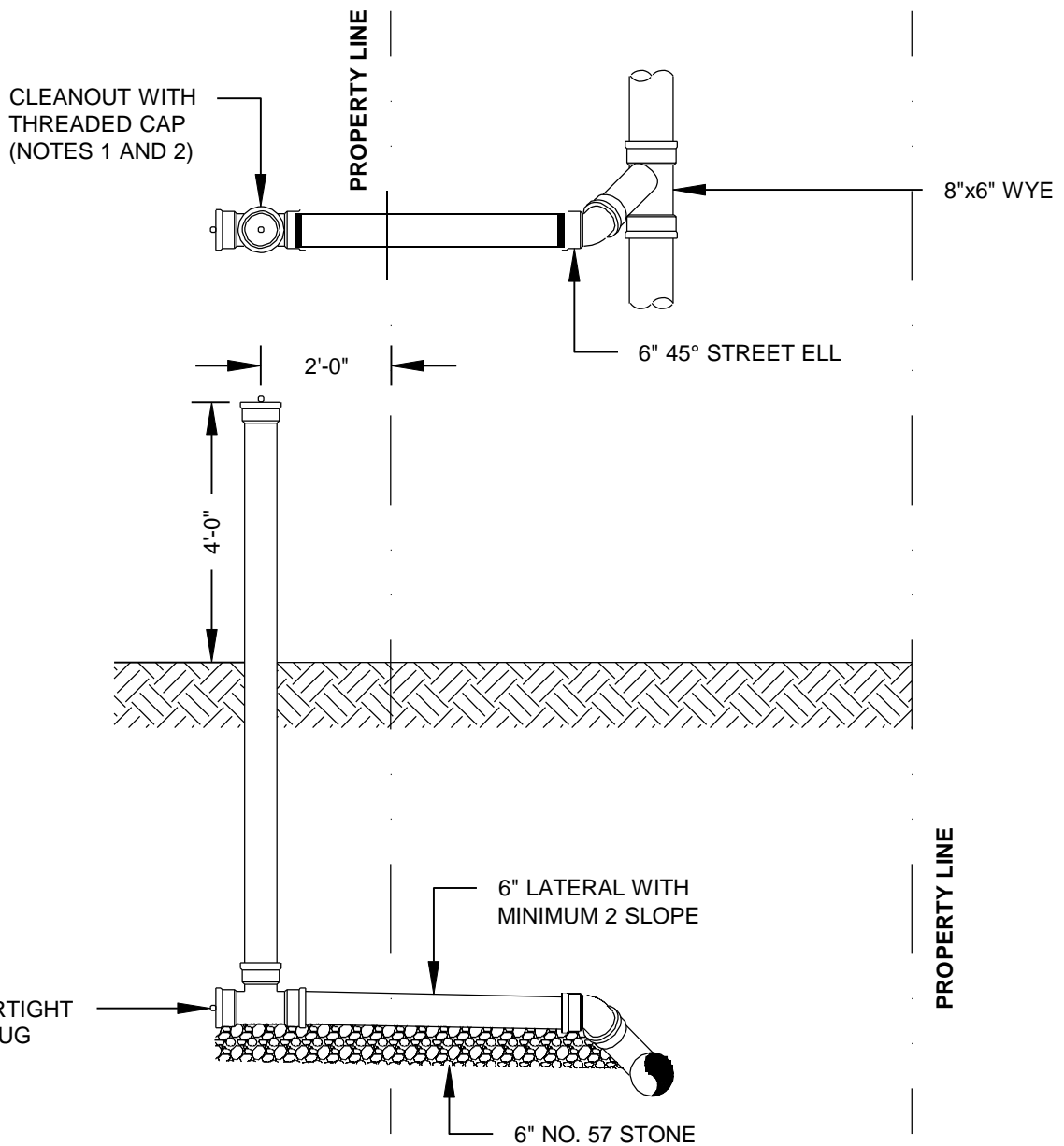
STANDARD MANHOLE INVERT

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

106



NOTES:

1. CLEANOUT SHALL BE LOCATED 2-FEET INSIDE PROPERTY LINE.
2. CLEANOUT RISER SHALL EXTEND A MINIMUM OF 4- FEET ABOVE FINISHED GRADE UNTIL SERVICE LINE IS TIED IN AND FINAL GRADING IS COMPLETE. AT THAT TIME, IT SHALL BE CUT AND CAPPED (WITH A THREADED CAP) AT FINISHED GRADE.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

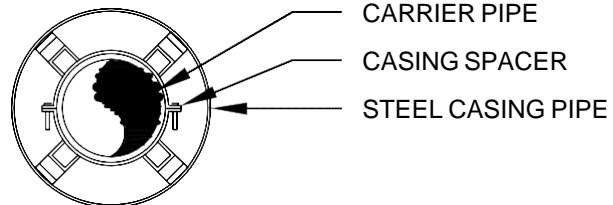
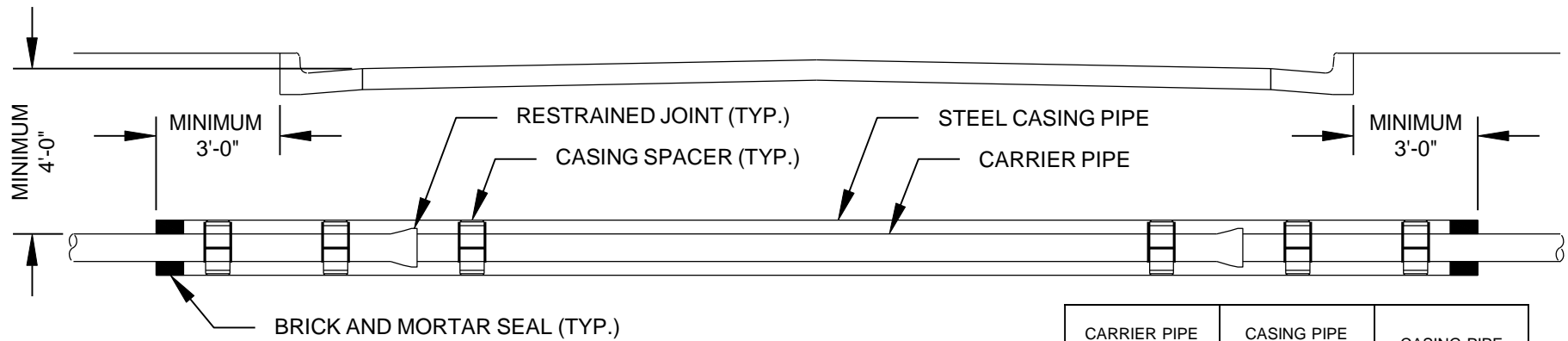
SEWER SERVICE LATERAL AND CLEANOUT DETAIL

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

107



CARRIER PIPE NOMINAL DIAMETER (IN)	CASING PIPE NOMINAL DIAMETER (IN)	CASING PIPE THICKNESS (IN)
8	16	0.250
10	18	0.250
12	20	0.313
16	26	0.375
18	28	0.406
20	30	0.438
24	36	0.500
30	42	0.500
36	48	0.500

NOTES:

1. JOINTS INSIDE CASING PIPE SHALL BE RESTRAINED.
2. PROVIDE A MINIMUM OF 2 CASING SPACERS PER JOINT OF PIPE.
3. ENDS OF CASING PIPE SHALL BE SEALED WITH 8" BRICK AND CEMENT MORTAR.
4. ALL COUNTY ROAD CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH FAYETTE COUNTY DOT STANDARDS AND PERMIT REQUIREMENTS.
5. ALL STATE HIGHWAY CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH GEORGIA DOT STANDARDS AND PERMIT REQUIREMENTS.
6. ALL RAILROAD CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH AMERICAN RAILWAY ENGINEERING ASSOCIATION REGULATIONS AND IN ACCORDANCE WITH PERMIT REQUIREMENTS.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

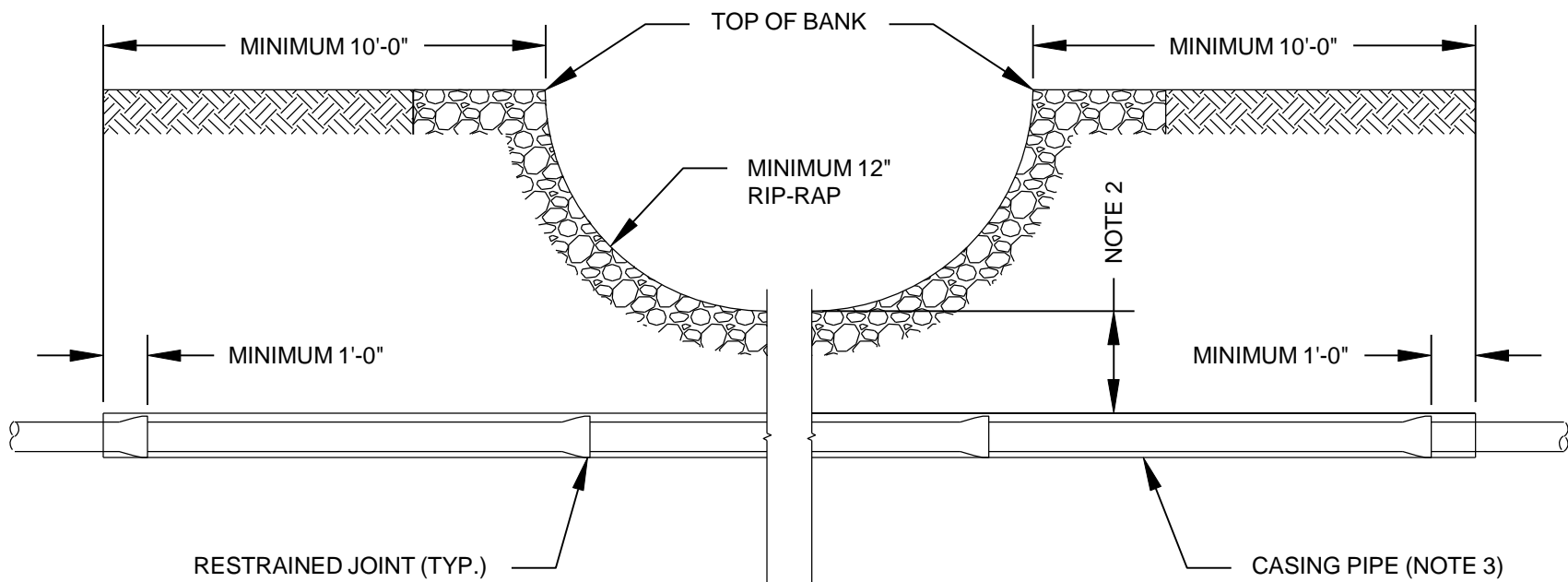
JACK AND BORE INSTALLATION

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

108



NOTES:

1. PIPE USED FOR CREEK CROSSINGS SHALL BE DUCTILE IRON PIPE. JOINTS SHALL BE RESTRAINED FOR A MINIMUM OF 20 FEET BEYOND TOP OF BANK ON EACH SIDE OF CREEK.
2. MINIMUM DEPTH OF COVER ABOVE CASING PIPE SHALL BE 12-INCHES.
3. REFER TO DETAIL 108 FOR CASING DIAMETER AND DETAILS.
4. PLACE STONE RIP-RAP APPROXIMATELY 5 FEET UPSTREAM AND 5 FEET DOWNSTREAM FROM CENTERLINE OF PIPE ALONG CREEK BED.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

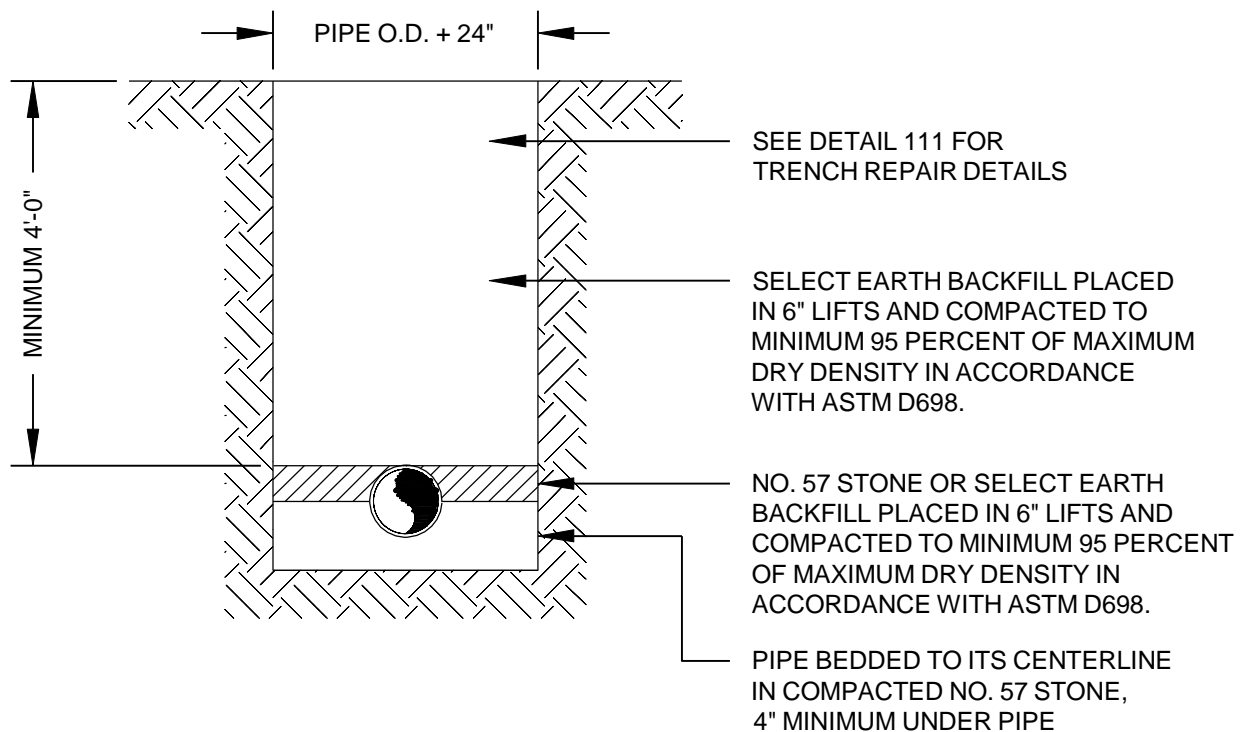
CREEK CROSSING

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

109



NOTES:

1. DUCTILE IRON PIPE SHALL BE BEDDED IN ACCORDANCE WITH ANSIAWWA C150A21.50 AND ANSIAWWA C151A21.51, TYPE 5 LAYING CONDITION UNLESS OTHERWISE APPROVED BY PEACHTREE CITY WATER AND SEWERAGE AUTHORITY.
2. POLYVINYL CHLORIDE (PVC) AND HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL BE BEDDED IN ACCORDANCE WITH AWWA C605, TYPE 5 LAYING CONDITION.
3. SELECT EARTH BACKFILL SHALL BE EXCAVATED SILTY SAND (SM) AND SILT (ML) MATERIAL THAT IS FREE FROM ROCKS LARGER THAN 3-INCHES IN DIAMETER, ASHES, CINDERS, REFUSE, ORGANIC MATERIAL, FROZEN SOIL, AND OTHER DELETERIOUS MATERIAL.
4. MINIMUM DEPTH OF COVER SHALL BE 4'-0" UNLESS OTHERWISE APPROVED BY THE PEACHTREE CITY WATER AND SEWERAGE AUTHORITY.
5. IF THE BOTTOM OF THE TRENCH IS ROCK, THE TRENCH SHALL BE EXCAVATED TO THE DEPTH BELOW THE BOTTOM OF THE PIPE SPECIFIED IN THE STANDARD SPECIFICATIONS AND BACKFILLED TO THE BOTTOM OF THE PIPE WITH NO. 57 STABILIZATION STONE.
6. IF THE SOIL IN THE BOTTOM OF THE TRENCH IS DETERMINED TO BE UNSUITABLE, THE TRENCH SHALL BE OVER EXCAVATED TO A DEPTH DETERMINED BY THE PEACHTREE CITY WATER AND SEWERAGE AUTHORITY AND BACKFILLED TO THE BOTTOM OF THE PIPE WITH NO. 57 STABILIZATION STONE.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

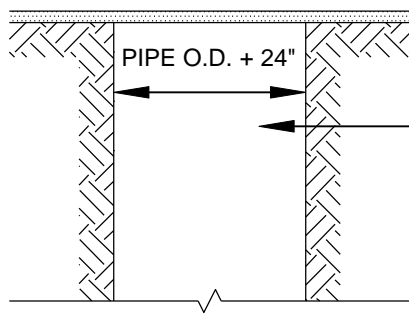
PIPE BEDDING DETAIL

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

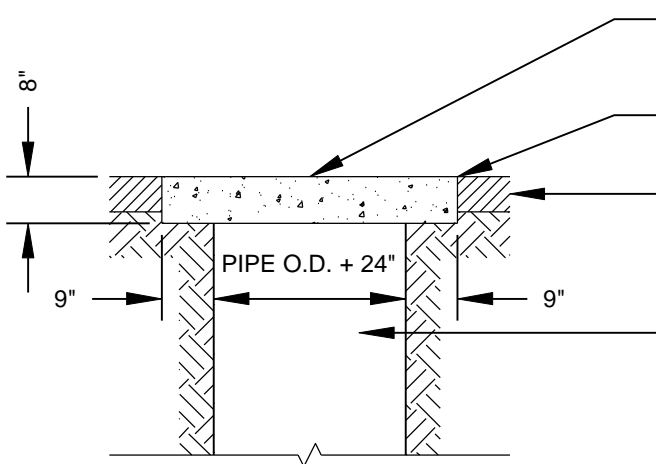
110



NEW GROUND COVER TO MATCH EXISTING GROUND COVER

SELECT EARTH BACKFILL PLACED IN 6" LIFTS AND COMPACTED TO MINIMUM 95 PERCENT OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698. TRENCHES WITHIN GDOT RIGHT-OF-WAY SHALL BE COMPACTED TO 100 PERCENT OF MAXIMUM DRY DENSITY.

UNPAVED AREAS



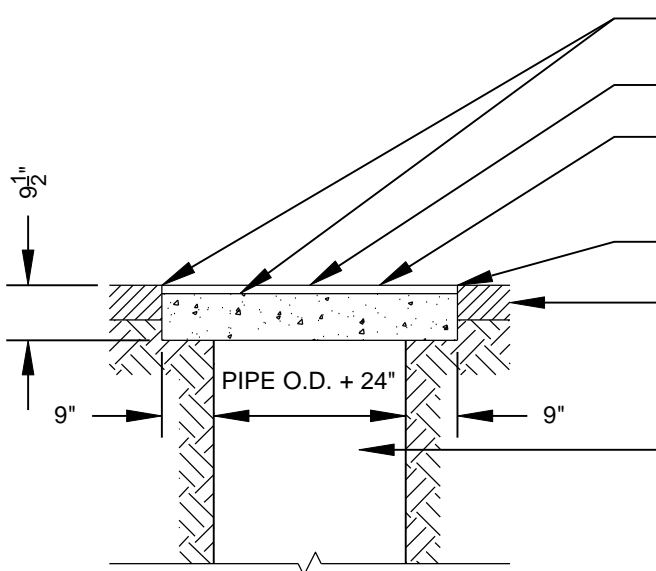
8" CLASS 1 HIGH EARLY STRENGTH CONCRETE CONFORMING TO GDOT STANDARD SPECIFICATION SECTION 430 (3,000 PSI AT 28 DAYS)

SAW CUT EDGES (STRAIGHT LINES)

EXISTING CONCRETE PAVEMENT (THICKNESS VARIES)

SELECT EARTH BACKFILL PLACED IN 6" LIFTS AND COMPACTED TO MINIMUM 95 PERCENT OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698.

CONCRETE PAVEMENT



APPLY TACK COAT TO CONCRETE AND EDGES OF EXISTING ASPHALT

1 1/2" 9.5-mm SUPERPAVE

8" CLASS 1 HIGH EARLY STRENGTH CONCRETE CONFORMING TO GDOT STANDARD SPECIFICATION SECTION 430 (3,000 PSI AT 28 DAYS)

SAW CUT EDGES (STRAIGHT LINES)

EXISTING ASPHALT PAVEMENT (THICKNESS VARIES)

SELECT EARTH BACKFILL PLACED IN 6" LIFTS AND COMPACTED TO MINIMUM 95 PERCENT OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698.

ASPHALT PAVEMENT

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

TRENCH REPAIR

REVISED: 08312015

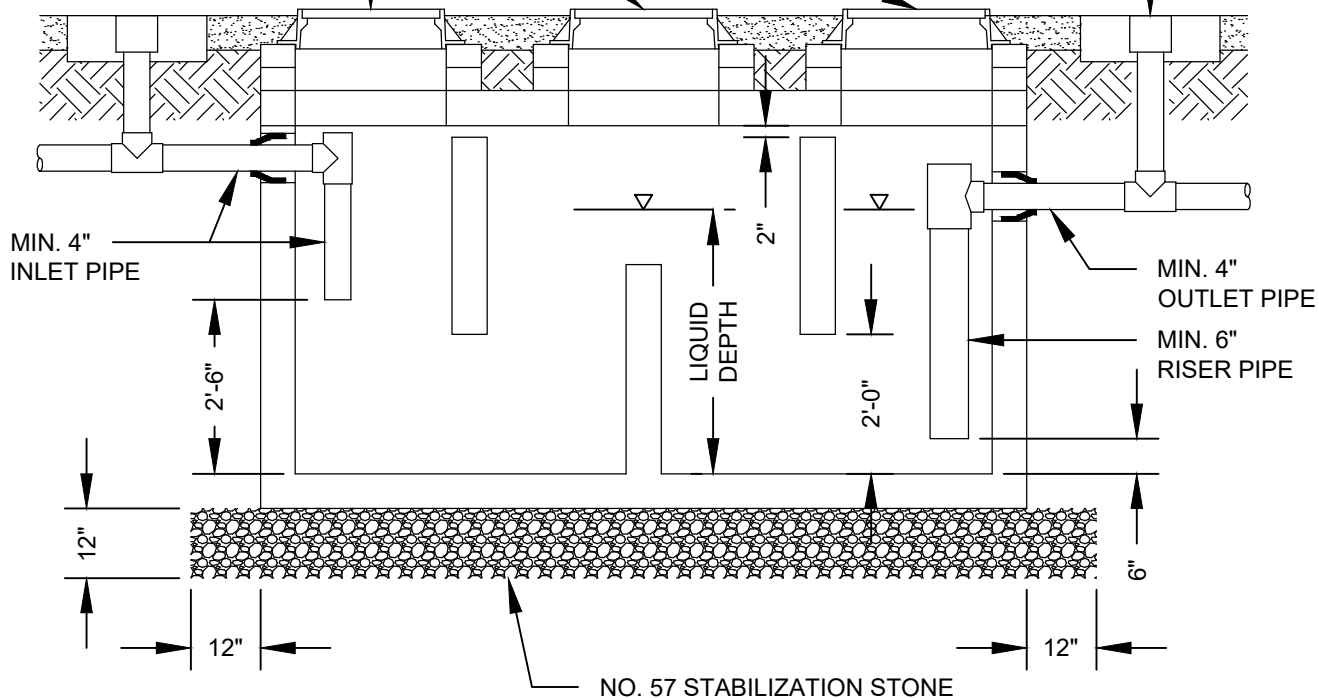
SCALE: N.T.S.

DETAIL NO.

111

24" DIAMETER CAST IRON
MANHOLE FRAME AND
COVER (COVER TO BE
MARKED "GREASE TRAP")

CLEANOUT WITH
24"x24"x8" CONCRETE
PAD (TYP.)



NOTES:

1. DETAIL SHOWS GENERAL SCHEMATIC REQUIREMENTS FOR THE GREASE INTERCEPTOR.
2. CONTRACTOR SHALL SUBMIT PROPOSED GREASE INTERCEPTOR INSTALLATION PLANS AND SPECIFICATIONS TO PCWASA FOR APPROVAL BEFORE ACQUISITION OF INTERCEPTOR.
3. GREASE INTERCEPTOR SHALL HAVE A MINIMUM CAPACITY OF 1,500 GALLONS AND A MAXIMUM CAPACITY OF 3,000 GALLONS. IF REQUIRED CAPACITY IS GREATER THAN 3,000 GALLONS, MULTIPLE GREASE INTERCEPTORS SHALL BE USED.
4. GREASE INTERCEPTOR SHALL BE REINFORCED PRECAST CONCRETE CONSTRUCTION. CONCRETE DESIGN STRENGTH SHALL BE 4,000 PSI @ 28 DAYS.
5. GREASE INTERCEPTOR SHALL BE HS-20 LOAD RATED.
6. ALL PIPE PENETRATIONS SHALL BE SEALED WATERTIGHT.
7. INLET PIPE INVERT SHALL BE SAME ELEVATION AS TOP OF OUTLET PIPE.
8. PROVIDE CLEANOUTS AS SHOWN.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

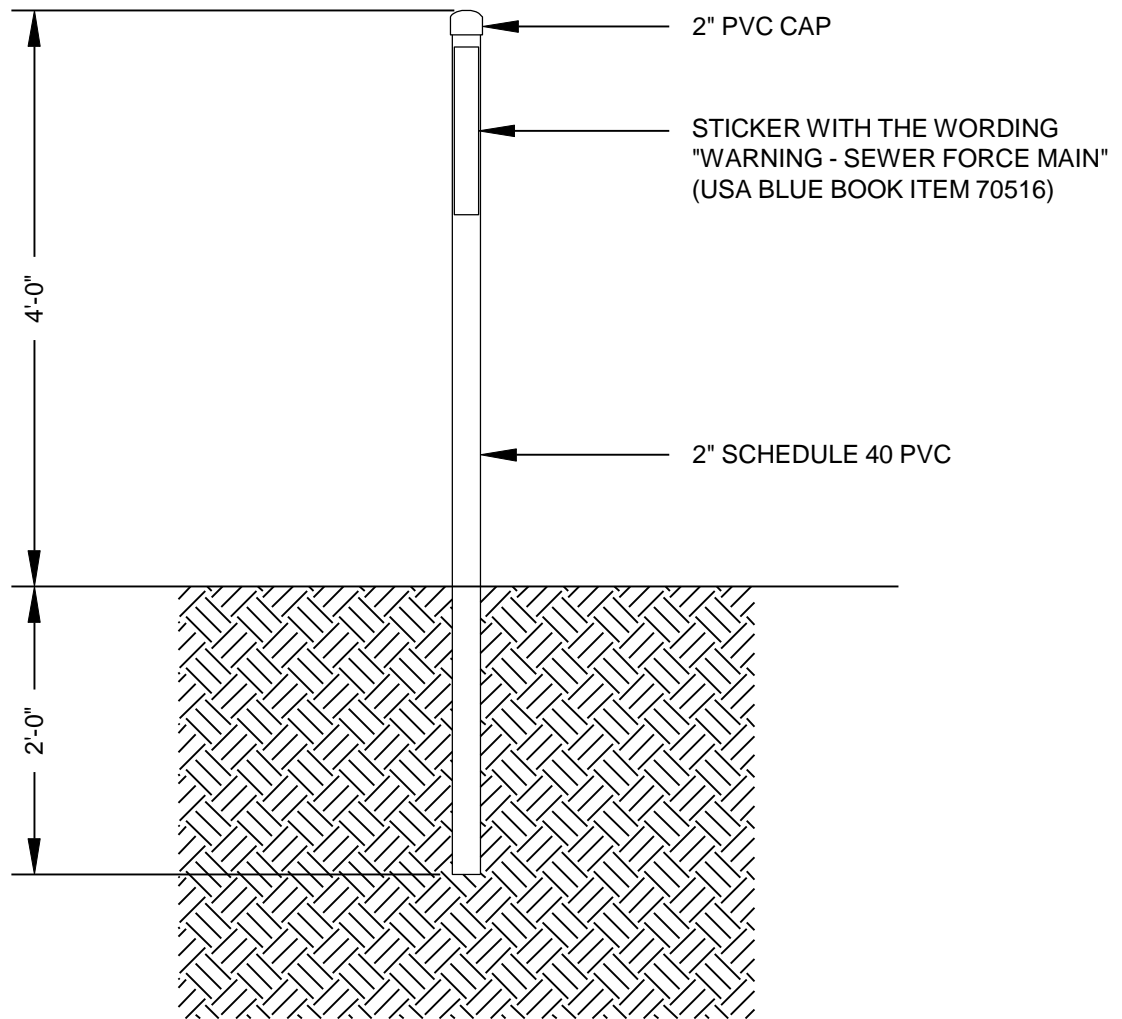
GREASE INTERCEPTOR DETAIL

REVISED: 01/26/2017

SCALE: N.T.S.

DETAIL NO.

112



NOTES:

1. INSTALL MARKER ABOVE FORCE MAIN AT MAXIMUM 250-FOOT INTERVALS.
2. INSTALL MARKER IN ALL LOCATIONS WHERE THE FORCE MAIN CROSSES THE RIGHT-OF-WAY.
3. INSTALL MARKER PLUMB.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

FORCE MAIN MARKER

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

113

30" MANHOLE FRAME
AND VENTED COVER

60" HS-20 LOAD RATED
PRECAST FLAT TOP

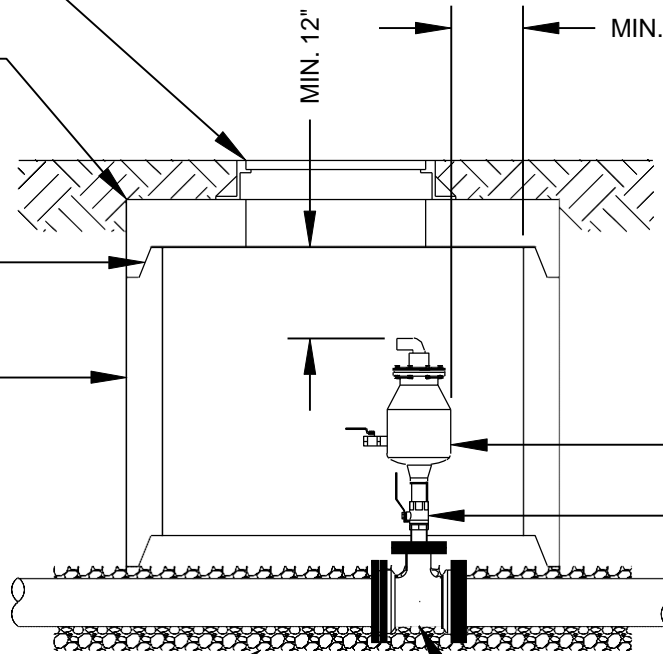
PREFORMED BUTYL
JOINT SEAL

60" PRECAST
MANHOLE SECTION

57 STABILIZATION STONE

MIN. 12"

MIN. 12"



COMBINATION AIRVACUUM VALVE

- (1) MNPT x MNPT TYPE 316 SS NIPPLE
- (1) FNPT x FNPT TYPE 316 SS BALL VALVE
- (1) MNPT x MNPT TYPE 316 SS NIPPLE
- (1) 4" BLIND FLANGE WITH FNPT TAP

FORCE MAIN DIA. x 4" MJ x FLG TEE
WITH RESTRAINED JOINT GLANDS

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

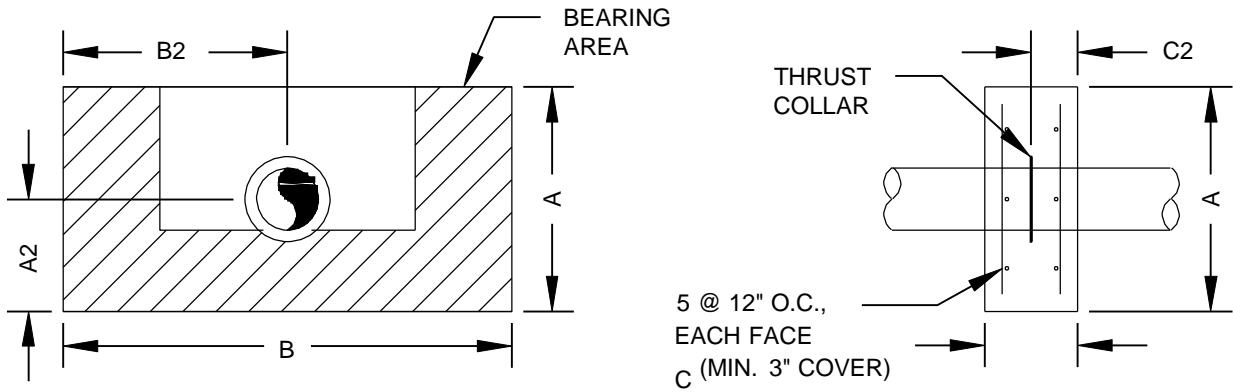
COMBINATION AIR VACUUM VALVE

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

114



PIPE DIA. (IN)	A DIM.	B DIM.	C DIM.	MINIMUM BEARING AREA (FT ²)	TOTAL BLOCK AREA (FT ²)	CONC. VOLUME (YD ³)	THRUST (LBF)
4	1'-6"	3'-0"	1'-6"	2.04	4.50	0.24	4,072
6	2'-0"	4'-0"	1'-6"	4.21	8.00	0.43	8,413
8	2'-5"	4'-10"	1'-6"	7.24	11.68	0.62	14,473
10	2'-11"	5'-10"	1'-6"	10.89	17.01	0.91	21,773
12	3'-5"	6'-10"	2'-0"	15.40	23.35	1.66	30,791
14	3'-10"	7'-8"	2'-0"	20.68	29.39	2.08	41,367
16	4'-4"	8'-8"	2'-0"	26.75	37.56	2.66	53,502

NOTES:

- THRUST COLLAR DIMENSIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA.

WORKING PRESSURE = 150 PSI
 SOIL BEARING CAPACITY = 2,000 PSF
 SAFETY FACTOR = 1.5

THESE ARE THE MINIMUM DESIGN CRITERIA. IF ACTUAL WORKING PRESSURE IS GREATER THAN 150 PSI OR IF ACTUAL SOIL BEARING PRESSURE IS LESS THAN 2,000 PSF, DIMENSIONS SHALL BE RECALCULATED.

- THRUST COLLAR CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
- THRUST COLLAR SHALL BE WELDED ON BY DUCTILE IRON PIPE MANUFACTURER. ALTERNATIVELY, A RESTRAINED JOINT GLAND MAY BE USED.
- THRUST COLLAR BEARING AREA SHALL BEAR AGAINST UNDISTURBED SOIL. BACKFILL THAT IS PLACED AGAINST THRUST COLLAR (NON-BEARING AREAS) SHALL BE COMPACTED TO MINIMUM 95 PERCENT AASHTO T-99-49 PROCTOR CURVE.

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

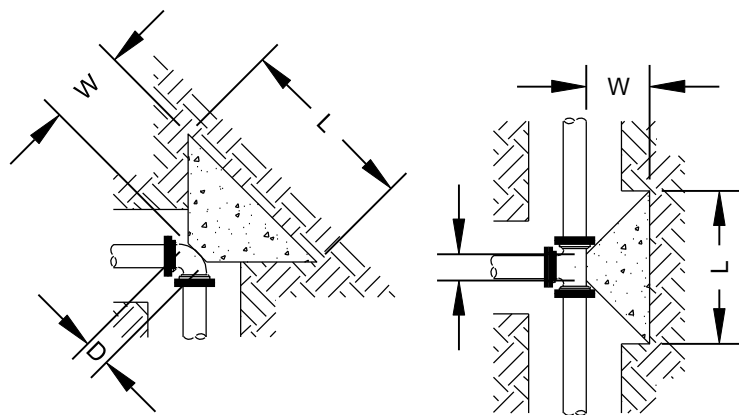
CONCRETE DEADMAN

REVISED: 08312015

SCALE: N.T.S.

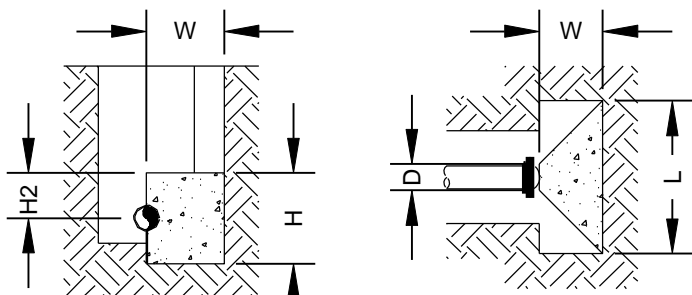
DETAIL NO.

115



BEND PLAN

TEE PLAN



SECTION

DEAD-END PLAN

NOTES:

1. THRUST BLOCK DIMENSIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA.

WORKING PRESSURE = 150 PSI
 SOIL BEARING CAPACITY = 2,000 PSF
 SAFETY FACTOR = 1.5

THESE ARE THE MINIMUM DESIGN CRITERIA.
 IF ACTUAL WORKING PRESSURE IS GREATER THAN 150 PSI OR IF ACTUAL SOIL BEARING CAPACITY IS LESS THAN 2,000 PSF, DIMENSIONS SHALL BE RECALCULATED.

2. THRUST BLOCK CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI.
3. THRUST BLOCK SHALL BEAR AGAINST UNDISTURBED SOIL.
4. A MINIMUM 10 MIL PLASTIC SHEET SHALL BE PLACED BETWEEN CONCRETE AND PIPE.
5. ALL BOLTS SHALL REMAIN ACCESSIBLE. DO NOT COVER WITH CONCRETE.

TEES AND DEAD-ENDS					
PIPE DIA. (IN)	D DIM.	L DIM.	H DIM.	W DIM.	THRUST (LBF)
4	0'-6"	2'-2"	1'-1"	10	4,072
6	0'-8"	3'-0"	1'-6"	1'-2"	8,413
8	0'-10"	3'-10"	1'-11"	1'-6"	14,473
10	1'-0"	4'-8"	2'-4"	1'-10"	21,773
12	1'-2"	5'-8"	2'-10"	2'-3"	30,791
14	1'-4"	6'-6"	3'-3"	2'-7"	41,367
16	1'-6"	7'-4"	3'-8"	2'-11"	53,502
18	1'-8"	8'-4"	4'-2"	3'-4"	67,196
20	1'-10"	9'-2"	4'-7"	3'-8"	82,448
24	2'-2"	11'-0"	5'-6"	4'-5"	117,628

90° BENDS						
PIPE DIA. (IN)	D DIM.	L DIM.	H DIM.	W DIM.	CONC. VOLUME (YD ³)	THRUST (LBF)
4	0'-6"	2'-6"	15	12	0.07	5,758
6	0'-8"	3'-6"	1'-9"	1'-5"	0.19	11,898
8	0'-10"	4'-8"	2'-4"	1'-11"	0.46	20,468
10	1'-0"	5'-8"	2'-10"	2'-4"	0.82	30,792
12	1'-2"	6'-8"	3'-4"	2'-9"	1.33	43,545
14	1'-4"	7'-8"	3'-10"	3'-2"	2.02	58,502
16	1'-6"	8'-10"	4'-5"	3'-8"	3.10	75,663
18	1'-8"	9'-10"	4'-11"	4'-1"	4.28	95,029
20	1'-10"	10'-10"	5'-5"	4'-6"	5.72	116,599
24	2'-2"	13'-0"	6'-6"	5'-5"	9.89	166,352

45° BENDS						
PIPE DIA. (IN)	D DIM.	L DIM.	H DIM.	W DIM.	CONC. VOLUME (YD ³)	THRUST (LBF)
4	0'-6"	1'-10"	11	8	0.03	3,116
		2'-8"	1'-4"	1'-0"	0.08	6,439
6	0'-8"	3'-4"	1'-8"	1'-3"	0.16	11,077
8	0'-10"	3'-4"	1'-8"	1'-3"	0.16	11,077
10	1'-0"	4'-2"	2'-1"	1'-7"	0.32	16,664
12	1'-2"	5'-0"	2'-6"	1'-11"	0.55	23,566
14	1'-4"	5'-8"	2'-10"	2'-2"	0.80	31,661
16	1'-6"	6'-6"	3'-3"	2'-6"	1.20	40,949
18	1'-8"	7'-4"	3'-8"	2'-10"	1.73	51,429
20	1'-10"	8'-0"	4'-0"	3'-1"	2.25	63,103
24	2'-2"	9'-6"	4'-9"	3'-8"	3.76	90,029

22½° BENDS						
PIPE DIA. (IN)	D DIM.	L DIM.	H DIM.	W DIM.	CONC. VOLUME (YD ³)	THRUST (LBF)
4	0'-6"	1'-4"	8	5	0.01	1,589
6	0'-8"	1'-10"	0'-11"	0'-7"	0.02	3,283
8	0'-10"	2'-6"	1'-3"	0'-10"	0.06	5,647
10	1'-0"	3'-0"	1'-6"	1'-0"	0.11	8,495
12	1'-2"	3'-6"	1'-9"	1'-2"	0.18	12,014
14	1'-4"	4'-2"	2'-1"	1'-5"	0.30	16,141
16	1'-6"	4'-8"	2'-4"	1'-7"	0.42	20,875
18	1'-8"	5'-2"	2'-7"	1'-9"	0.57	26,218
20	1'-10"	5'-10"	2'-11"	2'-0"	0.83	32,170
24	2'-2"	6'-10"	3'-5"	2'-4"	1.33	45,896

PEACHTREE CITY WATER & SEWERAGE AUTHORITY STANDARD DETAIL

CONCRETE THRUST BLOCK

REVISED: 08312015

SCALE: N.T.S.

DETAIL NO.

116

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

**Appendix B
Standard Forms**

CONTRIBUTION OF FIXED ASSETS

STATE OF GEORGIA, COUNTY OF FAYETTE

Project Name: _____
Project Location: _____
Developer: _____
Engineer: _____
Contractor: _____

Please complete applicable portions of categories below.

Gravity Sewer Materials

Gravity Sewer Pipe (Not Including Service Laterals)			Manholes		
Length (ft)	Diameter (in)	Material	Diameter (in)	Vertical Length (ft)	# of Manhole Lids
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Materials: DIP = Ductile Iron Pipe, PVC = Polyvinyl Chloride, HDPE = High Density Polyethylene

Total Cost for Gravity Sewer Materials (Labor and Materials): \$ _____

Sanitary Sewer Force Main Materials

Length (ft)	Diameter (in)	Material
_____	_____	_____

Materials: DIP = Ductile Iron Pipe, PVC = Polyvinyl Chloride, HDPE = High Density Polyethylene

Total Cost for Sanitary Sewer Force Main Materials (Labor and Materials): \$ _____

Sanitary Pump Station Materials

Wet Well Diameter (ft)	Wet Well Depth (ft)	# of Pumps	Pump Manufacturer	Generator? (Yes/No)
_____	_____	_____	_____	_____

Total Cost for Sanitary Pump Station Materials (Labor and Materials): \$ _____

Donated Property

Fee Simple Property (acres) _____ Permanent Easement (acres) _____

Total Value of Donated Property: \$ _____

This is to certify that the materials for this project are donated to the **PEACHTREE CITY WATER & SEWERAGE AUTHORITY** as of this date at a declared total cost of \$ _____ (including labor and materials) with a 1-year warranty as to maintenance of said materials.

Dated this _____ day of _____, 20_____

Grantor/Owner Signature

Attest

Printed Name and Title

Notary Public
My Commission Expires: _____
(CORPORATE SEAL)

DEED OF CONVEYANCE AND EASEMENT

STATE OF GEORGIA, COUNTY OF FAYETTE

IN CONSIDERATION OF THE SUM OF ONE DOLLAR AND OTHER CONSIDERATIONS to them paid,

_____ (herein after referred to as "Grantor") do hereby give and convey unto the **PEACHTREE CITY WATER & SEWERAGE AUTHORITY** (herein after referred to as "Authority"), a political subdivision of the State of Georgia, its successors and assigns, a tract of land, which is described as follows:

All that tract of land lying and being in Land Lot(s) _____, District _____ of

Fayette County, Georgia, in a subdivision known as _____ and along the rights-of-way of roads located in said subdivision, a free, permanent and uninterrupted easement, use, liberty and privilege of a right of way for twenty (20) feet in width, in, on, under, and through the property of the undersigned, for the purpose of laying, maintaining and operating a line of sewer pipe or pipes, including all appurtenant structures, as part of the sewerage system of said Authority, and for the consideration aforesaid, undersigned hereby agrees that said Authority, through its agents, may lay such additional lines of sewer pipe or pipes in, on, under and through said property, and the said pipe or pipes may be of such size and may be laid at such depth as may be determined by the Authority or its agents, and the undersigned hereby expressly agrees that said Authority shall have construction and maintenance easement of such minimum working width (not to exceed an additional twenty (20) feet) as is reasonably necessary for the proper installation and maintenance of such sewer line or lines; and the undersigned further agrees that said Authority, its successors and assigns, shall have the right to operate and maintain said line or lines in and through said property and right of way granted, together with the right of ingress and egress to and from the same to the extent necessary to install, inspect, repair, keep up, replace, maintain and operate said line.

This Deed is also made for the purpose of conveying all of Grantor's right, title and interest in and to any sewer lines or appurtenances thereto located on the above described property. The Grantor and Grantee agree that the fair market value of the property and sewer lines and appurtenances thereto being conveyed by this Deed is \$_____.

TO HAVE AND TO HOLD said land and appurtenances unto said **PEACHTREE CITY WATER & SEWERAGE AUTHORITY**, its successors, executors, administrators, and assigns, in fee simple.

Grantors warrant the title to said land against lawful claims of all persons.

IN WITNESS WHEREOF, Grantor(s) have hereunto set its hand(s) and affixed its seal this _____ day of

_____, 20_____.

Signed, sealed and delivered _____ (L.S.)
in the presence of:

_____ (L.S.)

Unofficial Witness _____ (L.S.)

Notary Public _____ (L.S.)
My Commission Expires: _____ (L.S.)

SAMPLE LETTER OF CREDIT

BANK LETTERHEAD

(Insert Date of Acceptance by PCWASA Here)

Peachtree City Water & Sewerage Authority
1127 Highway 74 South
Peachtree City, GA 30269

Re: Letter of Credit
(Insert Name of Developer/Contractor Here)
(Insert Name of Project/Development Here)
(Insert Project Number Here)

To Whom It May Concern:

This is to advise that **(Insert Name of Bank Here)**, as Surety, is holding at the request of **(Insert Name of Developer/Contractor Here)**, as Principal, the amount of \$ _____ which is equal to 10-percent of the cost of labor and material for sanitary sewer lines and appurtenances installed in the above referenced project. The purpose of this Letter of Credit is to guarantee payment of any labor and/or material incurred by the Peachtree City Water and Sewerage Authority (PCWASA) in repairing or maintaining sanitary sewer infrastructure that has been constructed as part of the above referenced project. This Letter of Credit expires 12 months from the date hereon. Surety will notify PCWASA in writing at least 30 days prior to the expiration date of this Letter of Credit.

PCWASA may draw upon this Letter of Credit to the amount set forth above upon presentment at the bank of the following:

1. A bill for the labor and/or materials incurred by PCWASA for the repair or maintenance of said facilities;
2. A draft or drafts at sight on this bank for the amount of the bill;
3. A copy of this Letter of Credit.

This Letter of Credit shall be non-assignable and non-transferable and the proceeds shall be non-assignable and non-transferable.

This Letter of Credit shall be governed by the laws of the State of Georgia. We hereby agree with you that the drafts drawn under and in compliance with this Letter of Credit shall be duly honored upon due presentment to this bank.

Sincerely,
BANK NAME

Signature of Issuer

Typed Name of Issuer

Title of Issuer

ATTEST: _____
Signature

Typed Name

Corporate Secretary

Title

CORPORATE CONTRACTOR'S AFFIDAVIT

STATE OF GEORGIA, COUNTY OF FAYETTE

PERSONALLY APPEARED before the undersigned authority

_____, _____ of
(Name of Individual) (Corporate Office Held)

(Name of Corporation)

who, being first duly sworn, deposed on oath, says as follows:

1. That the contractor has recently completed improvements on the property of

(Owner of Property upon Which Improvements Were Made)

located in Land Lot(s) _____, District _____ of Fayette County, Georgia, under contract of said property.

2. The contractor has been paid the full price of said improvements.

3. That all bills for labor and materials have been paid in full in the amount of \$ _____

4. That no person has any claim or lein by reason of said improvements except as follows:

_____ % Retainage withheld for Construction Warranty Period of One Year, in the amount of \$ _____

5. That this affidavit is made to induce the Peachtree City Water & Sewerage Authority to accept improvements constructed by the Contractor.

IN WITNESS WHEREOF, Affiant has hereunto set his/her hand and seal this _____ day of

_____, 20 ____.

(L.S.)
Contractor's Signature

Signed, sealed and delivered in the presence of:

Notary Public

My Commission Expires: _____

CORPORATE OWNER'S AFFIDAVIT

STATE OF GEORGIA, COUNTY OF FAYETTE

PERSONALLY APPEARED before the undersigned authority

_____, _____ of
(Name of Individual) (Corporate Office Held)

(Name of Corporation)

who, being first duly sworn, deposed on oath, says as follows:

1. That the above named corporation is the owner of a certain tract of land located in Fayette County, Georgia known and designated as:

Land Lot(s) _____, District _____ of Fayette County, Georgia, in a subdivision known as

(Name of Subdivision, if Applicable)

herein after called "Project."

2. The said Corporation has recently completed the following improvements: SEWER
3. The Affiant has full and official knowledge of all debts and obligations incurred for labor and materials which have entered into or become a part of said Project.
4. The Affiant further says all debts and obligations incurred for the labor and materials for the said Project have been fully and complexly paid and discharged in good and lawful money of the United States of America.
5. That Affiant further says all Georgia Sales and Use Tax (if applicable) has been paid fully and completely in good and lawful money of the United States of America.
6. The Affiant further says that there are no suits, claims, or liens, prospective or otherwise, in consequence of the construction of said Project.
7. The Affiant further says that the Contractor has been paid in full in good and lawful money of the United States of America for all sums due Contractor by Owner.

IN WITNESS WHEREOF, Affiant has hereunto set his/her hand and seal this _____ day of

_____, 20_____.

(L.S.)

Owner's Signature

Signed, sealed and delivered in the presence of:

Notary Public

My Commission Expires: _____

INDIVIDUAL CONTRACTOR'S AFFIDAVIT

STATE OF GEORGIA, COUNTY OF FAYETTE

PERSONALLY APPEARED before the undersigned authority

(Name of Contractor)

who, being first duly sworn, deposed on oath, says as follows:

1. That the contractor has recently completed improvements on the property of

(Owner of Property upon Which Improvements Were Made)

located in Land Lot(s) _____, District _____ of Fayette County, Georgia, under contract of said property.

2. The contractor has been paid the full price of said improvements.

3. That all bills for labor and materials have been paid in full in the amount of \$ _____

4. That no person has any claim or lein by reason of said improvements except as follows:

(_____) NONE AS TO THE SEWER SYSTEM

5. That this affidavit is made to induce the Peachtree City Water & Sewerage Authority to accept improvements constructed by the Contractor.

IN WITNESS WHEREOF, Affiant has hereunto set his/her hand and seal this _____ day of

_____, 20_____.

(L.S.)
Contractor's Signature

Signed, sealed and delivered in the presence of:

Notary Public

My Commission Expires: _____

INDIVIDUAL OWNER'S AFFIDAVIT

STATE OF GEORGIA, COUNTY OF FAYETTE

PERSONALLY APPEARED before the undersigned authority

(Name of Owner)

who, being first duly sworn, deposed on oath, says as follows:

1. That the Affiant is the owner of a certain tract of land located in Fayette County, Georgia known and designated as:

Land Lot(s) _____, District _____ of Fayette County, Georgia, in a subdivision known as

(Name of Subdivision, if Applicable)

herein after called "Project."

2. The Affiant has recently completed the following improvements: SEWER
3. The Affiant has full and official knowledge of all debts and obligations incurred for labor and materials which have entered into or become a part of said Project.
4. The Affiant further says all debts and obligations incurred for the labor and materials for the said Project have been fully and complexly paid and discharged in good and lawful money of the United States of America.
5. That Affiant further says all Georgia Sales and Use Tax (if applicable) has been paid fully and completely in good and lawful money of the United States of America.
6. The Affiant further says that there are no suits, claims, or liens, prospective or otherwise, in consequence of the construction of said Project.
7. The Affiant further says that the Contractor has been paid in full in good and lawful money of the United States of America for all sums due Contractor by Owner.

IN WITNESS WHEREOF, Affiant has hereunto set his/her hand and seal this _____ day of

_____, 20____.

(L.S.)
Owner's Signature

Signed, sealed and delivered in the presence of:

Notary Public

My Commission Expires: _____

**Peachtree City Water and Sewerage Authority
Standards and Specifications**

**Appendix C
Supervisory Data Acquisition and Control (SCADA) Specifications**

Peachtree City Water and Sewerage Authority Supervisory Data Acquisition and Control (SCADA) Specification

1.1 SCADA System General Specifications

The Contractor shall provide an RTU with radio and antenna to communicate with an existing SCADA system to monitor and control the Pump Station from the Peachtree City Water and Sewerage Authority Office. The RTU and Radio system shall be compatible in all aspects of radio frequency and functionality to the existing SCADA system and shall be manufactured by Universal Controls, Inc. of Cumming, Georgia or approved equal. The Contractor shall provide and install all conduit and wiring, for power and controls, between the Pump Control panel and the RTU. The RTU shall be mounted on the antenna pole near the Pump Station. The contractor shall provide and install a wood creosote treated antenna pole, class 3, up to 50 feet in height above the ground as required for the radio antenna. Actual pole height and location shall be determined upon the completion of a radio path survey provided by the RTU supplier after the start of construction. The RTU supplier shall make an application to the FCC to modify the existing Radio license of Peachtree City Water Sewerage Authority. The RTU supplier shall mount the antenna on the pole for proper height and orientation and modify the computer graphics of the existing SCADA system to include the new Pump Station/RTU of this Contract.

1.2 Required Output Parameters

The SCADA system shall be capable of monitoring, storing and communicating the following conditions of the pump station to the Base Station:

- A. Pump # and current run status (On/Off)
- B. High Water Level Alarm
- C. Low Water Level Alarm
- D. Power / Phase Failure Alarm
- E. Backup Power (Generator) Status – On / Off
- F. Communication Failure (with Base Station)

1.3 Remote Terminal Unit (RTU)

1.3.1 Overview

The remote controller shall be a fully integrated microprocessor based unit specifically designed for unattended operation in unconditioned environments having wide temperature ranges, wide humidity ranges, high electrical noise, high audible noise and high vibration. It shall include optically isolated analog, digital and communications interfaces to interface directly with all standard transducers, actuators, and communications equipment without the need for intervening conditioning devices. The unit shall require no cooling fans and shall be resistant to dust, water and insects.

1.3.2 Unit Setup

The RTU shall not require programming in the usual sense. Instead, the unit shall be configured using a manufacturer supplied Windows compatible program wherein the programmer designs his control strategies, displays, telemetry formats, etc. by interconnecting preprogrammed modules by pointing, clicking and dragging on the Windows compatible program. He then sends the configuration file to the RTU, where it begins running automatically.

Peachtree City Water and Sewerage Authority

Supervisory Data Acquisition and Control (SCADA) Specification

1.3.3 RTU Electronic Characteristics

Units shall be designed to operate reliably in high electrical noise, wide temperature range environments without external cooling or noise suppression equipment. All components and subassemblies shall be new and of recent manufacture. The design shall be conservative in that all components shall operate at no more than 50% of rated thermal dissipation in worst case conditions. There shall be 30% timing margin in all critical timing paths.

1.3.4 Logic Family

Unit electronics shall be constructed entirely using the high noise immunity, lower power CMOS logic family. No NMOS, TTL or bipolar components shall be used.

1.3.5 Microprocessor

The microprocessor shall be a 32 bit pipelined design that shall employ a 24 bit address bus and 16 bit external data bus. Clock rate shall be 16 MHz.

1.3.6 Watchdog Timer

A hardware watchdog timer shall be provided that shall require correct operation of both the operating application program and background interrupt software. The timer shall timeout and restart the program within 0.5 seconds of program failure.

1.3.7 Brownout Detector

A hardware brownout detector shall detect sagging power or impending power loss and halt the processor in advance of loss of regulated power to assure orderly shutdown and restart in conditions of fluctuating primary power. It shall employ 10% hysteresis to eliminate the possibility of multiple restarts on power application.

1.3.8 Auto-Booting

Upon power application or upon restarting after a watchdog timer timeout, the unit shall restart the process that was operating prior to the outage. There shall be no loss of memory, loss of temporary storage contents, or loss of clock/calendar function due to power outages of up to 3 years.

1.4 I/O Interfaces

1.4.1 General Optical Isolation and Surge Protection

Each analog input, analog output and digital input shall be equipped with minimum 2500 V optical isolation to isolate the channel from the rest of RTU. Each analog or digital input shall be equipped with security to protect the input from surges in accordance with IEEE surge withstand guidelines.

Additionally, analog inputs shall employ noise filters, current limiting resistors and zener clamps per channel to limit voltage excursion to within the A/D converter's operating range. Digital outputs shall employ relays with minimum 2500 V coil to contact isolation.

1.4.2 Analog Inputs

1.4.2.1 Analog Input Board 12 Bit Resolution

Each board shall provide 8 analog inputs for measuring external analog values from standard 4-20 ma or 0-5 VDC transducers. Inputs shall be optically isolated from the computer bus. Analog to digital conversion shall employ 12 bit successive approximation at a sample rate of 10 samplers per second. Inputs shall be individually jumper selectable as either 4-20 ma current loop or 0 to 5 VDC voltage

Peachtree City Water and Sewerage Authority

Supervisory Data Acquisition and Control (SCADA) Specification

compatible. Input impedance shall be nominal 100 ohms for current loop channels, and 10 megohms for voltage channels. Power for electronics on the field side of the optical interface shall be provided by the RTU using transformer isolation. Power shall not be taken from the analog signal. Linearity, zero and full-scale error shall each be less than +/- 0.5 LSB over the range of -40 to +85 degrees C. Reference temperature drift shall be less than 0.1 mv/deg.C. Reference aging drift shall be less than 0.02 my. Over or under voltage inputs shall not affect other input measurement accuracy. A/D conversion techniques such as integrating types that allow out of range inputs to effect other channels shall not be acceptable. Background software shall sample the analog inputs modules shall apply low pass filtering and engineering units conversion as specified by the configuration file, and then transfer the samples to the floating point data base for use by other modules. Each board shall hold factory calibration for both 4-20 ma and 0-5 V in onboard EPROM so that field calibration will be unnecessary.

1.4.3 Digital Inputs

Each digital input board shall provide 8 optically isolated channels. They shall be 120 VAC compatible; or dry contact compatible using an onboard isolated low power supply. Each digital input channel shall include an LED to annunciate the channel state and reverse polarity blocking diode along with current limiting resistor to protect the channel from miss-wiring and transients. Average KED current of 3 ma shall result in full LED illumination. How each channel is used depends upon the specific software module used to interface to them as defined below.

1.4.3.1 Standard AC Digital Inputs

Inputs shall be sampled 250 times per second. If the last four samples are zero, the input shall be regarded as off. Otherwise the input shall be regarded as on.

1.4.3.2 Standard DC Digital Inputs

Whenever the digital input is sampled by a DC digital input module, the returned state shall be regarded as the state of the input. Since digital inputs are optically isolated, and isolated 24 V DC supply shall be used to energize dry contacts for this type of module.

1.4.4 Digital Outputs

Each digital output board shall provide 8 normally open electromechanical relay output channels. They shall be 120 VAC/24 VDC compatible with 3-amp UL/CSA contact rating into a resistive load. Mechanical life shall exceed 10 million operations. Each digital output channel shall include LED to annunciate the channel state and a back EME diode. Relays shall require no more than 35 ma to pull on. How each channel is used depends upon the specific software module used to interface to them as defined below. All relays shall remain off during the boot up process.

1.5 Standard On/Off Control

When a relay output module calls for the relay, the relay shall energize; when the module calls for it to turn off, it shall turn off immediately.

1.6 Serial Ports

It shall be possible to install serial port cards into any slot in the base card cage for a total of 8 cards with serial ports in addition to the serial port on the CPU card. Serial ports shall be independently configurable as to baud rate, word length, stop bits, parity, buffer length, communications protocol, etc., using the standard serial port settings. Configuration shall be by communications setup module in the configuration file. Communications protocols supported shall be RUG6, RUG9, ASCII, or MODBUS RTU protocol,

Peachtree City Water and Sewerage Authority

Supervisory Data Acquisition and Control (SCADA) Specification

minimum. Loading of any software or configuration files shall use the CRC secured RUG9 protocol and shall be possible on any serial port. Loading of the RUG9 operation system shall only be possible on the CPU serial port.

1.6.1 CPU RS232 Port

An RS232 port shall be provided on the CPU board for local terminal/printer control, program loading, operation system loading, logged data dumping, interfacing to a local computer, or for general communications with local serial devices. A standard DB9 connector shall be provided enabling the RS232 port to be connected to an IBM PC using a standard DB9 cable.

1.6.2 Modem/RS232 Port

A serial port board shall be provided which shall be selectable under software control as RS232 or modem; and, when selected as modern, shall be selectable by jumper as 2-wire modem, or 4-wire modem. It shall be used for communicating with remotely located computers or other RTUs. The RS232 port shall be compatible with spread spectrum radios, radios with integral modems, and with external high baud rate phone line modems. The integral modem shall support 300/1200 baud using Bell 103/212 standards for use over phone lines or radio. Audio interfaces shall be transformer isolated with 600-ohm line impedance. An integral audio amplifier with a 10 to 1 potentiometer adjustment range shall be provided on the transmitter channel to accommodate highly attenuated lines. The 2-wire circuit shall have a touch-tone generator, on/off hook relay, and optically isolated ring detector. A radio transmitter key circuit an isolation relay shall also be provided. An LED shall indicate transmitter keying and on/off hook status. Connection to the modern shall be via removable screw terminals for the leased line and radio interfaces, and by modular oxide varistor (MOV) and back to back zener diode lightning protection between tip and ring. The MOV shall be rated for 1200 amps surge current.

1.7 Printer Port

A Centronics compatible parallel printer port shall be provided for interfacing to a local printer. The unit shall be capable of reporting alarms, analog values, engineering units, totalizations, averages and other data along with time tag information in a convenient, understandable English language format. Provisions shall be made for detecting printer on line/off line status, power fail, and out of paper conditions. The printer port shall employ a standard DB25 connector enabling connection to a Centronics compatible printer using a standard IBM PC printer cable.

1.8 Power Interface

The unit shall operate from 12 VAC or 15 VDC. Input voltage tolerance shall be +/- 20%. An internal fuse shall protect the unit from over-current. Unit current draw shall be less than 150 ma with all output relays off and loop supplies off. Current consumption in the SLEEP mode shall be less than 2 ma. An integral power failure and brownout detector shall be provided. Diode isolation and fuse shall be provided to protect against external battery reverse connection.

1.9 I/O Channel Expandability

Each I/O type shall be expandable to at least the following in a single card cage. Up to 8 card cages shall be connectable to constitute a single RTU.

Channel Type	Channel/Cage	Channel/RTU
Digital Inputs	64 Channels	512 Channels
Digital Outputs	64 Channels	512 Channels

**Peachtree City Water and Sewerage Authority
Supervisory Data Acquisition and Control (SCADA) Specification**

Channel Type	Channel/Cage	Channel/RTU
Analog Inputs	64 Channels	512 Channels
Analog Outputs	32 Channels	256 Channels

1.10 I/O Connections

All I/O connections shall employ individual screw type terminals using the rising cage clamp design capable of accepting 14 AWG wire. The terminals shall be removable in groups of 3 to 16 from PC board headers so that the unit can be changed out without removing field wires individually.

1.11 Onboard Diagnostics

The Diagnostics/Loop supply/Charger board shall measure bus voltage, battery voltage and unit temperature with 12 bit resolution. Measurements shall be factory calibrated, requiring no field calibration for accurate measurements. Calibration shall be retained on EPROM on the board and read at boot-up. The bus voltage measurement shall enable the unit to detect AC power failure. The battery voltage measurement shall enable the unit to sense battery discharge before battery voltage falls below the brownout shutdown voltage.

1.12 RTU Software

1.12.1 Security Software

Software shall be provided for verifying the integrity of the operation system and user configuration file on power application and immediately following file loading. Failure of the code to pass its check shall cause the unit to suspend operation of that software.

1.12.2 Scanning Software

All I/O scanning shall be done by operation system software without need for programmer attention. Keyboard and serial port scanning shall use interrupts for fast response and to reduce scanning overhead. Keyboard multi-digit user entries shall be captured by background software without effecting the running program. Each entry shall be entered into a setpoint register immediately after the user hits the [ENTER] key at which time the new setpoint entry will take effect.

1.13 Port Buffering

Each serial port and printer port shall have separate receive and transmit buffers of user specified length. Interrupt driven background software shall accomplish buffer filling and emptying using ring buffer structure to minimize to possibility of missing data. A continuous data rate of 9600 baud shall be supported. The speech board shall buffer 16 bytes of speech commands.

1.14 Serial Port Parameter Setting

Serial port and printer port parameter settings shall be set by a port setup module per port. The following parameters shall be defined in the setup module:

- A. Baud rate
- B. Word length
- C. Stop bits

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- D. Parity
- E. Tone use
- F. UART connection
- G. Address
- H. Mode
- I. Tx delay
- J. Trigger to install
- K. Rings to answer
- L. Off hook max seconds

1.15 CRC Error Detection

Background software shall accommodate message reception and transmission using a subset of the DDCMP protocol employing CRC error checking. Each message shall consist of a fixed length header portion and an optional variable length data section. Each section shall have its own 16 bit CRC error check. Background software shall generate CRC codes for outgoing messages, and shall check CRC codes for received messages. Any received message having invalid CRC codes shall be discarded.

1.16 Communication with Other RTU's

Upon reception of a message with correct unit address and correct CRC codes, background software shall take the action specified in the message and generate the proper response. This action shall be transparent to the running program, except that the message reception and message type shall be made available to the program in the form of triggers. Using built in message formats, it shall be possible to transfer analog measurements, setpoints, statuses, commands, totalizations, clock settings, etc. between a central computer and any or all remote units, and between remote units. It shall be possible for messages contain a mix of 16 bit integers, 32 bit integers, statuses, and 32 bit floating point numbers. It shall also be possible to load a configuration file from a central computer to a remote unit. In addition to receiving messages having a unit's address, it shall be possible for a unit to capture messages from one unit to another, both of which have a different address than that of the receiving unit. In this case, no reply will be generated.

1.17 Peer-to-Peer Communication

It shall be possible for the unit to issue all commands supported by its formats except for memory loading and program run/stop commands by specifying destination unit address and message type. Background software shall take care of generating the message, accepting the response, and transferring data between the port buffers and the pre-assigned databases. Background software shall make message transfer status and result available to the program for use in accumulating statistics in link performance, and for notifying the requested data has been received. Using these messages it shall be possible to transfer analog values and statuses efficiently and securely between remote units.

1.18 Store and Forward Operation

The system shall support message store and forward operation so that stations out of range or otherwise out of communications visibility shall be able to communicate using intermediary RTU's. The specific

Peachtree City Water and Sewerage Authority

Supervisory Data Acquisition and Control (SCADA) Specification

path each forwarded message is to take shall be specified at time of message initiation by the initiating station. The path shall be contained in the message so that any receiving station can determine whether it is to forward the message, and to which station it is to forward the message, based entirely upon the contents of the message. In this manner, the initiating station shall be capable of trying an alternate path to accommodate failed intermediary stations. The unit shall be capable of forwarding through a path of as many as 3 intermediary stations, and of retrieving a reply through the identical reverse path.

1.19 Unit Address Range

Each port shall have a one-byte address kept in flash memory.

1.20 Preprogrammed Modules

Instead of programming in the usual sense, the RTU shall be configured using, as a minimum, the following modules by connecting the outputs of certain modules, contained in the databases, to the inputs of other module(s).

1.20.1 I/O Modules

AI, AO, DI, DO, alarm out, pulse in, pulse out, pulse duration I/O, filtering

1.20.2 Control Modules

Alarm gen, alarm mismatch, deadband, PID, AND/OR/EOR, sequencer, trigger on sec/min/hour/day of week/month, string switch, trigger on boot, trigger on event, trigger on key, trigger on receive, ladder logic.

1.20.3 Statistics Modules

Totalize, average, min, max, log data, log list, trend setup

1.20.4 Communication Modules

Protocol select, poll setup, receive/transmit array setup, store & forward setup, log array dump

1.21 Ladder Logic

The RTU shall enable the programmer to use ladder logic to cover any control strategies not covered by preprogrammed modules. Each rung shall have a minimum of 7 input contacts and a single coil output. The programmer shall be able to refer to contacts and coils by user defined names.

1.22 Event Timing

Events shall be timed by either the real-time clock with one second resolution, or by individual countdown registers that are decremented each 1/10 second.

1.23 Sleep Timing

A timer shall run during SLEEP mode to accomplish a timed wakeup. The timer shall be initialized by the user's program and have a range of 1 to 32,768 seconds. To accommodate software errors, the timer shall not allow the unit to sleep longer than 32,768 seconds.

Peachtree City Water and Sewerage Authority

Supervisory Data Acquisition and Control (SCADA) Specification

1.24 Fault Trapping

The unit shall test for potential math errors as it executes the modules and return the most reasonable result (MAXVALUE OR MINVALUE) instead of allowing run time errors. If any run time error occurs, the unit shall halt operation and allow the watchdog timer to reboot the system.

1.25 PERFORMANCE

1.25.1 I/O Scanning

Background software shall scan analog and digital inputs at the rates specified. For a nominal control application, the RTU shall accomplish all its scanning tasks in less than 0.2 second.

1.25.2 Communication Response Time

The unit shall issue a response to a CRC secured message in less than 60 milliseconds. Provisions shall be made whereby the delay from transmission tone-on to actual output of data is adjustable over the range of 10 to 3,277 milliseconds in increments of 10 milliseconds to accommodate transmitter turn-on delay, receiver acquisition time and receiving modem acquisition time. The specification of the tone turn-on delay shall be specified in the communications definition module held in flash memory. Assuming a transfer of digital inputs, the following response times shall be met, including time to request a transfer and receive and decode the transfer:

300 baud	9 transfers in 10 seconds
9,600 baud	90 transfers in 10 seconds

1.25.3 Communication Security

The CRFC error detection technique shall provide a probability of acceptance of an erroneous message of $1.0 \text{ E-}14$. It shall also reject all burst errors of 16 bits or less.

1.25.4 Temperature Range

The unit shall operate over an ambient temperature range of -40 to +85 degrees Centigrade. The display shall operate over a range of -20 to +65 degrees Centigrade and shall survive a range of -40 to +70 degrees Centigrade. No cooling fans or air circulation shall be required for normal unit operation over the temperature range specified.

1.26 Enclosure

The RTU shall be housed in a NEMA 4X stainless steel enclosure as manufactured by Hoffman or equal.

1.27 Radio

The radio transceiver and antenna for the RTU shall meet the frequency and RF power output requirements as determined by the FCC license for the Peachtree City Water and Sewerage Authority's existing SCADA system.

1.28 Battery Charger

A fused 160 ma. battery charger shall provide battery charging when AC power is present, and automatically switched to battery power when AC power fails. Batteries shall be 5-year industrial grade sealed rechargeable lead-acid batteries. The batteries shall be operable in any position. The batteries

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shall be 12 VDC with a continuous current rating capable of providing power to the RTU for up to 60 minutes with RTU temperatures of 0 degrees to 60 degrees C.